Labotronics



Pharmacy Refrigerator

LB-12PVR

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1. Safety Measures

1.1 Safety

- If the device needs to be relocated or moved for maintenance, be sure to check the brakes of the wheels. Otherwise, the wheels may be damaged and broken.
- In this case,the balance of your device may deteriorate and may not work efficiently.
- 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 performing any cleaning or maintenance operations, kindly remember to cutthe electricity supply.
- Disconnect the main switch from the switching power before unplugging the appliance when cleaning or maintaining the appliance.
- Check that the device placed where it will be used is on flat ground and with four legs.
- It's dangerous to do any repair or service operations on the device by unauthorized persons.
- When your device is plugged in, do not perform any maintenance or repairs.
- We strongly recommend using a voltage regulator to prevent compressor damage in areas with significant voltage fluctuations.
- Use your device according to the instructions in the user manual.

1.2 Matters to be considered by the user during use

- When putting blood bags in your cooler, do not stack products in the cabinet in a waythat prevents air circulation.
- This will cause unwanted temperature differences in theupper and lower parts of your cooler.
- There is 1 sensor in the blood storage cabinets that measures the temperature insidethe cabin.
- On the electronic card, this temperature is reflected on the screen and shown to the user.
- After starting your cooler, it can give an alarm visually and audibly until it reaches theideal operating temperature on the digital display.
- When the cooler reaches the idealtemperature (between 0°C and +15°C), the visual and audible alarm will stop. After that, you can load your cabinet.
- **External Probe Input:** The plug on the right side of the cabinet is removed and the probe is placed (If the thickness of the probe is high, the plastic can be expanded.) Take care that the inserted probe tip is inserted into the cabinet and fixed next to the sensor inside the cabinet.

1.3 Disposal

The user is responsible for the proper disposal of each part as waste. 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.

1.4 Warnings and Precautions

- Do not use the device out of usage aim
- The device should operate after reading the manual book by authorized and educated personnel. In case of any problem, only authorized personnel can interfere with the device.
- The voltage in the electrical network must be suitable for the power of the device andmust be grounded.
- There should be no substances in the usable volume that may be affected by the operating temperature of the device and damage the device.
- We strongly recommend you use a voltage regulator in order not to damage the compressor in places where there may be larger changes.
- When putting the vaccines in your device, do not stack them on the back to prevent air circulation.
- This will cause unwanted temperature differences in the upper and lower parts of your cooler.
- After operating your cooler, your cooler can give audible and visual alarms until it reaches the ideal operating temperature(0°C/+15°C). When your cooler reaches the ideal operating temperature, the alarms shut down. Then you can load the products.

1.5 Meaning of Symbols

Meaning of symbols on top of the device

S.No	Symbol	Meaning of the symbol
1		CE Certificate
2		Indicates manufacturer name and address
3		**Date of Manufacture:** Indicates the date of manufacture of the medical device.
4		**Catalog Number:** Indicates the manufacturer's catalog number by which the medical device can be identified.

5		**Serial Number:** Indicates the manufacturer's serial number by which a particular medical device can be identified.
6		Indicates that a medical device may break or be damaged if not handled carefully. It is located on the parcel.
7		Keep away from the sun
8		Shielded from heat and radioactive sources. The device is affected by heat. For this reason, the device must be protected from heat sources.
9		Protect from moisture. It is located on the parcel.
10		**Storage conditions:** 20°C / 45°C
11		Usage Instruction A synonym for "refers to using instructions" is "refers to operating instructions".
12		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.
13		Indicates that the user should refer to the instructions for use for important warning information such as warnings and precautions that cannot be presented on the medical device for many reasons.
14		**Grounded Socket** Operate in a place with a protective grounding

15		Alternative current
16		**Dangerous Voltage!** It is a symbol indicating the current available on the device. The place where there is electricity is also the symbol that should be specified.
17		Do not touch!
18		Do not touch with wet hands and/or feet!
19		**Keep Upright** It is located on the parcel.

2. Introduction

Pharmacy Refrigerator LB-12PVR is a micro-processor controlled upright single glassdoor cold storage refrigeration unit. Automated defrost cycles facilitate frost-free storageinteriors. Dual thermal-glazed insulation with magnetic seal rings ensures low energy consumption. System alarms include temperature limits, door ajar, low voltage and power off conditions. Secured with digital password to avert unauthorized user access. Galvanized exteriors promote long-term corrosion resistance increasing durability.

