



ULTRA LOW FREEZER
ULT
200-470-730
Manual Book



AMBIENT TEMPERATURE ≤ 20

GENERAL INFORMATION

Please read the manual book carefully and keep the book for forward before using your device.

If there can be any defect contact with the shipping company to the report damage. According to ICC regulations, the responsibility belongs to the consumer.

When operating the device;

1. Follow the warning labels
 2. Do not remove the labels
 3. Do not operate the damaged device
 4. Do not operate the device with a damaged cable system.
 5. Do not move the device while the device operating.
-
- * In case of any problem please contact with EMSAŞ A.Ş technical service.
 - * Read the manual book carefully before using the device, this ensures you to get high efficiency.
 - * The EMSAŞ A.Ş has the right of changing and developing the device structure.
 - * Please keep the product package until be sure the device is full, complete, and correct.
 - * The warranty is valid until the precautions described in this manual are followed.

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WARRANTY CONDITIONS

1. The warranty period starts from the delivery date of the goods and is two years.
2. The entire product, including all parts, is under our company's warranty.
3. In case of malfunction of the product within the warranty period, the period of repair is added to the warranty period. The repair period of the goods is maximum of thirty working days. This period starts from the date of notification of the goods to the service station. In case there is no service station, respectively; it starts from the date of notification to one of the seller, dealer, agency, representative, importer or manufacturer of the goods. If the defect of the industrial goods cannot be fixed within 15 working days, the manufacturer or the importer; it has to allocate another industrial good with similar characteristics to the use of the consumer until the repair of the good is completed.
4. If the product fails during the warranty period due to material and workmanship or assembly errors, it will be repaired without any charge under any other name, such as labor cost, replacement part price, or any other name.
5. Despite the consumer's use of the right to repair, the goods;
 - The fact that the same fault is repeated more than twice within a year from the date of delivery to the consumer, or that different faults occur more than four times, or that the sum of different faults is more than six within the specified warranty period, and that these faults perpetuate the inability to benefit from the goods,
 - Exceeding the maximum time required for repair,
 - In cases where it is determined that the repair of the fault is not possible with the report to be issued by the company's service station, if the service station is not available, respectively, one of the dealers, agents, representatives, importers, or manufacturers, the consumer may request a free replacement of the goods, a refund or a price reduction at the rate of the defect.
6. Defects arising from the use of the product contrary to the terms in the user manual are not covered by the warranty.
7. For problems that may arise regarding the warranty certificate, the Ministry of Industry and Trade, General Directorate of Protection of Consumer and Competition can be applied.

CUSTOMER MATTERS REGARDING THE WARRANTY

Issues that our customers should pay attention to regarding the warranty

1. Malfunctions arising from the use of the device other than its normal use,
2. Defects arising from exposure to substances with physical or chemical effects,
3. Damages and malfunctions that occur in case of non-compliance with the points in the user manual,

4. Damages due to lower excess voltage faulty installation or using a voltage different from the voltage written on the label of the device,
5. Damages that will occur during loading, unloading, and transportation under the responsibility of the customer,
6. The device has been disassembled for various reasons or its functions have been changed by people other than service officials,
7. Malfunctions and damages that may occur due to fire and lightning,
8. Responsibility for the completion of the warranty certificate and the delivery to the consumer belongs to the seller, dealer, agency, or representative office from which the consumer purchased the goods,
9. This warranty is void if the warranty document has been tampered with, the original serial number on the product has been removed or tampered with.

THIS MANUAL MUST BE READ CAREFULLY BEFORE OPERATING THE DEVICE.

WARRANTY CONDITIONS APPLY IF THE INSTRUCTIONS AND WARNINGS DESCRIBED IN THE DEVICE'S USER MANUAL ARE COMPLIED.

***THE INFORMATION CONTAINED IN THIS MANUAL BELONGS TO EMSAS.
THE INFORMATION IN THE MANUAL CANNOT BE REDUCED OR DISTRIBUTED WITHOUT
EMSAS' PERMISSION.***

In the above-mentioned cases, troubleshooting is done for a fee.

The product's installation and transportation to the place of use are not included in the product price.

* The useful life of the goods announced by the Ministry of Industry and Trade in accordance with the Law on the Protection of the Consumer No. 4077 is 10 years.

