

ULTRA-LOW TEMPERATURE FREEZER



Instruction Manual



Model : LF-200D

Please read this manual carefully before using the instrument

Labnics Equipment

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CHAPTER1. SCHEMATIC PICTURE AND DESCRIPTION:-



Ultra-low temperature freezer is designed to store materials under very low temperature condition for hospitals, epidemic stations, blood banks, research institutes, universities, biological pharmaceutical industries and gene engineering, etc. The internal temperature in cabinet can be easily adjusted through the keys on control panel. All operations are convenient and reliable.

CHAPTER 2. PRE-INSTALLATION:-

- 1) **How to Transport:** Pick up the unit from the bottom of tank and a slant with 45° is acceptable. All transportation should be done carefully.
- 2) Remove all wrappers.
- 3) Check accessories and documents according to package list.
- 4) Clean the unit thoroughly before any operation.
- 5) **Installing Location:** Do not keep the unit in direct sunlight or near heating diffusers, radiators, or other sources of heat. The ambient temperature should not exceed 32°C. A minimum 20cm space on the sides, rear and top should be provided for better air circulation and heat discharge. Avoid location where there is too much cold, high humidity and can be easily splashed by water.

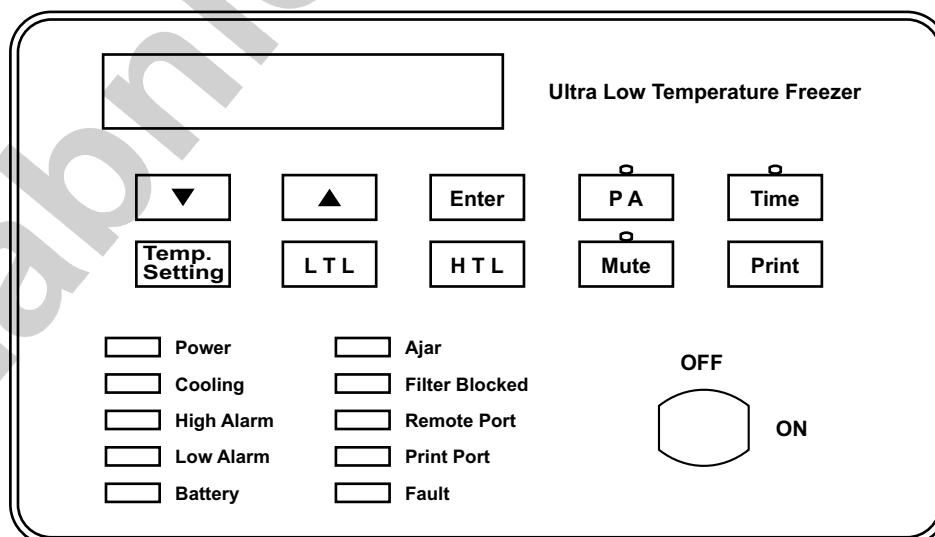
 Ultra Low Temperature Freezer Working Rule : **Running intermission**

Safety Introduction:-

- 1) **Power supply:** This LF-200D freezer is designed for operating under 220V/50HZ AC power supply. The unit can normally start under the voltage varying from 198V to 242V.
- 2) Must provide one single exclusive plug receptacle with credible grounding to the unit.
- 3) Inflammable and explosive materials, as well as high corrosive acid and alkali must be strictly prohibited in cabinet.
- 4) Keep the keys properly, so that the children's can't be able to open the back door which may result in unexpected injury.
- 5) To avoid cold injury, please place and remove goods with protective gloves.

