POWEROLOGY


# Powerology

## Portable Outdoor Fridge and Ice Maker

SKU: P90CARFRZ

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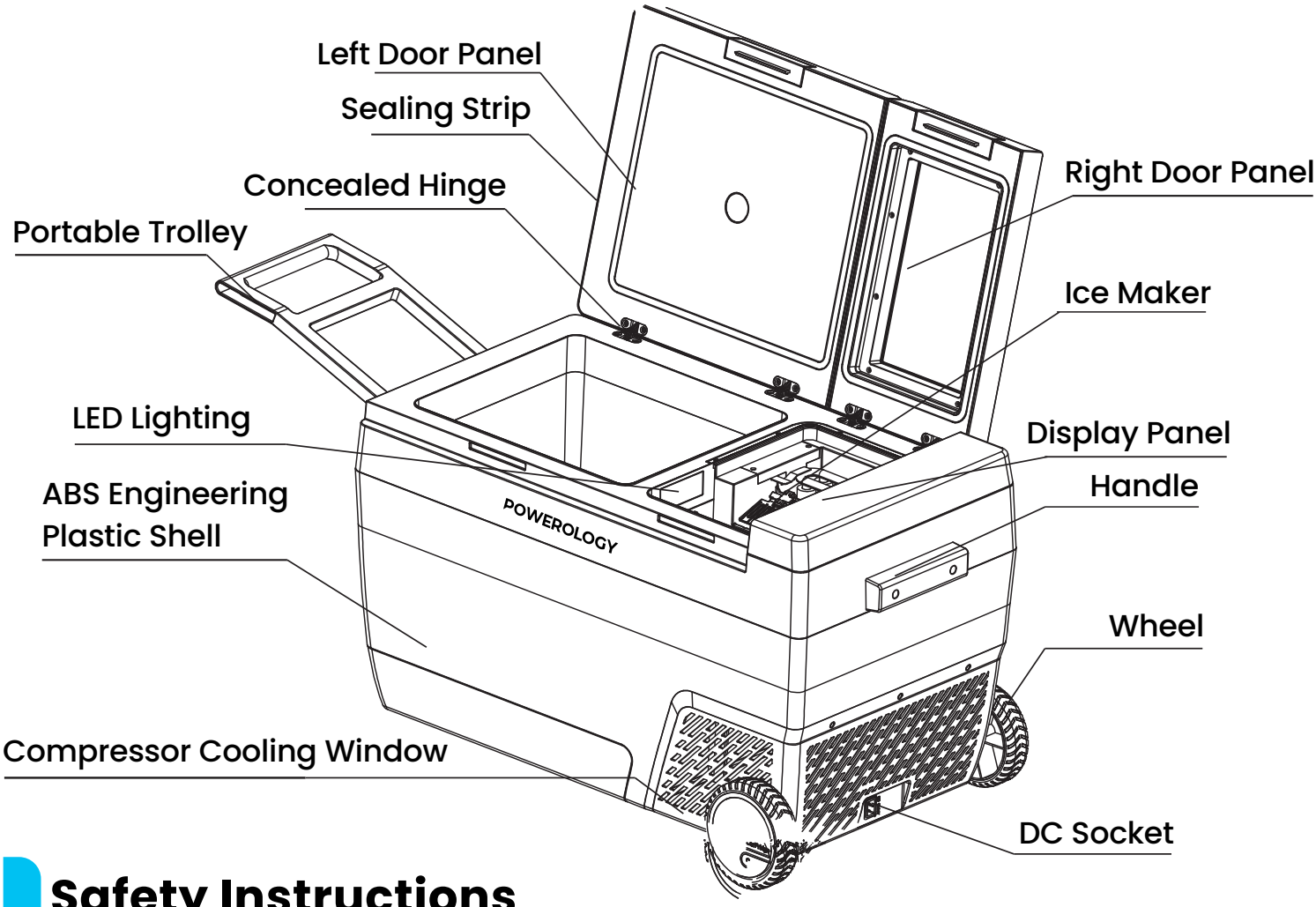
Before using the product, please carefully read this User Manual to guarantee correct usage and keep it secure for future reference.