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*** PLEASE READ THIS MANUAL BOOK FIRST!!!**

Dear customer, we want to offer you high performance by our devices whom produce in our modern facilities.

Therefore, please read carefully the all manual book before using the device and keep the book as long as using your device.

THIS MANUAL BOOK;

- Helps you use your device quickly and safely
- Read the manual book before installing and using the device
- Especially apply the safety informations
- Keep the manual book closer to the device
- Read the other informational documents that we sent to you with device

1. INTRODUCTION

1.1. DEFINITION OF DEVICE, PURPOSE AND WORKING PROCESS

DEFINITION

The purpose of the device is drop the cabin temperature ultra-low levels. The device works with a cascade cooling system which is a direct cooling system that helps to drop the cabin temperature.

PURPOSE

The device designed for keep the frozen samples and make frozen samples in a quick way. If you load samples with room temperature to your device, your cell will reach the desired temperature in about 30 hours. The device design for keep de samples in blood banks, hospitals, microbiology labs, and vaccine kit drug storage areas. Do not open the device's lid oftenly for keep the temperature stable.

WORKING PROCESS

- The device has a cascade cooling system which can drop the temperature inside of the device until -86°C.
- The device has a touch screen user panel. The user, can arrange the cabin temperature in the touch screen user panel. The device can offer to the user, -50°C to -86°C range temperature choice.
- The device get set to -86°C in our factory before delivery.
- Used on the device as an insulation material non contain CFC polyurethane material.
- The cooling system in the device works most efficiently when the ambient temperature is 20°C, After the installation of your device, make sure that the temperature of the environment in which it will be used remains 20°C.
- The device applies direct cooling to the cabin with the refrigerant pipes wrapped around the cabinet.
- It has double gaskets to prevent thermal heat losses in the device.

- In the device, the user is provided with the opportunity to make adjustments with a precision of 0.1 °C.
- The outer part of the device is filled with evenly dispersed polyurethane material. The insulation of the device is provided by this material.
- The device is microprocessor controlled. The temperature range is controlled by the hysteresis value. The cooling system in the device remains active until the set value. It is then deactivated. After the device loses as much heat as the value entered in the hysteresis value, the cooling system is activated again and the system works continuously in this cycle.

2. TECHNICAL SPECIFICATIONS

2.1. TECHNICAL SPECIFICATIONS TABLE

FEATURES / MODEL	ULT 470	ULT 730
TEMPERATURE RANGE	-50°C / -86°C	-50°C / -86°C
SET TEMPERATURE	-80°C	-80°C
EXTERNAL DIMENSIONS (W*D*H)mm	918*862*1920	910*1100*1995
INTERIOR DIMENSIONS -GROSS (W*D*H)mm	670*595*1205	670*850*1285
NET VOLUME	470 L	730 L
ISOLATION THICKNESS	120 mm	120 mm
PACKAGE DIMENSIONS	910x870x1930 mm	990x1000x1980 mm
INTERIOR LIGHTING	NONE	NONE
LOCK SYTEM	EXIST	EXIST
ALARM	EXIST	EXIST
INTERIOR SURFACE	STAINLESS STEEL Cr-Ni 304	STAINLESS STEEL Cr-Ni 304
EXTERIOR SURFACE	ELECTROSTATIC POWDER COATED GALVANIZED	ELECTROSTATIC POWDER COATED GALVANIZED
HEATING/COOLING SYSTEM	CASCADE	CASCADE
ISOLATION	NON-CFC POLYURETHANE	NON-CFC POLYURETHANE
NUMBER OF SHELF	4 PCS	4 PCS
DISPLAY	5,5 TFT TOUCH SCREEN	5,5 TFT TOUCH SCREEN
GRAPHIC SCREEN	EXIST	EXIST
PC CONNECTION	USB	USB
CASTORS	2 PCS BRAKED, 2 PCS REGULAR	2 PCS BRAKED, 2 PCS REGULAR
TEMPERATURE SENSOR	PT100	PT100
CONTROL SYSTEM	MICROPROCESSOR	MICROPROCESSOR
VOLTAGE VALUES	220V-50HZ	220V-50HZ
REFRIGERANT	R404A/R508B	R404A/R508B
POWER	880 WATT	880 WATT

