

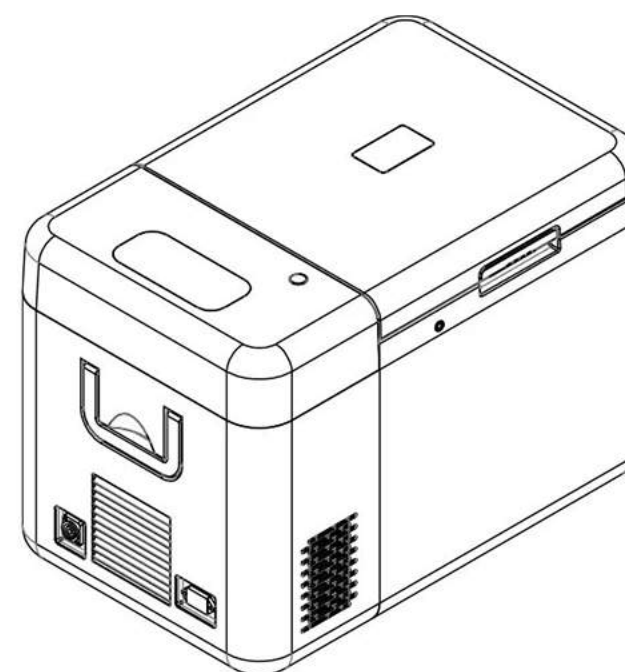
# QUALITY ASSURANCE

Our product provide guaranteed quality for one year,  
the compressor provide guaranteed quality for three years,  
power adapter and other accessories  
provide guaranteed quality for one year.  
During the guaranteed quality, if product happenany faults,  
we can provide free repair or free to change a new one.  
(LimitedChinese Mainland)  
Overseas clients contact overseas sales agent please.

**TYPE: DW-4525  
DW-6025  
DW-8625**

**PORTABLE ULTRA LOW  
TEMPERATURE FREEZER**

## OPERATING MANUAL



- Thanks for your purchase
- To prevent personal injury, injury to others, or damage to property read these safety precautions carefully before using.

# ALAN


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# SAFETY PRECAUTIONS


To prevent personal injury, injury to others, or damage to property, read these safety precautions carefully before use.


## Attention


-  **Do not disassemble, modify or repair.**  
There are no user serviceable parts inside the freezer unit.



 **Do not immerse in water or pour water on the unit.**


 **Unauthorized modification to the cabinet, controls or free-piston Stirling engine is prohibited and will void all warranty provisions.**


 **Do not put ice or liquid water directly in the freezer box.**  
always use suitable containers.


 **Do not use glass containers when the contents might freeze and break.**


 **Do not store flammable items such as gasoline, thinner or solvents in the freezer.**  
The freezer is NOT rated as an explosion-proof freezer.


 **Do not use hard and/or sharp objects, such as knives, screwdrivers, etc. to remove any operating frost or ice which has accumulated on the inside of the freezer. The inside panels are heat exchangers will be damaged.**
-  **Do not cut, change or modify the power cable.**

 **When removing the plug, hold onto the plug and not the cord.**

 **Do not block the air intake or air discharge vents.**

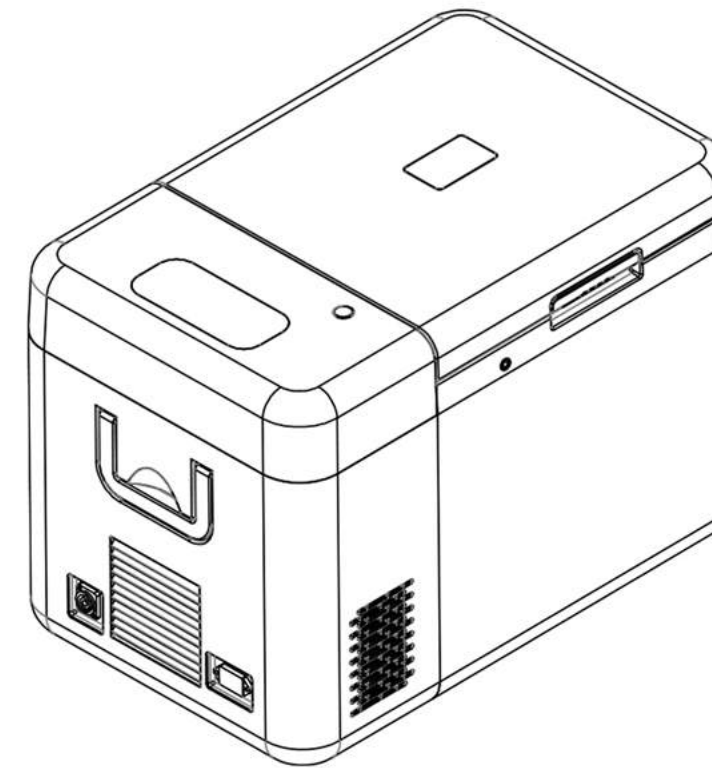
 **Do not drop, throw or abuse the freezer.**

 **Do not operate under extreme environmental conditions**  
such as in a car trunk, in very high humidity environments, in rain or other severe weather.

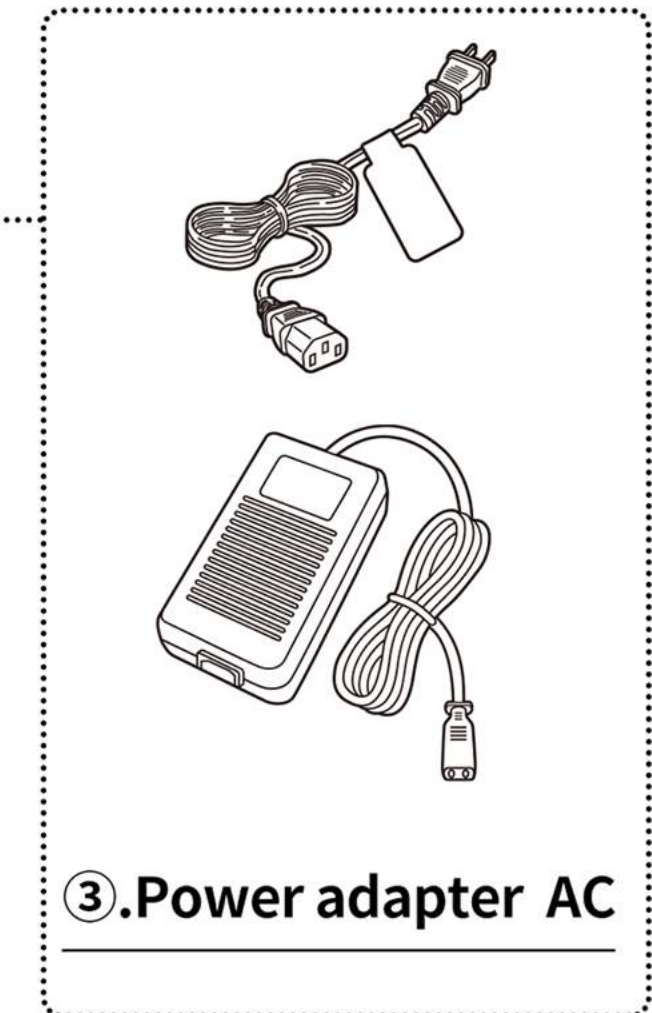
 **Do not use solvents to clean the control panel or the outside or inside of the freezer.**

