



# Operation Manual

The following product models are applicable:

Biomedical Freezer

DW-YL450

Ultra Low Temperature Freezer

DW-FL450

Combined Refrigerator and Freezer

YCD-EL450 / YCD-FL450





Better science, Better life!

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	Do not place the equipment in areas exposed to the sun or rain, so as to prevent danger such as short circuit or overheating.
	Do not tilt or lay the equipment sideways, and do not impact the equipment body; Refrigeration systems are installed in the equipment, which is easy to be damaged by tilt or impact.
	Please place the equipment in a dry and dust-free environment to avoid risks such as overheating, and short circuit.
	In case of unexpected sound, smell, smoke, etc. when the power is turned on, please unplug the power in time and contact the manufacturer or supplier.
	Please place the equipment in a dry and ventilated environment, and ensure that the equipment vents and instrument surfaces are not blocked or shielded by walls or other objects; Do not use it in a poorly ventilated environment to prevent damage caused by heat released by equipment.
	It is forbidden to disassemble and modify this equipment without authorization, so as to avoid potential safety hazards. In this case, MELING BIOLOGY & MEDICAL will not bear any responsibility for quality accidents.
	It is forbidden to put inflammable and explosive dangerous goods, strong corrosive acids, alkalis and other items unsuitable for the equipment in the equipment.
	When storing toxic, harmful or radioactive materials, please use the equipment in safe areas. Improper use may cause harm to human health or environment.
	Metal objects such as nails or iron wires shall not be inserted into any aperture and gap or any outlet of the equipment, otherwise electric shock or injury may be caused due to accidental contact between the above objects and moving parts.
	In order to ensure the normal operation, ventilation and heat dissipation of the equipment, the back, left and right sides of the freezer body should be at least 30 cm away from the wall, and the air inlet and air outlet shall not be blocked by obstacles!
	This equipment must be connected to a ground wire.

	<b>Note:</b> Failure to observe the precautions may result in personal injury or equipment failure and related property losses.
	It is forbidden to store living animals, flowers or other items with strict temperature requirements in the equipment.
	When the equipment is running, do not touch the inner surface of the cabinet without wearing protective gear.
	Hold the handle and close the door to avoid pinching your fingers; When the equipment is not used for a long time, please unplug it and pack it for storage.
	When restarting the equipment after power failure or power off, please check the equipment settings first, otherwise the stored items may be damaged due to the change of settings.
	The equipment can be used for item preservation, not as production equipment!
	Keep the keys properly, so as to avoid accidents when children open the door accidentally.
	When handling the equipment, please be careful not to tip over the equipment, so as to prevent equipment damage or personal injury.
	When handling, it shall be lifted from the bottom, with the inclined plane not be greater than 45°, and it shall be handled with care. Please use the equipment in safe areas. Improper use may cause harm to human health or environment.





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### 4.3 Preparation before Use:

1. Remove the outer packaging of all products (including the protective foam in the packaging box)



**Warning:** Don't put the plastic bags within the reach of children, so as to prevent suffocation accidents.

2. Inventory of accessories: Please check the accessories and materials according to the packing list.
3. Cleaning: Clean the product once before use.

### 4.4 First Power-on

When using the equipment for the first time, please follow these steps:

1. After the equipment is placed, leveled and cleaned, it shall stand for more than 24 hours, and then power it on to ensure the normal operation of the equipment.
2. Under no-load condition, connect the power cord to a special outlet with appropriate specifications.
3. After powering on, turn on the power switch of the equipment.
4. Check whether the operating temperature of the equipment reaches the required value, observe the normal start and stop of the equipment for more than 24 hours, and put a small amount of items in the freezer after confirming the normal performance.
5. Please store items in batches, with the items not exceeding 1/3 of the freezer volume each time. Ensure that the equipment is running properly after shutdown for more than 12 hours before putting in the next batch of items).
6. Try not to open the door during cooling, otherwise the temperature will rise.

### 4.5 Operation after Power Failure

1. The equipment has a memory function for the set value. When the power is restored after power failure, the equipment will continue to operate before power failure.
2. Once the equipment is powered off, it requires 5 minutes before it can be switched on again, so as to avoid damaging the compressor.
3. We guarantee the normal operation of this equipment under certain conditions, but we are not responsible for any loss or damage of stored items after power failure.