2.2. TECHNICAL SPECIFICATIONS DESCRIPTIONS

- Ultra-deep freezer models (ULT 200- ULT470-ULT 730) in order, have 288 liters, 470 liters and 730 liters net volume.
- Ultra-deep freezer models have 4 pieces shelf each.
- Ultra-deep freezer models have a TFT touch screen. Device set temperature and inner cabinet temperature value can controlled by this TFT touch screen.
- Temperature set value can be adjusted between -50°C and -86°C on the screen of the device.
- The products leave our factory after being set to -86°C.
- The internal volume of the device is made of Cr-Ni alloyed stainless steel material. The outer material is made of sheet material painted with antibacterial electrostatic powder paint.
- The thermostat, which sends data to the control panel of the device, measures with an accuracy of 0.1°C.
- A direct cooling system is made with pipes around the cabin.
- There is an automatically charged accumulator system on the control panel of the device. This system ensures that the digital control panel continues to work for 72 hours in case of possible power cuts.
- When the ultra-deep freezers are operating, when the upper and lower temperature limits are exceeded, when the door of the appliance is left open, or when there is a power cut or low voltage problem, the device gives a warning with a visual and audible warning signal. It sends the error codes to the thermal printer with the screen and to the files received from the USB.

3. INSTALLING THE DEVICE

3.1.Environmental Conditions

Your device works efficiently under the following environmental conditions:

- Using only indoor area
- Storage and transportation conditions: 15°C + 30°C.
- Relative humidity: %5 to %90
- The area where the device works should not be too dusty.
- Temperature range for maximum performance: 15°C / 20°C

3.2.Handling and Shipping

- Because of, the device weight all the shipping should apply with the proper equipment and experienced staff.
- During transportation it must be supported from underneath and must not be turned upside down.
- Interior hardware (shelf rails, supports, wire shelves, drawers) is shipped inside the unit. The device is fixed to a wooden base by means of screws or packaged with cardboard, Styrofoam, and burst nylon.
- The ultra-deep freezers are designed with a total of 4 wheels, 2 with brakes and 2 without brakes, in order to facilitate the relocation of our freezers.
- When transporting your cooler and when it needs to be relocated, have it done through the service channel if necessary.

3.3.Unpacking

- Open the device cardboard package.
- Remove the stretch and styrofoam, which is the second packaging on the device.
- Remove the wooden base
- Check is there any transportation damage on the device with eye.
- If is there any transportation damage firstly take a picture of damage and secondly Inform the transport company officer to keep a report.

3.4.Determination and Placement of Settlement

- Check that the placement spot is suitable
- Avoid direct sunlight and heat sources
- Remove the accessory from the unit
- Care should be taken to carry the device vertically during the relocation phase and during the transport phase. Otherwise, the device will not work or will not work properly and cannot be used because the balance of the device will be disturbed.
- The back of the device should be at least 15 cm away from the wall. The sides of the device should be positioned at a distance of at least 10 cm from the wall.
- Check that the ambient temperature where the device is installed is between 15°C and 20°C. Otherwise, the cooling performance of your device will decrease.
- Installation should be on flat ground. Otherwise, it may not work properly.
- The placement of the device shall not be wet or damp. Otherwise, it can cause damage to devices' electrical systems.
- The device shall not be close to any other dissipate heat device. Otherwise, it can cause damage to devices' electrical systems.

4. INSTRUCTIONS FOR USE

4.1. Device Operation

- Plug the device in (grounded plug)
- Press the on/off switch, enter the password and turn on the device.
- Check the one of the compressors is activated or not after 1 minute later.
- Check the second compressor is activated or not after certain time later.
- Check the set value of the device. The factory set value is -86 °C. The operating range of the device is between -50°C and -86°C.
- Before operating ultra-deep freezer cabinets, have a technical personnel (electrician) check whether the socket to be used is grounded or not and the mains voltage. Do not operate if it is not grounded.
- If you are going to operate the device with UPS, please note that the UPS must be at least 20 KWH.
- Service representative at first start-up; Information about the device; technical personnel and health personnel (nurse - Dr) of the relevant customer should transfer.

