

# OPERATION MANUAL



Applicable product model

GL-U-14M

GL-U-19M

GL-U-28M

This product consists of door, chamber, electric control system, refrigeration system and accessories.

The Ultra-low Temperature Freezer offers a wide variety of research and storage applications, such as low temperature scientific experiments, preservation of plasma, biomaterials, tunny, biological product, and testing low-temperature-resistant properties of military product.

It is suitable for blood bank, hospitals, sanitation and anti-epidemic, sanitation, research institutes, electronic industries, university laboratories, military industries, pelagic fishery companies.

### **Top control technique:**

High precision microcomputer temperature control system, platinum thermistor sensor, temperature could be set between -10°C to -86°C;

LED touch screen controller with 7", clear display, easy to operate. Gorgeously design for excellent appearance.

### **Refrigerating system:**

Imported international brand high-efficient compressor, EBM fan motor, powerful and more energy-efficient;

2-times foaming thermal insulation door, multi-patents outdoor insulation design; Effectively prevent the loss of cooling capacity.

Cabinet uses high-performance vacuum insulation board, greatly improved the insulation effect;

### **Humanization design:**

Mechanical door handle, easy to open;

Adjustable multi-level shelves, easy to store articles;

Universal wheels with fixed support, easy to move and fix;

### **Safety system:**

With keyboard lock and password protection system, prevent from un-authorized change of the parameters.

Multiple failure alarm system: Sensor failure alarm, High and low temperature alarm, door open /ajar alarm, filter clogging alarm, system failure alarm. Make sure the safety of the articles stored inside the freezer;

Door with lock, prevent from the un-authorized opening.

Start delay and interval stop system to protect the reliable operation.

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## 1. INTRODUCTION

Thank you for choosing our bio-medical products. Read this manual carefully before using the appliance and follow the instructions for the safety operation. Keep this manual in an adequate place to refer to it as necessary.

We never guarantee any safety if the appliance is used for any objects other than intended use or used by any procedures other than those mentioned in this manual. The contents of the manual will be subjected to change without notice due to the improvement of performance or functions. Contact our sales representative or agent if any point in this manual is unclear or if there are any inaccuracies. No part of this manual may be reproduced in any form without the expressed written permission of us.

- ◆ Please read the page4-page7 carefully as it contains the important safety notices.
- ◆ Only trained or authorized personnel could operate this Ultra-low temperature freezer.
- ◆ Only qualified service personnel or authorized agent could install and maintenance this device.
- ◆ Use our spare parts as always. If users want to use other accessories, our bio-medical will not be responsible for the adverse consequences. However users could apply for verifying the eligibility of these accessories from us before use them.
- ◆ Should inspect and maintenance the device in a specified time interval.
- ◆ Due to the differences between each models and the improvements of products, actual product may differ from the diagram. Please refer to the final product.
- ◆ Everyone has an obligation to be responsible for his or her own safety.
- ◆ Put on dry gloves when you take out refrigerated articles from the freezer.
- ◆ contents or the inside walls with naked hands may cause frostbit.

### Handling frozen.

















- ◆ contents or the inside walls with naked hands may cause frostbit.







Please wear gloves while handling samples to avoid injury!

## 2. PRECAUTIONS FOR SAFE OPERATION

For the first time to use this device, users must read the meaning of the following warning labels very carefully. Items and procedures are described so that you can use this unit correctly and safely. If the precautions advised are followed, this will prevent possible injury to the user and any other person.

 <b>WARNING.</b> Failure to observe WARNING signs could result in a hazard to personnel possibly resulting in serious injury or death.	 <b>CAUTION.</b> Failure to observe WARNING signs could result in injury to personnel and damage to the unit and associated property.
 <b>CAUTION HOT.</b> The sign inform the users about the danger of burns for high temperature.	 <b>DANGER OF EXPLOSION.</b> The sign inform the danger of the application of volatile, explosive chemical substances.
 <b>NO TILTING.</b>	 <b>STAY OUT OF SUN.</b>
 <b>BEWARE OF ELECTRIC SHOCK!</b> Dangerous voltage may cause personal injury! Please disconnect the power supply before repair.	 <b>GROUNDING MARK.</b>
 <b>NO TRAMPLING EQUIPMENT.</b>	 <b>NO TUMBLING TRANSPORT PACKAGES.</b>
 <b>PRECISION INSTRUMENTS.</b>	 <b>HANDLE WITH CARE.</b>
 <b>THE CONTENTS MUST BE PLACED AT THE ARROW.</b>	 <b>FEAR OF THE RAIN.</b>
 <b>NO STACKING.</b>	 <b>NO CLAMPING.</b>

 <b>WARNING.</b> Failure to observe WARNING signs could result in a hazard to personnel possibly resulting in serious injury or death.
 As with any equipment that uses CO2 gas, there is a likelihood of oxygen depletion in the vicinity of the equipment. It is important that you assess the work site to ensure there is suitable and sufficient ventilation. If restricted ventilation is suspected, then other methods of ensuring a safe environment must be considered. These may include atmosphere monitoring and warning devices.
 Do not touch any electrical parts such as the power supply plug or any switches with a wet hand. This may cause electric shock.
 Only qualified engineers or service personnel should install the unit. The installation by unqualified personnel may cause electric shock or fire.



Be sure to install the unit on a sturdy floor. If the floor is not strong enough or the installation site is not adequate, this may result in injury from the unit falling or tipping over.



Carefully with the power cord to avoid short circuit or open circuit. When removing the plug from the power supply outlet, grip the power supply plug, not the cord. Pulling the cord may result in electric shock or fire by short circuit. Don't make the power line pack and pressed by furnish or heavy goods. Also please don't close to the compressor and heat source.



Please insert the power plug firmly to avoid leakage.



