

ULTRA-LOW TEMPERATURE FREEZER



Instruction Manual



Model : LF-200A

Please read this manual carefully before using the instrument

Labnics Equipment

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CHAPTER1. SCHEMATIC PICTURE AND DESCRIPTION:-



Series of Ultra-low temperature freezer is designed to store materials under very low temperature condition for hospital, epidemic station, blood bank, research institute, university, biological pharmaceutical industry and gene engineering, etc. The internal temperature in cabinet can be easily adjusted through the keys in control panel. All operations are convenient and reliable.

Please to clean the water in the freezer when first uses it, especially the water on the door side. Prevent to freeze the door at the low temperature, and cause the door difficult to open.


The Polystyrene foam cover board can insulate heat valid; please close the board tightly when uses it.

CHAPTER 2. PRE-INSTALLATION:-

- **How to transport:** Pick up the unit from the bottom of tank and a slant plane within 45° is acceptable. All transportation should be carefully.
- Remove all wrappers.
- Check accessories and documents according to package list.
- Clean the unit thoroughly before any operation.
- **Installing location:** Do not position the unit in direct sunlight or near heating diffusers, radiators, or other sources of heat. The ambient temperature should not exceed 320. A minimum 20cm space on the sides, rear and top should be provided for better air circulation and heat discharge. Location where is too cold and place with high humidity or can be easily splashed by water are forbidden.

2.1 The working condition

- A. The environment Temperature 10°C to 25°C (if beyond 25°C need to start the air-condition).
- B. The relative humidity 80%.
- C. No strong shake and causticity gas.
- D. No sunshine direct irradiation and other cold & hot power effect.

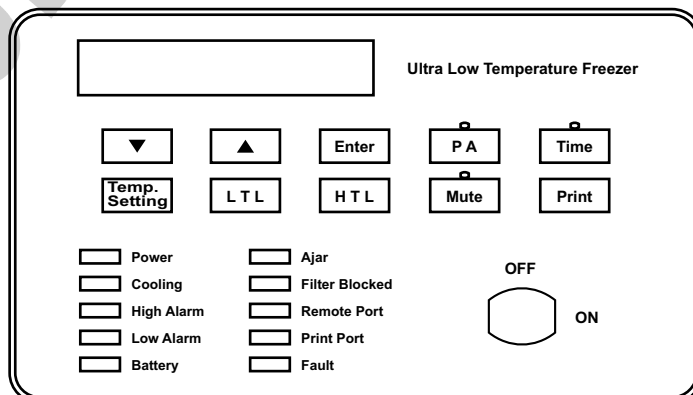
 **The freezer working time: Intermission Run**

2.2 Safety Introduction

- Power and voltage: The voltage is 220V/50HZ.
- Don't allow to lengthen the electrical wire randomly.
- Don't open the door frequently for the test and industrial production. No rest for the freezer longer will shorten the life for use.
- Keep the key properly avoiding the children take it to open the back door which may result in unexpected injury.
- To avoid cold injury, please place and remove goods with protective gloves.
- Need to use the single fixed three-phase power, with earthing protector. The lead line section area not less than 4mm² and fitting the air-switch with protective creepage.

CHAPTER 3. OPERATION DIRECTION :