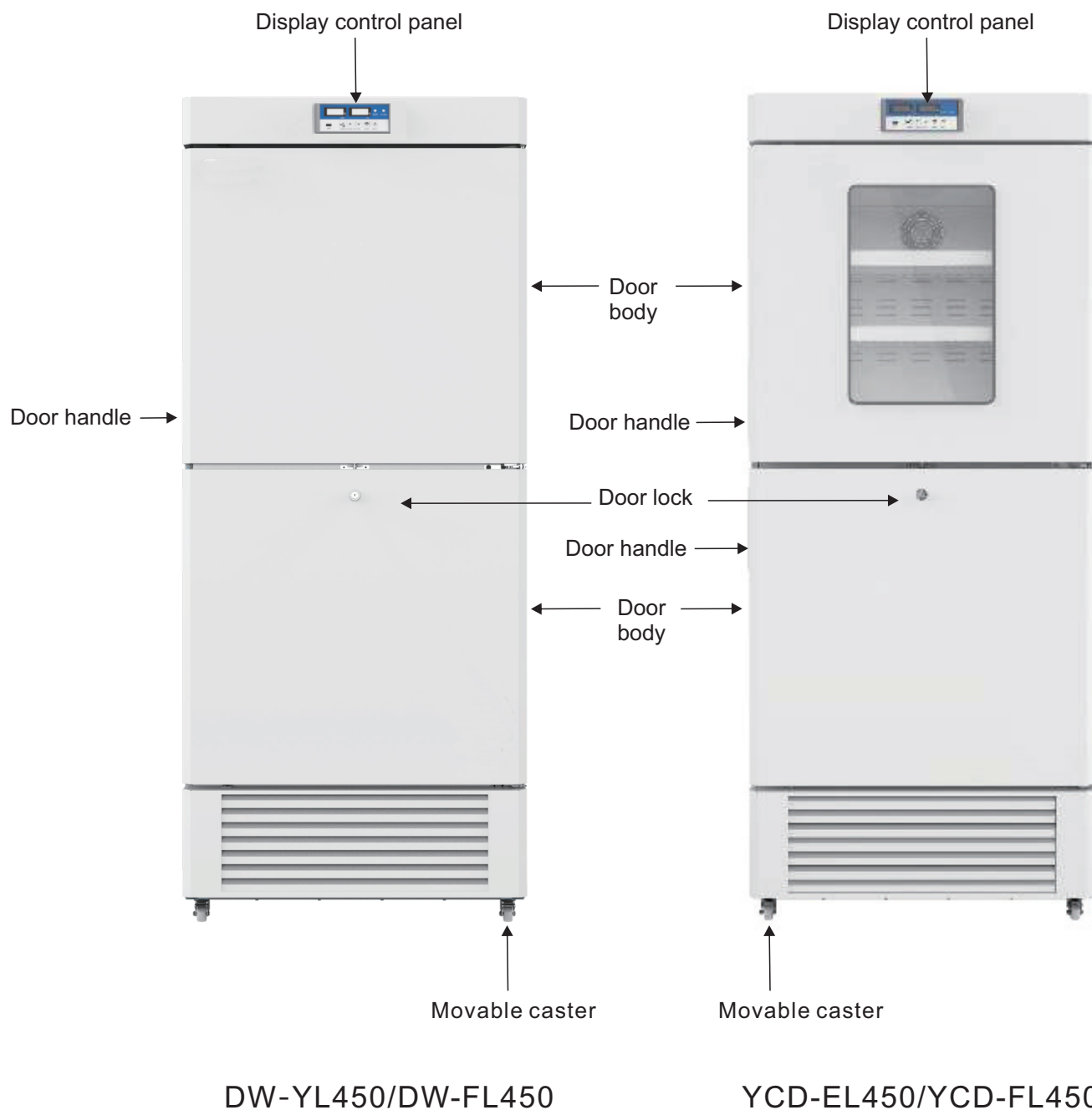
#### Notes:

- ◆ The transportation and movement of equipment is realized by casters.
- ◆ A special person shall be responsible for checking and recording the running status of the equipment every day (record and check once every 2-4 hours). In case of failure or shutdown, the temperature in the freezer will rise. If it cannot be repaired in a short time, please take out the stored items and transfer them to a place that meets the temperature requirements for storage to avoid damage to the items.
- ◆ Before putting items into the equipment, it shall be confirmed in advance whether the temperature range of the equipment meets the temperature requirement of the items, so as to avoid damage to stored items due to the difference between the settable temperature of the equipment and the required temperature of the items. Please pay attention not to block the air outlet and air inlet when putting items into the equipment.
- ◆ Due to the refrigeration inertia, there is a certain difference between the actual display temperature and the set temperature of the equipment, which is a normal phenomenon.
- ◆ The equipment is an item storage equipment, which cannot be used for routine production operations. It is strictly forbidden to put too many items which are relatively hot into the equipment at one time, otherwise the compressor will run for a long time, and be burned due to high temperature. Items must be put in batches, so as to ensure that the freezer is cooled step by step until the temperature required for storing items is reached.
- ◆ Electrical appliances without production license shall not be used inside the equipment.
- ◆ Do not change the set temperature frequently in a short time, otherwise the expected setting effect may not be achieved due to the large temperature inertia; Ensure that there is a certain air circulation space around the cabinet when putting in items, especially do not block the temperature sensor in the cabinet (for collecting the temperature of the cabinet), otherwise it will affect the stability and accurate control of the temperature in the freezer body!
- ◆ Items shall not be placed directly at the bottom of the freezer, but on the bottom shelf, otherwise the refrigeration effect of the equipment will be affected.
- ◆ When putting in items, if the moisture content of the items is too much or too little, it will affect the humidity change in the cabinet, so it is best to keep the items sealed; The humidity of the working environment will affect the change of humidity in the cabinet, especially if the door is opened too frequently and the door is not closed properly.



**Warning:** Children are not allowed to play with this equipment as a game prop, otherwise the injury or loss caused therefrom will be at their own risk.

## 5. Product composition and overview



Scope of application of medical low temperature freezer: It is suitable for storing items at low temperature in hospitals, epidemic prevention stations, blood stations, research units, factories and other units.

\* Due to the improvement of products and model difference, the actual products may be different from the diagram. Please refer to the actual products! The diagram is only used for functional parts description.

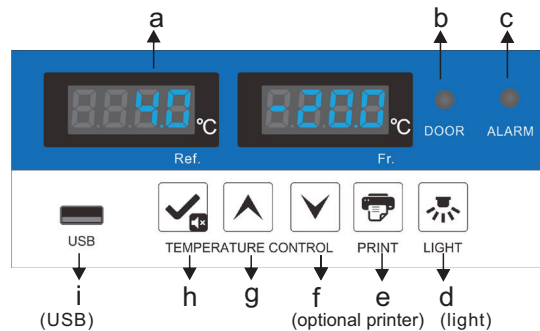
\* Application scope of ultra low temperature freezer: It is suitable for low-temperature storage items for hospitals, epidemic prevention stations, research units and factories.

\* Structure and composition: The product consists of freezer body, door body, refrigeration system and control system.

Scope of application of refrigeration freezer: It is suitable for storing items by refrigeration or freezing in hospitals, epidemic prevention stations and scientific research institutes.

## 6. Operating Instructions

### 6.1 Function Introduction



- a. 4.0-20.0 is a temperature display window, which displays the average temperature of the upper chamber and the lower chamber of the freezer body in °C under normal operation. (The upper and lower chambers of DW-YL450 are set at -10 ~ -25°C; The upper and lower chambers of DW-FL450 are set at -20 ~ -40°C; The upper chamber of YCD-EL450 is set at 2 ~ 8°C, and its lower chamber is set at -10 ~ -26°C; The upper chamber of YCD-FL450 is 2 ~ 8°C and its lower chamber is set at -10 ~ -40°C;) Different prompt characters can be displayed in the setting state (see below for details);
- b. Door opening indicator: When the door is opened, the indicator lights up. After more than 1 minute, the door opening alarm indicator light will be on and the buzzer triggered, displaying "door."
- c. Fault indicator light: When the product runs normally, the indicator light is off; The indicator light is on for operation abnormality.