## Features

1. Utilizes German technology high-quality DC variable frequency compressor and drive module to deliver efficient, energy-saving, stable, and reliable mobile refrigeration.
2. Includes a microcomputer intelligent control system for easy operation, precise temperature control, and seamless switching between refrigeration and freezing.
3. Combines a refrigerator and ice maker in one unit, functioning as both a car refrigerator and car ice maker to meet various user needs.
4. Provides one-touch quick ice-making, producing six pieces of ice every 6–9 minutes.
5. Supports a wide range of power inputs, intelligently identifying DC24/12V voltage to accommodate use in cars, ships, homes, and outdoor environments.
6. Features voltage detection and low voltage protection to effectively prevent car battery over-discharge.
7. Constructed with an environmentally friendly inner tank made of safe, leak-proof, and odor-proof plastic material.
8. Equipped with built-in LED lighting for convenient nighttime use.
9. Includes a high-definition LED digital display.
10. Features intelligent touch operation buttons and a keyboard child lock function to avoid accidental activation.

## Schematic View



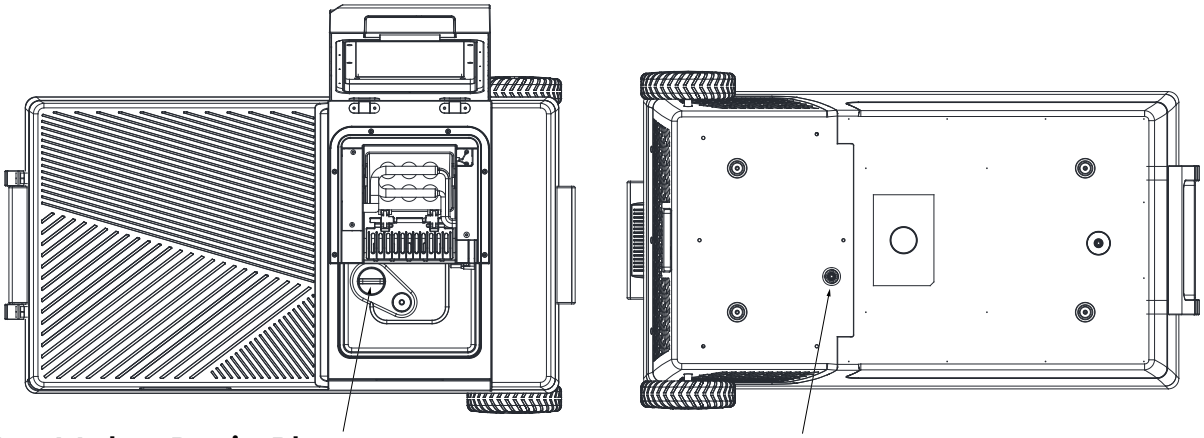

## Safety Instructions

1. Do not touch exposed power wires with your hands.
2. Avoid contact between the power socket or power strip and water, as it may cause danger.
3. When using this product in a car or boat, ensure the power supply line and fuse have sufficient carrying current.
4. For AC devices used in cars, RVs, and yachts, professional installation is required.
5. Always ensure the correct power connection.
6. Do not immerse this product in water.
7. Avoid freezing cans, beer, or similar items in the refrigerator.
8. Do not place any electrical equipment inside the refrigerator.
9. Maintenance services should only be performed by professionals or your seller.