3. Features

1. CFC-free rapid fan cooling technology
2. Digital control panel for temperature monitoring and alarms
3. Chrome-nickel plated interiors
4. Interior cabinet LED lighting
5. Automatically charging for power backup
6. Durable casters for mobility
7. Network accessibility via USB interface

4. Specifications

Model No.	**LB-12PVR**
Storage Capacity	200 L
Wire Shelves	3
Temperature	4 °C
Refrigerant	R404a
Data Storage	30 days
Power Supply	195 V - 230 V / 50 Hz
Internal Dimensions	516 × 543 × 797 mm
External Dimensions	600 × 594 × 1430 mm
Weight	100 kgs

5. Applications

Used in diagnostic laboratories, clinical pathology laboratories for standardized storage for pharmaceutical drugs, ampules, low-risk routine vaccines, used for research applications.

6. Instrument Introduction



Figure-1 Pharmacy refrigerator

7. Installation

7.1 Environmental conditions

This device works efficiently under the following environmental conditions:

1) Using only in the indoor area.
2) **Storage and Transportation conditions:** +25°C / +45°C
3) **Relative Humidity:** %65
4) **Temperature Values:** 0°C / +15°C
5) **Maximum Altitude:** 2000 meter
6) **Temperature range for maximum performance:** 15°C / 20°C

7.2 Handling and Shipping

1) Because of the device's weight, all the shipping should apply with the proper equipment and experienced staff.
2) During transportation, it must be supported from underneath and must not be turned upside down.
3) Interior hardware (shelf rails, supports, wire shelves, drawers) is shipped inside the unit.
4) The device is fixed to a wooden base through screws or packaged with cardboard, Styrofoam, and burst nylon.

7.3 Unpacking

1) Open the device's cardboard package.
2) Remove the stretch and Styrofoam, which is the second packaging on the device.
3) Remove the wooden base.
4) Kindly visually inspect the device for any transportation damage.

7.4 Determination and placement of settlement

1) Kindly ensure that the placement spot is suitable.
2) Avoid direct sunlight and heat sources.
3) Remove the accessory from the unit.
4) Kindly remember to carry the device vertically during both the relocation and transport phases.
5) If the device is not kept vertical, it may not work properly due to imbalance.
6) 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.
7) To ensure proper functioning, the installation should be on even ground and supported by four sturdy legs.
8) The placement of the device shall not be wet.
9) Otherwise, it can cause damage to the device’s electrical systems.

10) The device shall not be close to any other dissipated heat device. Otherwise, it can cause damage to the device's electrical systems.
11) Kindly ensure that the user can monitor the device while performing other tasks.
12) Measure placing your device, users should pay attention to the fact that there must be a minimum of 10 cm space between the side, back, and top surfaces and the place to be placed, and 20 cm from the top.
13) There should be no plates behind the device that maycause evaporation.
14) The hose in the compressor compartment of your cooler; for evacuation of dripping water during defrosting.
15) Before operating the cabinet, be sure to check whether thereis water in the hose in the container.
16) When your device needs to be moved or relocated, have it done through the service channel if necessary.

8. Working Principle

1) The device is designed to control temperatures in the range of 0°C / +15°C.
2) All cabinets in the LB-12PVR can be adjusted to a temperature between 0°C and +15°C, however, the factory-set temperature is +4°C.
3) The cooling system in cabinets works with the on/off (open/close) principle.
4) In cabinets, air circulation is provided with the help of a fan to ensure equal heat distribution in the inner cabinet.
5) The microprocessor-controlled electronic card is used in our device.
6) CFC-free polyurethane foam insulation material is used.
7) So that the device canmaintain the temperature in the interior for a longer period.

9. Operations

9.1 Device operation

1) Plug the device in (grounded plug).
2) Press the on/off switch, enter the password, and turn on the device.
3) The operating range of the device is between 0°C ve +15°C.
4) Before operating your device, have technical personnel (electrician) check whether the socket to be used is grounded or not and the mains voltage.
5) Do not operate if it isnot grounded.
6) Wait before operating your device at least 45 minutes after unpacking your device.
7) This will prevent the compressor of your cooler from being damaged.