CHAPTER 3. OPERATION DIRECTION:-

3.1 Function Introduction for Display Panel:-



- 40°C** : **Digital Code Display Window:** The window displays the real-time internal temperature of freezer under normal working condition, and displays different hint string under set condition.
- “▼” “▲”** : **Function Adjustment Pads:** Press these pads to show different functions combining with different function keys.
- “Enter”** : Press this key to activate all parameter adjustments.
- “PA”** : Keyboard locking function is developed in this unit. While unlocking the keyboard, modify the password and enter the right password. The default password is **“000”**. The upper indicator is in under unlocking status.
- “Time”** : For easy record and print of the saved temperature data, a built-in clock with YMDHM is developed.
- Temp.Setting** : This key regulates the storage temperature. The microcomputer control system will run automatically to maintain a stable temperature as setting.
- “LTL”** : When the temperature in chamber decreases below the low temperature limit (LTL) setting, system will alarms to show warning.
- “HTL”** : When temperature in the chamber is higher than the high temperature limit (HTL) setting, system will alarms to show warning (During the initial start-up, a **“HTL”** alarm is a normal phenomenon but after stabilizing temperature **“HTL”** alarm will stops. Now you can keep your goods in the freezer.)
- “Mute”** : To stop alarm buzzing. The upper indicator is on.
- “Print”** : This unit develops a function of automatically printing the real-time temperature data and manually printing the latest seven day's data.
- “Power”** : This indicator lights up when the power is on.
- “Cooling”** : This indicator lights up when the compressor is running.
- “High Alarm”** : This indicator blinks and alarms when the temperature in chamber is higher than the HTL setting.
- “Low Alarm”** : This indicator blinks and alarms when the temperature in chamber is lower than the LTL setting.
- “Accum”** : This indicator lights up when the voltage of accumulator decrease below 50% of the rated value. During the initial start-up, **“Accum.”** alarm is a normal phenomenon but after the accumulator gets charged, **“Accum.”** alarm stops automatically.

“Ajar”	: This indicator blinks and alarms if the door opens for more than 1 minute. After the door gets closed, the alarm will stop.
“Filter Blocked”	: After long time running of the instrument, if some dust and impurities may block the filter to decrease the performance of unit then this indicator gets light up. The indicator will return to its normal state after the filter is cleaned.
“Remote Port”	: This indicator lights up when the remote port is successfully connected.
“Print Port”	: This indicator lights up when the matched micro-printer is properly connected.
“Fault”	: The Digital-Code window display corresponding error code when this indicator lights up. The code "E4" denotes that the ambient temperature is too high, so user should assure that the ambient temperature should 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.
“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 "ON" the power.
- 2) The initial password for locking keyboard is **"0000"** in factory. Before entering the password, the **"Temp."**, **"LTL"** and **"HTL"** keys are all disabled while **"PA"** is displaying in the display window.
- 3) **Unlock Password:** Press **"PA"** to make the input window active. The display window blinks and shows **"PA"**. Press **"▲"**, the **"PA"** will disappears. Now press **"▲"** to change the input single bit which circularly blinks from the thousand bit to One bit in turn. Press the key once for one bit. Then press **"▼"** to enter 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 entering all four bits password, press **"Enter"**. If the password entered is right, the display window will stop blinking and display the entered right password. Only after entering the password, all functions and parameter changes and setting will be activated. Under unlocking status, if no keys are pressed within 5 minutes, the system will go to locking status.
- 4) **Set Password** : Under unlocking state, press **"PA"** then the display window blinks and shows **"P0000"**. Press **"▲"** to change the setting bit which circularly blinks from thousand bit 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 entering 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”**: Press **“Mute”**, the mute indicator lights up and the alarm buzzer switches to alarm-off status. Now, the alarm buzzer will get stopped in case of any error.
- 6) **Disable “Mute”**: Press **“Mute”** again, the mute indicator get closed and the alarm buzzer switches to alarm-on status. The buzzer may work and it will stop only when the system comes to its normal working condition. Press the **“Mute”** key again to close the alarm buzzer. Then the mute indicator lights and the buzzer switches to alarm-off status.
- 7) **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. Now 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 you don't press the **“Enter”** key, the display window will keeps 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 High Temperature Limit (LTL):-**

Press the **"LTL"** key, the system comes 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 you don't press the **"Enter"** key, the display window will keeps 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 15°C lower than the set temperature and the default value is 5°C lower than the set temperature.