Use a power supply outlet with ground (earth) to prevent electric shock. If the power supply outlet is not grounded, it will be necessary to install a ground by qualified engineers. Don't lengthen the line randomly. If you need, To use 2.5mm<sup>2</sup> copper line, you should keep 4mm<sup>2</sup> line to connect the electrical outlet. Or may cause fire.



Make sure a dedicated power source is used as indicated on the rating label attached to the unit. Out of the rate, should install a property transformer and a proper voltage stabilizer for securely operation. Or the freezer may be damaged, and may cause injury.



Be sure to install the unit on a sturdy floor, no shaking and tilting.



Never install the unit in a flammable or volatile location. This may cause explosion or fire.



Never install the unit in a humid place or outdoor or a place where it is likely to be basked straightly. Deterioration of the insulation may result which could cause current leakage or electric shock.









Do not place the device lateral tilt, do not impact the device; the device is equipped with refrigeration systems, roll or shock will easily damage the freezer.











Be sure to install the device in a dry dust-free environment to avoid overheating, short circuit and other dangers.



If there is an unexpected sound, smell, smoke when the power is turned on, unplug the power and contact the manufacturer or supplier. Continued abnormal operation may cause electric shock or fire.

	Make sure a dedicated power source is used as indicated on the rating label attached to the unit. Out of the rate, should install a property transformer and a proper voltage stabilizer for securely operation. Or the freezer may be damaged, and may cause injury.
	Make sure to put the freezer in a dry and ventilated environment, to ensure that equipment vents and wall surface of the instrument or other items have not been blocked; Do not use the device in a poorly ventilated environment, or the equipment may be damaged by the release of heat.
	Never disassemble, repair, or modify the unit yourself. Any such work carried out by an unauthorized person may result in fire or injury due to a malfunction. Meling will be no responsible for such work.
	Use this unit in safe area when treating the poison, harmful or radiate articles. Improper use may cause bad effect on your health or environment.
	Never ground the unit through a gas pipe, water main, telephone line or lightning rod. Such grounding may cause electric shock in the case of an incomplete circuit.
	Use a power supply outlet with ground (earth) to prevent electric shock. If the power supply outlet is not grounded, it will be necessary to install a ground by qualified engineers.

	<b>CAUTION.</b> Failure to observe WARNING signs could result in injury to personnel and damage to the unit and associated property.
	Ultra-low temperature freezer is not available to store living things, flowers, or other critical articles which is not suitable for low temperature storage.
	The temperature inside the freezer is very low during the normal working. Do not touch the interior surface of the chamber or the object inside without wearing protective gear.
	Always disconnect the power plug when the unit is not used for long periods.
	Make sure to prepare a safety check sheet when you request any repair or maintenance for the safety of service personnel. Be sure to check set point of the controller prior to restart the freezer.
	The ultra-low temperature freezer is a storage device, not a production equipment!
	Always hold the handle when closing the door. This will reduce the likelihood of a trapped finger.
	Keep the key properly avoiding the children take it to open the door which may result in unexpected injury.







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### 4.3 Cautions before use:

- Remove all package components (include the protection foam inside the package)



**Caution:** Do not put the packing plastic bag within reach of children as suffocation may result.

- Check the device, accessories and document with the device as per list of packing
- Clean: make a clean of the device before use it.

### 4.4 Adjust the supporting Stand bar

- Please use the wrench to rotate the supporting feet clockwise to extend them, so that it rests on the ground. Make sure the freezer does not move when using.

### 4.5 Standing

- Do not turn on the freezer at once when the freezer is well located, must wait 24 hours for the first start.

### 4.6 First initial starting

Operate as follows for the first start:

1. Connect the power cord to the appropriate socket during no-loading.
2. Turning on the power-lock at the right-side of the bottom. (If a back-up cooling system is installed with, turn off its power at first ) .
3. Set the desired temperature point between  $-10^{\circ}\text{C}$  to  $-86^{\circ}\text{C}$ , for the best performance of the machine, when the user need to set the temperature below  $-80^{\circ}\text{C}$ , should set the temperature at  $-80^{\circ}\text{C}$  at first, once the temperature of the freezer come down to  $-80^{\circ}\text{C}$ , keep it work stable at  $-80^{\circ}\text{C}$ , after 3.5 hours, set the temperature below  $-80^{\circ}\text{C}$  as desired. Factory setting at  $-80^{\circ}\text{C}$ .
4. The high temperature alarm will be activated when the power is on. That's a normal phenomenon. Once the temperature come down to the set point, the alarm will be closed. The alarm buzzer voice could be eliminated by touch the MUTE button.
5. Articles could be stored inside the freezer after a 24-hour normal running. (Make batch treatment to store articles, each time do not over a third, after 12 hours of normal running, then store another a third .)
6. Do not open the door during the cooling process, will cause the temperature rise.
7. For back up cooling system, if installed, do not open it when the freezer is working properly. When the freezer is failure, could turn on the system to keep the inside temperature at a proper value.

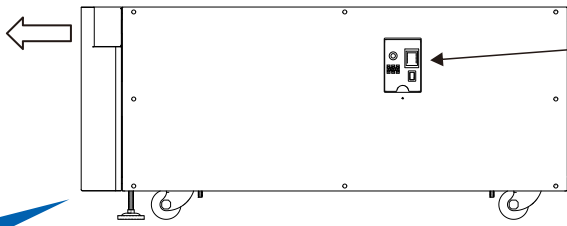


## **CAUTION.** Compressor start delay time is 15 minutes!

- There must be an authorized person responsible for the freezer in customer's office, to check the operation status and make daily record. The inside temperature of cabinet will rise up during the failure problem, if it is not available to be repaired in a short time, take out the stored items and transfer to other safe locations.
- Prior to put the articles inside the freezer, should check if the temperature set range of this device is matching the requirement of the articles.
- Due to the Inertia of refrigeration, there is a little difference between the actual temperature displayed on the controller and the set temperature. This is a normal phenomenon.
- Our company's ultra low temperature freezers are storage devices, do not put excess "hot" samples into the freezers at one time, or will cause compressor damage after long time working without stop. Attention to put in samples and set temperatures in batches.
- Do not put electric devices in the freezers without permission.
- Do not change the setting temperature frequently within a short time, or the current temperature may not reach the setting temperature as the inertance; Do not cover sensors in the freezer when you put in samples and keep some distances between the samples and the inner side of the freezer to make sure the cold air will circulate successfully in the freezer, or will cause the instability of the inner temperature and inaccuracy of the display temperature.