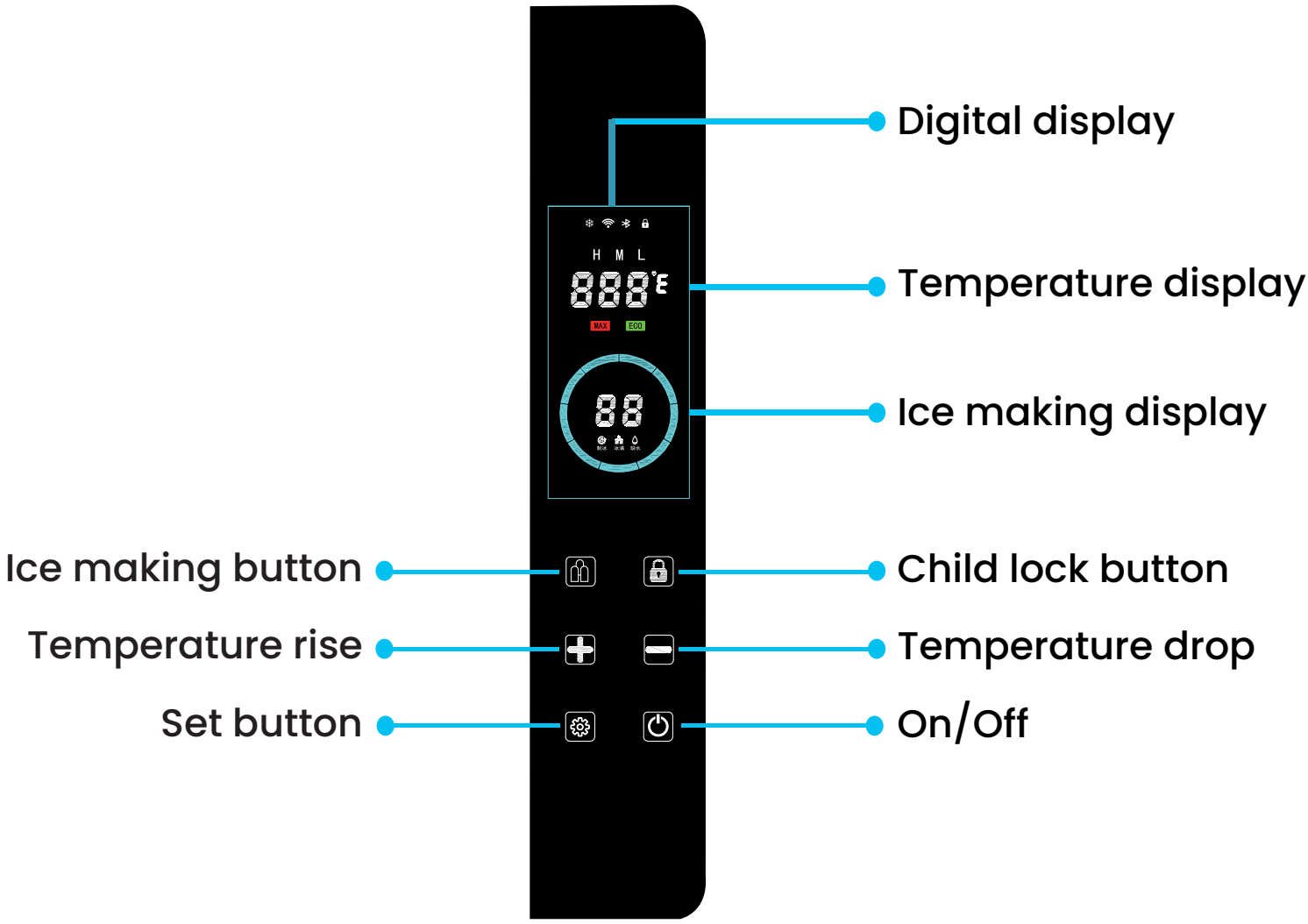
**10.** Do not expose the product to rain, direct sunlight, or high temperatures for extended periods.
**11.** After unpacking, place the refrigerator upright and let it sit for at least 6 hours before plugging it in.

## Basic Usage Precautions

**1.** When using the refrigerator, place it in a well-ventilated area to aid heat dissipation. Ensure the gap between the compressor's heat dissipation hole and surrounding objects is greater than 100 mm to prevent overheating and maintain efficient refrigeration.
**2.** Avoid keeping the door open for long periods. Temperature differences between the inside and outside can cause frost and impact cooling performance.
**3.** Do not clean the refrigerator under running water.
**4.** Keep the refrigerator away from heat sources, as this can reduce its refrigeration efficiency.
**5.** Place the refrigerator on a flat surface. Avoid tilting it for extended periods, as this may shorten its service life and decrease cooling efficiency.
**6.** Before moving the ice maker, drain the water to prevent it from spilling onto electronic components and causing malfunctions. Remove the ice maker’s drain plug to discharge water through the bottom drain hole.