3.1 Function Introduction for Display Panel



1. **- 86°C : Digital code display window** : The window displays the real-time internal temperature of freezer with unit. Under normal running condition, and displays different hint string under set condition.
2. **"▲" "▼"** Function adjustment pads. Press these pads to realize different functions combining with different function keys.
3. **"Enter"** Press this key to activate all parameter adjustments.
4. **"PA"** : Keyboard locking function is developed in this unit. When unlock the keyboard and modify the password, must input the right password. The default password is "000". The upper indicator is on under unlocking status.
5. **"Time"** : For easily record and print the saved temperature data, a built-in clock with YMDHM is developed.
6. **"Temp. Setting"** : Press this key to set the storage temps. The microcomputer control system will run automatically to maintain a stable temperature as setting.
7. **"LTL"** : When the temperature in chamber decreases below the low temperature limit (LTL) setting, system alarms to attract user's notice.
8. **"HTL"** : When the temperature in chamber is higher than the high temperature limit (HTL) setting, system alarms to attract user's notice. (During the initial start-up, a "HTL" alarm is normal phenomenon. After the temperature stabilized, the "HTL" alarm stops and. Now you can put goods in your freezer.)
8. **"Mute"** : Press this key to stop alarm buzzing. The upper indicator is on.
9. **"Print"** : This unit develops a function of automatically print the real-time temperature data and manually print the latest seven days' data.
10. **"Power" indicator** : This indicator lights when the power is on.
11. **"Cooling" indicator** : This indicator lights when the compressor is running.
12. **"High Alarm" indicator** : This indicator blinks and alarms when the temperature in chamber is higher than the HTL setting.
13. **"Low Alarm" indicator** : This indicator blinks and alarms when the temperature in chamber is lower than the LTL setting.
14. **"Accum." Indicator** : This indicator lights when the voltage of accumulator decrease below 50% of rated value. During the initial start-up, a "Accum." alarm is normal phenomenon. After the accumulator is charged, the "Accum." alarm stops automatically.
15. **"Ajar" indicator** : This indicator blinks and alarms if the door opens for more than 1 miniature. After the door is closed, the alarm stops.

16. **"Filter-Blocked" indicator** : After a long time running, some dust and impurities may block the filter to decrease the performance of unit and this indicator lights. The indicator will return to its normal status after the filter is cleaned.
17. **"Remote port" indicator** : This indicator lights when the remote port is connected successfully.
18. **"Print port" indicator** : This indicator lights when the matched micro-printer is connected properly.
19. **"Fault" indicator** : The Digital-Code window displays corresponding error code when this indicator lights. The code "E4" denotes that the ambient temperature is too high, so user should assure that the ambient temperature be lower than 32°C. When the window shows other error codes, please contact our service center and remove all products in chamber to avoid jeopardizing the user's product.
20. **Power Lock** : Turn the matched key to control power supply: "ON" for start and "OFF" for stop.

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- **Special Notice:** Functions marked with "*" are available only for some special customers or when the unit is equipped with the optional parts
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3.2 Initial Start-up:-

1. Connect the power supply and turn the power switch to "ON".
2. The initial password for keyboard locking is set as "0000" in factory. Before release the password, the "Temp.", "LTL" and "HTL" keys are all disabled while "PA" displaying in display window.
3. **Unlock password:** Press the "PA" to active the input window. The display window blinks and shows "PA". Press "▲", the "PA" disappears. Press "▲" to change the input single bit which circularly blinks from the thousand bits to One bit in turn. Press the key once for one bit. Then press "▼" to input the expected number for the blinking bit, press the key to add 1 per touch to this bit which will return to 0 after 9. After input all four bits password, press "Enter". If the password inputted is right, the display window will stop blinking and display the input right password. Only when the password is released all functions and parameter changes and setting are activated. Under unlocking status, if no keys are pressed within 5 minutes the system switches to locking status.
4. **Set password:** Under unlocking status press the "PA", the display window blinks and shows "P0000". Press "▲" to change the setting bit which circularly blinks from thousand bits to One bit in turn. Press the key once for one bit. Then press "▼" to set the expected number for the blinking bit, press the key to add 1 per touch to this bit which will return to 0 after 9. After input all four bits new password, press "Enter" key. Then display window shows the new password and the system turns to new password locking status. 15 seconds later, the display window returns to its normal displaying status.
5. **Mute** : when you Press the "Mute" the mute indicator lights and the alarm buzzer switches to alarm-off status. Now, the alarm buzzer will be closed under any error condition.