# UNPACKING AND SET-UP

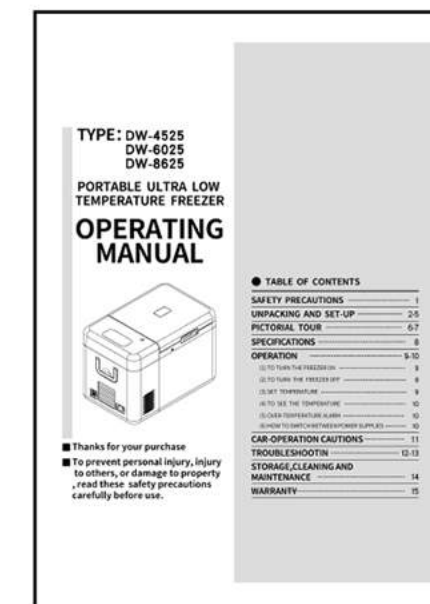
1. Remove the freezer and all accessories from the box. Carefully inspect the freezer and all accessories for any shipping damage.
2. Check the packing list to verify that the shipment is complete.
3. Place the freezer on a level surface.
4. Make sure that the air inlets and outlets are not blocked.
5. Connect to a power source. While the freezer can be used with either the AC Power Cord for lab, home or office use, or the DC Power Cord for mobile use, it is recommended that the initial pull-down to Setpoint be completed via AC power.



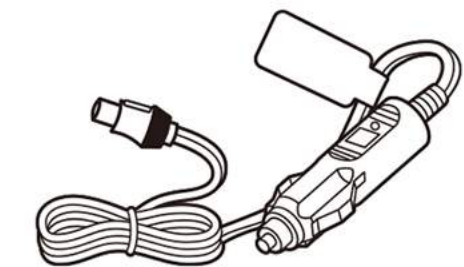
①. Freezer body



③. Power adapter AC



②. Operating Manual



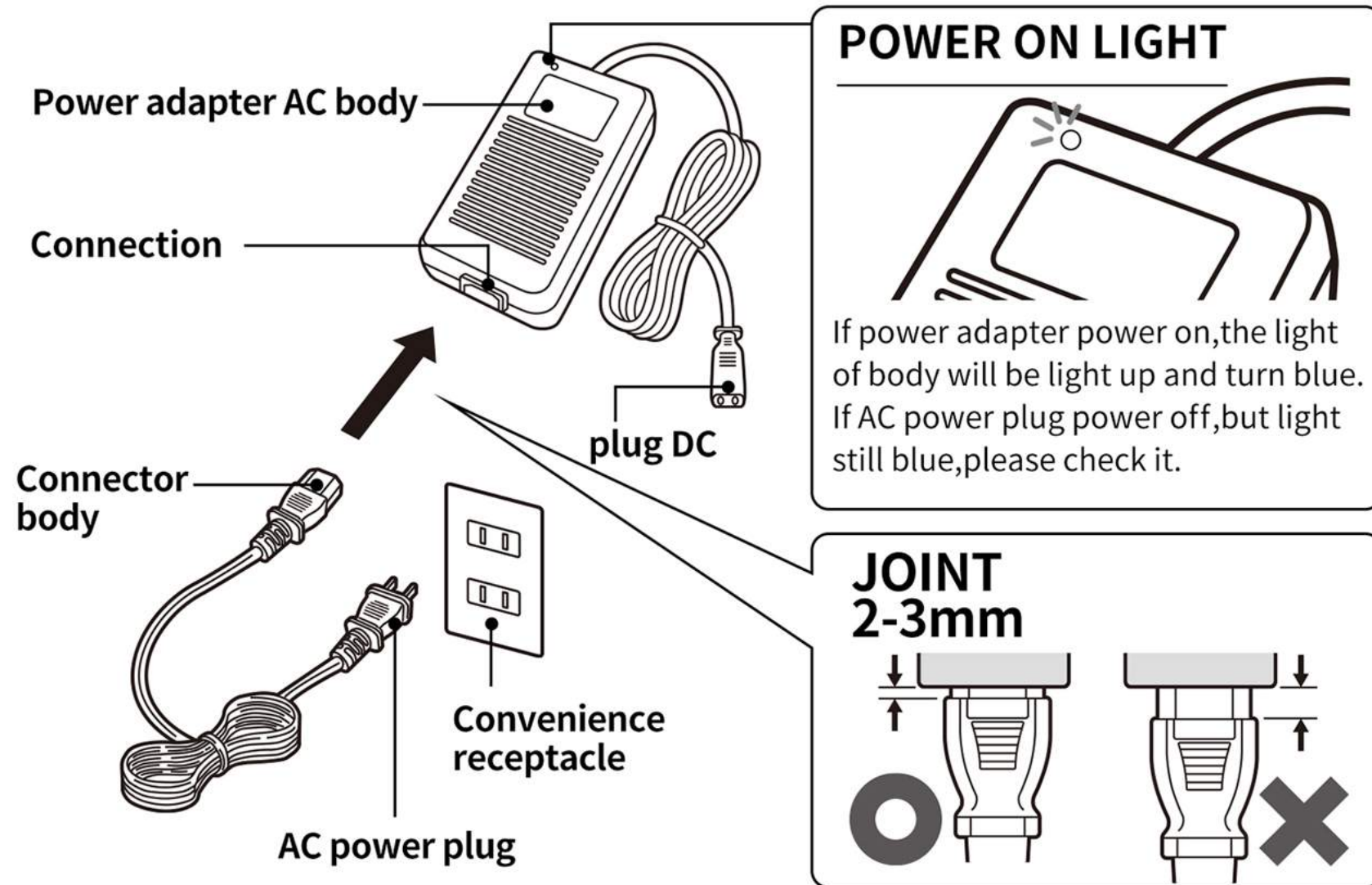
④. DC power supply cord

Suitable for 12V/24V vehicle power supply

# UNPACKING AND SET-UP

## A. TO USE THE AC POWER SUPPLY

During setup, identify the service power and plug configuration available and then locate the appropriate line cord for the service type you will be using. If the appropriate line cord is not currently installed, simply unplug the line cord from the unit and then plug the appropriate line cord in its place. Plug the other end of the line cord into the power source and then attempt to power on the unit.



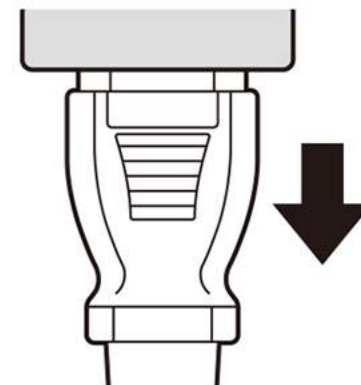
### Demand

- Use 15 amp or greater grounded circuit.
- please check the circuitry when many items enter to a circuit, maybe it will lack power of freezer.
- It apply to 12V/24V car power, please use the DC power supply cord by manufacturer.