4.2.Loading to Sample into the Device

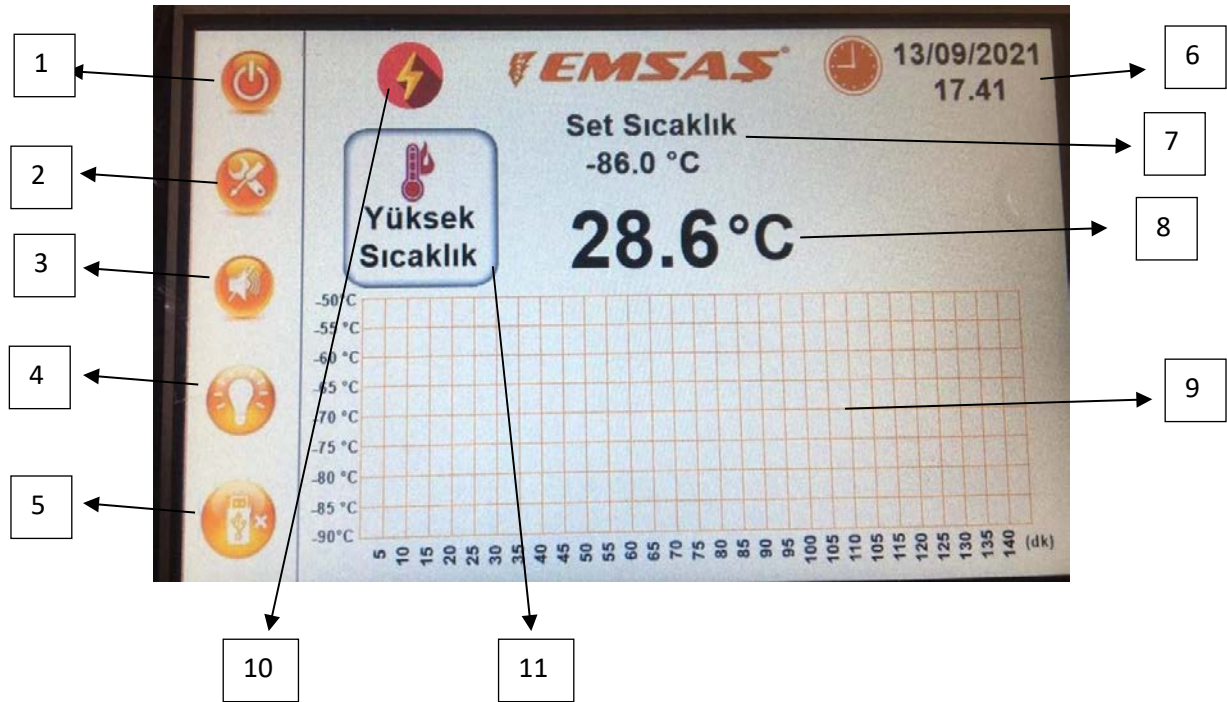
- * Ultra-deep freezers are definitely storage cabinets. They are not using as fast cooling cabinets. The materials to be loaded must be frozen materials.
- * If a sample with ambient temperature (15°C – 30°C) is loaded into the cabinet, the cell temperature of your cabinet will rise up to -40°C.
- * After your cabinet has risen to these temperature values, the recovery time will be about 30 hours.
- * We recommend that you freeze your sample in -20°C cold cabinets in order to make your first loading into the cabinet.








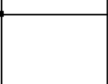
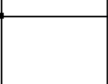


4.3.Introduction Image



PIC 1 : ULT 470

4.4.Control Display Panel and its Functions



CONTROL BUTTONS	1		ON/OFF BUTTON
	2		SETTINGS BUTTON, ITS USED FOR TO ENTER THE MENU
	3		ALARM QUIET BUTTON
	4		LIGHT ON/OFF BUTTON, NO INTERIOR LIGHTING USAGE FOR FREEZERS
	5		USB DOES NOT READ / NOT READ SYMBOL
	6		TIME ADJUSTMENTS BUTTON
DIGITAL MONITOR	7		THE TEMPERATURE SYMBOL, SHOWS THE SET VALUE
	8		INSTANT VALUE OF CABIN TEMPERATURE
	9		CABIN TEMPERATURE/TIME GRAPHIC
	10		220 VOLT SUPPLY SYMBOL
	11		ALARM CONDITIONS SYMBOL

