Ultra-Low Temperature Freezer

Operation Manual

The following product models are applicable:

DW-HL398/M/SA/HC
DW-HL528/M/SA/HC
DW-HL678/M/SA/HC
DW-HL778/M/SA/HC
DW-HL858/M/SA/HC
DW-HL1008/M/SA/HC
DW-HL50/HC
DW-HL100/HC
DW-HL218/HC
DW-HL340
DW-HW50/HC
DW-HW138
DW-HW328
DW-HW668

Zhongke Meiling Cryogenics Company Limited

MELING
BIOMEDICAL

Better science, Better life!

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1. Application Notes

Thank you for choosing MELING BIOMEDICAL products! For your safe and convenient use and reasonable maintenance of the equipment, please read the Operation Manual carefully before use and keep it properly for reference.

The equipment operator can copy some chapters of this operation manual, but only for internal use, for example, to instruct the user how to deal with emergencies. These chapters are clearly marked in the catalog of the manual.

MELING BIOMEDICAL has no obligation and responsibility for any instrument damage caused by the user's failure to use the equipment according to the instructions or the method specified by the manufacturer.

Due to the rapid improvement of MELING BIOMEDICAL products, the functions described in the instructions may be inconsistent with those of the products you purchased. Please refer to the physical functions.

- Please read carefully the Attention and Safety Precautions in 2. Safety Instructions.
- During transportation or use, no violent vibration or collision is allowed and the freezer shall be kept away from rain. Store in a clean room with humidity no more than 80%, no corrosive gas and good ventilation.
- The ultra low-temperature freezer (hereinafter referred to as equipment) can only be operated by trained and authorized personnel.
- Maintenance of the equipment can only be completed by MELING BIOMEDICAL or an agent authorized by MELING BIOMEDICAL.
- If the operator encounters any situation not mentioned in this manual, please contact MELING BIOMEDICAL or the agent authorized by MELING BIOMEDICAL for the correct handling method.
- If the equipment is not used according to the method specified in the specification, it may be damaged.
- Try to use the accessories provided by MELING BIOMEDICAL. If users would like to use other accessories, MELING BIOMEDICAL will not be responsible for the adverse consequences caused therefrom.
- Equipment must be inspected and maintained regularly to ensure good operation of the equipment.
- The Ultra-Low Temperature Freezer is intended for cryopreservation of plasma, cells, tissues, etc; is applicable to blood stations, hospitals, epidemic prevention stations, research institutes etc.
- Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.

Warning:

After each access, be sure to dry the water stains around the sealing strip to prevent freezing. Wear protective gloves when storing items in the equipment, and beware of frostbite!

- Always use protective equipment correctly (including clothes, gloves, goggles, etc.)
- Always keep good hygiene habits
- Each personnel is obliged to be responsible for his or her own safety

2. Safety Instructions

When using this product for the first time, please pay attention to the meaning of the following warning signs and carefully read the safety precautions, so that you can use this equipment safely and correctly.

Warning! Failure to observe the precautions may result in serious personal injury or death.	**Attention!** Failure to observe the precautions may result in personal injury, equipment failure or related property losses
Protective conductor terminal	**Risk of explosion.** This sign indicates the risk of an explosion when using volatile and explosive chemicals.
Warning: crushing of hands.	Beware of fire
Beware of low temperature.	

Warning: Failure to observe the precautions may result in serious personal injury or death.
Do not touch the equipment with wet hands to avoid electric shock; Equipment shall not be grounded through a gas pipeline, water supply pipeline, telephone line or lightning rod, which may easily cause electric shock.
This equipment can only be installed by professional technicians or after-sales maintenance personnel, it may cause electric shock or fire.
Be sure to install the equipment on a solid and flat ground and take due care to prevent tipping over. If the ground is not solid enough or the installation location is not appropriate, it may cause the equipment to fall over and cause equipment damage or personal injury.
Please handle the power cord carefully to avoid short circuits or open circuits. Please turn off the power before pulling out the power plug. Hold the power plug carefully and pull it out. Do not pull the wires of the power plug. Otherwise, it may cause electric shock or fire due to a short circuit. Don't bundle the power cord, don't press it under furniture or heavy objects, and don't get it close to heat sources such as compressors.
Please insert the power plug into the outlet tightly to ensure firmness and reliability to avoid electric leakage; After installation, the power plug must be within reach, so that the power cord can be unplugged in time in case of an emergency.
Separate special outlets must be used and grounded reliably. The cross-sectional area of the copper conductor in the wall connected with the outlet must be more than 4mm^2. Do not lengthen the power cord without authorization to avoid heating or fire.
Do not use the power supply that is not specified in the equipment design, so as to avoid overheating, short circuit and other faults. For example, connecting 110V rated voltage products to 220V power supply may cause faults such as overheating and equipment burning. For detailed input voltage AC please refer to Specification (Rated voltage ±10%).If the operating voltage is too low or too high, a suitable automatic voltage stabilizer must be installed for cooperative use.
Please place the equipment steadily and avoid shaking.
Do not place the equipment in a dangerous area and do not operate the equipment near flammable items to prevent explosion or fire accidents.
Vents and drains are located at the bottom of the equipment. It is forbidden to place items at the bottom of the cabinet.

	Do not place the equipment in areas exposed to the sun or rain 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 can be easily damaged by tilting or impact.
	Please place the equipment in a dry and dust-free environment to avoid risks such as overheating and short circuiting.
	In case of unexpected sounds, 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 to avoid potential safety hazards. In this case, MELING BIOMEDICAL will not bear any responsibilities 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 as Improper use may cause harm to human health or the 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 an electric shock or injury may be caused due to accidental contact between the above objects and moving parts.
	In order to ensure the normal operations and ventilation and heat dissipation of the equipment, the back, left and right sides of the freezer body should be at least 30cm away from the wall, and the air inlet and air outlet must not be blocked by obstacles!
	This equipment must be connected to a ground wire.

	**Note:** 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 to avoid accidents when children open the door accidentally.
	When handling the equipment, please be careful not to tip over the equipment to prevent equipment damage or personal injury.
	When handling, it shall be lifted from the bottom, with the inclined plane not 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 the environment.

3. Precautions in Use

- When the equipment is running, the contact part between the front part of the equipment and the outer door may generate heat. This is not a fault: in order to prevent condensation around the casing, a heating anti-condensation pipe is installed in the equipment.
- Before putting the items into the equipment, please confirm that the temperature in the freezer has reached the set value first, and then put the articles in batches. Every time you put in items, they shall not exceed 1/3 of the inner volume of the freezer so as to prevent excessive temperature rise.
- The freezer body is provided with a access port so as to lead out the test line from the cabinet during the test. After the test line is led out, it is necessary to plug the access port with thermal insulation material again, otherwise the temperature inside the freezer may not reach the set value, and condensation will appear around the outside of the through hole.
- The equipment temperature display value is the temperature at the temperature sensor in the freezer. There is a certain gap between the displayed temperature and the actual temperature at the center of the equipment when the equipment just starts running, but as the equipment enters a stable state, the displayed temperature will gradually approach the actual temperature.
- Please use a diluted neutral cleaner to clean the equipment, and do not use brushes, acid, gasoline, soap powder, polishing agent or hot water to clean the equipment, otherwise the painted surface and plastic rubber parts may be damaged. Be careful not to wipe plastic rubber parts with volatile solvents such as gasoline.
- After a period of operation, a layer of frost will form on the inner wall and inner door of the freezer body. If the frost layer is too thick, it will affect the heat preservation effect of the equipment and increase the power consumption. Therefore, once in a while, when the frost layer reaches about 5mm, the attached defrosting shovel shall be used for defrosting.
- Before defrosting, please take out the frozen items in the freezer and put them in an environment suitable for their storage, so as to prevent the item damage due to the temperature rise in the freezer during defrosting.
- Since there are many cooling coils behind and on the side of the inner wall, do not use sharp objects such as knives, ice chisels or screwdrivers to remove frost from the inner wall. Be careful not to scratch the inner wall when defrosting, otherwise it may lead to the failure.
- When the equipment is not used for a long time, the power supply shall be cut off.

4. Product Installation

4.1 Installation Environment

- Ambient temperature: 16°C ~ 32°C, the most ideal temperature is 18°C ~ 25°C, and the air conditioning system shall be used when necessary.
- Relative humidity: ≦80%RH.
- There is no strong vibration and corrosive gas around.
- Avoid the existence of a large amount of dust.
- Avoid rocking or shaking the equipment.
- Elevation of the working position of the equipment: less than 2000m.
- Indoor use, pollution degree 2, and overvoltage category II.
- For detailed input voltage AC please refer to Specification(Rated voltage ±10%).
- There is no direct sunlight, other cold and heat sources and strong electromagnetic interference, which will affect the normal operation of the control system and directly damage the system in severe cases.

Attention: Since the ambient temperature has great influence on the equipment, if the above environmental requirements cannot be met, the equipment may not run normally. Please improve the environment before using the equipment; The equipment is operated intermittently.

4.2 Installation Site

In order to operate the equipment normally and obtain the best performance level, the installation site of the equipment shall meet the following requirements:

- It cannot be installed in a narrow and closed space, and the door of the room shall not be smaller or lower than this equipment, which shall at least ensure the normal access of the equipment, so as to avoid the maintenance difficulties in case of equipment failure, which may result in damage to stored items due to the failure to repair the equipment in time;
- The installation floor must be solid, flat, non-combustible and able to bear the weight of the equipment during operation;
- It shall be with good ventilation, and direct sunlight shall be avoided.
- Each equipment needs to use a power outlet independently. Please ensure that the plug and outlet are firmly connected;
- Check the working voltage before use. In areas with unstable voltage, consider using a voltage stabilizer suitable for the equipment load to ensure that the input voltage requirements in the installation environment are met.
- Equipment shall be reliably grounded. If the power cord outlet is equipped with grounding wire, check whether the grounding is good before use. If the outlet is not equipped with grounding wire, it must be installed by professional engineers and technicians.

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. Adjust anti-skid leveling feet: Please use a wrench to rotate the fixing foot clockwise so that the fixing foot extends outward and is supported on the ground. Ensure that the equipment will not move when in 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 switching on, turn on the power switch of the equipment (if the auxiliary cooling system is installed, turn off the switch first).
4. Set the required temperature in the freezer (in order to give full play to the best performance of the freezer, if the user needs to use the freezer at a storage temperature below -80°C, please set the temperature at -80°C when using it for the first time. After the system runs stably at -80°C for 3~4 hours, the temperature can be further lowered to below -80°C!).
5. In case of an alarm after power-on for the first time, click the mute button to eliminate the alarm sound.
6. 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.
7. 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).
8. Try not to open the door during cooling, otherwise the temperature will rise.
9. Turn on the auxiliary cooling system if it is installed.

4.5 Operation after Power Failure

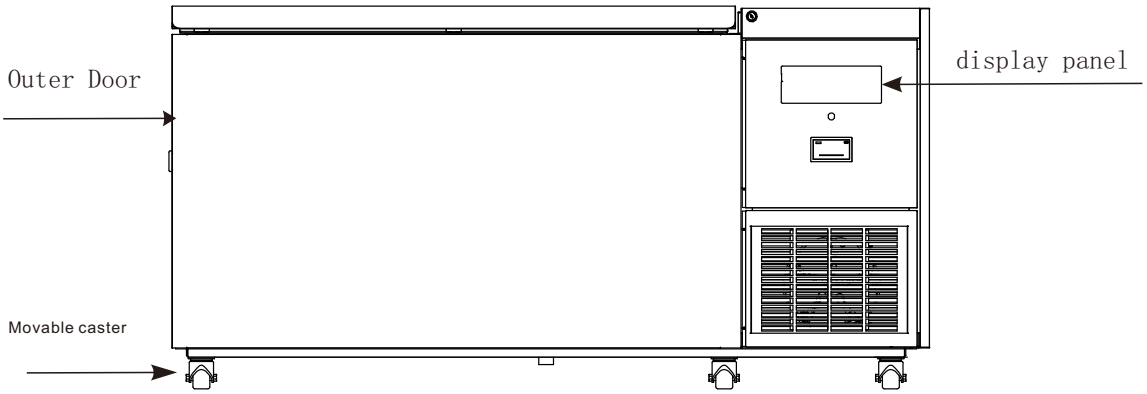
1. The equipment has a memory function for the set value. When the power is restored after power failure, the equipment will continue to operate before power failure.
2. Once the equipment is powered off, it requires 5 minutes before it can be switched on again, so as to avoid damaging the compressor.
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:

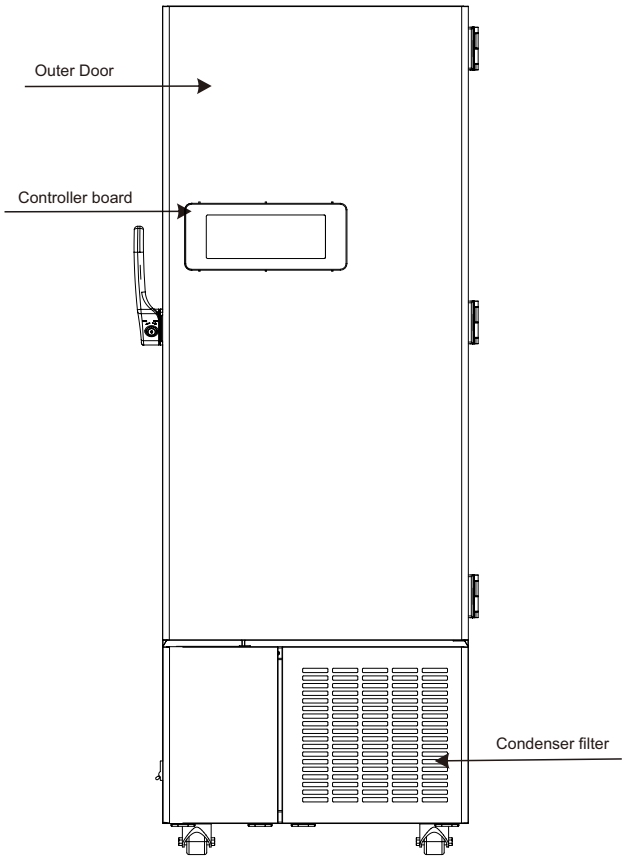
- The transportation and movement of equipment is realized by casters.
- A special person should be responsible for checking and recording the running status of the equipment every day (record and check once every 2-4 hours). In case of failure or shutdown, the temperature in the freezer will rise. If 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.
- During use, when the power supply voltage fluctuates or an short-time alarm is triggered, if the voltage error within ±10%,it will not affect the normal use of the freezer.
- 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!
- 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.

