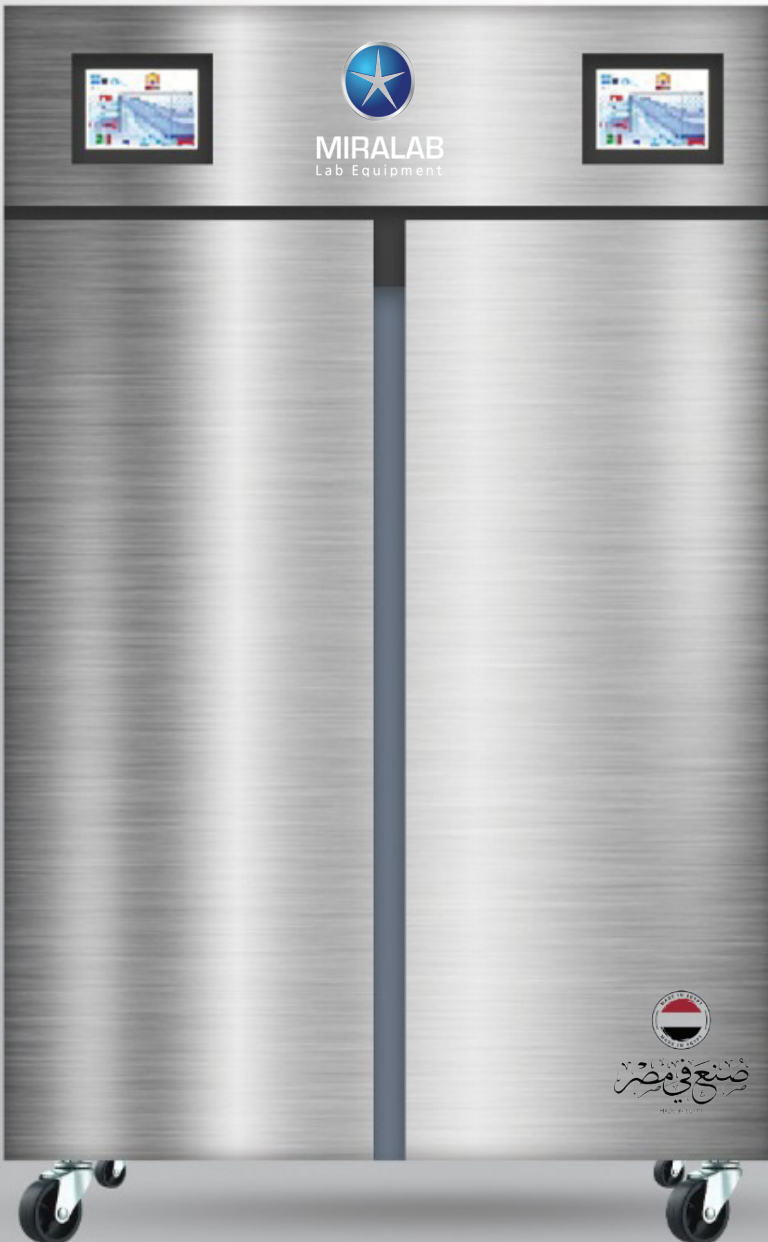# MIRALAB
Lab Equipment

Refrigerator Operation Manual
REF-500

Laboratory Refrigerator / Drug Refrigerator
Model: REF-500

Identify The Device:

• The device consists of an airtight cabin with high-density polyurethane, pressurized, to prevent heat leakage, and it is divided from the inside into two separate parts. The right section is a refrigerator for cooling from zero to ten degrees, and the left section is a freezer from minus ten degrees to minus twenty-two degrees with a liter capacity. Approximately 1200 liters, equipped with doors of the same materials in the cabin, and each section works separately with a separate control from the other.