**When removing the plug, hold onto the plug and not the cord.**

### Attention

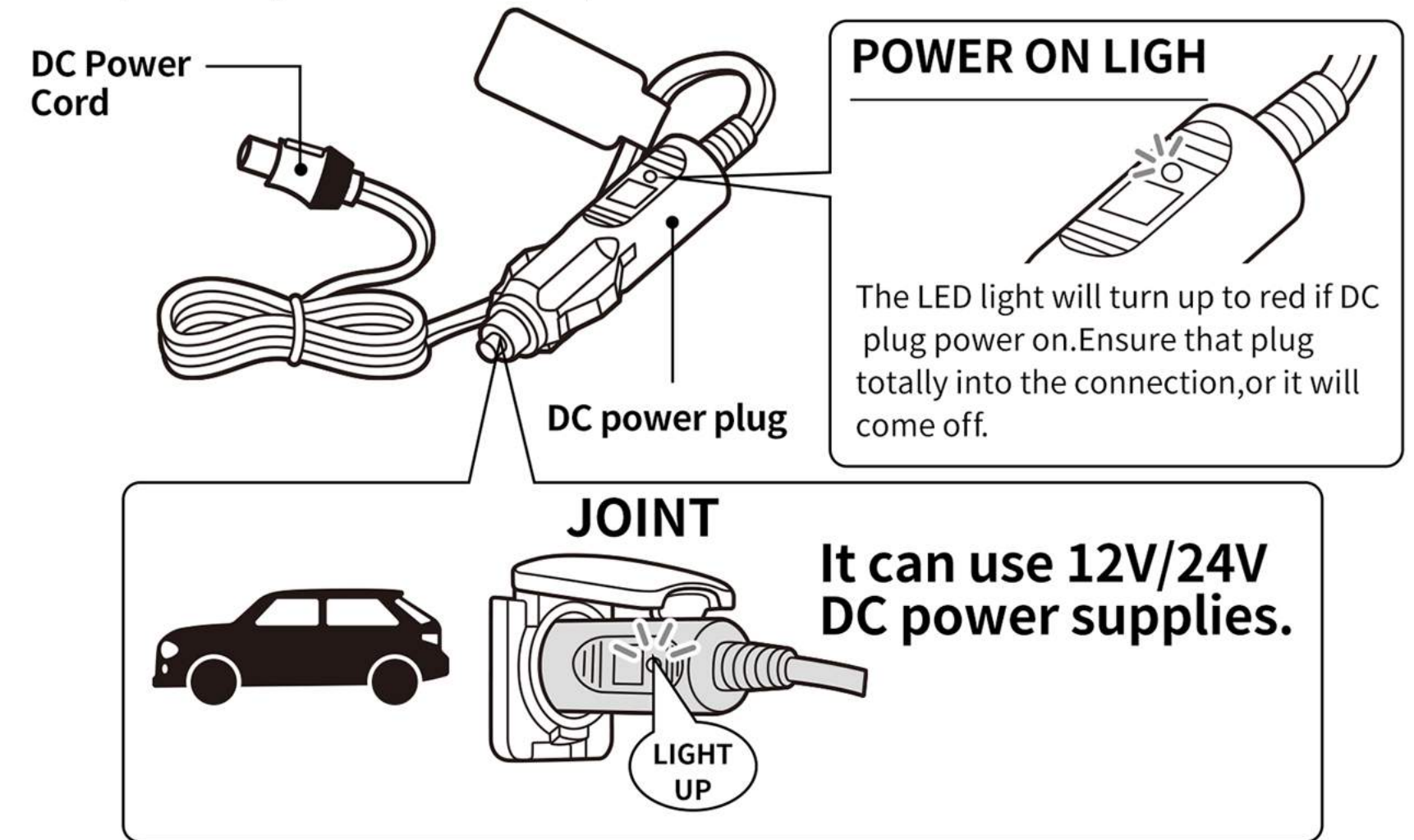
Please do not drag the cord when you remove the connector body or AC power plug. it may damage the cord and plug.



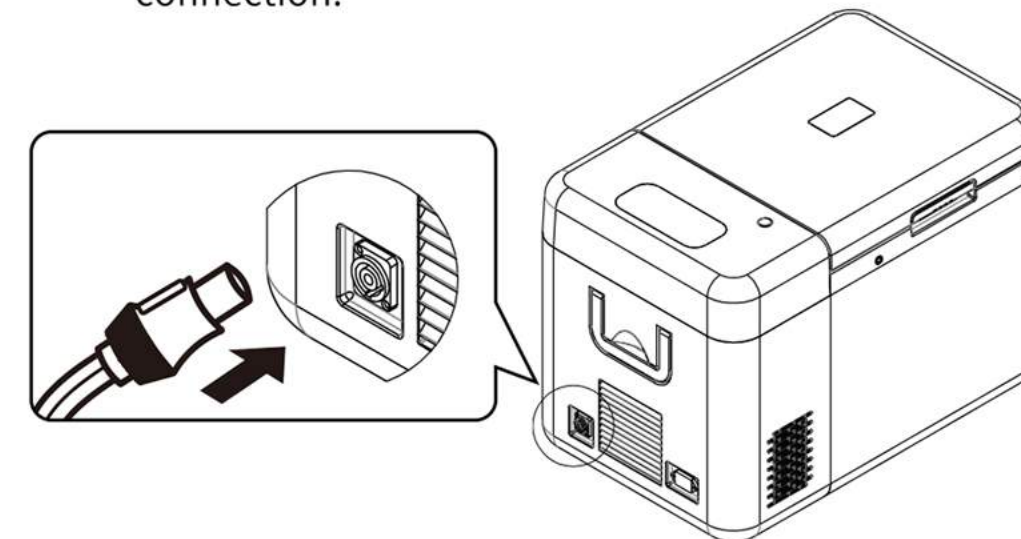
# UNPACKING AND SET-UP

## B. TO USE THE DC POWER CORD IN A MOTOR VEHICLE

- Make sure the freezer remains level. Exceeding an angle of 12 degrees may cause loss of cooling.
- Plug the DC Power Cord into a 12V/15A or 24V/10A outlet ( Consult your automotive specialist if your vehicle lacks 12V/15A outlets.



- Plug the opposite end into the freezer. Slide the male line cord adapter into the female connection port, lining up the two plastic bungs on the male adapter with the cutouts in the female port of the freezer. Press the male adapter firmly into the connection port and turn clockwise until an audible “click” indicates full connection.



### Attention

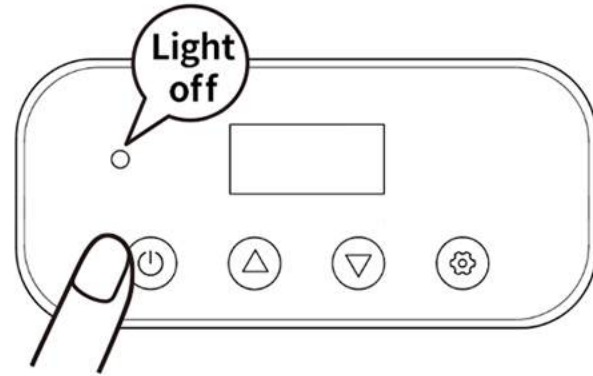
Please ensure that plug totally into connection.