9.2 Control panel

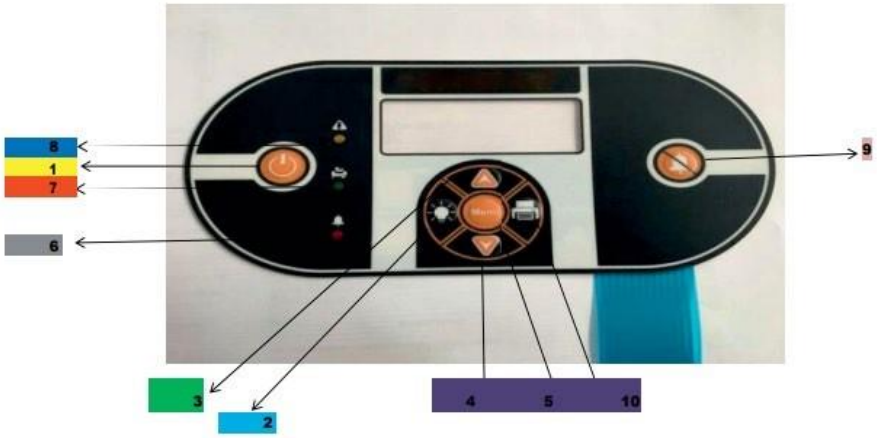
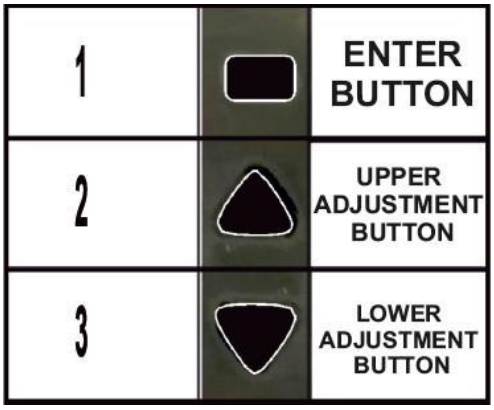


Figure-1 Control panel

DISPLAY BUTTONS	1		ON/OFF BUTTONS
	2		LIGHT ON/OFF BUTTONS
	3		UP ADJUSTMENT BUTTON
	4		MENU AND SETTINGS BUTTON
	5		DOWN ADJUSTMENT BUTTON
DIGITAL DISPLAY BUTTONS	6		RED LIGHT (LCD DISPLAY)
	7		GREEN LIGHT(WHEN COMPRESSOR IS ON)
	8		YELLOW LIGHT (POWER LIGHT)
	9		ALARM SILENCE BUTTON
	10		PRINTER BUTTON