ERROR CODES:

1. H1: Sensor error
2. H2: Door open error
3. H3: No power error
4. H4: Temperature Upper Limit Exceeded Error
5. H5: Temperature Low Limit Exceeded Error
6. H6: Compressor Not Working Error

USING THE CONTROL CARD

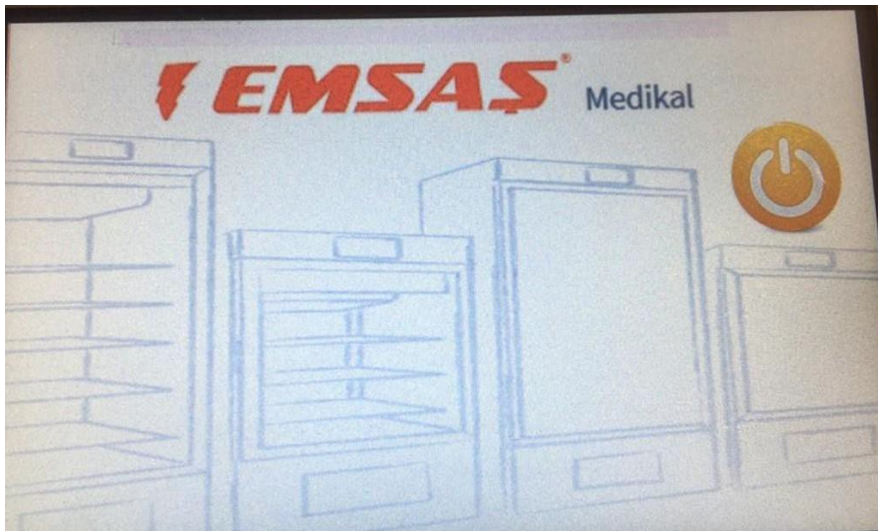


FIGURE 1

- This is the first screen you see when the device is plugged in. In this case, your device is off.
- To turn the device on, you need to press the ON/OFF button.
- After pressing the ON/OFF button, the screen in *FIGURE 2* will appear.



FIGURE 2

- The screen you see after pressing the ON/OFF button is the one in FIG.
- In order for the cabinet to be opened only by authorized personnel, you can operate the device by entering the password "*11#" and pressing the Enter key.
- After entering the password, the main screen in FIGURE 3 will appear.

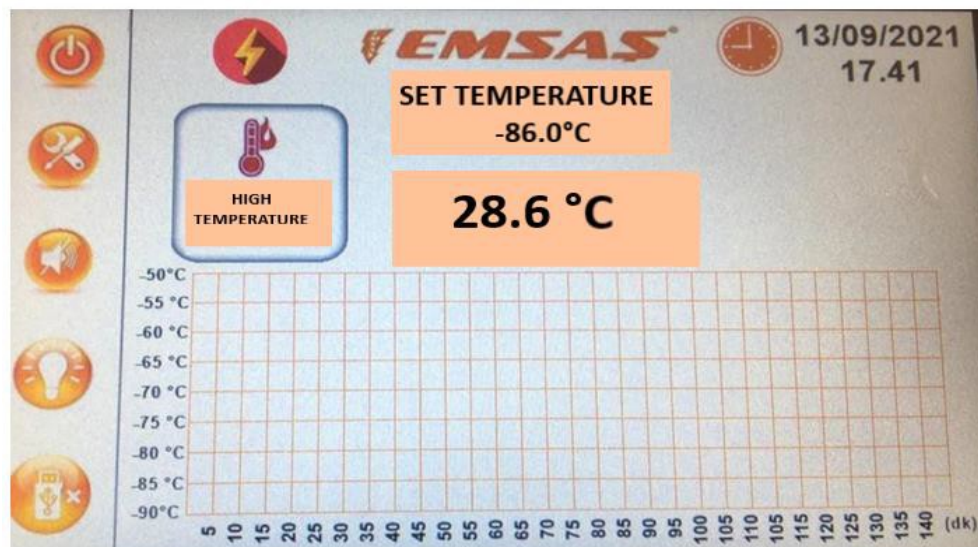


FIGURE 3

- When the device starts to work, the main screen of the device appears.
- On the main screen of the device; Temperature / Time graph, whether the USB is read, Set value, and instant temperature value of the cabin.
- You can see alarm codes, clock settings, visual warning codes.
- In order to change the set value of the cabinet and adjust the alarm lower and upper limits, the settings button is pressed and the password screen in FIGURE 4 is displayed.