Open to clean  
the Condenser  
filter net



Power lock  
and Back-up  
Battery lock

(please open the Back-up Battery  
when the machine is in operation)



- The freezer have 2 fixing supports ahead of casters after install of the freezer please use wrench  to adjust the fixing supports fix the freezer
- Before moving the freezer, please adjust the fixing supports, do not move the freezer forcibly.

Cabinet inner  
seal

Inner door

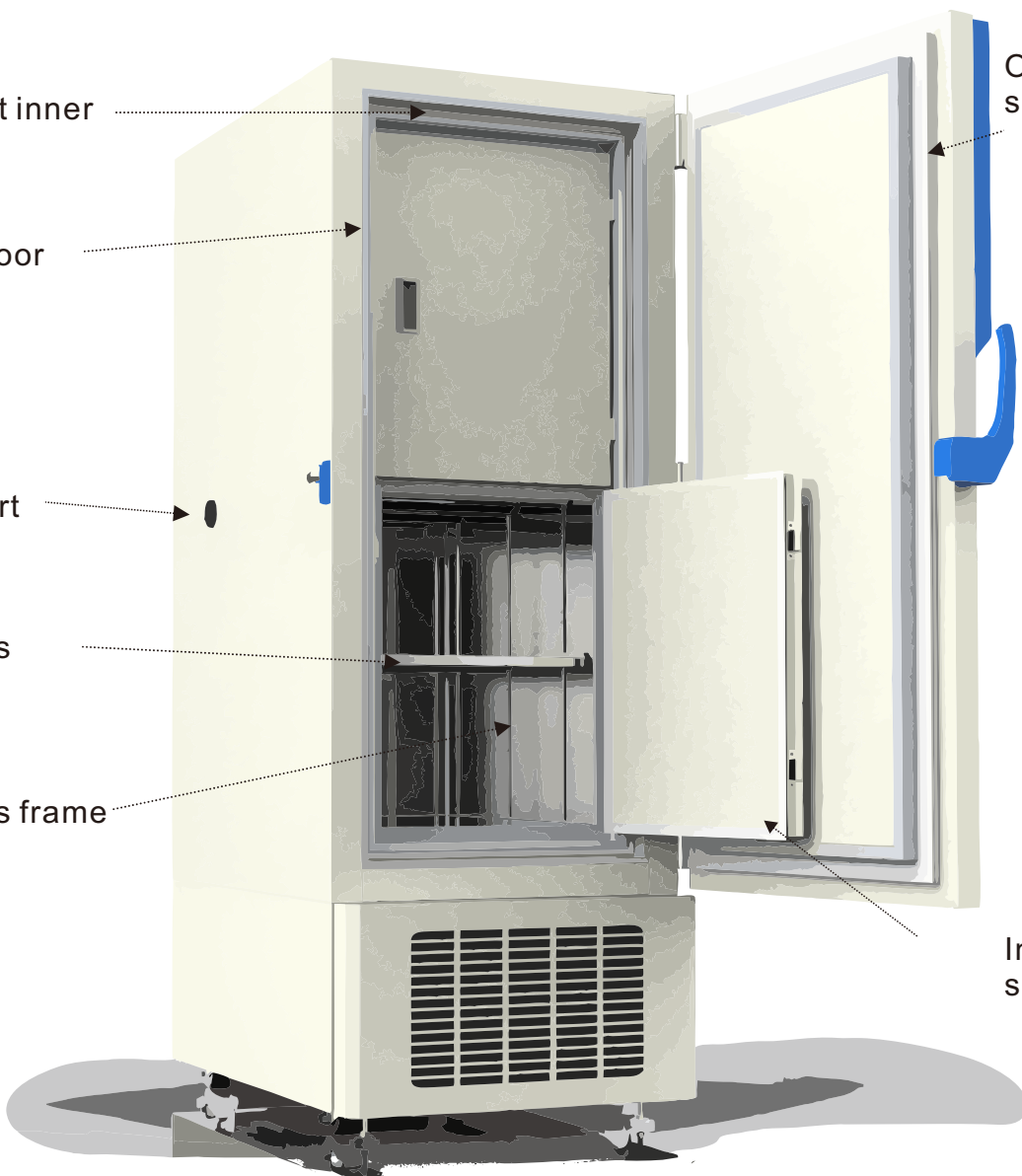
Test port

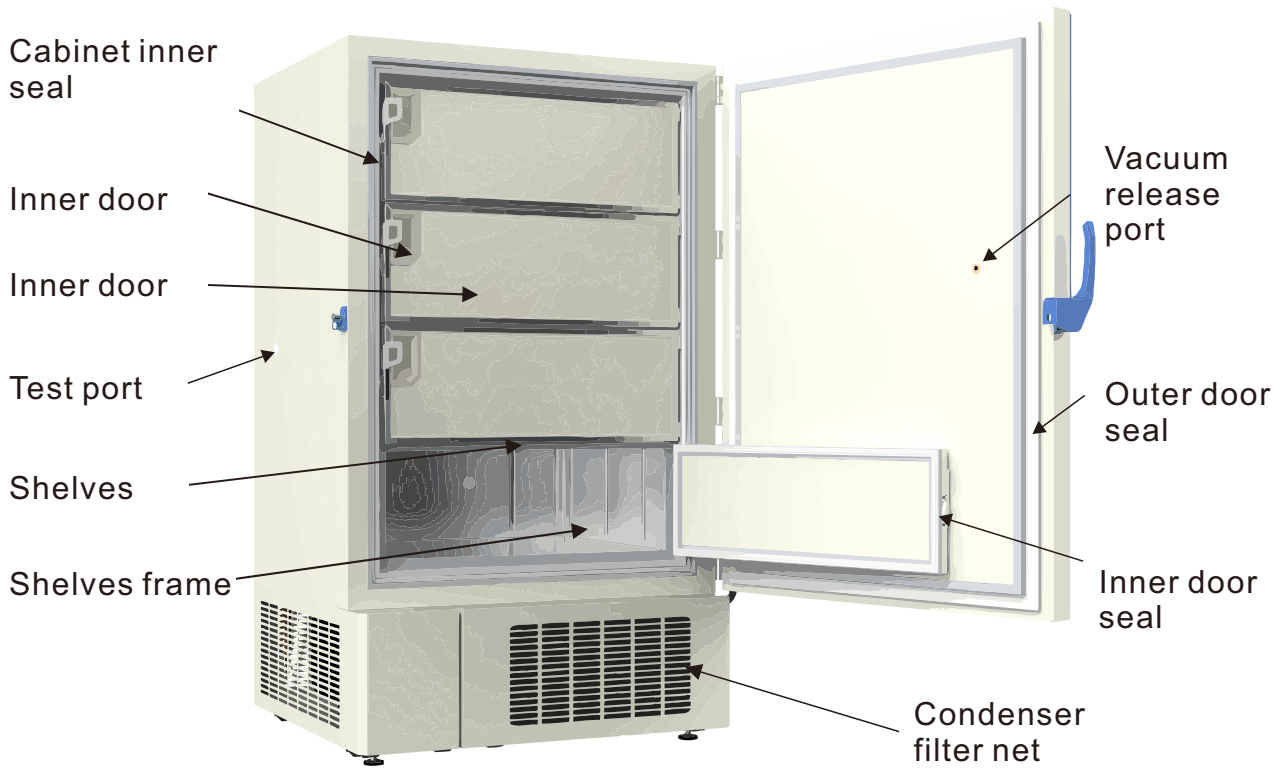
Shelves

Shelves frame

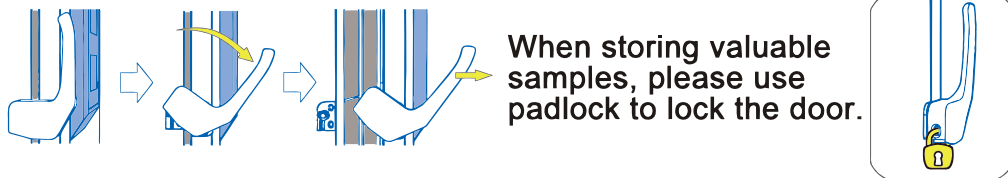
Outer door  
seal

Inner door  
seal





**Open door:**





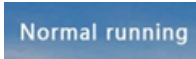
The moisture on the cabinet inner seal, inner door seal and outer door seal shall be cleaned before using the storage box every time to prevent the door from freezing at low temperature, which makes the door hard to open.



As the product's improvement, the actual product may be different from the illustration, please refer to the actual product. The illustration is for reference only.

## 6. Touch screen panel function description



- a.  On the normal working condition, the upper shows the real-time internal temperature inside the freezer. (For example as 0.0°C), the lower shows the setting temperature;