Quality Certificate: CE mark to Product and ISO 9001/2015

Model	REF-500
Capacity	1300 liters
Drawers	10 Drawers (5 for refrigerator)(5 for freezer)
Door No.	2
Type.:	Stand Alone with 4 castors with two lock.
Description	Solid doors
Door Sealing system	2 Door Sealing system with magnetic gasket
Door lock	2 Lock with key
Tempering of refrigerator	From (0 C to 10 C) +1ºC
Tempering of freezer	From -10 c to -22 c
Interior	Stainless steel
Exterior	Stainless steel
Voltage	220-240 V AC, 50Hz
Temperature Control With 2 color LCD touch screen	Two Microprocessor control with two software Temperature graph and two data logger.
Alarm System	Audio & Visual and LCD message for: - High/ Low temp. - Compressor one or two failure. - Power failure. - Door open.
Failures Alarm	Self diagnostics
Temp indicator	2 LCD touches screen display Temperature graph.
Sensor	6 sensors (4 Pt and 2 Ds sensor for monitor and ambient)
Chart Record	Digital record temp graph.
Foam Insulation	High Density CFC (urethane free)
Compressor	Two separate cooling and freezing unit French compressors and two separate evaporators total 1.5 HP .
Refrigerant	CFC
Exterior Dimensions (cm) (WxDxH)	150W 80D 200H
Interior Dimensions (cm) (WxDxH)	140W 70D 140H
Cooling and freezing system	No frost and automatic defrost For two units.
Remote monitoring sys.	yes
Quality Certificate	CE. & ISO 9001/2015

MiraLab Remote system model -:

It is an integrated smart system that diagnoses malfunctions and monitors the temperature inside the freezer continuously (24/7) with sound and written warnings of the type and position of the malfunction and also monitors the performance of the freezer's internal evaporators (24/7) , it continuously calibrates the temperature sensors every five minutes and shows an alarm when the door is left open or not closed properly.

The temperatures and the display of the outside air temperature on the system's computer screen with the ability to control the high temperature alarm, its rate and the lower temperature as well and its ratio as the system deals with the required temperatures previously stored in it. The system communicates with all the components of the freezer where it continues to stop Its components and run continuously with a statement to the efficiency of its work on the main screen for your computer device and give an alarm in the event of a malfunction in the freezer and can be Called up all the data at any time.

• Avoiding Injury :

- Review safety instructions before installing, using, or maintaining the equipment.
- Do not open multiple, loaded drawers at the same time.
- Do not move a unit (double -door units).
- Before moving unit, ensure casters are unlocked and free of debris.
- Never physically restrict any moving component.
- Avoid removing electrical service panels and access panels unless so instructed.
- Use manufacturer supplied power cords only.

• CAUTION:

- Decontaminate parts prior to sending for service or repair. Contact MiraLab or our distributor for decontamination instructions and a Return model and serial Number.
- MiraLab refrigerators are intended for the storage of blood products and other medical and scientific products.
- General Use.
- Allow refrigerator to come to room temperature before switching power on.
- During initial startup, high temperature alarm may sound while refrigerators reaches operating temperature.
- CAUTION: Do not remove the cover from the condensate evaporator tray.

• Initial Loading:

- Allow the refrigerator and freezer to reach room temperature before powering on. Allow chamber temperature to stabilize at the set point before storing product.

• Product Loading Guidelines:

- When loading your refrigerator, take care to observe the following guidelines.
- Never load refrigerator and freezer beyond capacity.
- Always store items within shelves, drawers or baskets.
- Temperature uniformity is maintained by air circulation, which could be impeded if unit is overfilled, particularly at the top or back. Ensure proper clearance is provided below the fan.

• Note

- Products stacked against back wall may obstruct air flow and affect performance of unit.

• Installation
Location:
- Has a grounded outlet meeting the electrical requirements listed on the product specification label.
- Is clear of direct sunlight, high temperature sources, and heating and air conditioning vents.
- Meets limits specified for ambient temperature (5°C to 55°C) and relative humidity.

• Placement and Leveling:
CAUTIONS :
- The evaporation tray located on the rear of the Refrigerator and freezer may be hot. Do not use the tray as a handle.
- To prevent tipping, ensure the casters are unlocked, leveling feet (if installed) are lifted, and the doors are closed before moving the Refrigerator and freezer.
- Roll Refrigerator into place and lock casters.
- Ensure Refrigerator and freezer is level.

• Temperature Probes:
- Probe bottle(s) along with a container of glycerin have been provided with this unit.
The glycerin is used to create a solution which simulates the product stored in the Refrigerator. The product simulation solution temperature reflects the product's temperature during normal operation.

• Primary Monitor Probe for Refrigerator and Freezer :
- The primary monitor probe is located in the top right corner of refrigerator and freezer .
- Primary monitor probe with monitoring Remote system.