Figure-2 Control Panel without USB port

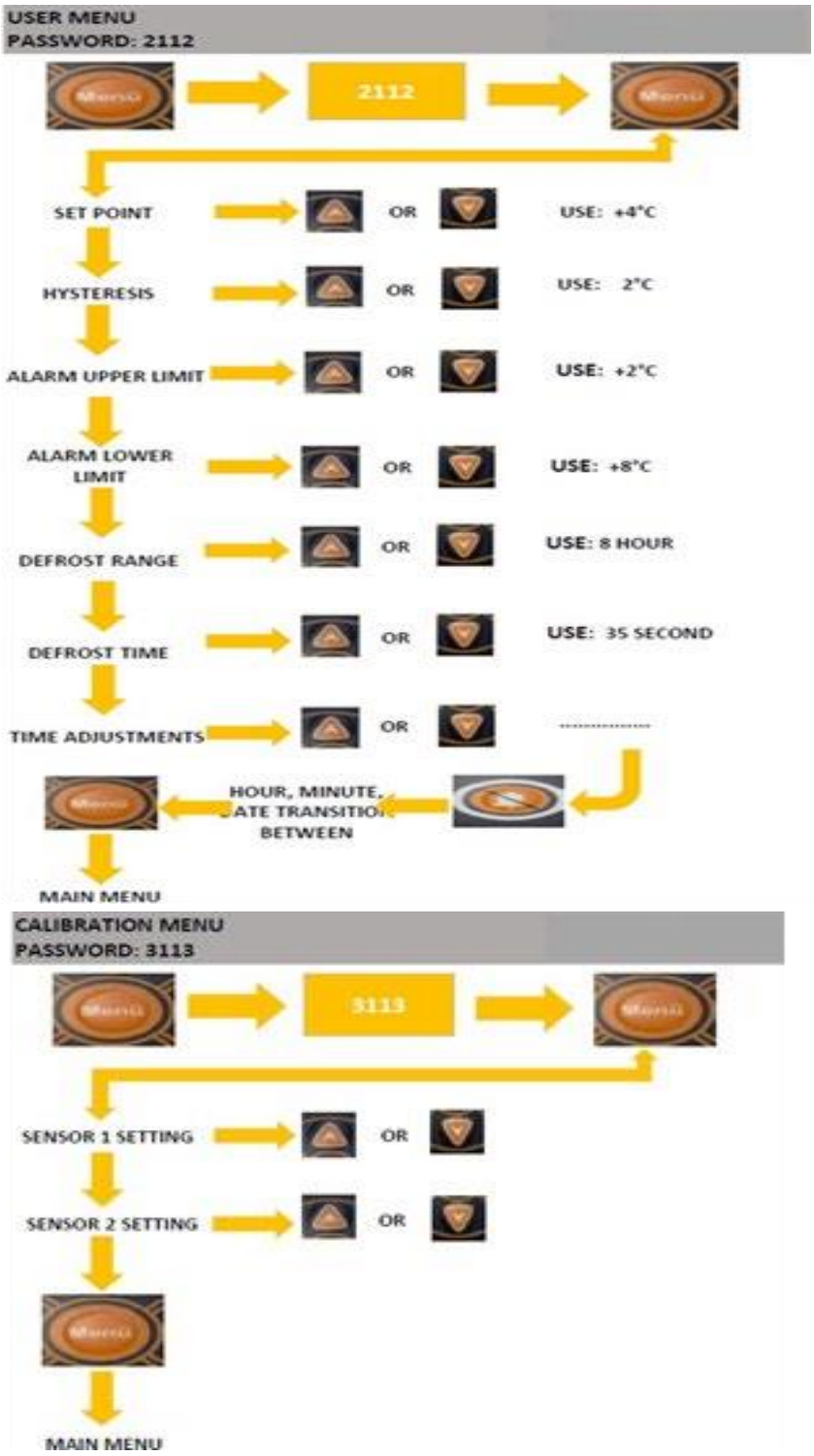


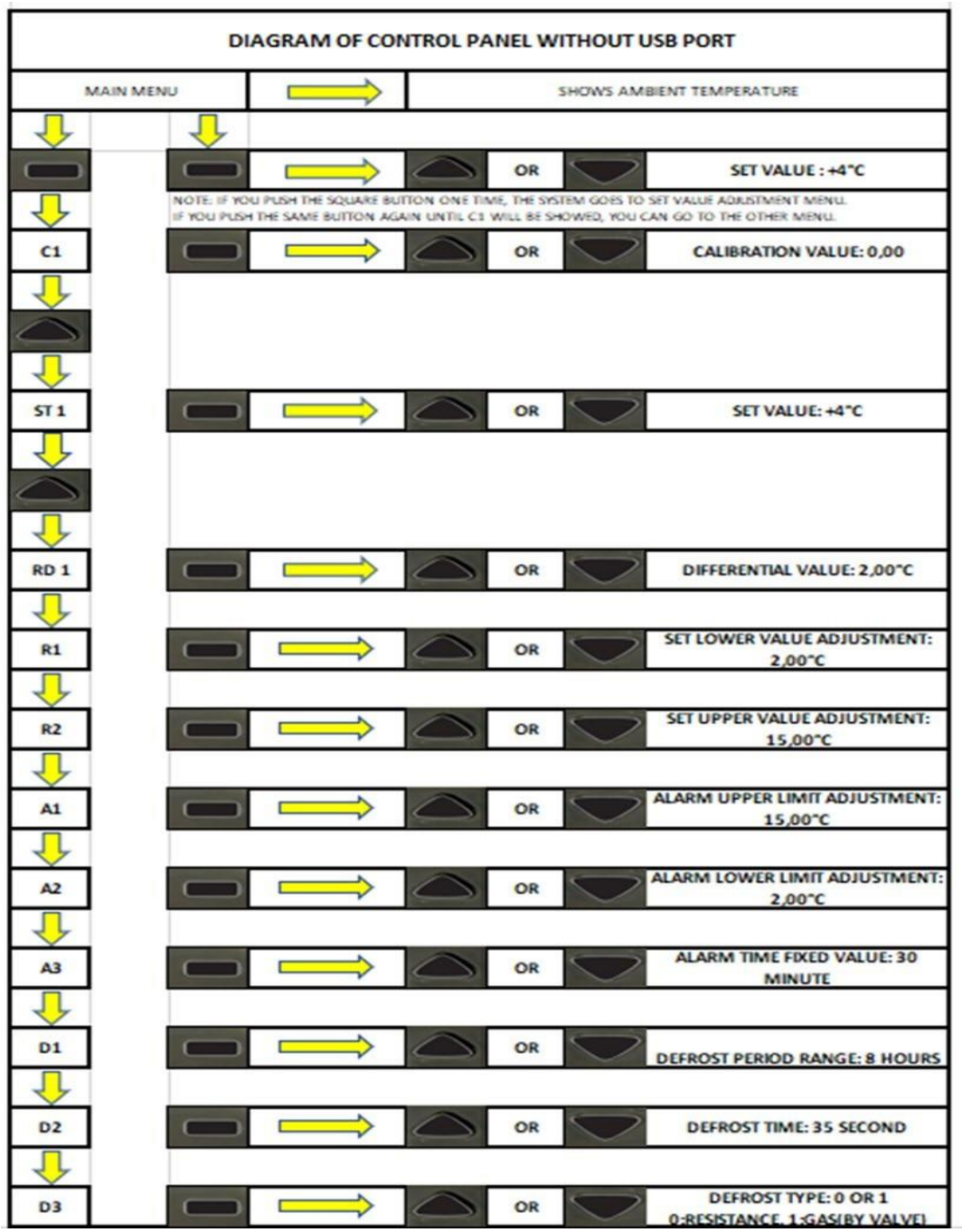
9.3 Factory Output Settings

1) **Operating temperature range:** 0/15^{0}C
2) **Set temperature value: +4^{0}C**
3) **Compressor delay time: 30 sec.**
4) **Door open alarm waiting time:** 2 min.
5) **Alarm silence time: 30 sec.**
6) **Thermal printer printing time: 8 hours.**

9.4 Set Parameters

By pressing the SET Button, the parameter entry screen is accessed. There are 3 separate passwords, these passwords have separate functions.




DIAGRAM OF CONTROL PANEL WITHOUT USB PORT
MAIN MENU
SHOWS AMBIENT TEMPERATURE
OR
SET VALUE : +4°C
NOTE: IF YOU PUSH THE SQUARE BUTTON ONE TIME, THE SYSTEM GOES TO SET VALUE ADJUSTMENT MENU.
IF YOU PUSH THE SAME BUTTON AGAIN UNTIL C1 WILL BE SHOWED, YOU CAN GO TO THE OTHER MENU.
C1
CALIBRATION VALUE: 0,00
ST 1
SET VALUE: +4°C
RD 1
DIFFERENTIAL VALUE: 2,00°C
R1
SET LOWER VALUE ADJUSTMENT: 2,00°C
R2
SET UPPER VALUE ADJUSTMENT: 15,00°C
A1
ALARM UPPER LIMIT ADJUSTMENT: 15,00°C
A2
ALARM LOWER LIMIT ADJUSTMENT: 2,00°C
A3
ALARM TIME FIXED VALUE: 30 MINUTE
D1
DEFROST PERIOD RANGE: 8 HOURS
D2
DEFROST TIME: 35 SECOND
D3
DEFROST TYPE: 0 OR 1
0:RESISTANCE, 1:GAS(BY VALVE)

10. 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.

Cleaning

1) Clean the device at ambient temperature after disconnecting the power cable from the device.
2) Wipe your device with a damp and dry cloth against dirt and dust. Finally, plug in your cabinet and start it with the on-off button.
3) Depending on the environmental conditions of your medical device, clean it regularly once a month or once every 6 months.
4) To clean the condenser of your device, it is necessary to clean it from dust first.
5) The condenser compartment of your device should be cleaned by technical personnel with a vacuum cleaner or a soft paintbrush, and the electrical components should not be damaged.
6) Clean the condenser under your device with a damp cloth at least once every 4 months by pulling out the electrical outlet.
7) The glass doors can be cleaned with proper glass cleaner.
8) Do not clean the engine compartment of your cooler with water, etc.
9) It will damage the electrical components of your water closet, and the user may be exposed to electricshocks.
10) Wipe the plastic drainage bowl next to the compressor, where the defrosting water reaches, with a damp cloth.
11) Do not use abrasive and purifying chemicals while cleaning inside and outside your cooler with a damp cloth, it can cause damage.