d. "LIGHT" (optional): After the equipment is powered on, the light is off by default, and the on-off of the light can be adjusted by the on-off key. When the light is out, it will be turned on by opening the door and then turned off by closing the door; When the light is on, it will keep on if you open or close the door.; When the light is off, it does not change when the door is opened or closed. This equipment has two functions: automatic lighting and manual lighting. In the automatic lighting state, the lighting lamp will be on immediately when the door is opened, and the lighting lamp will be off after a 5 seconds delay; The user can also turn on the lighting lamp manually. In this case, the lighting lamp is always on (the indicator light above the key is on) without being controlled by the door opening and closing. Only when the manual lighting is turned off by pressing the light switch key again can the lighting lamp be automatically on (the indicator light above the key is off).

e. "PRINT " (optional printer): The system can keep 7 days of data for printing, and press the print key to print the temperature within the set time period.

f. : In parameter setting mode, reduce the parameter value. For example, when setting the set temperature, reduce the set temperature. When setting the parameter value, long press the down button, and the parameter will decrease rapidly.

g. : In parameter setting mode, increase the parameter value. For example, when adjust the set temperature, press this button to increase the set temperature value. When setting the parameter value, long press the up button, and the parameter will increase rapidly. Under normal conditions, long press the up key for 3 seconds to import the data of the USB flash drive in 12 months.

h. : is the set/mute key; In case of no alarm state and key unlock state, press display the ambient temperature for 5s and then return to normal display; In the unlock state, press for more than 3s, can enter the user menu.

When buzzer is triggered (including cabinet including high temperature alarm, door opening alarm, sensor fault alarm, etc.) and in the button unlock state, press for the first time, and the buzzer stops ringing, and the ambient temperature is displayed for 5s, after which the normal display is resumed (pressing the mute button is only to turn off the buzzer for alarming this abnormal state, if the fault is not eliminated after 5 minutes of mute, the buzzer will alarm again.) Then press , and the buzzer alarms, and after displaying the ambient temperature for 5s, the cabinet temperature and alarm state are resumed. In the key unlock state, can be used as a setting key.

In unlock state and parameter setting mode, press this key to display parameter values and parameter names. If the pressing time is longer than 3 seconds, save the settings and return to the normal interface.

#### i. USB interface

Automatic export of USB data: When USB is connected to USB interface, buzzer beeps once after data transmission is completed, "USB" is displayed in the upper chamber, "on" is displayed in the lower chamber, PDF files of data of current month and last month are generated in USB, buzzer beeps once after data transmission is completed, "End" is displayed, and normal display resumes after 6 seconds.

**Note:** When there is less data, "USB," "on" and "End" prompts are not displayed.





Manual export of USB data: In the key unlock state, when the USB flash drive is connected and the file is not being generated, press the up key for 3 seconds, and the digital tube in the lower chamber will display "d01." Press the key up or down key to adjust "d00~d12," and press key to cancel the file generation (d00) or generate the PDF file of the record data of the previous months (JAN-DEC).


**Note:** When the alarm of the digital tube flashes and displays "LoF," the recorder is not started; Meanwhile press and key for 3s, and "LoF" disappears, the recorder is started.

## 6.2 Function Settings

1. After powering on, the machine will enter into the working state;

2. User parameter settings:


Unlock: Under normal operation, press  and  key for 3 seconds at the same time, and the digital tube in the upper chamber will display "PS1" and the digital tube in the lower chamber will display the parameter code "0000." Press , enter the password "0005" (when entering the user menu password, enter "0099" to restore the key lock password to the default "0005." ), and unlock it. Unlock and press  key for 3s, and the digital tube will display the parameter code "PS1," and enter the setting and adjustment parameters.


① Use  to scroll the parameters, and the display order is as follows: b1→b2→Set1→H01→L01→Set2→H02→L02→n→y→r→S→F→Pt→tH1→P1→Ps1.

② Use  or  to increase or decrease the value;

③ Use  to temporarily store the modified values and return to the display parameters;

④ If other parameters are modified, repeat steps ①~③.