# UNPACKING AND SET-UP

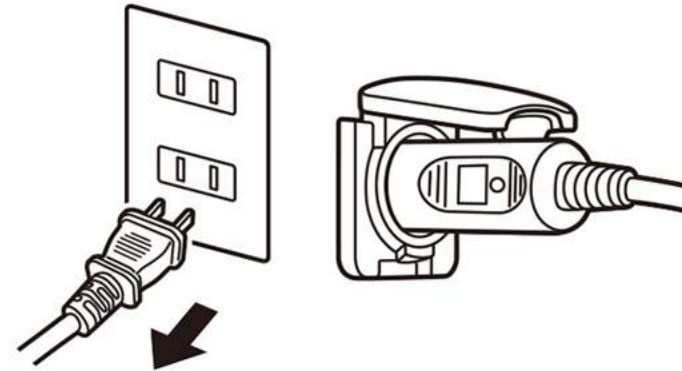
## ! Attention

### DISCONNECTING FROM POWER

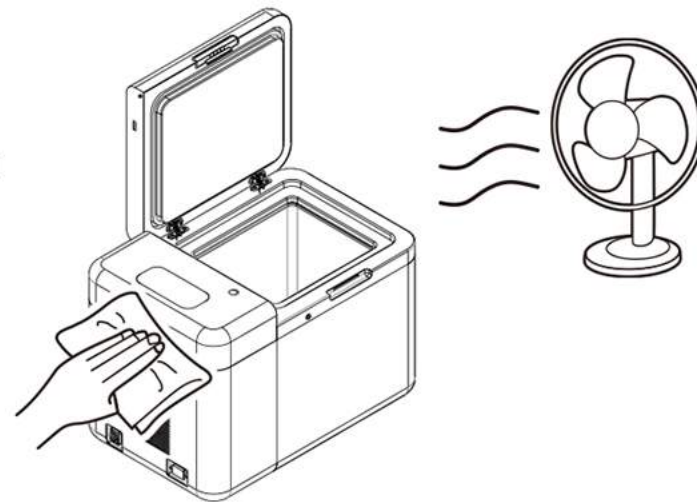
1. Turn off the freezer and the light of display will go out.



2. You can remove plug of freezer after the light go out.

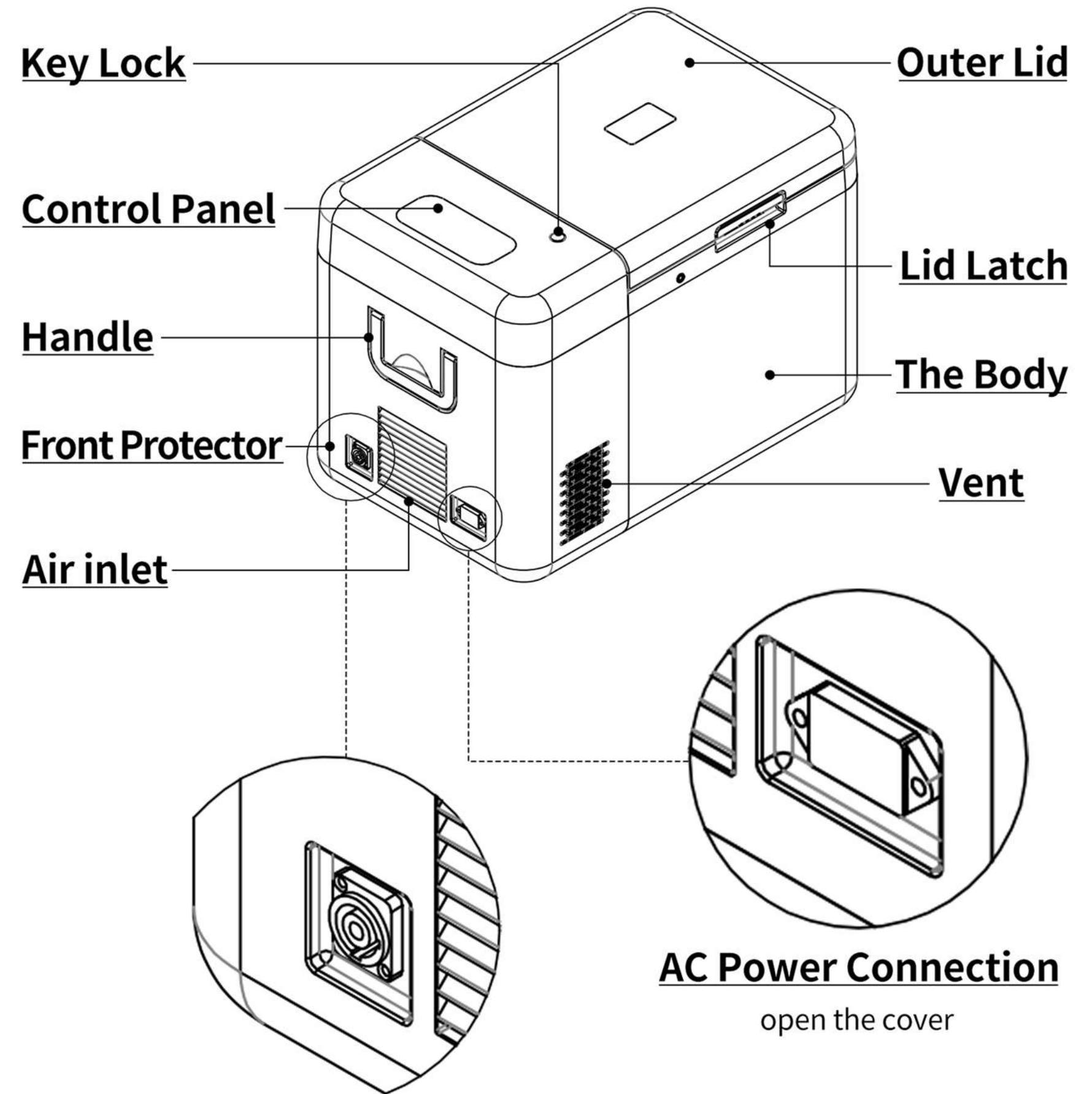


3. If you unplug the freezer while it is on, you will hear a sudden noise as the free-piston Stirling engine shuts off. Power outages will also cause the same noise. This noise (described as a "bonk") is not indicative of damage.



4. Please clean the freezer with soft cloth after returning to ambient temperature, Dry it off and put it in a ventilated place.