11. Troubleshooting

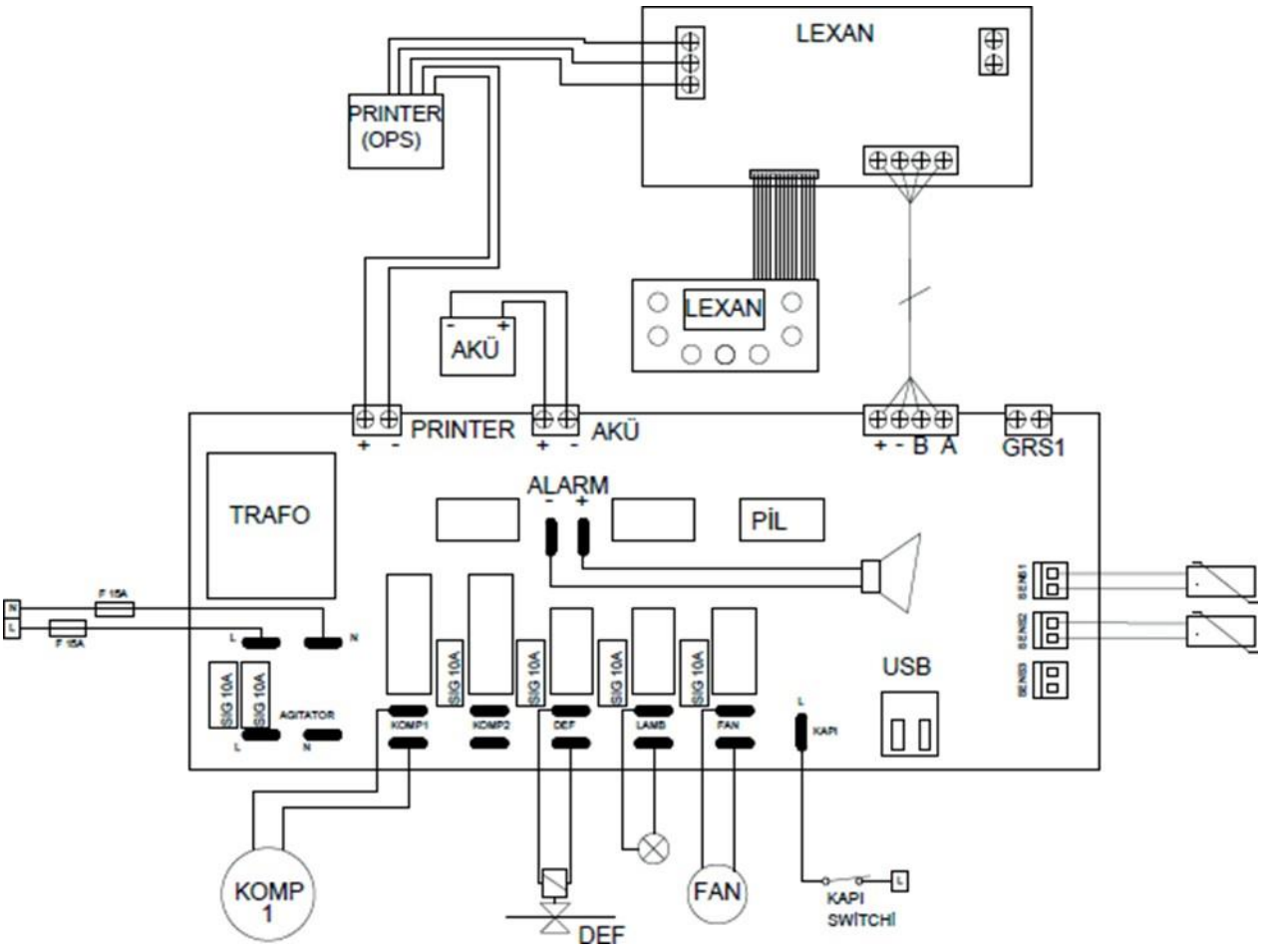
Fault	Cause /Correction
The cooler does not work, there is no electricity.	• Make sure it is plugged in. • Make sure there is electricity in themains. • If there is voltage outside the tolerances given in the network, thedevice doesn't work. • Make sure the power button is on.
The light is not working when the door opens.	• The lamp can be broken, or it mayhave moved from the lamp socket. • The lamp switch may be damaged.
The temperature distribution in the cabinet is not homogeneous enough,the top and bottom are at Separate temperatures.	• Material may have been placed in front of the indoor fan. • For better air circulation materials should not be placed in front of the fan. • The inner fan may be damaged. • The fan switch may be damaged.
The device is not cooling.	• Keep the condenser clean. • Check if the control fan in the back is working or not.
The printer is not working.	• Check the battery current. • If the battery is12V low, the battery is replaced or charged in a separate place. • The paper is checked.
The device makes noise.	Check the battery voltage. If it is less than10V, replace the battery and charge it separately.
The battery is not working/ compressor is not working.	• Replace the battery. • Replace the compressor.

12. Accessories

Optional Module

Module No	Module Name
ATP-10	Graphical Thermal Printer

13. Circuit Diagram



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