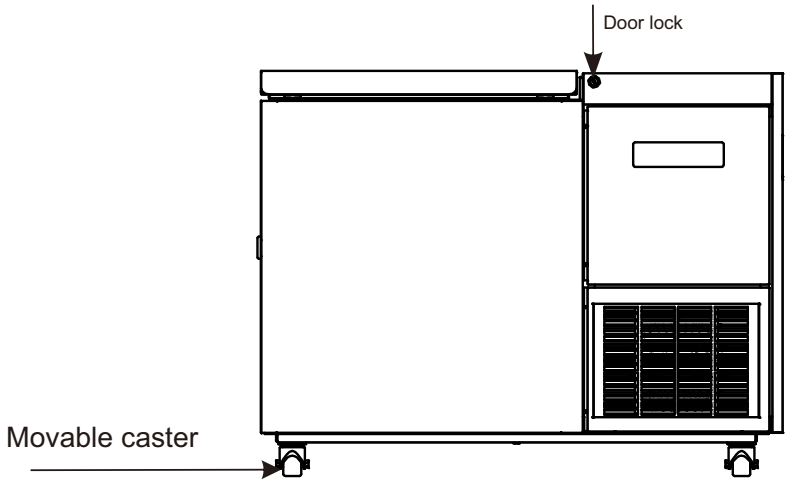
5. Component Composition



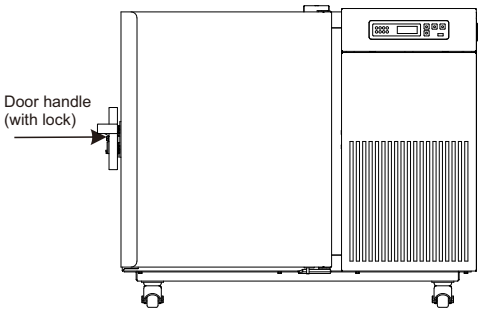
DW-HW328/DW-HW668



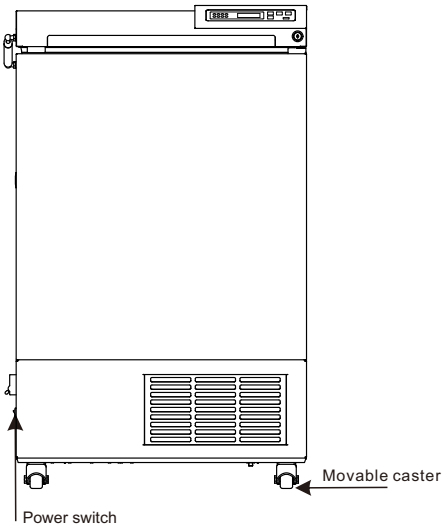
DW-HL340/HL218/HC



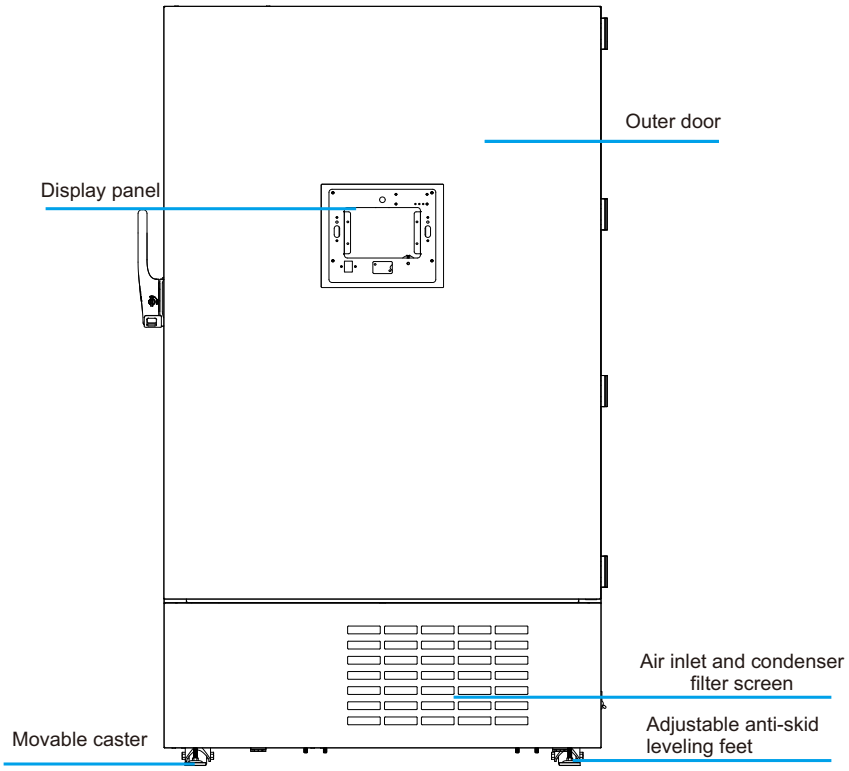
DW-HW138



DW-HL50/HC DW-HL100/HC

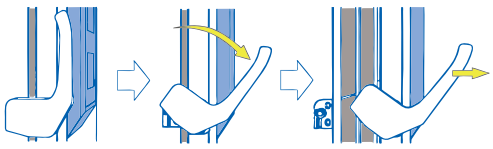


DW-HW50/HC

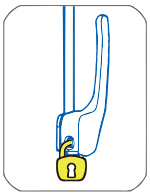


DW-HL398M ~ 1008M series (schematic diagram)

Method for door opening:

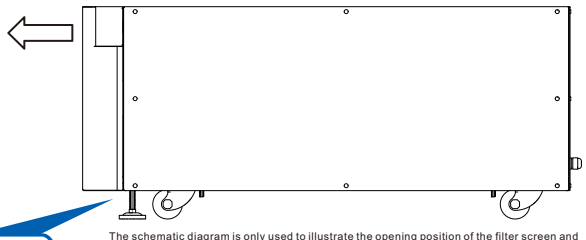


When storing valuables, if necessary, please add padlock after the door is closed!

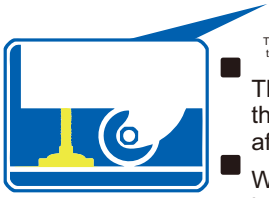


Note: For products equipped with the safety function of the electric control lock, please log in and release the electric control lock before opening the door.

Open the filter screen from here

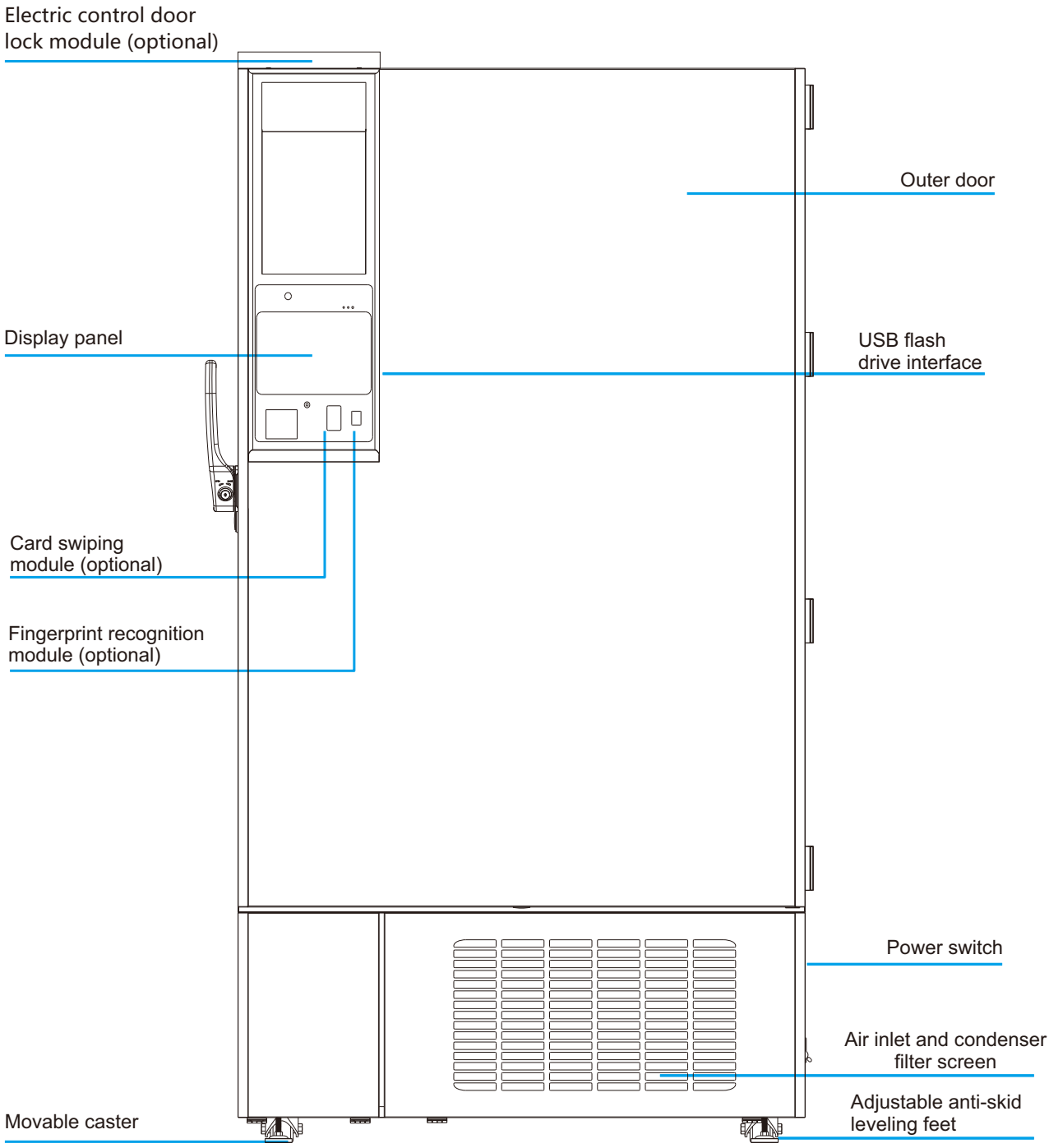


The schematic diagram is only used to illustrate the opening position of the filter screen and the position of the bottom support foot,and the rest varies depending on the model.



Adjustable anti-skid leveling feet

- There are adjustable anti-skid leveling feet in front of the two front casters at the bottom of the equipment. Please use accompanying tools to turn the leveling feet downwards after the equipment is placed securely, so as to stabilize the machine.
- When you need to move the equipment, please turn the leveling feet upwards. Do not move it forcibly so as to avoid damage!

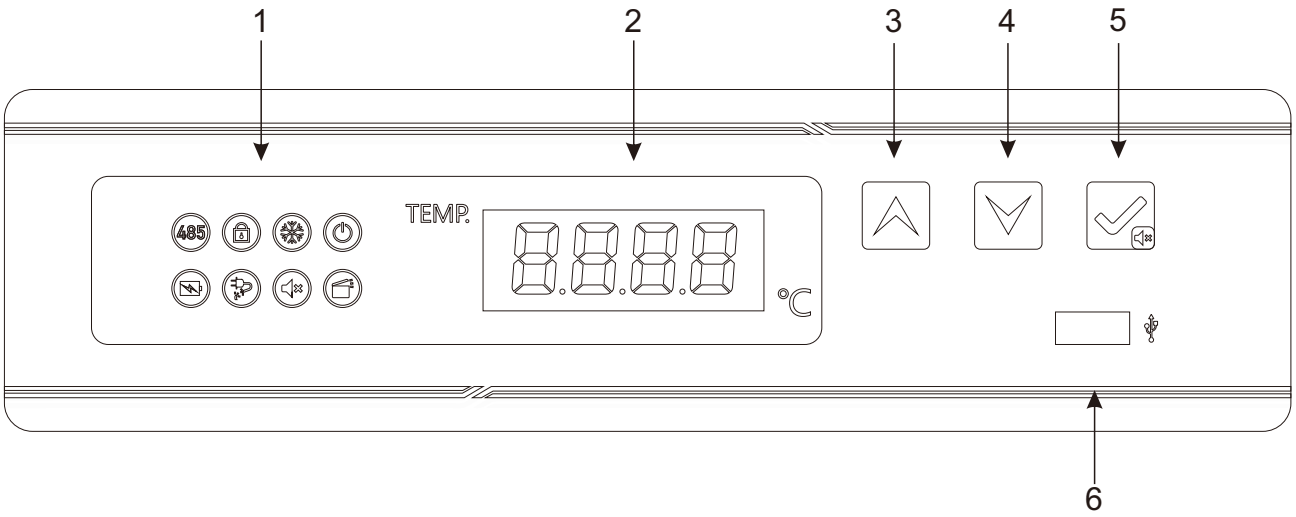


DW-HL398/SA/HC ~ 1008/SA/HC series (schematic diagram)

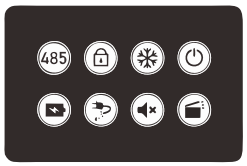
* Due to the improvement of products and model differences, the actual products may be different from the diagram. Please refer to the actual products! The diagram is only used for functional parts description.
* Structure and composition: The product consists of freezer body, door (glass door structure or foam door structure), refrigeration system and control system.