- b.  **Fan running state:** when the little symbol is rotating, shows the fan that under the chamber is working normally.
- c.  **Freezer running state:** normally the freezer is working OK, and it shows the “Normal running” .

if it happens the alarm, it will show the bell character.  
 The alarm system of this unit will be:  
 “communication error with control board” ,  
 Product expired,  
 Door open alarm,  
 PT100-1 failure(Sensor failure),  
 Condensor sensor failure error,  
 System failure,  
 High temperature alarm,  
 Low temperature alarm,  
 Ambient temperature sensor alarm,  
 Abnormal Voltage,  
 Abnormal current,  
 Condensor overheating and High ambient temperature.



### CAUTION.

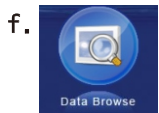
Alarm flashing can not be canceled until troubleshooting. When buzzer sound alarms, you can press mute to turn off the alarm sound.

d. 2016-11-30 10:02:50

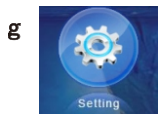
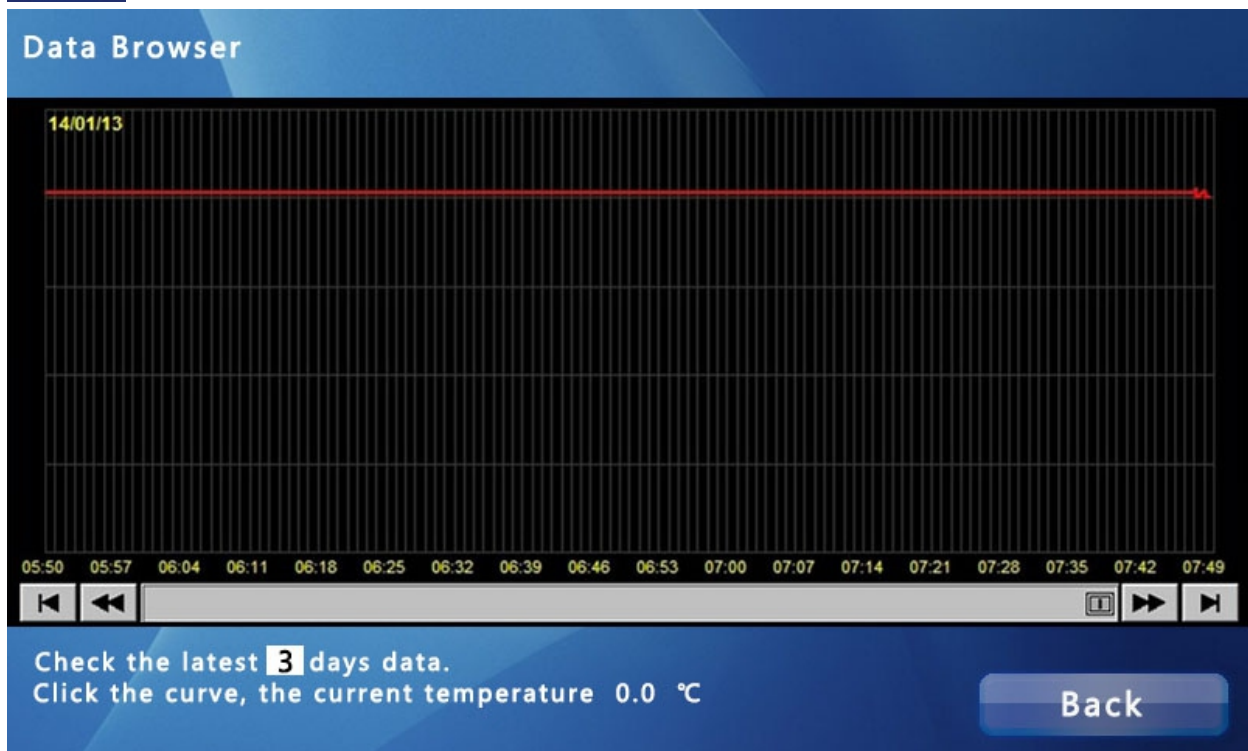
**System time.** The time is changeable by entering factory setting mode.( this operation is only authorized to local service agent).