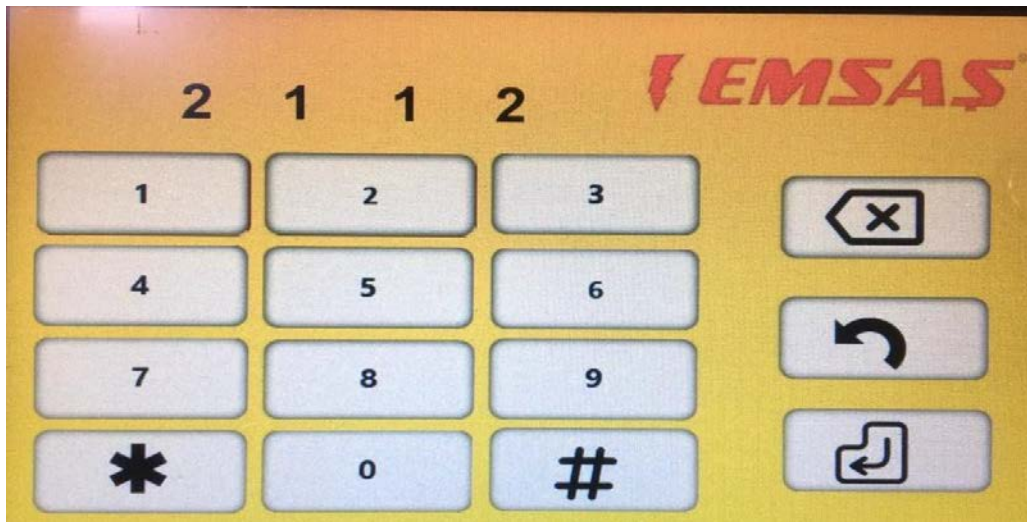


FIGURE 4

- When the password mentioned above is entered and the enter button is pressed, the set value settings of the cabinet are entered.
- It is 2112 used to enter the set value settings.
- After entering the password for the set value settings, the screen in *FIGURE 5* appears.

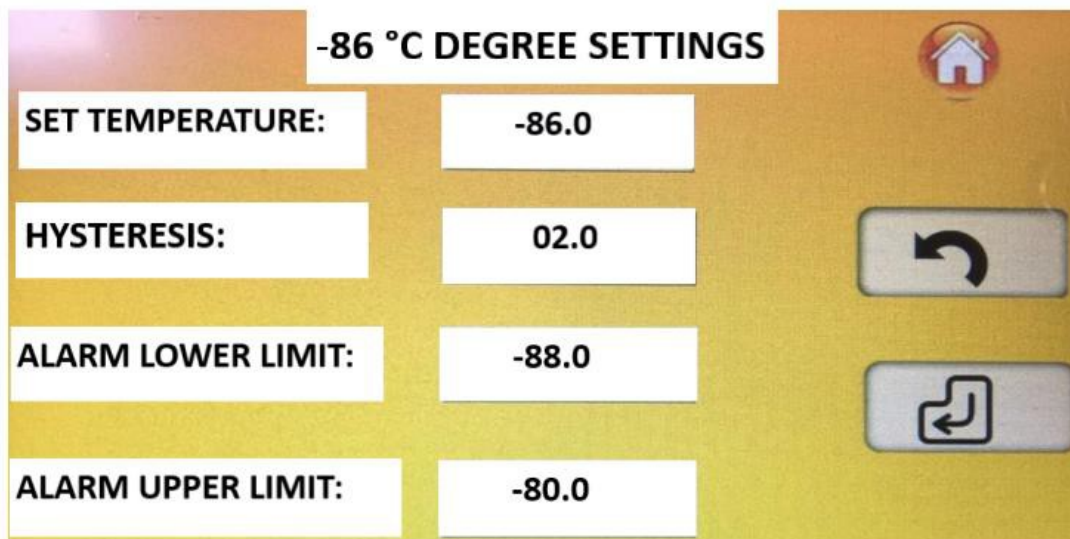


FIGURE 5

On the screen in *FIGURE 5*;

- The temperature at which the cabinet will be set,
- In which interval the cooling system of the cabinet will operate (hysteresis value)
Alarm lower limit and alarm upper limit temperature values
- It is adjusted according to user demand and needs.