6. Operating Instructions (Version 1)

6.1 Function Introduction



1.Function description of indicators (see the table on the right)



Remote port	Key lock	Refrigeration	Power supply
Battery level	Power failure	Mute	Door switch

a. Remote port indicator optional
When the reserved RS-485 remote port is not connected to the freezer, the remote port indicator will be off; when the freezer is successfully connected to the reserved RS-485 serial port, the remote port indicator will be on.
b. Key lock indicator
When the keys are in a locked state, none of the keys will respond and the key lock lights up. In this case, after pressing the up key + down key for 3s, you will be prompted to enter the password, which is defaulted as "0005." After entering it correctly, press the Set/Mute Multiplex key and the key lock will be released. At this time, the key lock indicator will be off. In the unlocked state, if no key is pressed in 60s, the key lock is activated, and the key lock indicator is on. Long press the up key + down key for 3s, and the keys are locked.
c. Refrigeration indicator
If the compressor is in working condition, the refrigeration indicator is normally on; If the compressor is in a shutdown state, the refrigeration indicator is off.
d. Power indicator
When the indicator is on, it means that the power switch of the product has been turned on.
e. Low battery level indicator
When the battery voltage is less than 10.8V, the buzzer will be triggered, the low battery indicator will be on and the digital tube will flash the low battery code "BL" alternately at intervals of 3s; when the battery voltage is greater than 12V, the buzzer will be turned off, the low battery indicator will be off and the digital tube will resume normal display.
f. Power failure
The freezer is normally powered by 220V. When there is blackout, the buzzer will be triggered, the digital tube flashes the power failure code "PF" alternately at 3s intervals and the power-off indicator is on. When the input power is turned on, it will return to normal and the power-off indicator is off.
g. Mute indicator
When the mute key is activated, the indicator is on; When the alarm mute function is canceled, the indicator is off.
h. Door switch indicator
When the door is opened, the door switch indicator is on; When the door is closed, the door switch indicator is off.

2. -18.0 temperature display window, which displays the average temperature inside the freezer body in °C under normal operations;
View ambient temperature:
In the key locked state, press key and the digital tube will display the ambient temperature and return to normal display after 5 s without key operations or pressing and . In the key unlock state, press key, and digital tube displays ambient temperature, and returns to normal display after 5s without key operation.
A.T. check: in the key locked state, press and key and the digital tube will display the ambient temperature and return to normal display after 5 s without key operations or pressing and .
3. is an up key; in parameter setting mode, move to the next parameter or increase the parameter value. For example, when adjust the set temperature, press this key to increase the set temperature value. When adjust 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.
4. is a down key;
In parameter setting mode, move to the previous parameter or decrease the parameter value. For example, when adjust the set temperature, press this key reduce the set temperature.
When setting the parameter value, long press the down button, and the parameter will decrease rapidly.
5. is the set/mute key; in case of no alarm state and key unlocked state, press and display the ambient temperature for 5s and then return to normal display; in the unlocked state, press for more than 3s and enter the user menu.
When the buzzer is triggered (including cabinet high-temperature alarm, door opening alarm, sensor failure alarm, etc.) and in the button unlocked state, press for the first time and the buzzer will stop ringing and the ambient temperature is displayed for 5s, after that, normal display will be resumed (pressing the mute button is only to turn off the buzzer for alarming this abnormal state, for example troubleshooting but the buzzer will be triggered next time for any abnormality). Then press again, trigger the buzzer, display the ambient temperature for 5s and resume the display of chamber temperature and alarm state. 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.
6. USB data export;
Automatic export: when the U disk is connected to the USB interface, the recorder buzzer will chirp once and display "on". PDF files of data that not currently exported will be generated in the U disk. After data transmission, the buzzer will chirp once again and display "End".After 6s, it will return to normal display.
Note: When there is less data, the digital tube will not display "on" and “End."
Manual export: in the key unlocked state and when the USB flash drive is connected and the file is not being generated, press the key up for 3 seconds and the digital tube will display "d01." Press the up key or down key to adjust "d00~d12" and press key to obtain the file generation (d00) or generate the PDF file of the record data of the previous months (1-12).
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 buzzer beeps once and the recorder is started.

6.2 Function Settings

1. Power on and turn on the power switch on of the freezer body and the equipment will enter the working state;
2 User parameter settings:

Unlock:under normal operating state,simultaneously press and keys for 3s and the digital tube will display the parameter code”0000";By pressing to enter the password”0005"and holding to unlock. Then press key for 3s,the digital tube will display the parameter code”PS1"and enter the setting and adjustment parameters.Use or key to scroll the parameters;

Use or key to scroll the parameters ;
Press to confirm the parameter type, and the first parameter name of this type of parameter will be displayed;
① Use or key to scroll the parameters;
② Press key to display the corresponding parameter value;
③ Use or to increase or decrease the value;
④ Use temporarily store the modified values and return to the display parameters;

⑤If other parameters are modified, repeat steps①～④;
⑥Press ☑ for more than 3s, save the modified parameters and return to the display parameter category. Press ☑ for more than 3s, or press no key in 60s to exit the parameter setting program.

6.3 Parameter Display

The following table is a comparison table for parameter display.

No.	Menuitem	Parameter Range	Suggested settings	Remarks
1	MAX	_	_	The highest temperature since last clerance
2	MIN	_	_	The lowest temperature since last clerance
3	CLR	_	_	Clearance of the Max and Min temperature records
4	Set	-86.0~-40.0	-80.0	Temperature setting
5	H	0.0~10.0	10.0	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
6	L	0.0~10.0	10.0	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
7	n	Set logger module time - year	_	_
8	y	Set logger module time - month	_	_
9	r	Set logger module time - day	_	_
10	s	Set logger module time - hour	_	_
11	F	Set logger module time - minute	_	_
12	Pt	0~240min	20	Print interval
13	tH1	20.0~50.0℃	40.0	Upper limit of ambient temperature alarm
14	Ps1	0~9999	5	User menu password settings
15	b1	_	_	Repair Information 1
16	b2	_	_	Repair Information 2

Quick setting of time after power on
After the power-on self-test on the display board is completed, the quick setting menu is displayed.

Menu item	Menu	Menu description	Set range	Default	Unit
Quick Settings menu	n	Set logger module time - year	10~50		/
	y	Set logger module time - month	1~12	--	/
	r	Set logger module time - day	01~31	--	/
	S	Set logger module time - hour	00~23	--	/
	F	Set logger module time - minute	00~59	--	/
	Pt	Print interval	0~240	20	min
	SCY	Temperature data recording period	0~240 0: shielded recorder	10	min

If there is no operation for 60 seconds under the quick setting menu, it will automatically exit the quick setting menu and return to normal display.

6.4 Alarm Display

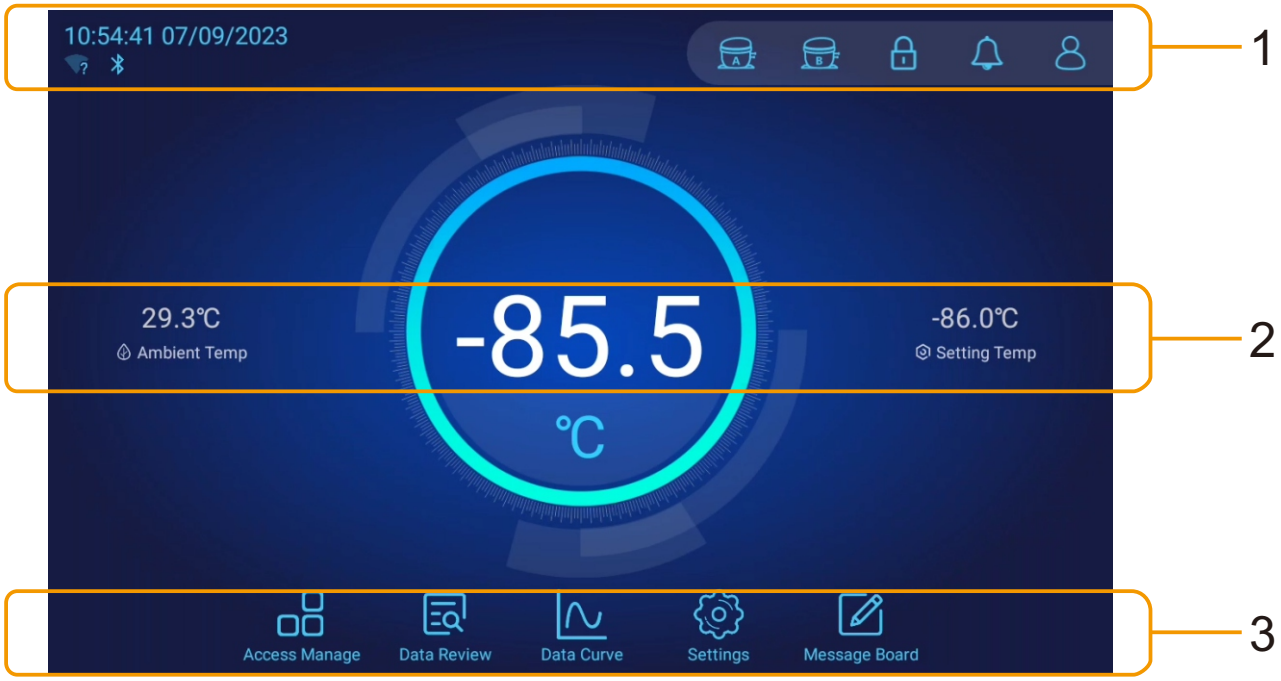
The following table is a comparison table of alarm codes and fault descriptions.

Alarm Code	Default Description
H1	High temperature alarm
L1	Low temperature alarm
H2	High ambient temperature alarm
H3	High condenser temperature alarm
do	Door opening alarm
PF	Power failure alarm
bL	Low battery alarm
ER	The recorder is not connected
LoF	The recorder is not started
EE	Communication failure

Notes:

- It is normal that a "High temperature alarm" is given when the machine is turned on for the first time. Put items into the freezer only after the temperature in the freezer stabilizes and the "high temperature alarm" is automatically released.
- The items stored each time cannot exceed 1/3 of the freezer capacity. After the freezer reaches the set temperature and operates normally for 24 hours, put another 1/3 of the freezer capacity of items for storage.
- Try not to open the door during cooling, otherwise the temperature will rise.
- Do not change the set temperature frequently within a short time, otherwise your 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 hole in the cabinet (for collecting the temperature in the cabinet), otherwise it will affect the stability and accurate display control of the temperature in the freezer body!
- Items stored should not block the temperature sensor hole in the cabinet (for collecting the temperature in the cabinet), otherwise it will affect the stability and accurate display control of the temperature in the freezer body!

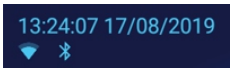
6. Operating Instructions (Version 2)



The main interface display may vary slightly depending on the product model.

6.1 Introduction to Homepage

6.1.1 Status bar

a. 

The upper part shows the current time of the system, and the lower part shows the status of Wi-Fi and Bluetooth;

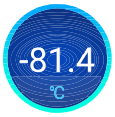
b.  Electric control lock icon. Click the icon to open the electric control lock. Before opening the Freezer door, you need to open the electric control lock (note: please log in before unlocking, users who do not log in do not have the authority to open the electromagnetic lock; the electromagnetic lock will automatically close a certain period after opening, without manual locking; if the door remains open for a long time after it is opened and the handle is locked so that the door cannot be closed due to the locked handled, please click the electromagnetic lock icon to unlock it and then close the door);

c. 

Alarm status icon. If there is any alarm information, an alarm sound will be sent out and the red status indicator will flash (the alarm flashing cannot be canceled until the fault is eliminated). Click the icon to turn on/off the alarm sound, and long-press the icon to enter the alarm management interface (you do not need to log in before entering the alarm management interface). If there are unread alarm messages, the number of unread messages will be displayed in the upper-right corner of the icon;

d.  User status icon. After the user logs in, the last word of the user name will be displayed. Click the icon when you do not log in, it will jump to the login page. Click the icon after you log in, a shortcut menu will pop up where you can view the user information, modify the password, log out, set the fingerprint (optional), set the card wiping (optional), set the face login (optional), etc. The initial user name is user001 and the initial password is 123456. You need to change the password when logging in for the first time.