MiraLab monitoring Remote system model.: TR-CR-PC1
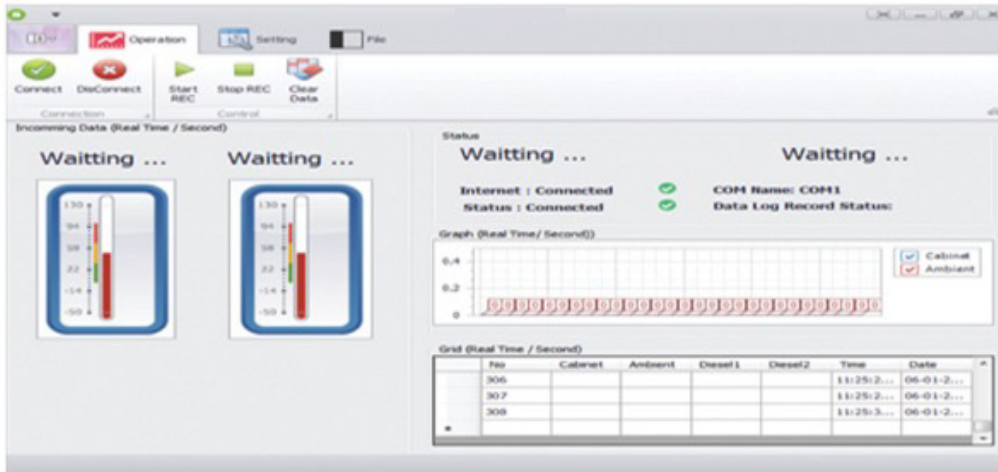
For refrigerators and freezers as medical applications used to store medicines, vaccines, plasma, blood samples, etc. We offer our integrated solution that measures the door opening and temperature fluctuations - Medical monitoring of the refrigerator - the refrigerator door. There are two easy-to-use connections in the refrigerator door. These contacts record every opening and closing of the door. This analog signal is converted to a digital signal and sent over a local Ethernet connection to a central computer. These are remote monitoring systems in which the user can check conditions. We can program the device for temperature alert levels and also we can specify the duration of the door opening if the door remains open for a longer period of time, the system has been programmed to give a local sound alarm. It stores this data in a central program.

- The client can create the report for any period such as every week or every month or year and the following points review the most important points of the remote monitoring system:

- It is possible to set an alarm to the allowed limit for high temperatures or Low in advance, it is also possible to know the number of times the doors are opened.
- The system can be programmed to monitor the freezer temperature or the refrigerator temperature, as the system can read and monitor any temperatures, whether negative or positive, and analyze them accurately.
 An integrated system that monitors the refrigerator's temperature 24/7 and is equipped with a computer to record and print daily or monthly reports on the refrigerator's performance throughout the year and at any time and is equipped with a program that automatically calibrates the refrigerator's internal temperature sensors every 5 minutes and draws a statement of the temperature stability and displays the temperature outside air on the system computer screen with the ability to control the high temperature alarm, the system reset to the required temperatures stored in it. The system communicates with all the components of the refrigerator including the sensors which are turned off and turned on to check the efficiency of their work on the main screen of the computer and give an alarm if it find out any malfunction in the device and can be review all the data at anytime .

Settings:
 Location:
• Has a grounded outlet meeting the electrical requirements listed on the product specification label.
• Is clear of direct sunlight, high temperature sources, and heating and air conditioning vents.
• Meets limits specified for ambient temperature (5°C to 55°C) and relative humidity.

To operate the refrigerator system, please follow the following:
1- OperatIng the refrigerator system from the designated switch
2- Touch the setting tab to choose the temperature from 0 to 10 ° C.
3- Choose the sound and visual alarm temperature of the refrigerator.
4- Touch the Save Data tab twice, then touch the Back tab.

• *To operate the freezer system, please follow the following
• 1- Operating the freezer system from the designated switch.

Figure (1)

Figure (2)

Figure (3)

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• Note :

*Active alarms are displayed on the Home screen. If an alarm condition other than High Temperature occurs, wait to access set point.

*After about 30 minutes have passed, the units will reach the required degree that was set in advance, and then the system will draw a graph of the heat and the disappearance of the audio alarms and messages written on the screen as shown in the two figures.

• Voice alerts and messages on the screen:

(1) if you press it explain our Company profile.

(2) if you press it mute voice or un mute.

(3) if you press it setting program.

(4) explain Low or High Temp.

(5) explain Door open or close.

(6) explain Compressor Failure (that's problem on you compressor check it).