6. **Disable "Mute":** when you Press the "Mute" again the mute indicator closes and the alarm buzzer switches to alarm-on status. The buzzer may work and it will stop when the system recovers to its normal running condition.
7. Put the "Mute" key again to close the alarm buzzer. Then the mute indicator lights and the buzzer switch to alarm-off status.
8. **Set temperature:** Press the "Temp. Setting" key, the system switches to temperature setting status. And the displaying number changes to the latest setting value and begins to blink. Press the "▲" to increase the value of temperature with 1°C per touch. Similarly, Press the "▼" to decrease the value of temperature with 1°C per touch. Press these two keys to increase or decrease 1 per touch. Press and hold the keys for 3 seconds, the system switches to quick-setting status. After expected temperature is set, press "Enter" to activate this setting and the display window stops blinking. If no "Enter" is not pressed, the display window will keep blinking and the system will run according to the former setting. 15 seconds later, the display window stops blinking and automatically returns to its normal display.

3.3 Functions Setting:-

1) **Set low Temperature Limit (LTL):-**

Press the "LTL" key, the system switches to low temperature limit setting status. And the display window begins to blink and shows L-000 (000 represents the value of latest setting). Press the "▲" to increase the value of temperature with 1°C per touch. Similarly, Press the "▼" to decrease the value of temperature with 1°C per touch. Press these two keys to increase or decrease 1 per touch. Press and hold the keys for 3 seconds, the system switches to quick-setting status. After expected temperature is set, press "Enter" to activate this setting and the display window stops blinking. If no "Enter" is not pressed, the display window will keep blinking and the system will run according to the former setting. 15 seconds later, the display window stops blinking and automatically returns to its normal display. The LTL value can be adjusted from 5°C to 20°C.

2) **Set High Temperature Limit (HTL):-**

Press the "HTL" key, the system switches to high temperature limit setting status. And the display window begins to blink and shows H-000 (000 represents the value of latest setting). Press the "▲" to increase the value of temperature with 1°C per touch. Similarly, Press the "▼" to decrease the value of temperature with 1°C per touch. Press these two keys to increase or decrease 1 per touch. Press and hold the keys for 3 seconds, the system switches to quick-setting status. After expected temperature is set, press "Enter" to activate this setting and the display window stops blinking. If no "Enter" is not pressed, the display window will keep blinking and the system will run according to the former setting. 15 seconds later, the display window stops blinking and automatically returns to its normal display. The HTL value can be adjusted from 5°C to 20°C.

3) **Time Display:-**

Press the "Time" key, the display window switches to time displaying status. Under "Time" status, press "Enter" to display "Year", "Month-Day", "Hour-Min." respectively. At these statuses, the display window shows with the format as "y2003", "d07.28", and "t19.39" according different modes. (Note: Under locked condition, only time displaying is available.).

4. Hour-Min. setting

Press the "Time" key, the system switches to time setting status. The display window begins to blink and shows "t19.39". Then press "▲" to change the bit you want to correct. Responding to per touch, the display window circularly stops blinking according to Thousand-Hundred (for 24 type hour) and Ten-One (for min.). When one bit stops blinking, press "▼" to change it to the wanted value. Press "Enter" to activate the setting and the display window shows the correct time. 5 seconds later, the system automatically switches to Month-Day setting status. (Note: All these operation can be done only under unlocked condition).

5. Month-Day setting

Under "d07.28" displaying status, press the "Enter" key, the display window begins to blink. Then press "▲" to change the bit you want to correct. Responding to per touch, the display window circularly stops blinking according to Thousand-Hundred (for month) and Ten-One (for day). When one bit stops blinking, press "▼" to change it to the wanted value. Press "Enter" to activate the setting and the display window shows the correct date. 5 seconds later, the system automatically switches to Year setting status. (Note: All these operation can be done only under unlocked condition).

6. Year setting

Under "y2003" displaying status, press the "Enter" key, the display window begins to blink. Then press "▲" to change the bit you want to correct. Responding to per touch, the display window circularly stops blinking from thousand to one. When one bit stops blinking, press "▼" to change it to the wanted value. Press "Enter" to activate the setting and the display window shows the correct year. 5 seconds later, the system automatically returns to its normal displaying status. (Note: All these operation can be done only under unlocked condition).