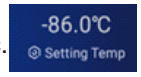
6.1.2 Information display area

a. 

Display the real-time temperature inside the ultra low-temperature freezer and the temperature unit. When the temperature in the freezer is between the high-temperature alarm value and the low-temperature alarm value, the outer ring is a blue-green gradient, otherwise, the outer ring is a red-orange gradient. Click the temperature value to enter the running status interface (you do not need to log in before entering the running status interface);

b. 

Display the ambient temperature;

c. 

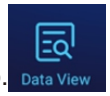
Display the setting temperature;

d. 
Compressor state indicators,the blue one means the compressor operate in normal,while yellow one means the compressor has been forbidden,the red one means the compressor(s) has(have) a certain issue(This icon shows the compressor fault alarm function on some models and only for reference. Please refer to the actual machine interface);

6.1.3 Function entry area

a. 

Access management entry. Click to enter the access management interface where you can conduct access management for the items in the ultra low-temperature freezer. You need to log in before entering this function interface;

b. 

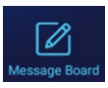
Data view entry. Click to enter the data view page where you can view historical equipment running data and operation data. You do not need to log in before entering this function interface;

c. 

Data curve entry. Click to enter the data curve viewing interface where you can view the historical temperature curves in the freezer. You do not need to log in before entering this function interface;

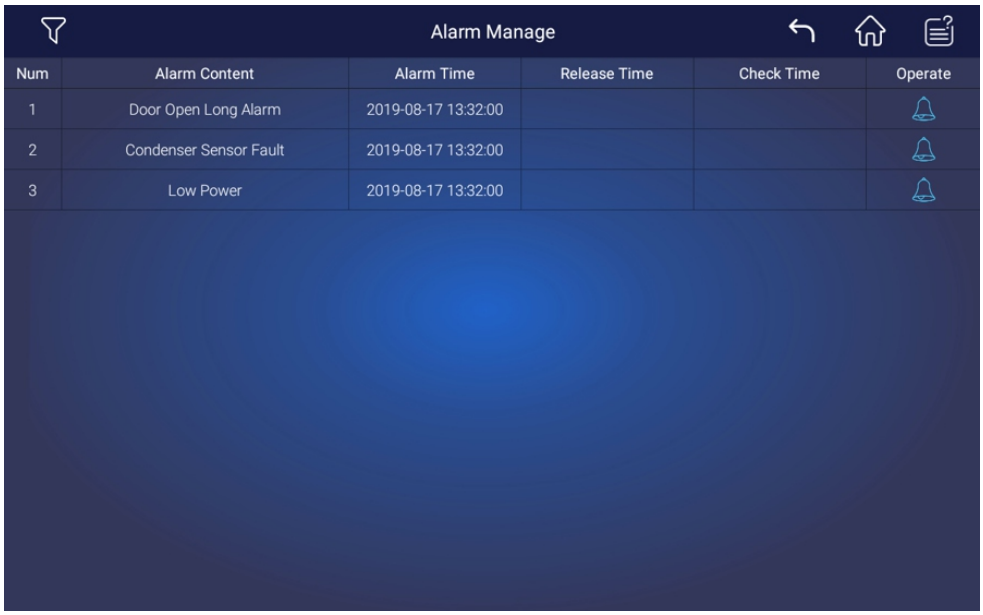
d. 

Setting management entry. Click to enter the setting management interface where you can set various parameters or functions of the equipment. You need to log in before entering this function interface;

e. 

Message board entry. Click to enter the message board interface where you can post messages and view messages. If there are unread messages, the corner mark in the upper-right corner will show the number. You need to log in before entering this function interface.

6.2 Alarm Management



a. Alarm management. You can view the alarm contents, the alarm occurrence time, the release time, and the alarm time. Click the screen button in the upper-left corner to filter the alarm time by date;

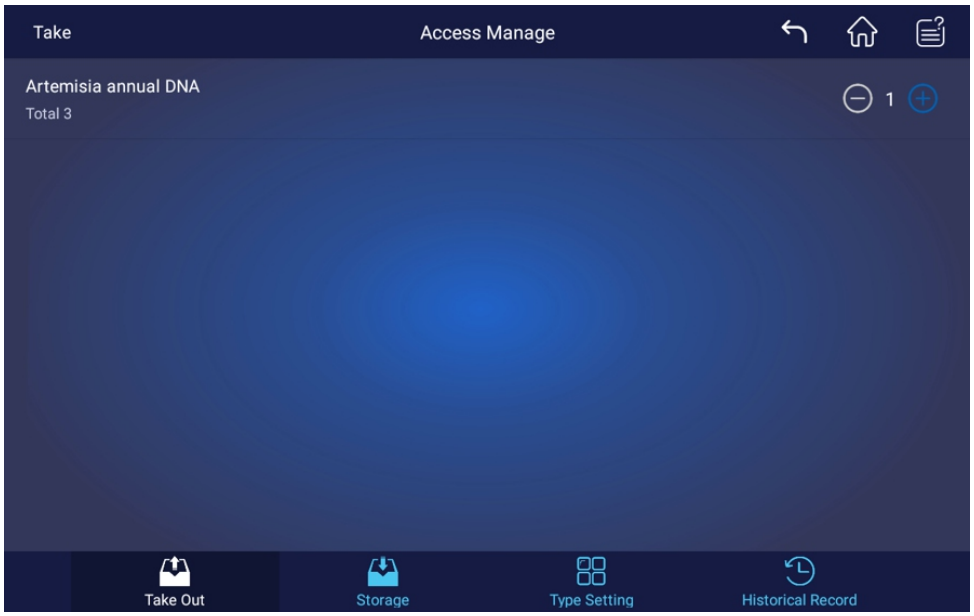
b. Click the button to identify that the alarm entry has been viewed;

c. Click the button to return to the previous interface, click the button to return to the main interface, and click the button to pop up the help information;

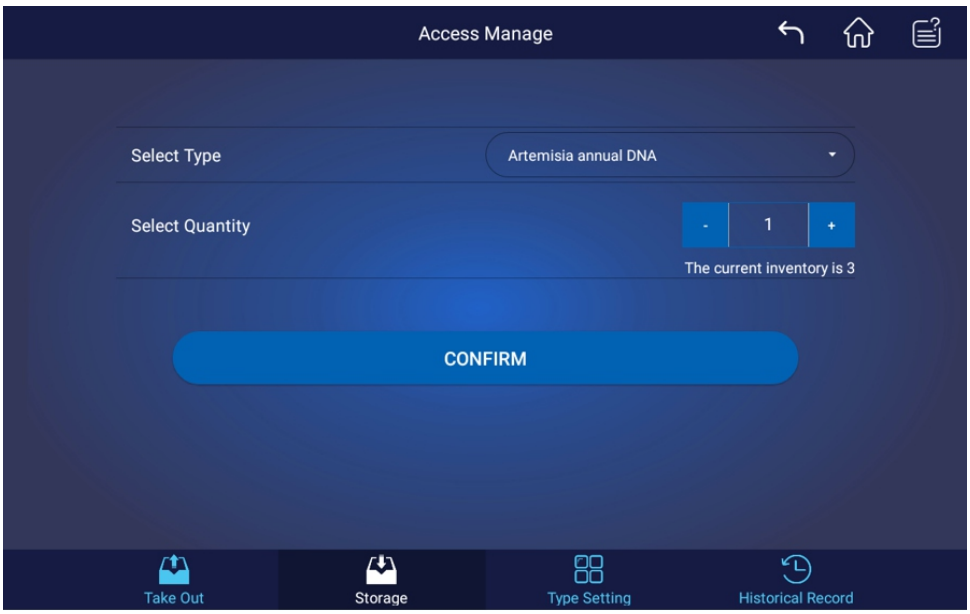
d. The alarm functions of this equipment are as follows:

Alarm items	Alarm description
Communication failure with the mainboard	When the transmission signal between the display screen and the main control board is interrupted, a communication failure alarm will be triggered.
Alarm for the door being open for a long time	When the door has been open for more than 1 minute
Ambient temperature sensor failure	When the ambient temperature sensor fails
Condenser sensor failure	When the condenser sensor fails
Temperature sensor failure	When the temperature sensor fails
Pt1000 high-temperature alarm	When the temperature in the cabinet is higher than the set temperature of high temperature alarm
Pt1000 low temperature alarm	When the temperature in the cabinet is lower than the set temperature of low temperature alarm
Alarm for high condenser temperature	When the condenser temperature is too high due to the condenser filter screen blockage or high ambient temperature
Alarm for high ambient temperature	When the ambient temperature is too high
Low battery	When the battery is too low
Battery power detection failure	Battery power detection failure
Power failure	When the main power supply fails

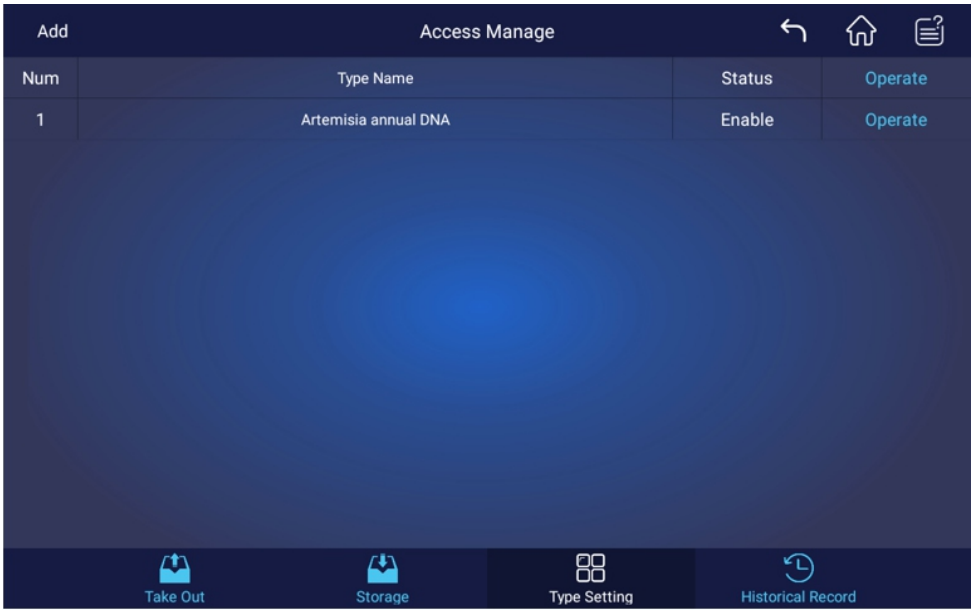
6.3 Access Management



a.Takeout management page. Click the add/remove button on the right side of the sample to set the quantity, and then click the takeout button in the upper-left corner;



b. Storage management page. First, select the type, then set the storage quantity, and then click the OK button;



c.Type setting page. Click the add button in the upper-left corner to add a new type, and click the operation button to the right of the type entry to edit the type;

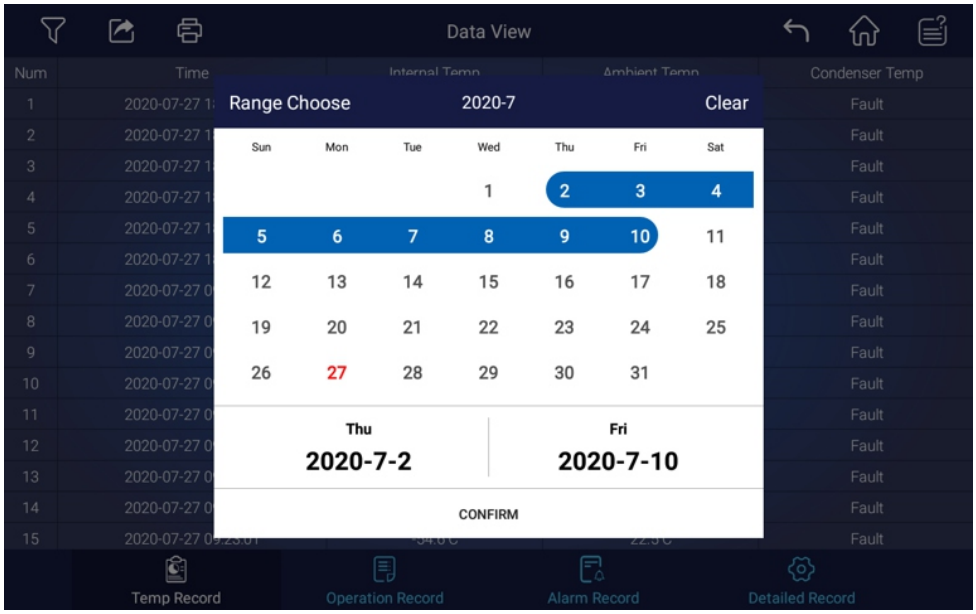
d.History page, for viewing historical access records. Click the  filter button in the upper-left corner to filter records by date.