# FEATURES OF THE FREEZER

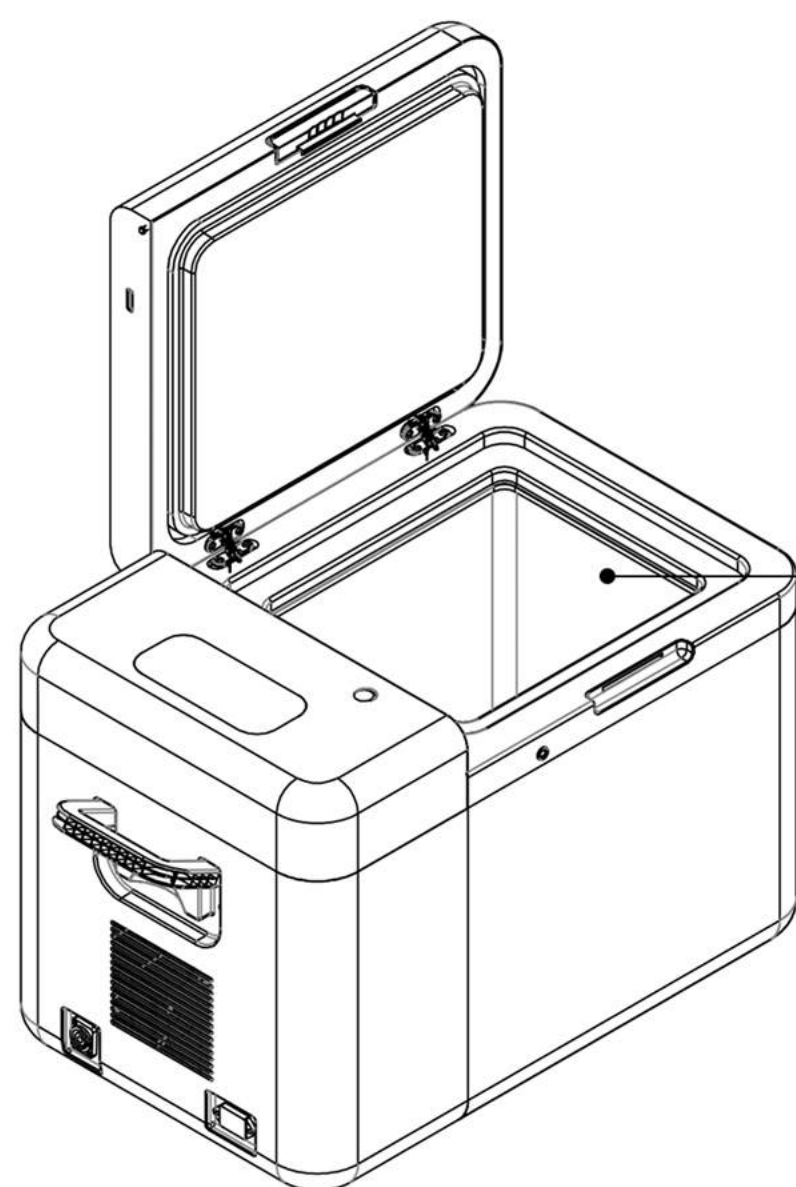


**DC Power Connection**

**AC Power Connection**

open the cover

## PICTORIAL TOUR



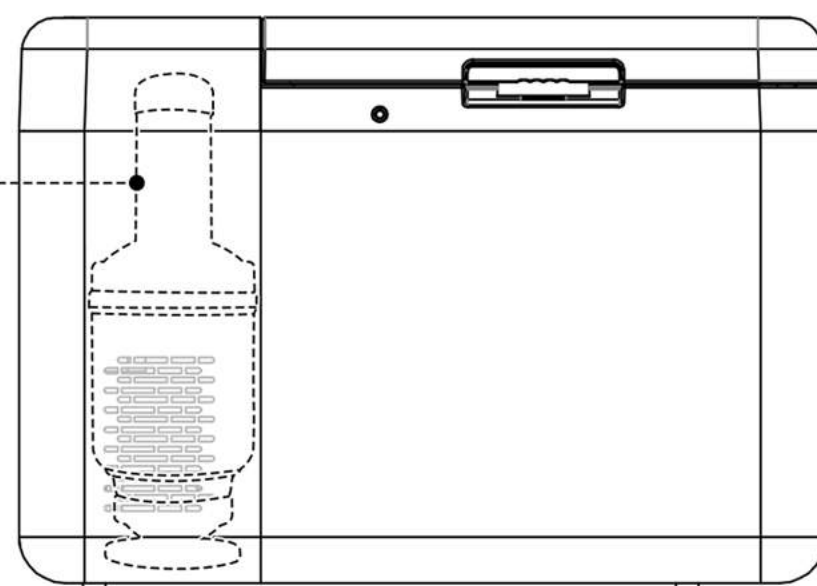
### Freeze Chamber

#### ⚠ Attention

Never handle samples or freezer accessories with bare hands. At -86°C frostbite can occur instantly.

### Free-piston Stirling engine

Free-piston Stirling engine is a mechanical refrigerator driven by electricity. The principle is that the gas does work by adiabatic expansion, that is, by working in the reverse Stirling cycle and cooling. This kind of technology is used in aerospace, satellite sounding and other military areas.



## SPECIFICATIONS

<b>Electric Power</b>	100V-240V ( $\pm 10\%$ ) AC; 50Hz; 12V/24V DC from mobile source
<b>Maximum Power (Current)</b>	110W(0.5A@220V,4.6A@24V)
<b>Electric Power Range</b>	110V-264V,50Hz
<b>Electric Supply Rating</b>	8 amp or greater grounded circuit
<b>Cooling Engine</b>	Free-piston Stirling engine
<b>Type</b>	DW-4525, DW-6025, DW-8625
<b>Refrigerant</b>	R-170 (Ethane)
<b>Temperature Range</b>	DW-4525, +25°C to -45°C DW-6025, +25°C to -60°C DW-8625, +25°C to -86°C temperature coherence $\pm 1^\circ\text{C}$ , adjustable in 1°C increments
<b>Work ambient Temperature</b>	+5°C to +32°C
<b>Environmental Conditions</b>	Non-corrosive, non-flammable, non-explosive
<b>Storage Volume</b>	25L
<b>Interior Dimensions</b>	300x 250x 300 mm (L x W x D)
<b>Exterior Dimensions</b>	616x 392x 455 mm (L x W x D)
<b>Net Weight, Empty</b>	17.5kg
<b>Insulation</b>	High performance vacuum insulated panels and polyurethane foam
<b>Noise</b>	<55 dB(A) at 1 meter
<b>Control Sensor</b>	One RTD (PT100 Class A)
<b>Refrigerating medium</b>	helium (He)
<b>Pull-Down from 25°C Ambient</b>	DW-4525, 3 hours at -45°C (Empty Cabinet) DW-6025, 4 hours at -60°C (Empty Cabinet) DW-8625, 6 hours at -86°C (Empty Cabinet)
<b>Steady State Energy Use 25°C Ambient</b>	DW-4525, average power 30 watts at -45°C (Empty Cabinet) DW-6025, average power 40 watts at -60°C (Empty Cabinet) DW-8625, average power 70 watts at -86°C (Empty Cabinet)
<b>Temperature Alarm</b>	DW-4525, NO; DW-6025, NO; DW-8625, Over set temperature $\pm 10^\circ\text{C}$ ;

## FREEZER OPERATION

### ●How to turn the freezer on

When freezer is connected to the power supply, the operation light will light up and the freezer turn on automatically with one beep.