**Telecommunication:** Optional function, if do not order this function, please do not touch it. The detail manual will be supplied once you choose this function.

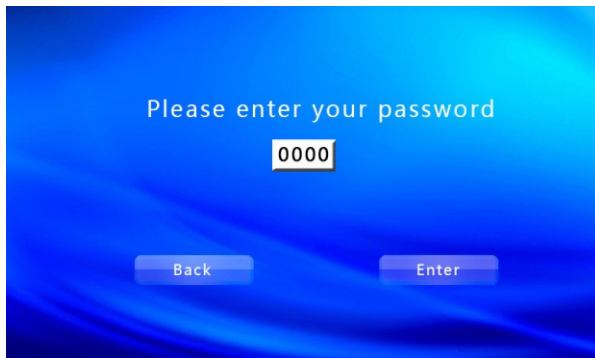


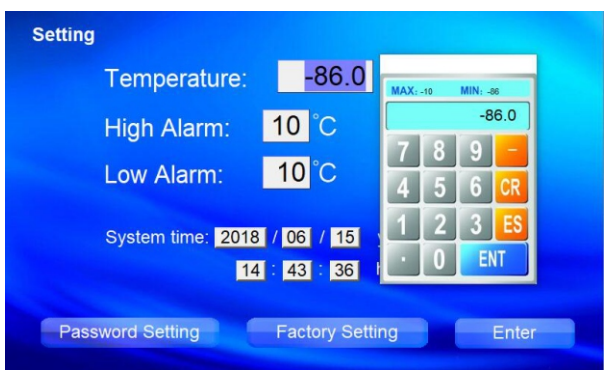
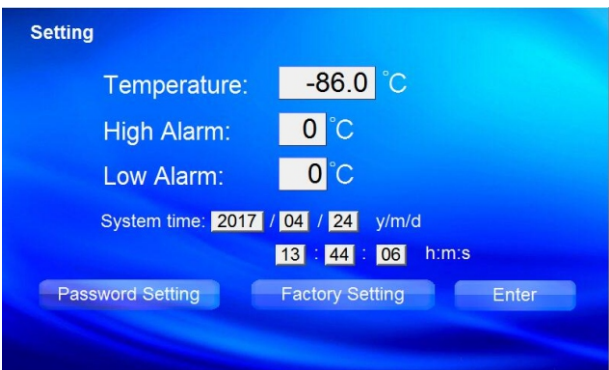
**Data Browser:** The current or the latest temperature curve can be read. Please note that there is a USB access port On the right side of screen board.



**Parameter setting.** The user's initial password is 0000. Before you enter the password, only can browse the data, others operations are not available.

**Enter initial password. When you put the wrong umber, it will show error:**



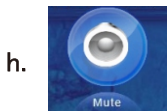


**Setting temperature (Temperature):** -10 ~ -86.

Correct the system time via this page.

**High temperature alarm deviation value set (High Alarm):** Normally we suggest to set at 10°C (optional 5~15). When the internal temperature of freezer > “ Setting temperature + High temperature alarm deviation value”, the High temperature alarm will be activated.

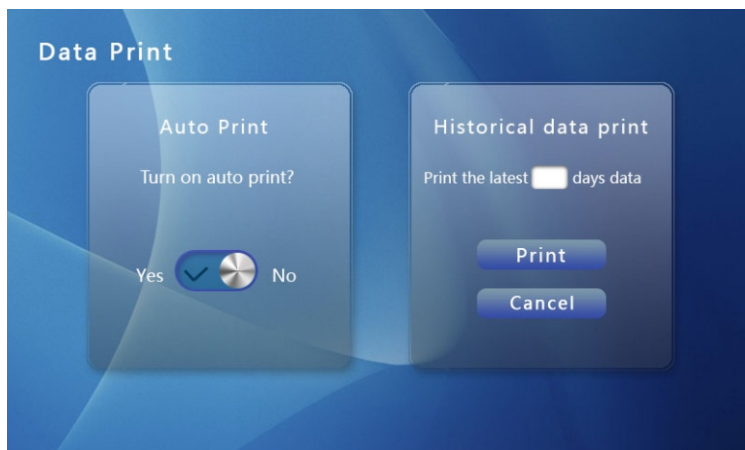
**Low temperature alarm deviation value set (Low Alarm):** Normally we suggest to set at 10°C (optional 5~15)..When the temperature inside the freezer < “ Setting temperature + Low temperature alarm deviation value”, the Low temperature alarm will be activated.