6.4 Data View

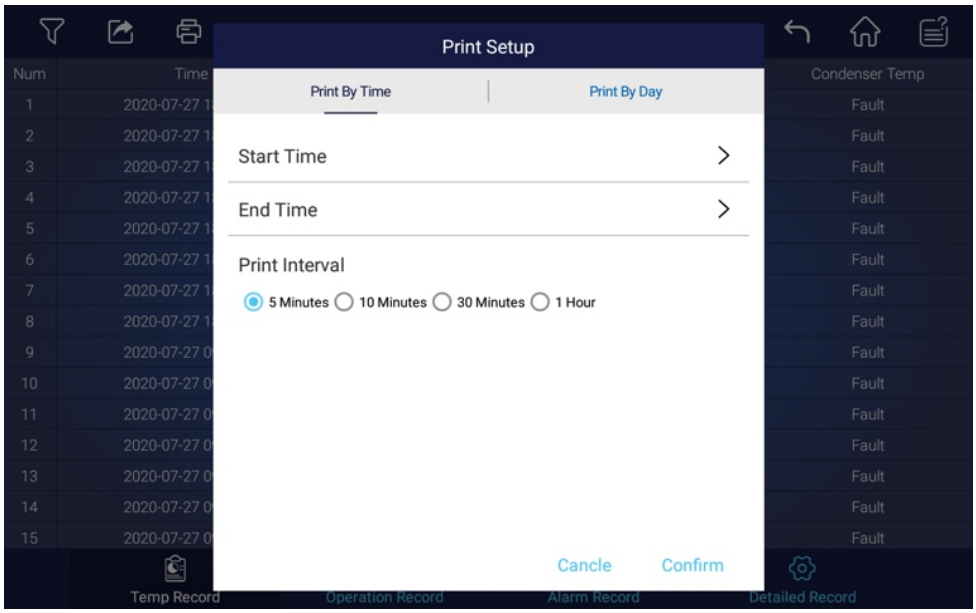
a.Data records page, for viewing historical running data. Click the filter button in the upper-left corner to filter records by date;

b. Operation records interface. You can view historical operation records, and click the  filter button to filter records by date. The types of operation records are: login, logout, the addition of users, modification of users, export, temperature setting, alarm setting, unlock, printing, opening the door, closing the door;

c. Alarm records interface, for viewing historical alarm records;

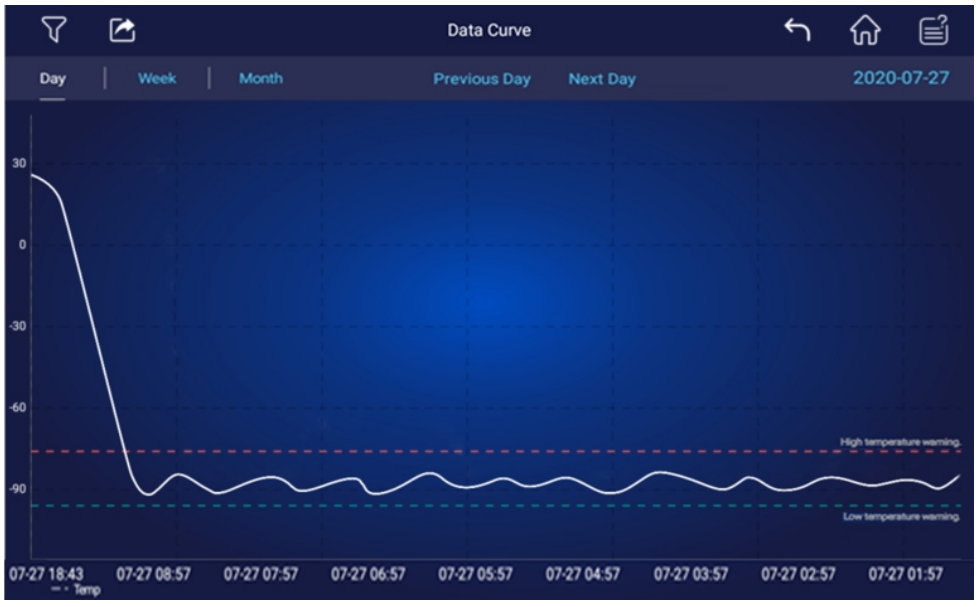


d.Click the export button to pop up the export range selection dialog box. Select the export start date and the export end date by date, and click the OK button to export a data file in Excel format (*.xls) to the USB flash drive;



e. Click the print button to pop up the print setting dialog box where you can choose to Print by time or Print by day. You need to set the start and end time and the printing interval for Print by time, and set the start and end time and the printing time point for Print by day. (A printer needs to be connected for use of the function. The equipment can be connected to a Bluetooth printer via Bluetooth)

6.5 Data Curve

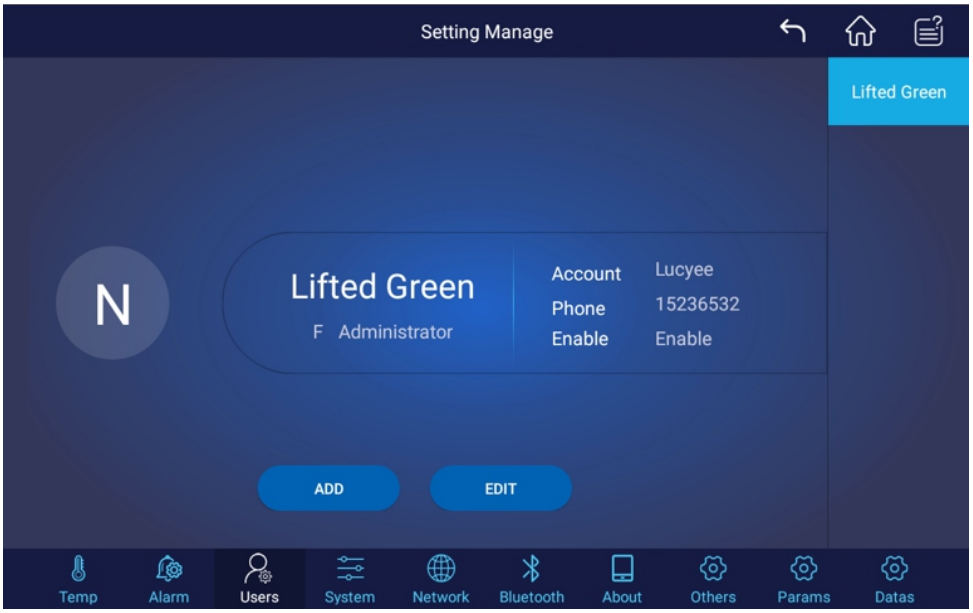


a. Click on the day/week/month tab to view the curve graph of the corresponding tab;
b. Click the previous day/next day tab to switch to the curve graph corresponding to the date;
c. Click the filter button in the upper-left corner to jump to the curve graph of the corresponding date;
d. Click the export button in the upper-left corner to export the curve figure to the USB flash drive;
e. Pinch-to-zoom to zoom in/out the curve graph, and slide with a single finger to view detailed temperature value.

6.6 Settings

a. Temperature setting. You can slide on the slider or click the temperature value to modify the set temperature, and click the °C (Celsius temperature scale) or °F (Fahrenheit temperature scale) to switch the temperature scale;

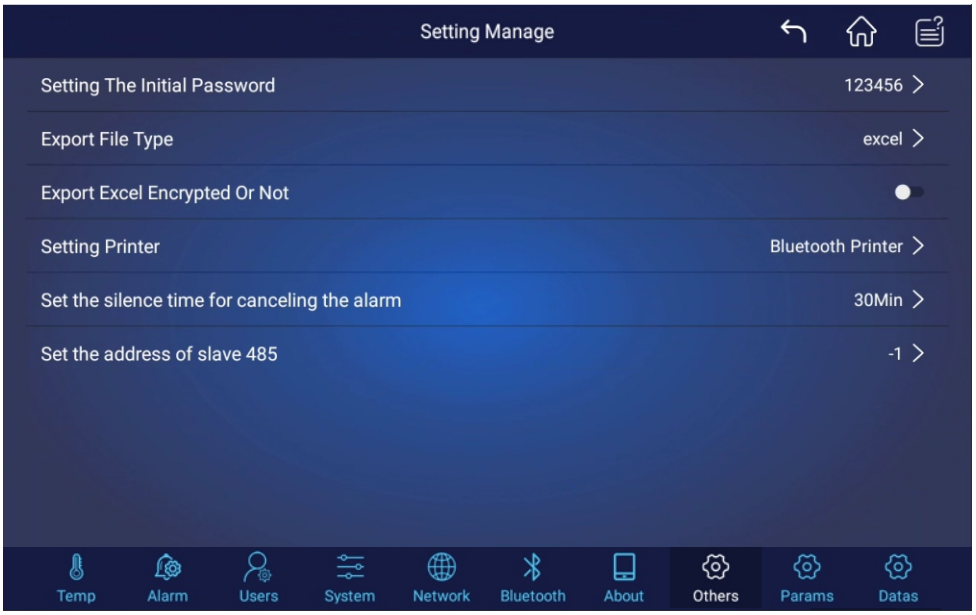
b. Alarm setting. You can slide on the slider or click the value to set the high-temperature alarm value, the low-temperature alarm value, the high ambient temperature alarm value;



c. User management. The administrator can add or modify users. The user created by the administrator is an ordinary user (ordinary users do not have the authority to add/modify contents). Click Reset password to reset the user's login password. The initial password is 123456.

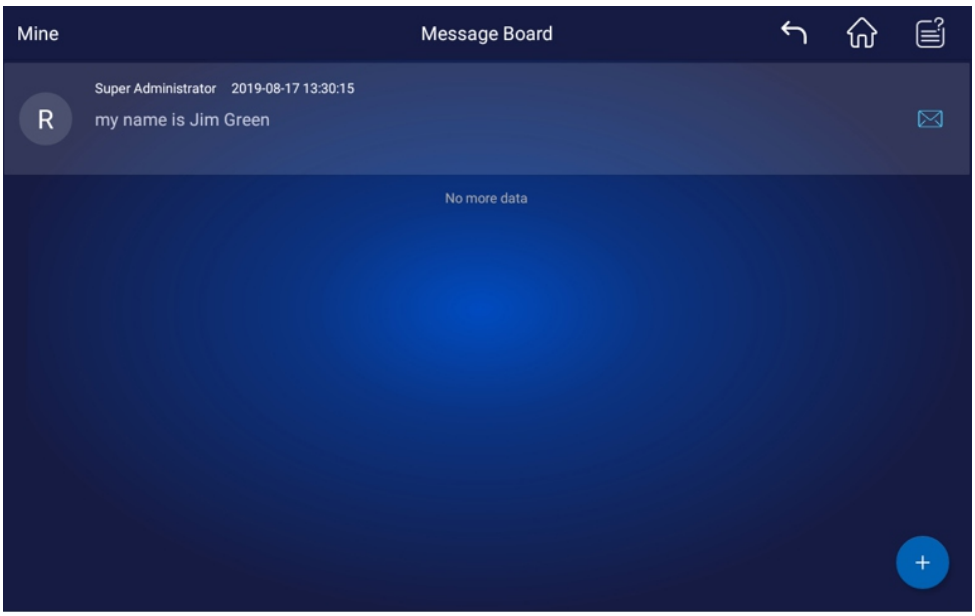
d. System settings. You can adjust the equipment brightness, the time for the display screen to automatically go off when there is no operation, the time for the display screen to automatically return to the main interface when there is no operation, the volume, the alarm sound (the changed alarm sound will take effect after the display screen returns to the main interface), the date and time, the automatic user logout time, and the language;

e. Machine information. This page displays the current machine model, the software version, and the hardware version. If the machine has been connected to the Internet, you can click the Check update button on this page to check the software update. If a newer version exists, you can choose to download and install the newer version;



f. Other settings. Only the administrator has the authority to view the page. In this page, the administrator can set to hide/show virtual buttons, and set the initial password for new user login, whether the exported Excel file is encrypted, the encryption password, the settable temperature interval, the printer selection, and the equipment name setting.