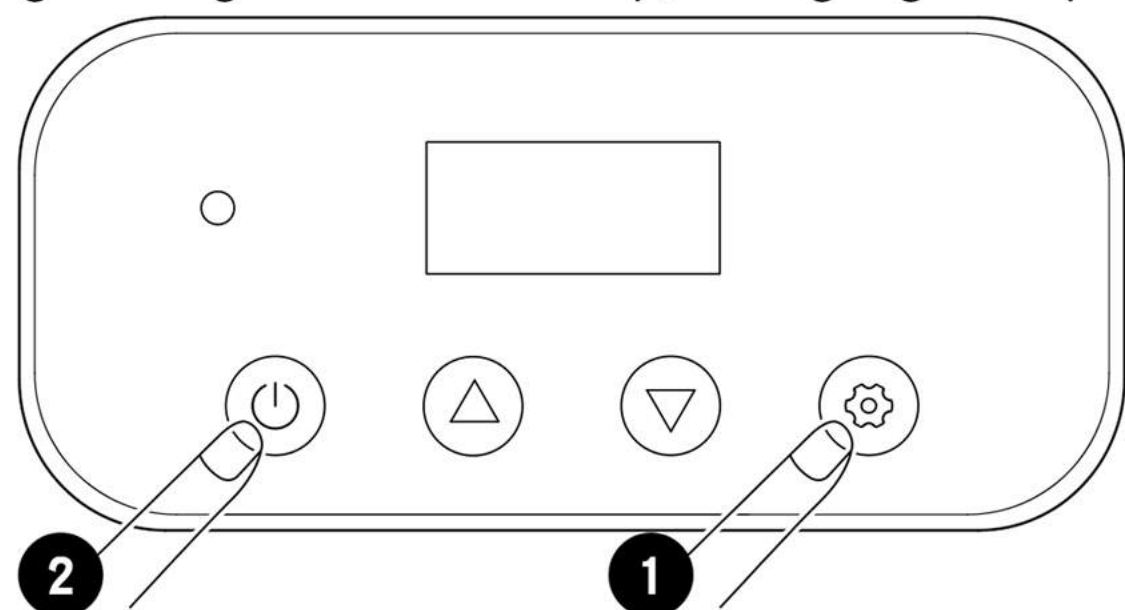
### ●How to power on/off Stirling engine

#### 1.power on Stirling engine

Briefly press 「⚙️」 button , then press hold 「⏻」 button for 3~5 seconds , The operation light will light up with one beep, Stirling engine start to work.

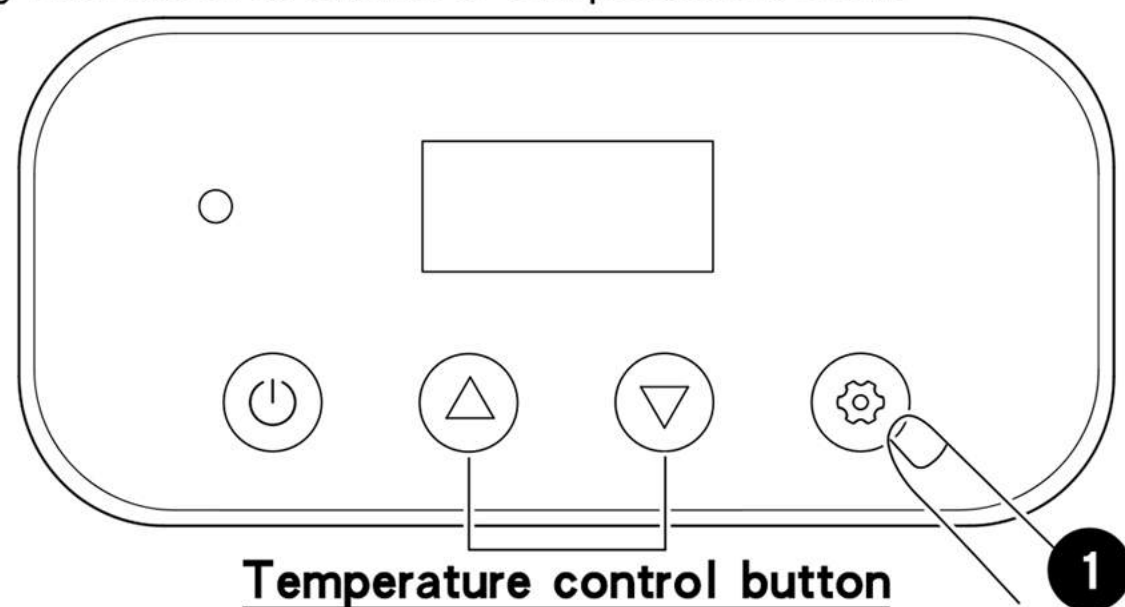
#### 2.power off Stirling engine

Briefly press 「⚙️」 button , then press hold 「⏻」 button for 3~5 seconds , The operation light will light off with one beep, Stirling engine stop working.



### ●How to change the temperature

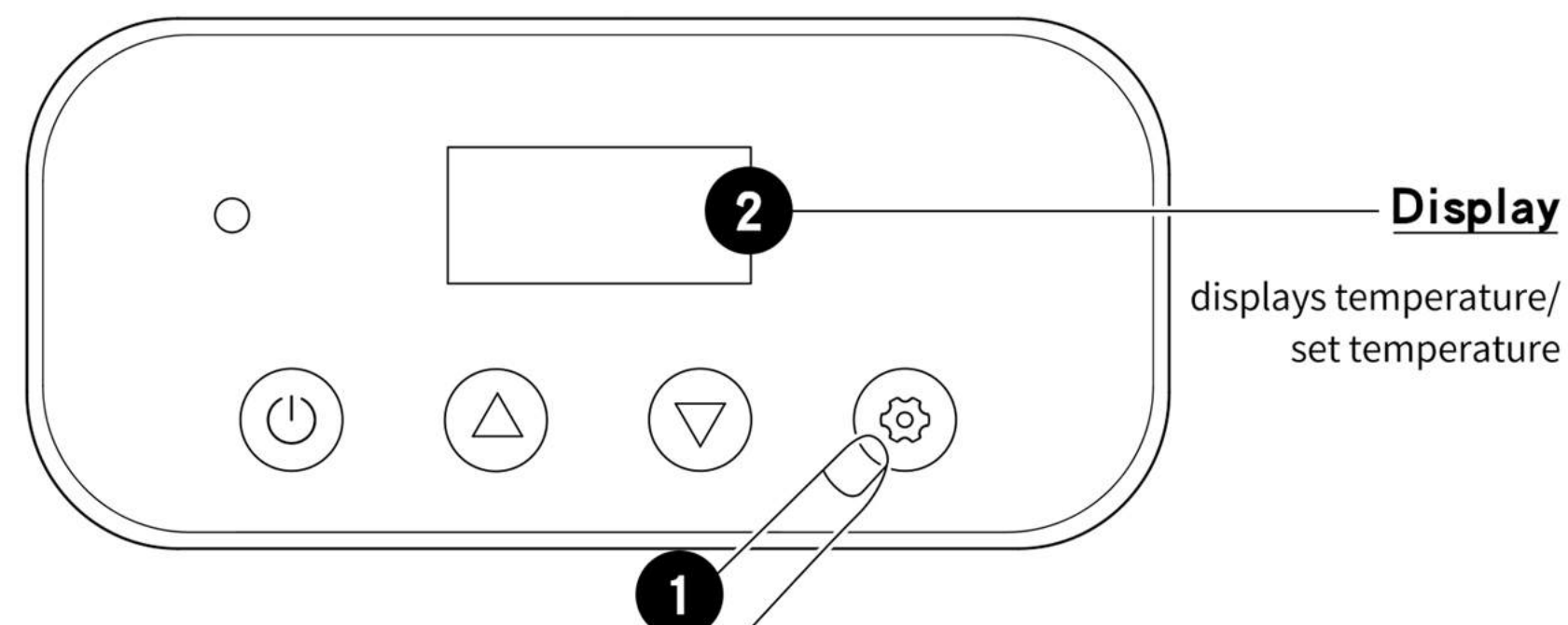
Briefly press 「⚙️」 button, The display glows and displays the current set temperature, Briefly press 「▲」 button to increase 1°C , Briefly press 「▼」 button to decrease 1°C. Briefly press 「⚙️」 button once the desired Setpoint is achieved. The display will return to chamber temperature. Over.