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

Press **"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 you don't press the **"Enter"** key, the display window will keeps 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) **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 this state, 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, 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 display window which 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, so that the system switches to auto print mode. Now AUTO displays in the LCD window and the print indicator lamp changes to normally bright. Under this mode press the print key of printer to automatically print recorded data. All data are printed per 5 minutes with a format as **"Year, Month, Day, Time, 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 minutes in a format as **"Year, Month, Day, Time, Temperature"**. When print completes, the buzzer buzzes for 5 seconds, and 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 a 6~8 hour's there should be no-load running before storing materials is recommended.

CHAPTER 4. DEFROST, UNUSED, MAINTENANCE:-

1. 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.
2. 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.
3. Connect the power supply after defrosting is completed to run your freezer.
4. **Note:** Any electric heater, metal tool or edge tool **CAN NOT** be used during defrost operation.
5. **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 that there is not water around the liners to avoid the seal of door is frozen.
6. **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.
7. **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 LF-200D 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
ULT freezer does not operate	<ul style="list-style-type: none">• Power outage has occurred.
	<ul style="list-style-type: none">• The plug is not properly plugged-in.
	<ul style="list-style-type: none">• Fuse is blown.
	<ul style="list-style-type: none">• Voltage is too low or too high.
Compressor does not work	<ul style="list-style-type: none">• Power in control panel is off.
	<ul style="list-style-type: none">• Temperature setting is wrong.
Temperature is higher than setting	<ul style="list-style-type: none">• Frost in inner wall is too thick.
	<ul style="list-style-type: none">• The door is not closed properly or is opened too frequently.
	<ul style="list-style-type: none">• Overfull materials are put into chamber.
	<ul style="list-style-type: none">• Ambient temperature is too high.
Too great noise	<ul style="list-style-type: none">• Freezer is not leveled well.
	<ul style="list-style-type: none">• Freezer leans upon the wall.

Below are normal operations:

- There are some light clashes when the compressor starts up and stops.
- 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.

CHAPTER 6. TECHNICAL SPECIFICATIONS:-

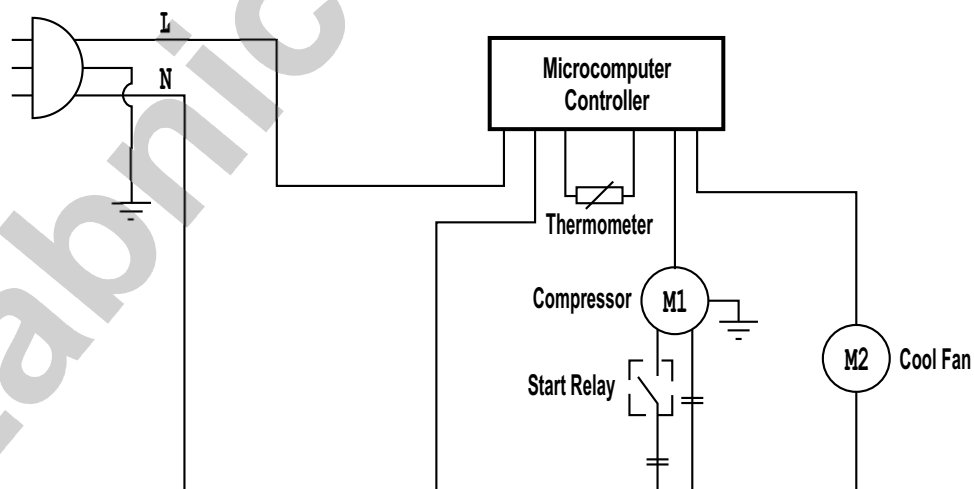
Model No.	LF-200D
Climatic Type	N
Storing Temperature	-10 ~ -86°C
Valid Capacity (L)	328
Rating Voltage (V)	220
Rating Frequency (HZ)	50
The Facility Safe Types	I Kind B Type
Input Power (W)	1800
Refrigerant	Mixture
Size (D x W x H) mm	940 x 840 x 1999
Weight (Kg)	320
Catalog No.	04590204

The encasement list :

Item	Instruction Manual	Key	Defrost shovel
Qty	1	2x2	1

CHAPTER 7. CIRCUIT DIAGRAM:-

Power Supply



All technical parameters and circuit diagram in nameplate are final ones for your units.

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	