6.7 Message Board



a. Click the add button in the lower-right corner to pop up a message posting dialog box. You can choose to be open to all or specified users. Open to all means that all users can view the message, and Open to specific users means that the message can only be viewed by the specified users;

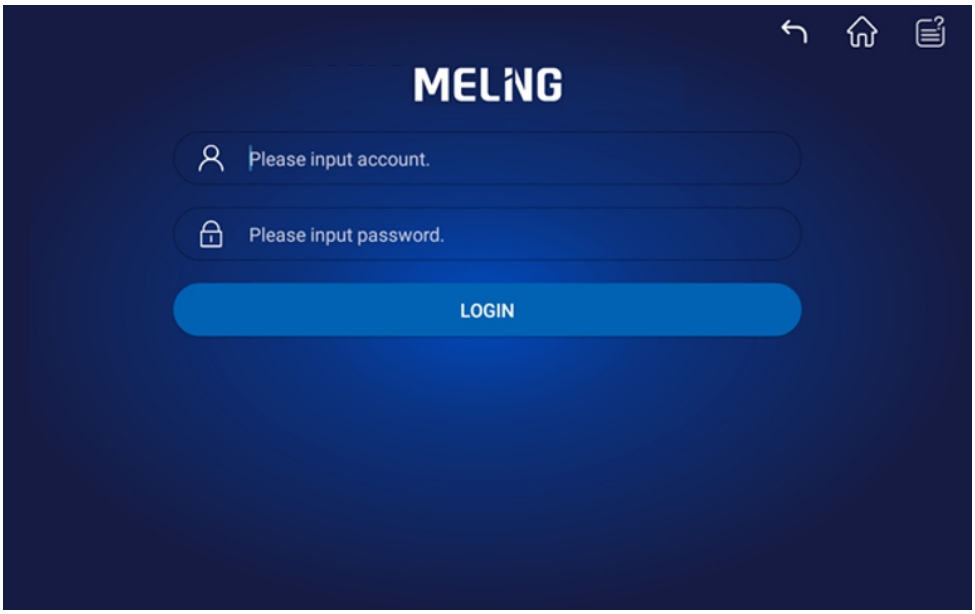
b. Click the button to identify that the message entry has been viewed;

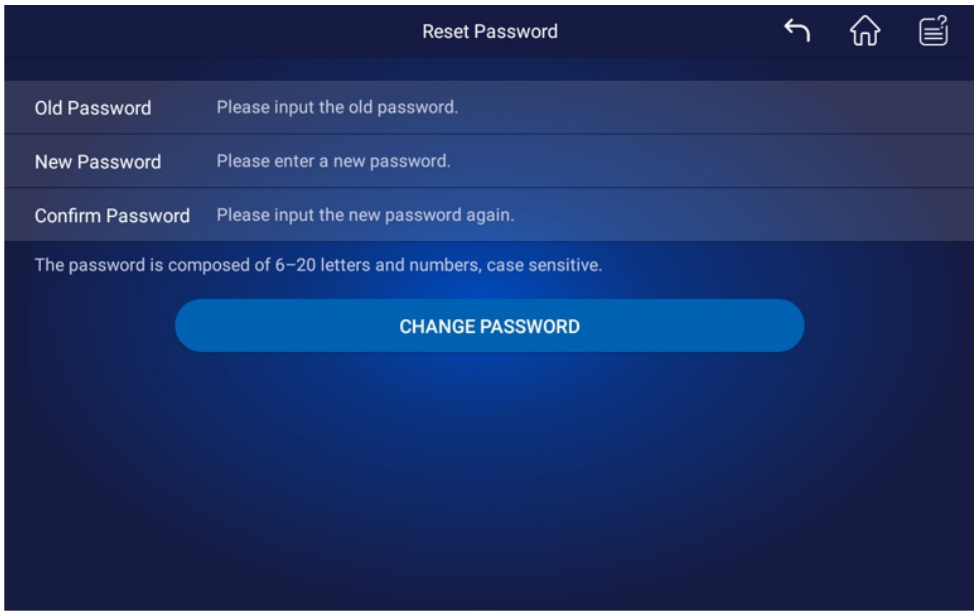
c. Click Mine/All in the upper-left corner to switch between my and all messages;

d. Press and hold the message entry and slide to the left. The delete button will appear on the right side of the message. You can choose to delete the message.

6.8 Login

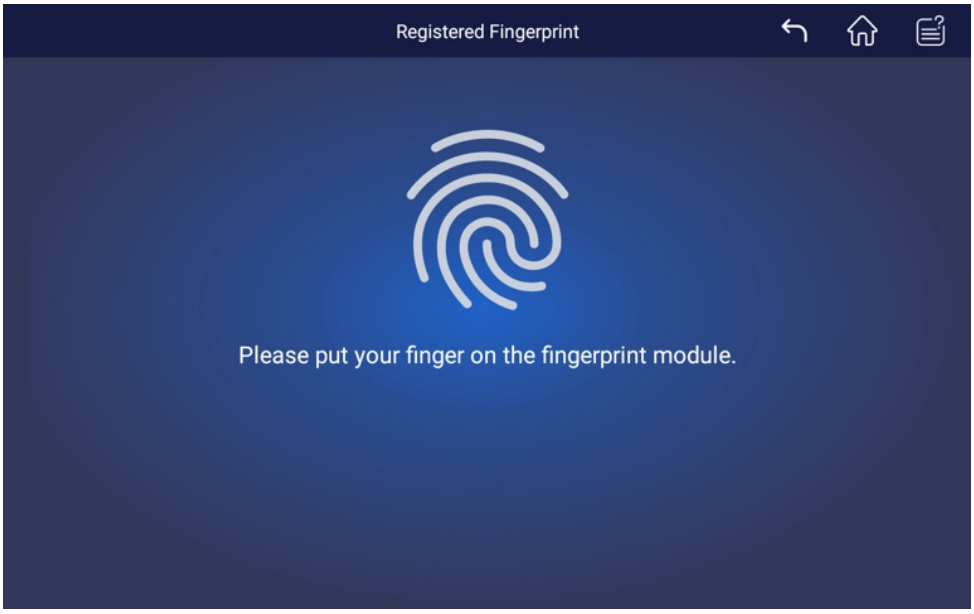
a. Login with account number and password





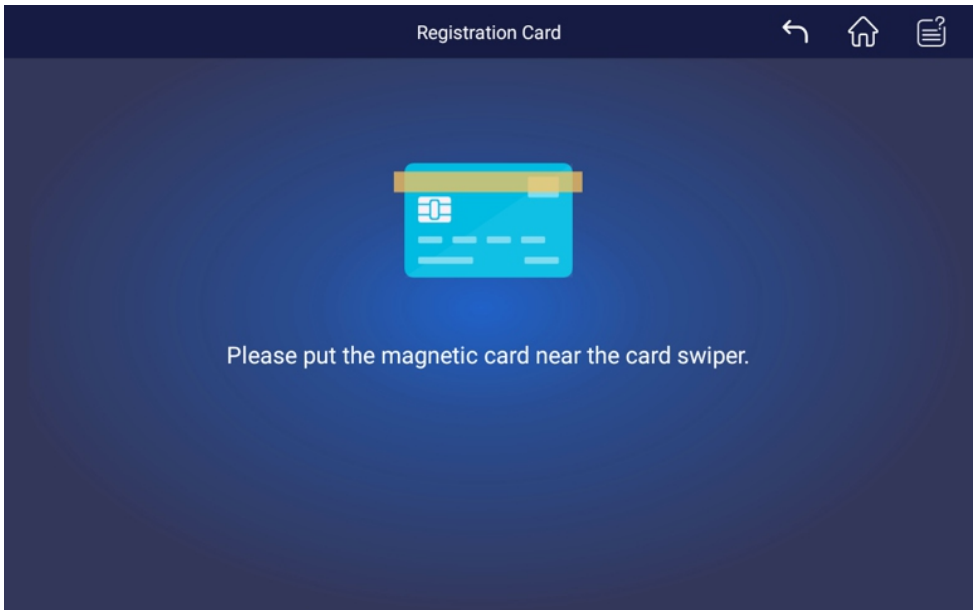
Enter the correct account number and password to log in. The default password for new users is 123456. You will be asked to change the password when logging in for the first time. The administrator can change the default password for new users in Settings -> Other settings -> Set the initial password.

b.Login with fingerprint (optional)



After the user logs in, enter the fingerprint registration interface from the menu on the right side of the homepage. Once a fingerprint is successfully registered, you can log in with the fingerprint (To log in with the fingerprint, you need to jump to the login page);

c. Login with card (optional)



After the user logs in, enter the card registration interface from the menu on the right side of the homepage. Once a IC or ID card is successfully registered, you can log in with the IC or ID card (To log in with the card, you need to jump to the login page);

d.Login with face (optional)

After the user logs in, enter the face registration interface from the menu on the right side of the homepage. After a face is recognized, click the icon on the interface to register the face. After successful registration, click the icon on the login page to enter the face recognition interface for face login.
（Note: When a face is registered for the first time, it needs to be activated online, and then it can be used offline. If the face cannot be registered after the machine is powered off, it can be activated again online).

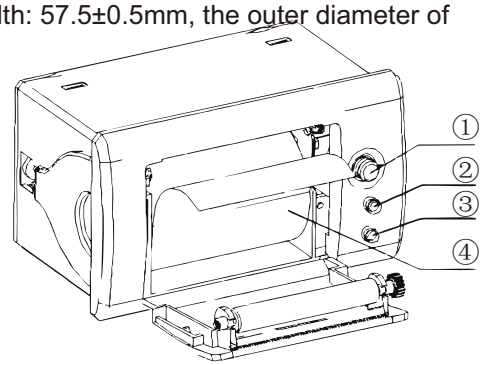
7 Optional Accessories

1. Printer

The printer has been installed with a paper roll at the factory. If the paper roll is used up after a long period of use, you can buy the same paper roll (size: thermal paper, paper width: 57.5±0.5mm, the outer diameter of the reel: not greater than 40mm, i.e. RM57*40 back-roll paper)

Description of printer panel:

① Open button. Press to open the cover;
② SEL button, indicator light, for factory setting. Do not press it;
③ Lf button. The green indicator is the power indicator and it is normally on when the power is turned on;
④ Paper roll.



Install the paper roll:

Press the open button 1, open the cover, install the paper roll, close the cover plate and allow the head of the roll paper to slightly extend out of the cover plate.

Note: If a Bluetooth printer is selected, please refer to the "Operating Instructions for Bluetooth Printer" in the accessory bag.

2. Bluetooth printer(Only applicable to touch screens)

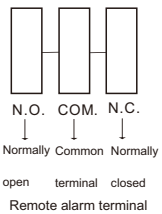
Note: For the use of Bluetooth printer, please refer to the Bluetooth Printer Manual in the accessory pouch

7.2 Chart Recorder

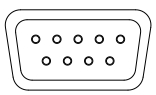
It is an optional function. If the function is selected, please refer to the "Operation Instructions for Graph Recorder" in the accessory bag.

7.3 Remote Alarm Terminal and RS485 Interface

The remote alarm terminal is installed on the back or the lower part of the right side of the freezer body, and the alarm signal is output by the terminal. The load-bearing capacity of the terminal is 30V, 2A DC. Users can choose normally open (N.O.), normally closed (N.C.) and common terminals (COM) according to their own needs.



Remote alarm terminal



RS-485

7.4 CO_2 Backup System(DW-HL50&100&HW50(110 60))

The CO_2 backup system is an auxiliary refrigeration system that uses liquid CO_2 for refrigeration. It provides refrigeration assistance for the equipment in case of power failure or refrigeration failure, to ensure that the temperature in the equipment is maintained within the required temperature range for a certain period of time.

When the equipment works normally, the CO_2 backup system is in standby state; When the equipment is powered off, the system uses its own rechargeable battery to work and spray liquid CO_2 into the refrigeration equipment at intervals to achieve the refrigeration effect; In case of refrigeration failure of the equipment, the forced operation switch can control the backup system to work forcibly to provide refrigeration.

For installation and use, please refer to the operation steps in the Operation Instructions attached to the device.

7.6 Freezer Rack and Freezer Box

Model	Internal dimensions of the freezer body (mm) W x D x H	Shelf/inner door	Number of freeze racks	Dimensions of the freeze rack (mm) W x D x H	Number of freeze boxes that can be placed (2 in.)
DW-HL398/M/SA/HC	440X696X1266	3/2	12 pcs	140X685X293	300 pcs
DW-HL528/M/SA/HC	585X696X1266	3/2	16pcs	140X685X293	400 pcs
DW-HL678/M/SA/HC	750X696X1286	3/4	20 pcs	140X685X293	500 pcs
DW-HL778/M/SA/HC	865X696X1286	3/4	24pcs	140X685X293	600 pcs
DW-HL858/M/SA/HC	877X696X1378	3/2 or 3/4	24 pcs	140X685X293 140X685X351	660 pcs
DW-HL1008/M/SA/HC	1022X696X1378	3/2	28 pcs	140X685X293 140X685X351	770 pcs
DW-HL50	305X425X430	1/1	2 pcs	140X413X351	36 pcs
DW-HL50HC	305X425X430	1/1	2 pcs	140X413X351	36 pcs
DW-HL100/HC	450X450X500	1/2	6pcs	140X413X235 140X413X180	63pcs
DW-HL218/HC	470X582X768	1/2	6 pcs	140X549X293 140X549X351	132 pcs
DW-HL340	470X578X1275	3/4	12 pcs	40X549X293 140X549X235	216 pcs
DW-HW50/HC	430X305X425	/	6 pcs	140X143X404	42 pcs
DW-HW138	490X470X582	/	9 pcs	140X143X575	90 pcs
DW-HW328	1200X470X582	/	24 pcs	140X143X575	240 pcs
DW-HW668	1200X815X666	/	40 pcs	140X143X575	400 pcs

Notes:

- Make sure that the cylinder is filled with liquid carbon dioxide.
- Since the temperature of liquid carbon dioxide is relatively low, pay attention to safety during installation and use to prevent frostbite.
- The CO_2 backup system is a backup system, which should be tested once a month to prevent system failure from affecting its use.
- The use environment requires good ventilation to avoid physical discomfort caused by excessive carbon dioxide and insufficient oxygen.