**Mute.** This function only temporarily close the alarm sound, will not affect the alarm displays.



**Data print(optional).** The freezer is optional with printer, you can turn on the auto print. Or select the historical data print.

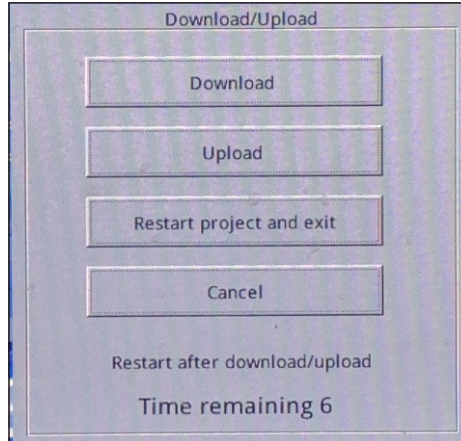




j. **Temperature data download and read through U disk.**

1. Downloading data to U disk :

(1). Find the USB port and insert the disk into the port, the screen will show dialogbox as follows, click the "Upload".

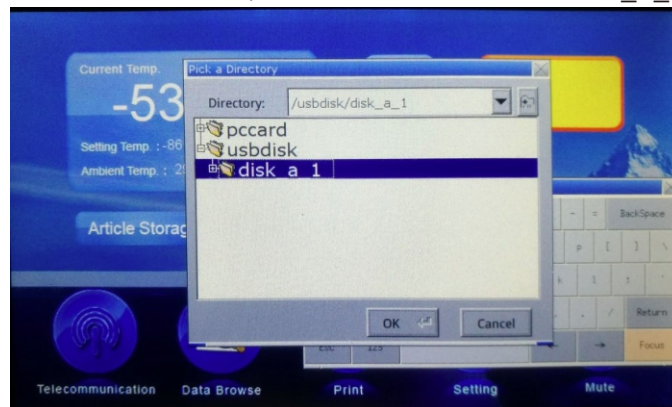


(Do not want to continue the next operation? No need to touch, will disappear in 10 seconds )

(2). Once click the "upload", will popup the following dialog box: enter password "11111", and click "OK".



(3). choose the path to save the data, here is ordered to use: "disk\_a\_1" (as shown below), click "OK".



2. reading the data: Connect the U disk to computer, find: \\history\data\log\001 as shown as following :





h.



**Remote Alarm (opt):** The terminal is nearby the power switch. When there is an alarm, after 1~5 minutes it is going to be triggered.



**Caution:**

Due to the inertia of the refrigerating, there is tiny difference between the set point and the temperature value on the display. This is a normal phenomenon.



**Caution:**

The current and voltage vibrated a little during the running process is possible. It may have a short time alarm. It is normal when the voltage is regular at the range between  $115V \pm 10\%$  or  $208V \pm 10\%$ .

## 7. Defrost •Unused • Maintenance

### **WARNING**

Cutting off the power supply before making any repair services, to prevent from electric shock or injury.

Prepare a safety check sheet when you request any repair or maintenance for the safety of service personnel.

Make sure do not inhale any noxious gas while operate service.

### 7.1 Defrost

- ◆ After a period time of working, there will be frost formed inside the freezer. If the frost inside is more than 1.5 mm, will affect the performance, also increase the power consumption. Normal defrosting is required.
- ◆ Defrost the inside wall of the freezer as follows:
- ◆ Remove the frost by the enclosed scraper. Take care not to damage the inside wall.
- ◆ Thorough defrosting:
  1. Take out and transfer all the contents to another freezer or container which contains liquid CO<sub>2</sub>.
  2. Switch off the remote alarm.
  3. Switch off the power supply.
  4. Open the door and remove the inner lid. To remove the inner door, open and lift.
  5. Leave the freezer as it is.
  6. The water remaining in the freezer compartment should be wiped up.
  7. After cleaning is completed, restart the operation according to the procedure. Put back the articles into the sufficiently cooled freezer compartment



**Caution:**

Do not use the electric heater, metal tools, sharp weapon to defrost the freezer.

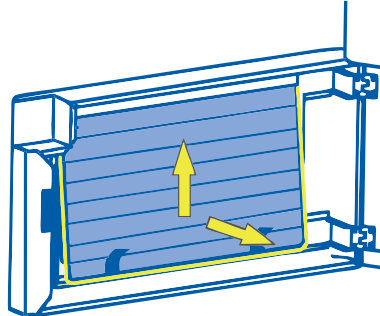
### 7.2 Unused

- ◆ If the unit is to be stored unused for an extended period, should be powered off and be cleaned as indicated as 7.3, then must be packed over without any articles inside.
- ◆ Before reuse, use the dry cloth to wipe the water around the lining of the freezer. Especially the door seals which could be directly connected with the inner doors to prevent the door seal from been frozen by the low temperature.

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## 7.3 Maintenance

- Cleaning of condenser filter: Clean the condenser filter once a month since a clogged filter may cause shorter compressor life as well as the poor cooling.
- Clean the condenser filter by the procedure below:



1. Open the grille by pulling it to you as shown in the figures above.
2. Take out the condenser filter.
3. Wash the condenser filter with water.
4. Replace the condenser filter and the grille.

## ! CAUTION

Do not touch the condenser directly when the filter is removed for cleaning. This may cause injury by hot surface. Never pour water onto or into the unit. Doing so can damage the electric insulation and cause failure. The compressor and other mechanical part are completely sealed. This unit requires absolutely no lubrication.

## ! WARNING

Do not let children play around the freezer.

## 7.4 Disposal of the unit

## ! WARNING

- ❑ Do not let children play around the freezer.
- ❑ If the unit is to be stored unused in an unsupervised area for an extended period, ensure that children do not have access and that doors cannot be closed completely.
- ❑ The disposal of the unit should be accomplished by appropriate personnel. Always remove doors to prevent accidents such as suffocation.
- ❑ When disposing of the freezer, always destroy the hinges and locks to make sure the door cannot be closed completely.
  