FACTORY SETTINGS:

1. **Working temperature setting: -50°C/-86°C**
2. **Set temperature setting(cabin1): -86°C**
3. **Hysteresis setting: 2°C**
4. **Alarm upper limit(cabin1): -80°C**
5. **Alarm lower limit(cabin1): -88°C**

5. CLEANING AND MAINTENANCE**5.1. Maintenance**

Periodic maintenance should be carried out once a month depending on the ambient conditions in which the device is located, and once every 6 months under normal conditions.

5.2. Cleaning

- The device is cleaned in our factory before delivery to the customer.
- Clean the device at ambient temperature after disconnecting the power cable from the device.
- Wipe your device with a damp and dry cloth against dirt and dust. Finally, plug in your cabinet and start it from the on-off button.
- Depending on the environmental conditions of your Medical Device, clean it regularly once a month or once every 6 months.
- Wipe the inner and outer body of ultra-deep freezers with a damp cloth. Do not use abrasive and purifying chemicals while cleaning. Faults and errors that may arise from this reason will be treated out of warranty.
- Do not clean the electronic parts of the device and the part of the cooling system with water and chemicals.
- Do not use chemical materials that will cause corrosion in any part of the device.

6. SAFETY

- Care should be taken to carry the device vertically during the relocation and transportation phase. Otherwise, the device will not work or will not work properly and cannot be used because the balance of the device will be disturbed.
- Do not touch the unit with wet hands and/or feet.
- Do not insert screwdrivers or other pointed objects between the moving parts of the device.
- The device cannot be used by an unauthorized person.
- Before doing any kind of cleaning or caring please cut the electricity.
- Check that the device is placed where it will be used is on flat ground and 4 legs.
- It is dangerous and inconvenient to perform any repair or service on the device by unauthorized persons.
- Do not do maintenance and repairs while your device is plugged in.
- Use your product according to the principles of the user manual.
- When you have a service request regarding your product, please contact our Service Center at the phone numbers above.

7. DISPOSAL(battery, compressor, mainboard and etc.)

- The user is responsible for the proper disposal of each part.
- Electronic parts used, except power and current sources, should be disposed of according to the rules specified for the waste of electronic devices. When the product is to be disposed of, hospital, laboratory and national legislation should be followed.

8. WARNINGS & PRECAUTIONS

Pay attention to the following warnings.

- Do not use the device other than its intended use
- The device should be used by authorized and trained personnel after reading the user manual. In case of a problem, only authorized technical personnel should intervene in the device.
- The voltage in the electrical network must be suitable for the power of the device and must be grounded. Your device is tolerant of $\pm 10\%$ changes in mains voltage.
- Only spare parts and accessories provided by Emsaş A.Ş. should be used.
- There should be no substances in the usable volume that may be affected by the operating temperature of the device and damage the device.
- Make sure that the environment where the device will be used is not humid or wet. It may damage the battery and other electrical components.
- The ambient temperature in which your device operates should be in laboratory conditions ($15^{\circ}\text{C} - 20^{\circ}\text{C}$).
- Keep your cooler away from sources that give heat to the environment (stove-oven, etc.) and direct sunlight.
- Make sure that the samples to be loaded into your device are frozen. If you do not load frozen products on your device, you will observe a 30-hour performance decrease in your refrigerator.
- After starting your device, it can give an alarm visually and audibly until it reaches the ideal operating temperature on the digital display. When it reaches the ideal temperature (-80°C), the visual and audible alarm will stop. After that, you can carry out your installation in the closet.
- When the cabinet door is opened, your cabinet gives a door open alarm.
- When you receive your product, have the Warranty certificate approved by your Authorized Dealer.
- The device must be located in close proximity to another device emitting a heat source. Otherwise, the electrical part of the device may be damaged. This must be paid attention to.