⑤ Press  for more than 3s, save the modified parameters and return to the display parameter category.

3. Press  for more than 3s, or press no key in 60S to exit the parameter setting program.

4. Parameter display

No.	Menu item	Parameter Range	Suggested settings	Remarks
1	b1	--	--	Hardware version
2	b2	--	--	Software version
3	Set1	DW-YL series: -10~-25 DW-FL series: -20~-40 YCD-EL series: -10~-26 YCD-FL series: -10~-40	DW-YL series: -25 DW-FL series: -40 YCD-EL series: 5 YCD-FL series: 5	Upper chamber temperature setting
4	H01	0.0~10.0	5.0	Set value of high temperature alarm set+H; When H=0, High temp alarm is disabled; When the alarm is over high temp alarm set, H1 will be displayed on the controller
5	L01	0.0~10.0	5.0	Set value of low temperature alarm set-L; When L=0, Low temp alarm is disabled; When the alarm is below low temp alarm set, L1 will be displayed on the controller
6	Set2	DW-YL series: -10~-25 DW-FL series: -20~-40 YCD-EL/FL series: 2~8	DW-YL series: -25 DW-FL series: -40 YCD-EL series: -20 YCD-FL series: -40	Lower chamber temperature setting
7	H02	0.0~10.0	5.0	Set value of high temperature alarm set+H; When H=0, cancel the alarm; When the temperature is too high, the high temperature alarm displays H02
8	L02	0.0~10.0	5.0	Set value of low temperature alarm set-L; When L=0, cancel the alarm; When the temperature is too high, the high temperature alarm displays L02
9	Pt	0-240 min	20	Print interval
10	tH1	20.0~50.0℃	50	Upper limit of ambient temperature alarm
11	P1	Automatic heating mode 1 Automatic heating mode 23. Automatic heating mode 34. Always on5. Always off	1.(Set to 4 when the door is with condensation)	Mode 1: It shall be judged as once after the door is opened and closed once and heated for 5min (time setting). If the door is opened and closed again during the heating period, the heating time will be updated again; Mode 2: After the compressor is running. Heater on; When the compressor stops, the heater is delayed for 1 minute for turn-off; Mode 3: When the humidity in the cabinet is more than 80%, the door heating is on, and when the humidity in the cabinet is moderately less than 60%, the door heating is off; Mode 4: Door heating is always on; Mode 5: Door heating is always off.
12	Ps1	0000~9999	0005	User menu password settings

## 5. Alarm display

Alarm Code	Default Description
H01	Upper chamber high temperature alarm
L01	Upper chamber low temperature alarm
H02	Lower chamber high temperature alarm
L02	Lower chamber low temperature alarm
H03	High ambient temperature alarm
door	Door opening alarm
PF	Power failure alarm
bL	Low battery alarm
EE	Communication failure
E2	Upper chamber temperature sensor alarm
E4	Lower chamber temperature sensor alarm
Er	Recorder not connected
Pr	USB Data logging failure
LoF	Recorder not started

## 6.3 Optional Function

### 1. Printer

Automatic printing:

When the printing interval  $P_t$  is not 0, the printer prints the current data every  $P_t$  minutes.

Note: When the printing interval  $P_t$  is less than the recording interval  $SC_y$ , it is printed according to the recording interval; the remaining printing intervals are printed as an integral multiple of the recording interval  $SC_y$ , that is: the printing interval  $P_t$  should be set as an integral multiple of the recording interval.

Manual printing:

When the key is unlocked and the working voltage is normal, press the print key to display "P01" by the digital tube, press the up key or down key to adjust "P00~P07." Press the set/mute multiplexing key or print key, and the printer will cancel the manual printing (P00) or print the data recorded in the previous days (1 ~ 7), with the data interval same as the automatic printing interval.

Printing paper installation:

The printing paper has been installed at the factory. When the paper is used up after a long time, you may purchase the same paper for installation. The installation steps are as follows:

- ① Click the cylindrical button on the printer to open the cover of the printer;
- ② Put the printing paper into the printer box and pull the paper head of the roll so that the paper slightly exposes from the upper port of the box cover after the box cover of the printer is closed;
- ③ Close the box cover.