- ❑ When the equipment reaches the service life, it should be discarded.
- ❑ It must be disposed by a qualified professional recycling agency in accordance with local regulations.
- ❑ Non-professionals must not dismantle or decompose the equipment without authorization.
- ❑ The discarded equipment should be placed in a designated area inaccessible to children to avoid danger.

## 8. Trouble shooting

If the unit malfunctions, check out the following before calling for service.

Malfunction	Check/Remedy
The chamber is not cooled at all	The circuit breaker of power source is active.
Compressor is nor working	The power switch at the right-side bottom of the front is not on.
Cooling is poor	<p>The ambient temperature is too high.</p> <p>The latch of inner door is not closed completely. The outer door is not closed firmly. (The frost or ice between the cabinet and door gasket possibly prevents door seal.)</p> <p>The air intake vent is blocked.</p> <p>The condenser filter is clogged. Always clean the filter when the filter check lamp is lit.</p> <p>The door is not shut tightly.</p> <p>The inner door is not installed correctly.</p> <p>The set temperature in the controller is not set properly.</p> <p>The grille is blocked out.</p> <p>The filter is clogged.</p> <p>The freezer is in the direct sunlight.</p> <p>There is any heating source near the freezer.</p> <p>A rubber cap and insulation are not set correctly.</p> <p>You put too many unfrozen articles into the chamber</p>
Heavy noise	<p>If the cabinet is put on a flat floor</p> <p>Is the freezer so near the wall</p> <p>Does the fin of the fan touch the others components</p>
E4 error code: system failure	<p>Reason: Ambient temp is more than 32 or the freezer is so near the wall cause a bad ventilation. solution Keep 30cm clearance on all sides of the freezer keep no obstacle at the air outlet wash the filter regularly open the air-conditioner during the hot summer to keep a proper ambient temperature</p>
EE error code: sensor failure	Check the connection of the sensor and the controller

**Note:** If the malfunction is not eliminated after checking the above items, or the malfunction is not shown on the above table, contact Meling sales representative or agent.

Follows are not failure:

- There will be a slight crash sound of the compressor switch when the compressor is starting and stopping. The cooling time is longer than normal for the first use of the freezer. These are normal phenomenon.
- In the wet rainy season, there will be a little frost forming on the surface of the freezer, use the dry cloth to wipe it off will be OK.
- The twice opening of the door should after 5 minutes, otherwise the outside warm air will come in, the negative pressure inside the freezer caused by a sharp decline will make the door difficult to open.
- A sound of liquid flow inside the freezer is a normal sound of refrigerant circulating.
- Inner liner opposite of the gasket is a press release area of the freezer, will be some slight crack inside during the cold and hot temperature alternation. It is a normal phenomenon. Do not affect the regular use.
- Optional with printer, the screen flickers when the printer is printing or the screen is refreshing the data.
- The screen controller will show system abnormal sometimes when the first time to start of the freezer. It is normal due to that the controller has not completely read the data, it will back to normal after the data reading. If the controller do not show regularly for a long time, should turn off the power switch and restart it.



## WARNING

Prepare a safety check sheet, clean and sterilize the freezer before you request any repair or maintenance for the safety of service personnel.

This product is using flammable refrigerants, non-self-demolition (especially the components of the compressor and refrigeration pipes, etc.). If it is failure, must be overhauled by the Meling service center or any other authorized representative agents.

## 9. Optional Parts Selection

### Annex 1 GSM Message Remote Alarm

Optional function. Please refer to message alarm function instruction for the details.



Please cut off the power before install message alarm function, otherwise it may cause shock or fire.

### Annex 2 CO2 backup system (Optional accessory)

Co2 back up system is a kind of auxiliary refrigeration system using liquid carbon dioxide. It provides refrigeration assistance for the equipment and ensures the temperature of the refrigeration equipment be maintained within required range for a certain time during the power off or refrigeration failure scenario. When refrigeration equipment works normally, CO2 back up system will be in standby mode. When refrigeration equipment powers off, the system works by using the built-in rechargeable battery to spray liquid CO2 to the refrigeration equipment by interval to reach the refrigeration effect. During the refrigeration equipment failure period, the system can be executed by forced operation switch to work and provide refrigeration.

Please refer to operating steps on the attached operation manual for the installation and usage.



#### Attention:

1. Ensure the cylinder is loaded with liquid carbon dioxide.
2. The liquid carbon dioxide temperature is pretty low, avoid frostbiting from the process of the installation and usage.
3. CO2 back-up system is standby system and need to be checked monthly to prevent system failure and affect usage.
4. The environment needs good ventilation, in case of physical discomfort due to excessive carbon dioxide and insufficient oxygen.

### Annex 3 Racks and Storage Boxes (Optional accessory)

Model	Dimension W×D×H (mm)	Racks/In ner Door	Number of Racks	Rack Dimension WXDXH(mm)	Number of loading 2" Storage Boxes
GL-U-14M	440×696×1266	3/2	4×3	140×685×293	300(5×5×12)
GL-U-19M	585×696×1266	3/2	4×4	140×685×293	400(5×5×16)
GL-U-24M	750×696×1286	3/4	4×5	140×685×293	500(5×5×20)
GL-U-28M	865×696×1286	3/4	4×6	140×685×293	600(5×5×24)
GL-U-30M	877×696×1378	3/2(or 3/4)	2×6 2×6	140×685×293 140×685×351	660(5×5× 12+6×5×12)
GL-U-36M	1022×696×1378	3/2	2×7 2×7	140×685×293 140×685×351	770(5×5× 14+6×5×14)

Note: Racks divides into A.Upright storage racks B. Side access drawer storage rack(inclusive of handles)

### Annex 4 Chart Recorder ( Printer )

Please refer to the chart recorder instruction if you choose this optional part.