9. MEANING OF SYMBOLS

9.1. Meaning of Symbols on top of the Device



CE license



Manufacturer Name and Address symbol; Indicates the medical device manufacturer as defined in EU Directives 90/385/EEC, 93/42/EEC and 98/79/EC.



Indicates the date the medical device was manufactured.



Catalog Number

Indicates the manufacturer's catalog number by which the medical device can be identified.



Serial Number

Indicates the manufacturer's serial number by which a particular medical device can be identified.



Fragile

Indicates that a medical device may break or be damaged if not handled carefully. It is located on the parcel.



Avoid from direct sunlight



Avoid from heat and radiation sources



Keep in dry place. It is located on the parcel.



Storage Conditions: 20°C / 45°C



"Refer to the operating instructions" is a synonym for "Refer to the operating instructions".



This symbol draws attention to safety warnings and potentially dangerous situations. Failure to follow these warnings could result in damage to the device and injury to users.



Indicates that the user should refer to the instructions for use for important warning information such as warnings and precautions that cannot be displayed on the medical device for many reasons.



Grounding Socket

Operate in a place with protective grounding (ground).



It is a symbol indicating the current available on the device.



Dangerous voltage symbol; The place where there is electricity is also the symbol that should be specified.



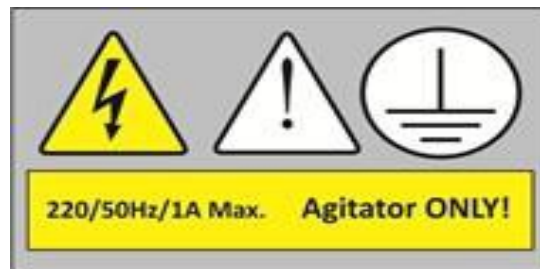
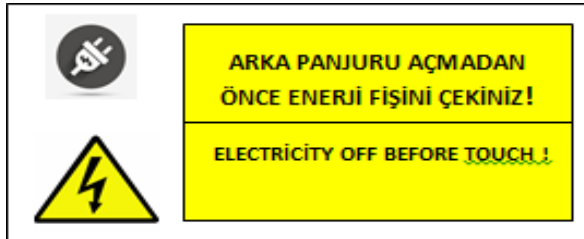
Do not touch!



Do not touch with wet hand and/or feet !



Keep Upright. It is located on the parcel.



10. SERVICE

Do not allow the repair of the device to anyone other than the authorized service during the warranty period. In case of interventions other than authorized service, the device will be subject to operation out of warranty.

When you encounter a problem with the device, call the authorized service or Emsaş numbers that made the first installation.

10.1. Troubleshooting Table

FAULT	CAUSE/CORRECTION
IF THERE IS NO ELECTRICITY	<ul style="list-style-type: none"> *Make sure it is plugged in. *Make sure there is electricity in the mains. *If there is voltage outside the tolerances given in the network, the device it doesn't work. *Make sure the power button is on.
IF THE TEMPERATURE DISTRIBUTION IS NOT HOMOGENEOUS ENOUGH	<ul style="list-style-type: none"> *Material may have been placed in front of the indoor fan. Materials should not be placed at the bottom for good air circulation. *There may be an internal fan failure. Notify the service.
CONTROL PANEL FAILURE	<ul style="list-style-type: none"> *Control panel electrical faults or mains voltage due to fluctuations.
IF THE DEVICE IS NOT HEATING ENOUGH	<ul style="list-style-type: none"> *The part where the safety thermostat is located may be overheated. *The resistor may be faulty.
IF THE RESISTOR OR FAN IS NOT WORKING	<ul style="list-style-type: none"> *Inform the authorized service immediately.

11. SPARE PARTS & ACCESSORIES

11.1. SPARE PARTS

There are no spare parts on the device that you can replace. Please notify our authorized service in case of malfunction.

11.2. ACCESSORIES

Certificate of warranty and user manual

CONTACT

For any service request, please use this guide for training. Please contact us for questions about your device; kalite@emsas-as.com.tr.

For general usage information;

info@emsas-as.com.tr

For view the web page;

<http://www.emsasas.com.tr>