## FREEZER OPERATION

### ●To see the set temperature

Press the 「⚙️」 button briefly, The display will display set temperature.



### ●Over-temperature alarm

If the freezer compartment temperature is 10°C warmer or colder than the Set point for five minutes then it will go into temperature alarm mode.

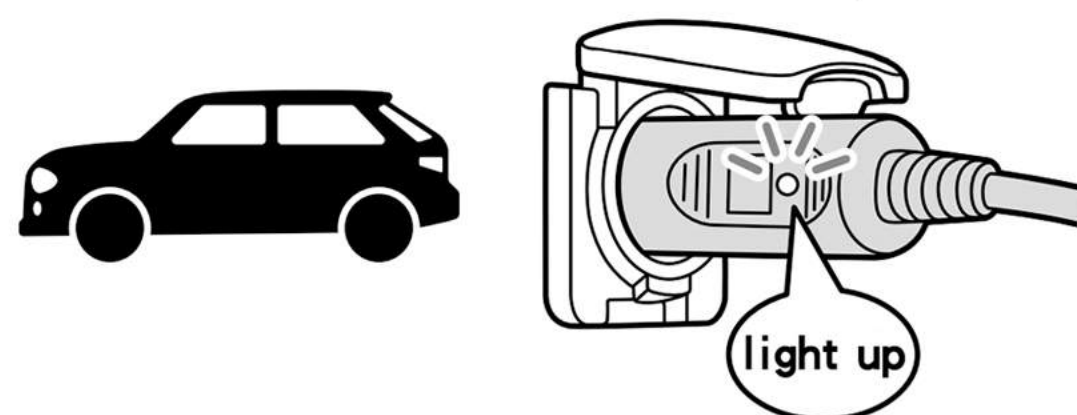
- ✓ The freezer will make a double beep every 10 seconds.
- ✓ Situations which can affect the freezer's ability to maintain a steady state or cooling rate include:
  - The lid is ajar
  - The air vents are blocked
  - Power supply problems
  - Addition of a large relatively warm mass
  - Mechanical and/or electrical problems
- ✓ Press the 「⏻」 button and the audible alarm will be turned off for 1 hour.

### ●How to switch between power supplies

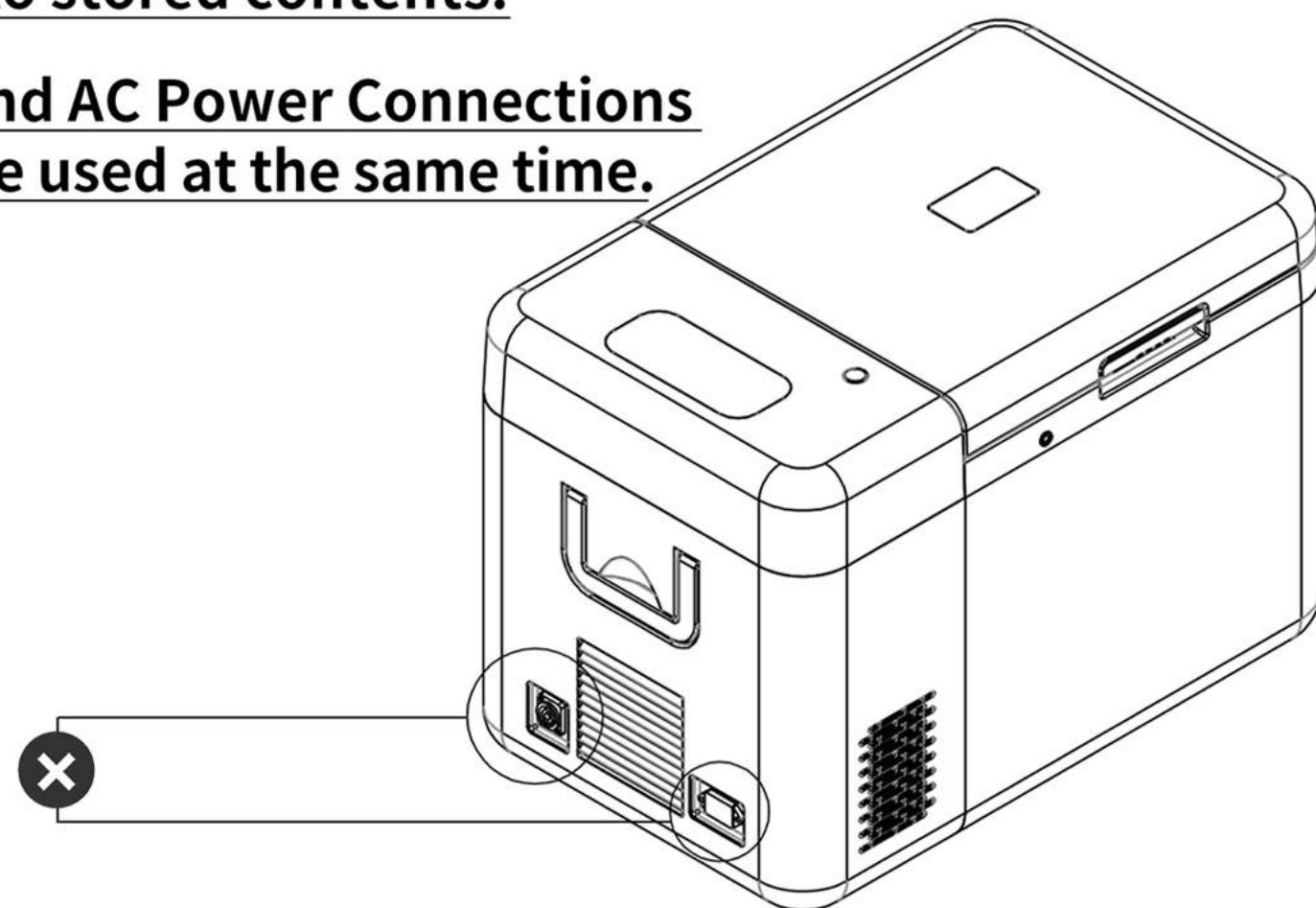
- ✓ A simple line cord change can allow for multiple power and receptacle types
  - Make sure to use the cord and plug appropriate for your location.(AC)
  - Electric plug for car(car cigarette lighter interface)
- ✓ The freezer should be turned off when you need to switch between power supplies.
  - Turn OFF the freezer (Press 「⏻」 button).
  - Wait for the free-piston Stirling engine to slow and stop (10 seconds).
  - Unplug the freezer from the current power source and plug into the new, approved power source.
  - The freezer can be restarted immediately, no wait time necessary.(auto power on)