## Annex 5 Alarm Output (Optional)

When this function is selected, the output terminal installed on the back panel bottom, and the alarm device has 1-5 minutes delay.



### Attention:

To avoid electric shock, a qualified engineer or professional electrician is needed for the installation.

## Annex 6 Power outage Alarm (Battery Maintenance, Installation, Replacements and Disposal)

### 1. Battery Maintenance

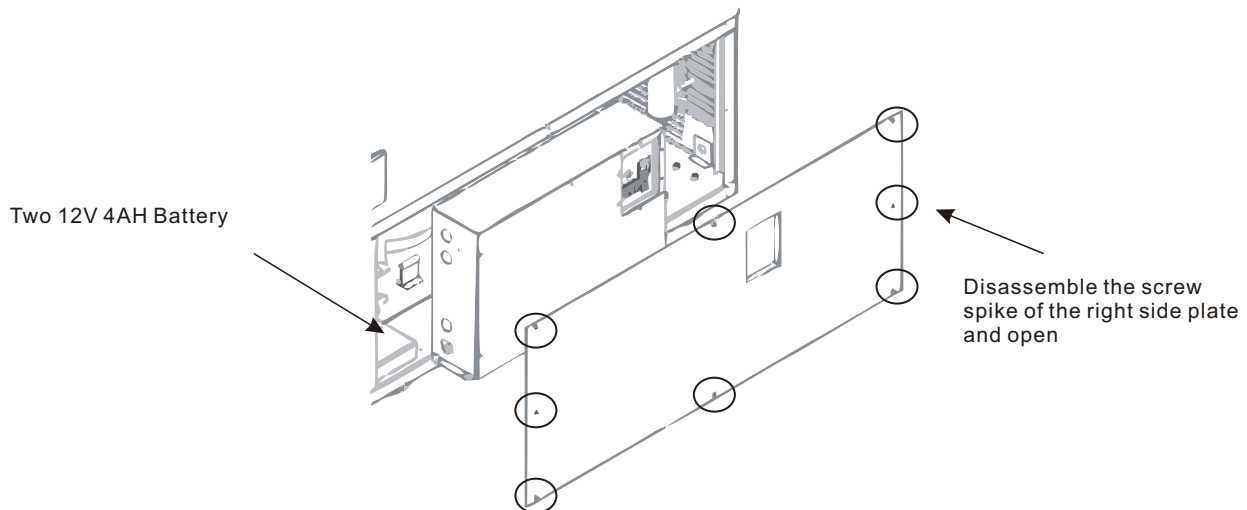
A. To extend battery life and prevent the freezer being idle for long time, it should run not less than 24 hours every month to facilitate charging.

B. If the freezer does not run in a long time, it should be connected to the power on a regular basis (monthly), turn on the power switch to charge the freezer for a period of time, and the charging time is not less than 24 hours.

C. When the power supply is interrupted, the battery switch should be turned off in time, otherwise the battery will lose power, which may cause permanent damage to the battery.

D. During long-term power failure or transportation, battery switch should be turned off, otherwise the battery will lose power, even cause permanent damage to the battery, which may cause abnormal display after restart the freezer connected to local power.

E. The battery is expendable and the battery life is about 2 to 3 years. If the battery is not properly used, such as the loss of electricity or reach the battery life, it will lead to low battery alarm.



### 2. Battery Installation and Replacement.

#### A. Battery Installation Position:

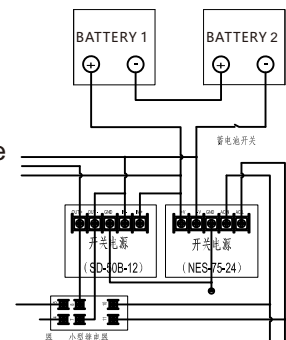
The bottom right side of the freezer, on the left side of electrical box.

#### B. Battery replacement :

a. Turn off the power switch and pull the plug from the socket (Pay attention to the electrical components in the electrical cabinet. Power supply must be turned off and also unplug the power cord and turn off the power switch of the freezer before opening. The electrical cabinet must be opened by qualified engineer or maintenance personnel).

b. Remove the right side plate screw spike with a screwdriver

c. Remove the battery connection plug. Before unplugging the cord, pay attention to the sequence of the battery's positive and negative levels and the connecting line, does not upside down the positive and negative levels to prevent the damage from the installation of new batteries.







## 11. Specifications

Name	Ultra Low Temperature Freezer	
Model	GL-U-14M /GL-U19M	GL-U-24/GL-U-28M GL-U-30M/GL-U-36M
Ektexine	Epoxy polyester powder spray coated steel plate	Epoxy polyester powder spray coated steel plate
Chamber	Stainless Steel(optional)	Stainless Steel(optional)
Outer Door	Epoxy polyester powder spray coated steel plate	Epoxy polyester powder spray coated steel plate
Inner Door	Epoxy polyester powder spray coated Aluminum plate	Epoxy polyester powder spray coated Aluminum plate
Shelves	Stainless steel shelves	Stainless steel shelves
Test Port	2	2
Insulation	VIP+Rigid Polyurethane	VIP+Rigid Polyurethane
Compressor	Hermetic	Hermetic
Condensor	Finned Type	Finned Type
Evaporator	Copper Pipe	Copper Pipe
Refrigerant	Mixture	Mixture
Temp. Controller	Microprocessor control system	Microprocessor control system
Temp. Display	Touchscreen Display	Touchscreen Display
Temp. Sensor	Pt100	Pt100
Alarm Devices	Communication failure between main board, Product overdue alarm(setting needed),Door Open alarm, PT100-1 failure alarm, Condenser sensor failure alarm, High temp alarm, Low temp alarm, Ambient temp sensor failure alarm, AC voltage abnormal alarm, condenser overheat alarm, Ambient temp high alarm.	

\*If there is any product improvement,the technical data and electrical circuit diagram shall be subjected to the nameplate.