7. Auto print:

Press the "Print" key, the system switches to auto print mode. Now AUTO displays in the LCD window and the print indicator lamp changes into normally bright. Under this mode press the print key of printer to automatically print recorded data. All data are printed per 5 miniatures with a format as "Year, Month, Day, Time, and Temperature". When the print finishes, the buzzer buzzes for 5 seconds, then the system exits the print mode. To cancel print midway, press "Print" again.

8. Manual print:

Press "Print" twice within 3 seconds, the system switches to manual print mode. Now the display window shows "----1" and the print indicator lights. Then press the print key of printer to print the current recorded data. Press "▲" once to print the data of previous day and the display window shows "----2". Similarly, the recorded data of others days can be printed manually. All data are printed at an interval of 5 miniatures in a format as "Year, Moth, Day, Time, and Temperature". When the print completes, the buzzer buzzes for 5 seconds, then the system exits the print mode. To cancel print midway, press "Print" again.

Special Notice:

Functions marked with "*" are available only for some customers or when the unit is equipped with the optional parts.

DO NOT place anything immediately after the power supply is connected. About 20 hours' no-load running before storing materials is recommended.

CHAPTER 4. DEFROST, UNUSED, MAINTENANCE:-

- There will be some frost on the surfaces of chamber for a long time running which may decrease the performance of freezer. If the thickness of frost is more than 10mm, some defrost operations are recommended.
- Disconnect the power supply before defrosting. Wear special protective gloves for any interior operation! Open the door and remove all materials from freezer. There are two ways to defrost: (I) softly spud the frost on the surfaces with defrost shovel; (II) let the internal temperature rise naturally to thaw all frost accretion. Then clean up the water thoroughly with dry rag.
- Connect the power supply after defrost is completed to run your freezer.
- **Note:** Any electric heater, metal tool or edge tool CAN NOT be used during defrost operation.
- **Leave Unused:** If the unit is not used for long time, please disconnect power supply and maintain as the following procedures. For next time operation, ensure there is no any water around the liners to avoid the seal of door is frozen.
- **Clean:** Regularly clean the filter for better performance of freezer. (Procedure: Loose the two bolts in the ventilating panel and lay the panel flatly. Then loose the sit bolts in the filter and remove the dust with soft brush or wash it. Dry the filter before installing again.
- **Maintenance:** The freezer should be cleaned regularly. For Personal safety please cut the power supply for any maintenance! Wear special protective gloves and wipe the inward and outward walls with wet and soft rag.

Note: DO NOT sprinkle water on the faces of cabinets, which may decrease insulating property of electric parts and rust metal parts.

DO NOT use hot water, corrosive cleanser and organic solvent!

CHAPTER 5. SERVICE AFTER SALE:-

Some unexpected failures may arise during running. Please pay attention to the running status of your ULT freezer. If any exceptional case arises, please check and solve it according to the following introductions. If the problem is not solved well, please contact our service center for details.

Problem	Possible Cause and Solution
ULT freezer does not operate	<ul style="list-style-type: none"> • Power outage has occurred. • The plug is bad or not securely plugged-in. • Fuse is blown. • Voltage is too low or too high.
Compressor does not work	<ul style="list-style-type: none"> • Power in control panel is off. • Temperature setting is wrong.
Temperature is different than setting	<ul style="list-style-type: none"> • Frost in inner wall is too thick • The door is not closed properly or is opened too frequently. • Overfull materials are put into chamber. • Ambient temperature is too high.
Too great noise	<ul style="list-style-type: none"> • Freezer is not leveled well. • Freezer leans upon the wall.
The E4 system failure alarm	<ul style="list-style-type: none"> • Cause: The environment temperature higher than 25°C or the freezer body too near the wall, the ventilation is not good. • Solution: Please let the freezer body far away from wall than 30cm, and intake shouldn't jam. Clean the filter often. Notice the house ventilation or start the air-condition at the fervent summer