8. Defrost, Discontinuation and Maintenance

8.1 Equipment Maintenance

Defrosting: When the frost layer on the inner surface of the equipment is too thick and it will affect the refrigeration effect and increase the power consumption, the attached defrosting shovel should be used for defrosting. Do not use sharp metal utensils for defrosting to avoid damage to the equipment. Before defrosting, cut off the power and transfer the contents of the freezer. After defrosting, turn on the power first, and then put the items back into the fully refrigerated equipment (Always wear special protective gloves to take out and put in the items to avoid frostbite);

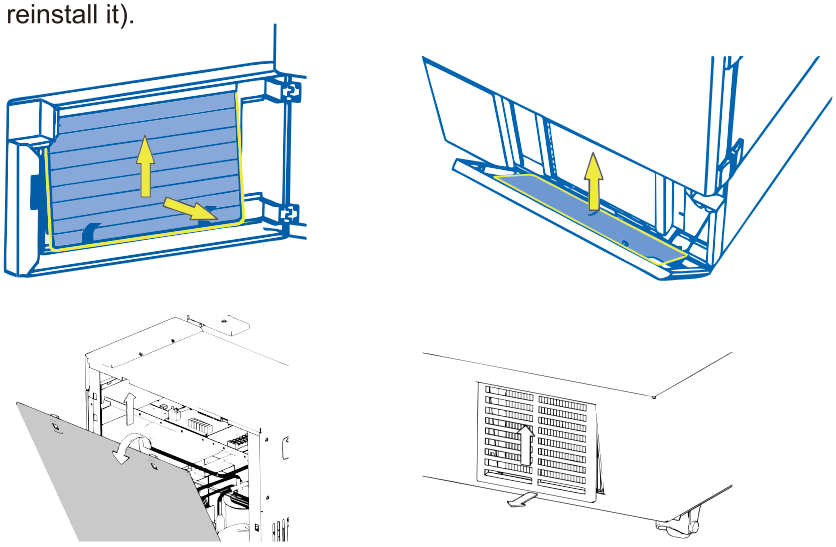
Cleaning and maintenance:

1.The equipment should be cleaned and maintained regularly (for safety, please unplug the power plug) and the inner and outer surfaces of the freezer should be wiped with a warm, damp soft cloth.

Cleaning the filter screen: regularly remove the dust on the filter screen, to ensure the heat dissipation effect. For the filter screen of DW-HL100, DW-HL218 and DW-HL340, the cleaning method: 1. Move the upper-right corner of the front ventilation plate outward and open the ventilation plate; 2. Lift the filter screen to remove it (see the figure below. There are two states: left and right, which is subject to the actual product); 3. Gently remove the surface dust with a brush or rinse with tap water, dry, and reinstall it).

2.The equipment should be cleaned and maintained regularly (for safety please, unplug the power plug) and the inner and outer surfaces of the freezer should be wiped with a warm, damp soft cloth.

Cleaning the filter screen: regularly remove the dust on the filter screen to ensure the desirable heat dissipation effect (Cleaning method: 1. Move the upper-right corner of the front ventilation plate outward and open the ventilation plate; 2. Lift the filter screen to remove it (see the figure below. There are two states: left and right, which is subject to the actual product); 3. Gently remove the surface dust with a brush or rinse with tap water, dry, and reinstall it).



Warning:

- In order to prevent people from getting electric shock or injury, please cut off the power supply of the equipment before any repairs and maintenance
- Make sure you don't inhale drugs or suspended particles around it when maintaining the equipment, otherwise it will harm your health

Notes:

- Do not sprinkle water directly on the cabinet, lest the insulation performance of electrical components decrease and metal parts rust.
- Do not use hot water, corrosive detergent or organic solvent to clean the freezer body.
- Do not place heavy objects on top of the equipment, as the equipment may deform under pressure.
- The air switch equipped with our products provides both manual operation and automatic management options for the users. In the event of electric short circuit or overload, the air switching device can cut off the electric supplies automactically for the safty and protection of the entire system and machine in the same time.

8.2 Equipment Discontinuation

Deactivation: If the equipment is stored in an unsupervised area for a long time and not used, the power supply should be cut off and the inner and outer surfaces of the freezer should be cleaned with a warm, damp soft cloth, aired and sealed. The equipment must be locked to ensure that children cannot open the freezer door.

Scrapping: When the equipment reaches the end of its service life, it should be scrapped and must be handed over to a qualified professional recycling agency for disposal per local regulations. Non-professionals are not allowed to disassemble and break down the equipment without authorization. The scrapped equipment should be placed in a designated area inaccessible to children to avoid danger.

8. 3 Maintenance, Replacement and Recovery of Rechargeable Batteries

8.3.1 Battery maintenance:

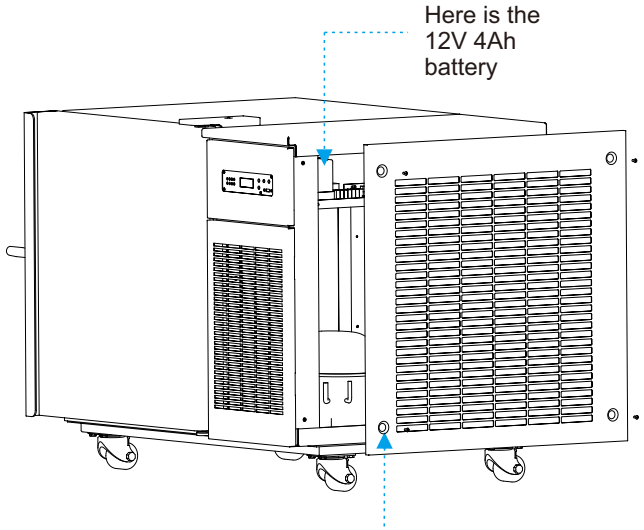
① In order to prolong the service life of the battery and avoid the product being left unused for a long time, the product must be operated for more than 24 hours every month to facilitate charging.

② When the equipment is not used for a long time, it should be connected to the working power regularly (generally once a month), and the power lock switch should be turned on so that the equipment can run for a period to complete charging, and each charging time should be no less than 24 hours.

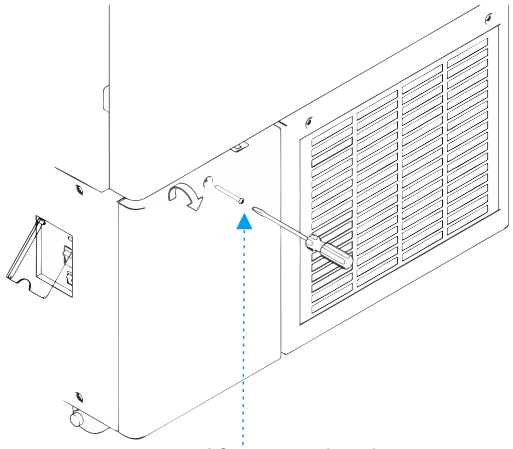
③ When the working power supply is interrupted, the power lock switch of the equipment shall be turned off in time, otherwise it will cause power loss in battery and even permanent damage to the battery in severe cases.

④ The main power switch must be turned off during a long-term power outage or during transportation, otherwise long-term discharge causes power loss in the battery and even permanent damage to the battery and the display is abnormal after re-energizing.

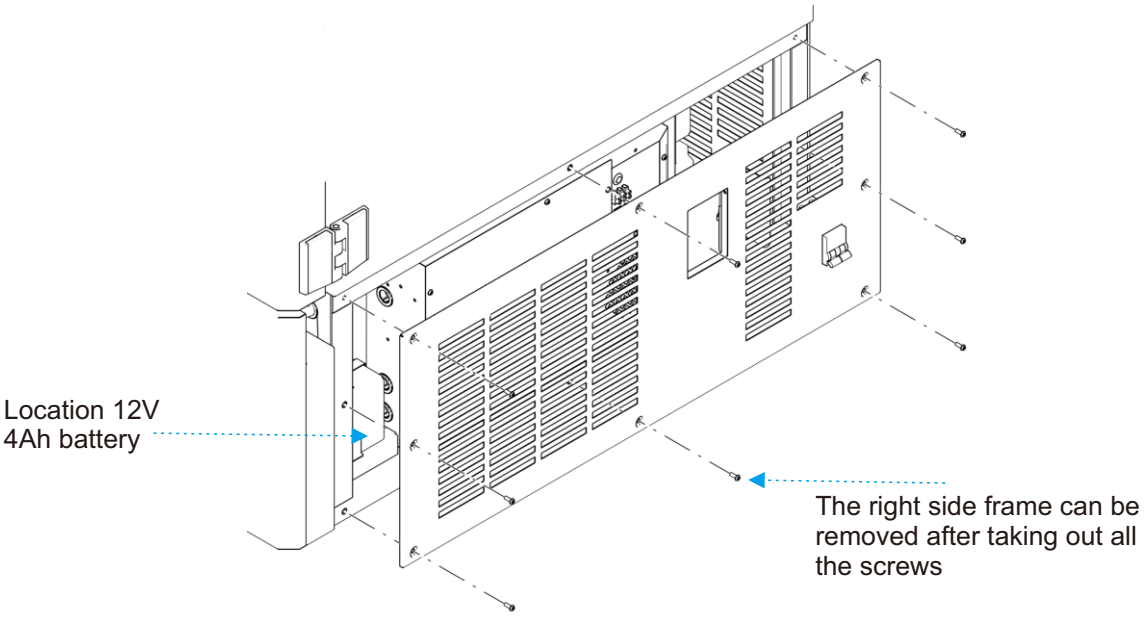
⑤ The battery is a consumable, with a service life of about 2-3 years. If the battery is used improperly, such as power loss or reaching the end of battery life, it will cause a low battery alarm (refrigeration is not affected, but there is an alarm failure and the power failure alarm function does not work, please contact our after-sales staff for replacement).



After removing the screws on the right side plate of the frame, remove the right side plate of the frame .



After removing the screws on the left side plate of the frame, remove the left side plate.



8.3.2 Replacement and recovery of batteries

① Turn off the power switch and pull out the power plug from the outlet.
② Remove the screws on the right side plate of the freezer body frame with a screwdriver. (Note: The battery can be replaced without opening the electrical box. There are high-voltage electrical components in the electrical box, therefore before opening, turn off the power supply, unplug the power plug and turn off the power switch of the freezer, and the electrical box can only be opened by qualified engineers or maintenance personnel).
③ Pull out the battery connecting cable. The battery is located on the left side outside the electrical box. (Before unplugging the battery fixing cable, pay attention to the cathode/anode of the battery and the sequence of the connecting cables, to prevent burning down the control system due to installation of the new battery with cathode/anode reversed. Generally, the red wire is connected to the cathode, and the black wire is connected to the anode.
④ Use a screwdriver to remove the fastening screws on the battery fixing plate and take out the battery.
⑤ The newly replaced batteries should be BT-12M4.0AC (12V4.0Ah).
⑥ For a replaced battery that can be recycled, please contact the local battery recycling agency.
In order to effectively ensure that the battery replacement meets the requirements of the control system and avoid the influence of improper operation on the system, please contact our after-sales personnel for replacement or guidance.

9. Troubleshooting and Maintenance Services

Any product may fail. Please observe the operation of equipment in time during use. If there is any abnormality, please check and handle it according to the following table first. If the abnormality can't be changed, please inform our service center in time, and we will serve you wholeheartedly to avoid losses.

Problems	Causes and solutions
Ultra low temperature freezer fails to work	Please make sure that the outlet is energized. Please make sure power plug is plugged in,not loose. Please make sure the power fuse is not disconnected. Please make sure the supply voltage is appropriate,not too low or too high.
Compressor is not running	Please make sure the switch on the right side bottom of the freezer is turned on. Please make sure that the temperature is set correctly.
The temperature does not reach the set value	Please make sure that the inner wall is not frosted too thick. Please make sure that the door is closed tightly and don't open it too many times during a short time. Please don't put too many items in at one time. Please make sure that the ambinet temperature is not too high. Please make sure the filter screen is not blocked.
High noise	Please make sure that the freezer body is placed on a flat ground. Please make sure that the freezer body does not contact the wall.
High ambient temperature alarm	Cause: The ambient temperature is higher than 32°C or the surrounding of the freezer body is too close to the wall, causing poor ventilation effect. Solution: Please ensure the distance between the freezer body and the wall be at least 30 cm, and the vent shall not be blocked. Clean the filter screen frequently. Pay attention to room ventilation or turn on the air conditioner in the hot summer.

The following conditions are not faults

① When the compressor starts and stops, the equipment parts will make a slight impact sound;
② Slight sound of running water caused by refrigerant flowing in the pipeline;
③ In rainy and humid seasons, the surface of the freezer body may be frosted, which can be wiped off with a dry cloth;
④ The interval between two door openings shall be more than 5 minutes, otherwise, the hot air will enter the freezer body, and the negative pressure caused by the sharp drop in temperature will cause difficulty in door opening;
⑤ The inner side of the liner opening of the equipment is a stress relief area at ultra low temperature, and there will be slight cracks under the condition of high and low temperature alteration, which is a normal phenomenon and the freezer can be used normally. When the LCD screen flashes during printing or use for a period of time, it is the normal flashing for data reading or the display screen refresh during printing.
⑥ If the display screen shows abnormality or alarm during start-up, it means that the control panel has not completely read the data, and the display will return to be normal after a few seconds. If the data reading fails, please turn off the power and restart the freezer.

Warning:

- This product adopts flammable working medium, and it is forbidden to disassemble and repair it without authorization (especially the compressor, refrigeration pipeline and other related parts). If there is any fault, it must be repaired by MELING BIOMEDICAL Service Center.

Notes:

- The equipment can only be repaired, maintained or improved by the engineers certified by MELING BIOMEDICAL, so as to ensure the normal operation of the equipment and the compliance with corresponding safety standards.
- Please clean and disinfect the equipment before notifying the maintenance engineer; During the warranty period of the equipment, the Company will not undertake the warranty obligation if the fault or damage is caused by improper use of the user.
- Ambient temperature for storage: -40°C ~ +55°C, relative humidity: 10% ~ 90%.