## NOTES ON OPERATION IN A VEHICLE

- The freezer can use 12V/24V DC power supplies to operate.



- When you use vehicle power supply, please do not stall the car for a long time, it will cause the car battery use up, and then the car can not be started.
- The freezer will shut down automatically when the DC power supplies less than 9V . Avoid damaging the vehicle battery system.
- Do not operate the freezer in an unattended vehicle. This may lead to overheating if left in the sun and subsequent damage to stored contents.
- The DC and AC Power Connections can not be used at the same time.



## TROUBLESHOOTING

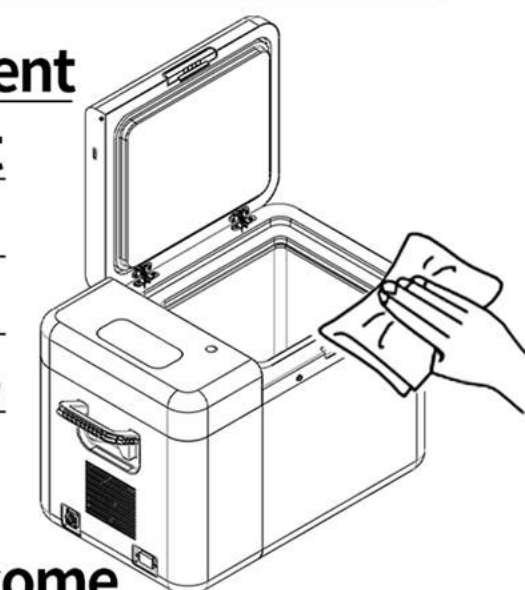
Problem	Possible Cause	Solution
<b>Freezer does not power on</b>	Power is not getting to the freezer from the AC input	Check the connections to the power supply
		Assure that the wall plug is firmly seated
	Power is not getting to the freezer from the DC input	Reseat the connections to the DC power cord
		Assure that the DC input has live power
		Replace any blown automobile fuses
<b>Freezer does not achieve desired temperature</b>	Inadequate air circulation	Clean the Air inlet
		Remove air flow obstructions
	Inadequate power supply	Assure that the wall plug is firmly seated
		Remove any dirt or debris inside the automotive DC socket or on the plug
		Operate freezer only when automobile is running
	Improper environment	Remove freezer from direct sunlight, hot room, etc
Check that freezer is level. Tilts of more than 12 degrees in some directions will degrade performance		
<b>Freezer cools slowly</b>	Overloading of freezer	Remove some items from freezer
	Lid is not completely closed	Check for ice buildup, remove if necessary, and properly close lid
	Lid is open and closed too often	Minimize opening and closing of lid
	Inadequate air circulation	Clean and unblock air vents
<b>12V plug becomes unusually hot</b>	Dirt or corrosion in the DC socket	Clean the socket

## ERROR CODES

Problem	Possible Cause	Solution
EC01	Input voltage is too low	Check the power supply voltage
EC02	Input voltage is too high	Check the power supply voltage
EC03	The compressor's temperature is too high	Shut down the freezer and let it cool down, then restart the freezer.
EC04	The compressor's temperature monitoring module damage	Return to the factory for repairing.
EC05	Temperature control sensor anomaly	Return to the factory for repairing
EC06	Current too high	Check the power supply current and use the customized power adapter
EC07	Control system short circuit	Shut down the freezer immediately and return to the factory for repairing
EC08	Fan failed	Shut down the freezer immediately and return to the factory for repairing

## STORAGE, CLEANING AND MAINTENANCE

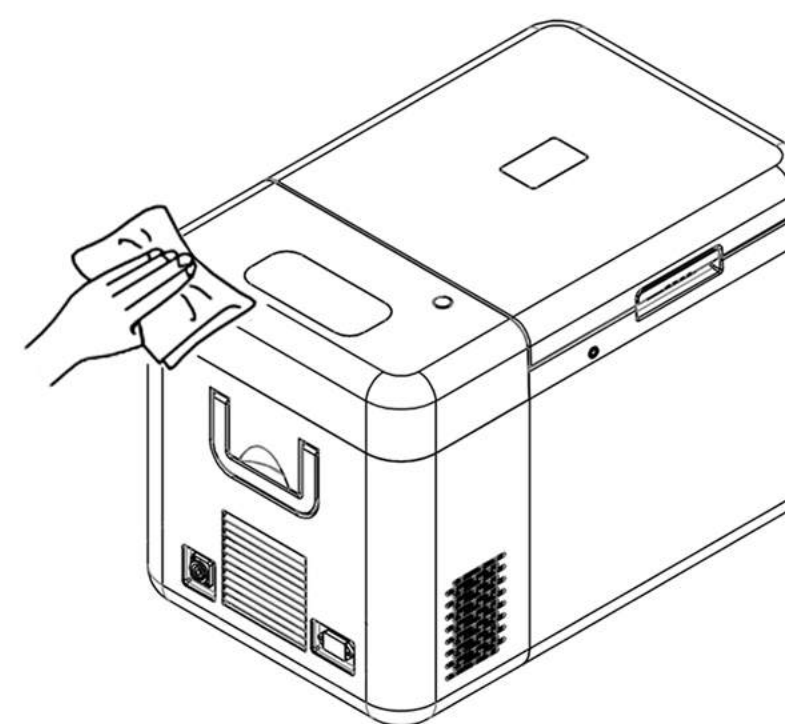
● The temperature differential between ambient and the ultra-low interior can attract moisture near the gasket . For best results always wipe away moisture during openings to prevent ice accumulation . Do not use sharp instruments to scrape ice from the surface.



● Turn off the power and allow the freezer to come to room temperature.

● Dry the inside of the freezer compartment and clean any spills after using.

● The exterior surfaces of the freezer can be cleaned as needed by using a soft cloth and mild detergent. Do not use solvent or harsh abrasive cleansers or pads.



### ⚠ Attention

Do not immerse in water or washing the unit.

Do not use solvents to clean.