Below are normal operations:

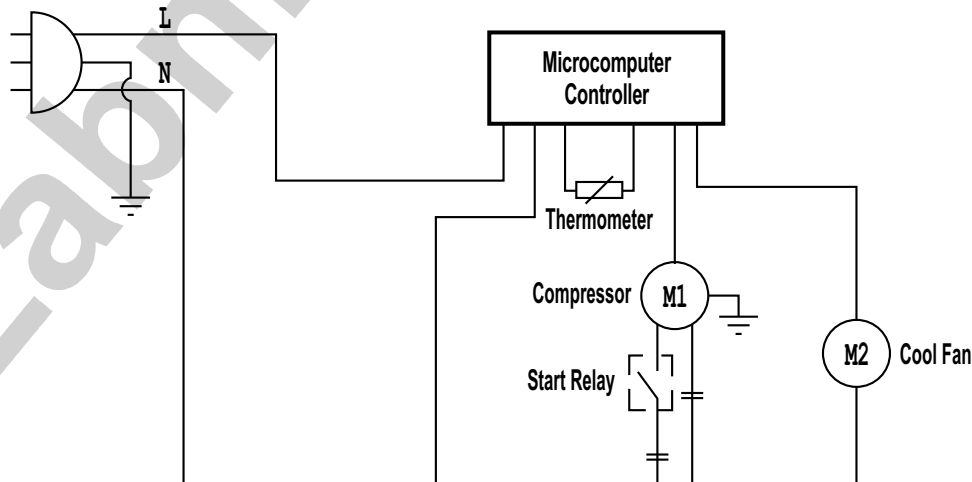
- When the compressor starts: The switch parts may cause slight clash, the storage room start first time will cause the long working time, and this is the normal operation.
- During rainy and watery season some frost may accumulate on the surfaces of cabinets. Please clean it with dry rag.
- DO NOT open the door twice within 5 minutes. This may lead the hot air into the interior of freezer and the door may be difficult to open because of a negative pressure due to a sharp decrease of temperature of this part air.
- The storage room may have the sound of liquid flow. This is the refrigeration to flow in the pipeline.
- The storage room inner is the low temperature stress release area, may have the light crack at the high or low temperature change.
- Please don't put the machine in the floor and carpet room, because the high humidity season, when low temperature runs, the freezer part may seep little condensation water.

CHAPTER 6. TECHNICAL SPECIFICATIONS:-

MODEL	LF-200B
Valid capacity (L)	138
Temperature	-40°C to -86°C
Input Power (W)	800
Size (mm)	890 x 1320 x 1009
Weight (Kg)	215
Catalog No.	04590201

CHAPTER 7. CIRCUIT DIAGRAM:-

Power Supply



SERVICE REPORT

Customer's Address : _____ _____	Tel.No.: _____ Fax No.: _____ Weekly Off.: _____
Contact Person / Designation : _____	Dept.: _____

Date	Time		System Configuration	Model	Serial No.	Date :	SR. No.	
	From	To					Status : OK <input type="checkbox"/>	Not OK <input type="checkbox"/>
						Installation <input type="checkbox"/>	Warranty <input type="checkbox"/>	
						Demonstration <input type="checkbox"/>		
						Maintenance <input type="checkbox"/>	Contract <input type="checkbox"/>	
						Repairs <input type="checkbox"/>		
						Application <input type="checkbox"/>	Billable <input type="checkbox"/>	
						Calibration <input type="checkbox"/>		
						Validation <input type="checkbox"/>	Courtesy <input type="checkbox"/>	

Nature of Problem : _____

Observation & Action Taken : _____

Customer's Remarks : _____

Parts Replaced : _____

Parts Recommended / Action Required : Yes <input type="checkbox"/>	No <input type="checkbox"/>	Requisition Number :
Service Engineer's Name & Signature	Customer's Name, Signature, Date & Stamp	



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