10. Specifications

Model	Ambient temperature	Climate type	Refrigerant	(Rated) voltage (V~)	Rated frequency (Hz)	Temp Range (°C)	Volume (L)	(Rated) current (A)	Net Weight (kg)	Exterior dimensions (DxWxH) (mm)
DW-HL398	16~32°C	N	Mixture Gas	220-230	50	-40~-86	398	5.46	237	1041X785X1947
DW-HL398S	16~32°C	N	Mixture Gas	220-230	50	-40~-86	398	5	237	1041X785X1947
DW-HL398SA	16~32°C	N	Mixture Gas	220-230	50	-40~-86	398	5.46	237	1041X785X1947
DW-HL528	16~32°C	N	Mixture Gas	220-230	50	-40~-86	528	6.1	286	1041X930X1947
DW-HL528S	16~32°C	N	Mixture Gas	220-230	50	-40~-86	528	6.57	286	1041X930X1947
DW-HL528SA	16~32°C	N	Mixture Gas	220-230	50	-40~-86	528	6.1	286	1041X930X1947
DW-HL678	16~32°C	N	Mixture Gas	220-230	50	-40~-86	678	8.9	330	1025X1090X1955
DW-HL678S	16~32°C	N	Mixture Gas	220-230	50	-40~-86	678	9.1	330	1025X1090X1955
DW-HL678SA	16~32°C	N	Mixture Gas	220-230	50	-40~-86	678	8.9	330	1025X1090X1955
DW-HL778	16~32°C	N	Mixture Gas	220-230	50	-40~-86	778	9.31	365	1025X1205X1955
DW-HL778S	16~32°C	N	Mixture Gas	220-230	50	-40~-86	778	9.31	365	1025X1205X1955
DW-HL778SA	16~32°C	N	Mixture Gas	220-230	50	-40~-86	778	9.31	365	1025X1205X1955
DW-HL858	16~32°C	N	Mixture Gas	220-230	50	-40~-86	858	10.86	390	1025X1217X1994
DW-HL858S	16~32°C	N	Mixture Gas	220-230	50	-40~-86	858	10.86	390	1025X1217X1994
DW-HL858SA	16~32°C	N	Mixture Gas	220-230	50	-40~-86	858	10.86	390	1025X1217X1994
DW-HL1008	16~32°C	N	Mixture Gas	220-230	50	-40~-86	1008	11.25	426	1025X1362X1994
DW-HL1008S	16~32°C	N	Mixture Gas	220-230	50	-40~-86	1008	11.8	426	1025X1362X1994
DW-HL1008SA	16~32°C	N	Mixture Gas	220-230	50	-40~-86	1008	11.25	426	1025X1362X1994

Model	Ambient temperature	Climate type	Refrigerant	(Rated) voltage (V~)	Rated frequency (Hz)	Temp Range (°C)	Volume (L)	(Rated) current (A)	Net Weight (kg)	Exterior dimensions (DxWxH) (mm)
DW-HL398	16~32°C	N	Mixture Gas	230	50	-40~-86	398	5.46	237	1041X785X1947
DW-HL398SA	16~32°C	N	Mixture Gas	230	50	-40~-86	398	5.46	237	1041X785X1947
DW-HL528	16~32°C	N	Mixture Gas	230	50	-40~-86	528	6.1	286	1041X930X1947
DW-HL528SA	16~32°C	N	Mixture Gas	230	50	-40~-86	528	6.1	286	1041X930X1947
DW-HL678	16~32°C	N	Mixture Gas	230	50	-40~-86	678	8.9	330	1025X1090X1955
DW-HL678SA	16~32°C	N	Mixture Gas	230	50	-40~-86	678	8.9	330	1025X1090X1955
DW-HL778	16~32°C	N	Mixture Gas	230	50	-40~-86	778	9.31	365	1025X1205X1955
DW-HL778SA	16~32°C	N	Mixture Gas	230	50	-40~-86	778	9.31	365	1025X1205X1955
DW-HL858	16~32°C	N	Mixture Gas	230	50	-40~-86	858	10.86	390	1025X1217X1994
DW-HL858SA	16~32°C	N	Mixture Gas	230	50	-40~-86	858	10.86	390	1025X1217X1994
DW-HL1008	16~32°C	N	Mixture Gas	230	50	-40~-86	1008	11.25	426	1025X1362X1994
DW-HL1008SA	16~32°C	N	Mixture Gas	230	50	-40~-86	1008	11.25	426	1025X1362X1994

Model	Ambient temperature	Climate type	Refrigerant	(Rated) voltage (V~)	Rated frequency (Hz)	Temp Range (°C)	Volume (L)	(Rated) current (A)	Net Weight (kg)	Exterior dimensions (Basic payment) (DxWxH) (mm)
DW-HW50HC	16~32°C	N	Mixture Gas	220-240	50	-40~-86	50	5.48	74	606X650X1080
DW-HW50	16~32°C	N	Mixture Gas	220-240	50	-40~-86	50	5.48	74	606X650X1080
DW-HL398HC	16~32°C	N	Mixture Gas	220-240	50	-40~-86	398	8.69	247	1041X785X1947
DW-HL398M	16~32°C	N	Mixture Gas	220-240	50	-40~-86	398	8.69	247	1041X785X1947
DW-HL398	16~32°C	N	Mixture Gas	220-240	50	-40~-86	398	8.69	247	1041X785X1947
DW-HL528HC	16~32°C	N	Mixture Gas	220-240	50	-40~-86	528	9.2	296	1041X930X1947
DW-HL528M	16~32°C	N	Mixture Gas	220-240	50	-40~-86	528	9.2	296	1041X930X1947
DW-HL528	16~32°C	N	Mixture Gas	220-240	50	-40~-86	528	9.2	296	1041X930X1947
DW-HL678HC	16~32°C	N	Mixture Gas	220-240	50	-40~-86	678	9.62	330	1025X1090X1955
DW-HL678M	16~32°C	N	Mixture Gas	220-240	50	-40~-86	678	9.62	330	1025X1090X1955
DW-HL678	16~32°C	N	Mixture Gas	220-240	50	-40~-86	678	9.62	330	1025X1090X1955
DW-HL778HC	16~32°C	N	Mixture Gas	220-240	50	-40~-86	778	10.56	365	1025X1205X1955
DW-HL778M	16~32°C	N	Mixture Gas	220-240	50	-40~-86	778	10.56	365	1025X1205X1955
DW-HL778	16~32°C	N	Mixture Gas	220-240	50	-40~-86	778	10.56	365	1025X1205X1955
DW-HL858HC	16~32°C	N	Mixture Gas	220-240	50	-40~-86	858	11.8	390	1025X1217X1994
DW-HL858M	16~32°C	N	Mixture Gas	220-240	50	-40~-86	858	11.8	390	1025X1217X1994
DW-HL858	16~32°C	N	Mixture Gas	220-240	50	-40~-86	858	11.8	390	1025X1217X1994
DW-HL1008HC	16~32°C	N	Mixture Gas	220-240	50	-40~-86	1008	13.39	426	1025X1362X1994
DW-HL1008M	16~32°C	N	Mixture Gas	220-240	50	-40~-86	1008	13.39	426	1025X1362X1994
DW-HL1008	16~32°C	N	Mixture Gas	220-240	50	-40~-86	1008	13.39	426	1025X1362X1994

Model	Ambient temperature	Climate type	Refrigerant and loading amount	(Rated) voltage (V~)	Rated frequency (Hz)	Tempt Range (°C)	Volume (L)	(Rated) Current (A)	Net Weight (kg)	Exterior Dimensions (DxWxH) (mm)
DW-HL50	16~32°C	N	Mixture Gas	220-240	50	-40~-86	50	5.42	104	700×951×757
DW-HL50HC	16~32°C	N	Mixture Gas	220-240	50	-40~-86	50	5.42	104	700×951×757
DW-HW50	16~32°C	N	Mixture Gas	220-240	50	-40~-86	50	5.48	74	606×650×1080
DW-HW50HC	16~32°C	N	Mixture Gas	220-240	50	-40~-86	50	5. 48	74	606×650×1080
DW-HL100	16~32°C	N	Mixture Gas	220-240	50	-40~-86	100	4.75	145	742×1066×820
DW-HL100HC	16~32°C	N	Mixture Gas	220-240	50	-40~-86	100	5.57	145	742×1066×820
DW-HW138	16~32°C	N	Mixture Gas	220-240	50	-40~-86	138	5.78	200	890×1328×1025
DW-HL218	16~32°C	N	Mixture Gas	220-240	50	-40~-86	218	5.96	218	976×862×1555
DW-HL218HC	16~32°C	N	Mixture Gas	220-240	50	-40~-86	218	6.53	218	976×862×1555
DW-HW328	16~32°C	N	Mixture Gas	220-240	50	-40~-86	328	5.6	280	890×2038×1025
DW-HW328	16~32°C	N	Mixture Gas	220-240	50	-40~-86	328	5.6	SC18MLX：262	890×2038×1025
DW-HW328	16~32°C	N	Mixture Gas	220-240	50	-40~-86	328	5.6	NT6226GK：280	890×2038×1025
DW-HL340	16~32°C	N	Mixture Gas	220-240	50	-40~-86	340	5.32	208	895×755×1982
DW-HW668	16~32°C	N	Mixture Gas	220-240	50	-40~-86	668	9.5	SC18MLX：340	1180×2008×1041
DW-HW668	16~32°C	N	Mixture Gas	220-240	50	-40~-86	668	9.5	NT6226GK：352	1180×2008×1041

Model	Ambient temperature	Climate type	Refrigerant	(Rated) voltage (v~)	Rated frequency (Hz)	Temp Range (°C)	Volume (L)	(Rated) current (A)	Net Weight (kg)	Exterior dimensions (DxWxH) (mm)
DW-HL50	16~32°C	N	Mixture Gas	110	60	-40~-86	50	10	96	700X951X757
DW-HL100	16~32°C	N	Mixture Gas	110	60	-40~-86	100	10	131	742X1066X820
DW-HW50	16~32°C	N	Mixture Gas	110	60	-40~-86	50	9.3	81	606X650X1080
DW-HL398	16~32°C	N	Mixture Gas	110	60	-40~-86	398	13.8	237	1041X785X1947
DW-HL398SA	16~32°C	N	Mixture Gas	110	60	-40~-86	398	13.8	237	1041X785X1947
DW-HL528	16~32°C	N	Mixture Gas	110	60	-40~-86	528	13.2	286	1041X930X1947
DW-HL528SA	16~32°C	N	Mixture Gas	110	60	-40~-86	528	13.2	286	1041X930X1947
DW-HL678	16~32°C	N	Mixture Gas	110	60	-40~-86	678	14.8	330	1025X1090X1955
DW-HL678SA	16~32°C	N	Mixture Gas	110	60	-40~-86	678	14.8	330	1025X1090X1955
DW-HL778	16~32°C	N	Mixture Gas	110	60	-40~-86	778	14.0	365	1025X1205X1955
DW-HL778SA	16~32°C	N	Mixture Gas	110	60	-40~-86	778	14.0	365	1025X1205X1955

Model	Ambient temperature	Climate type	Refrigerant	(Rated) voltage (V~)	Rated frequency (Hz)	Temp Range (°C)	Volume (L)	(Rated) current (A)	Net Weight (kg)	Exterior dimensions (DxWxH) (mm)
DW-HL398	16~32°C	N	Mixture Gas	220-240	60	-40~-86	398	8.8	237	1041X785X1947
DW-HL398SA	16~32°C	N	Mixture Gas	220-240	60	-40~-86	398	8.8	237	1041X785X1947
DW-HL528	16~32°C	N	Mixture Gas	220-240	60	-40~-86	528	8.7	286	1041X930X1947
DW-HL528SA	16~32°C	N	Mixture Gas	220-240	60	-40~-86	528	8.7	286	1041X930X1947
DW-HL678	16~32°C	N	Mixture Gas	220-240	60	-40~-86	678	10.13	330	1025X1090X1955
DW-HL678SA	16~32°C	N	Mixture Gas	220-240	60	-40~-86	678	10.13	330	1025X1090X1955
DW-HL778	16~32°C	N	Mixture Gas	220-240	60	-40~-86	778	9.91	365	1025X1205X1955
DW-HL778SA	16~32°C	N	Mixture Gas	220-240	60	-40~-86	778	9.91	365	1025X1205X1955
DW-HL858	16~32°C	N	Mixture Gas	220-240	60	-40~-86	858	13	390	1025X1217X1994
DW-HL858SA	16~32°C	N	Mixture Gas	220-240	60	-40~-86	858	13	390	1025X1217X1994
DW-HL1008	16~32°C	N	Mixture Gas	220-240	60	-40~-86	1008	13	426	1025X1362X1994
DW-HL1008SA	16~32°C	N	Mixture Gas	220-240	60	-40~-86	1008	13	426	1025X1362X1994

* The foaming material of this product is cyclopentane.If optional electromagnetic lock module is selected the height of the whole unit is increased by 45mm.

11. Accessories

Name	Operation Manual	Certificate of Conformity	USB flash drive	Key	Card	Defrosting shovel
Number	1	1	1	2	0/2	1

* The specific accessories shall be subject to the physical objects received.

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Website: www.melingbiomedical.com
Material Code: 890375562
Production Date: See nameplate on the freezer body
Prepared in: August 2023