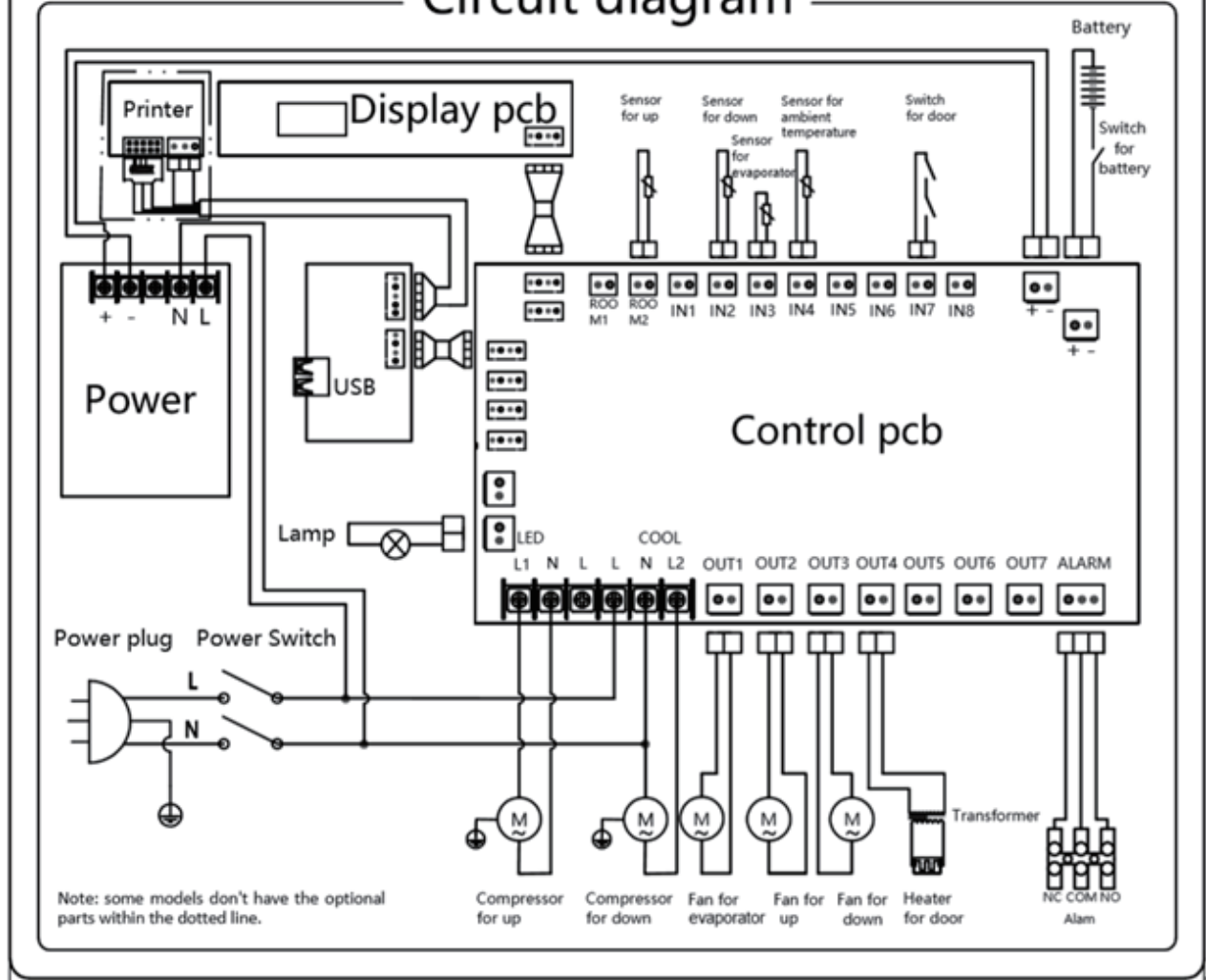








# Circuit diagram



YCD-EL450/YCD-FL450

\* The technical data and electrical schematic diagram shall be subject to the nameplate on the product and the electrical schematic diagram in case of any improvement of the product design. We sincerely apologize for any inconvenience that might be caused.





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Material Code:890305660

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