## Operating Panel




## Power On and Off

1. Connect the correct DC24/12V power supply. If the refrigerator is in standby mode, in which the character "OFF" is displayed when the button is touched, press and hold the " ⏻ " button for 3 seconds to complete the startup. After startup, the display screen will show the current temperature in the refrigerator, working mode, and other characters.

2. After waiting for the power-on delay (factory preset: 1 minute), the refrigerator will enter working mode, and the compressor will start operating. If you need to turn off the refrigerator, and the child lock is not engaged, press and hold the " ⏻ " button for 3 seconds while the keyboard is unlocked.

## Child Lock Operation

If the keyboard is in a locked state (the child lock icon on the upper part of the display is lit), press and hold the "  " key for 3 seconds to unlock it. The child lock icon will no longer be lit. If there is no operation for 20 seconds, the keyboard will automatically re-enter the locked state.

## Temperature Settings

1. When the keyboard is unlocked, press the "  " key to adjust the refrigerator temperature up or down. The temperature value on the display screen will flash to indicate the current setting.
2. Each press of the key increases or decreases the temperature by 1 degree.
3. Holding the key allows for quicker adjustments to the desired temperature.
4. If no changes are made within 5 seconds, the setting will be automatically saved.

## Compressor Mode Settings

1. When the keyboard is unlocked, press the "  " key to toggle the compressor working mode between "ECO" and "MAX."
2. Use the "MAX" mode for rapid cooling to lower temperatures.
3. Use the "ECO" mode for refrigeration or warming to save energy and reduce electricity usage.

## Fahrenheit/Celsius Switch

While the refrigerator is running, press and hold the "  " key for 6 seconds, then release it when the buzzer sounds ("beep"). At this point, the "°C" icon on the display will flash.

1. Press the "  " key to switch to "°F."

2. Press the " − " key again to switch back to "°C."

## Low Voltage Protection

1. This product includes a low voltage protection feature. When the battery voltage drops below the set value, the compressor will automatically shut down to prevent over-discharge, which could damage the battery or prevent the car from starting properly.
2. During this time, the display will show the "E1" code prompt. Once the voltage returns to normal after 1 minute, the refrigerator will automatically resume working.
3. The factory preset is set to "medium." If adjustments are required, follow the steps below:

a. Unlock the keyboard.
b. Press and hold the " ⚙ " key for 6 seconds, then release it after hearing the buzzer "beep," and quickly press the " ⚙ " key again.
c. At this point, one of the battery protection level icons ("L," "M," or "H") on the display will flash.
d. Press the " + " or " − " key to change the setting.

| Battery Protection | 12V-Off | 12V - On | 24V - Off | 24V - On |
|---|---|---|---|---|
| Low-L | 8.5V | 10.9V | 21.3V | 22.7V |
| Mid-M | 10.1V | 11.4V | 22.3V | 23.7V |
| High-H | 11.1V | 12.4V | 24.3V | 25.7V |

**Note:** If your refrigerator enters battery protection prematurely, it may indicate insufficient power supply voltage or that the low voltage protection value is set too high. Alternatively, your DC power supply wiring may be unsuitable and unable to provide sufficient current. Check the power supply wiring and consider lowering the battery protection level as needed.
To ensure the car can start normally, it is recommended to set the protection level to "H" when using the refrigerator in the car.

## Cooling Function Operation

1. When the refrigerator is turned on, after releasing the child lock, click "  " to activate ice-making mode. Before starting, add 800–1000 mL of water to the bottom of the ice storage basket. The water pump will transfer water to the water pump box. After 15 seconds of water addition, the water pump will stop automatically and begin continuous ice-making until the ice is full or the ice-making mode is stopped by clicking "  " again (child lock must not be engaged).
2. During ice-making, the ice-making symbol remains illuminated on the display panel, along with the circular running horse indicator. The digital tube in the center shows the ice-making time in minutes.
3. If the water flow detector senses no water during the water-pumping process, the display will show the water shortage symbol to remind the user to add water. When the ice is full, the ice full symbol remains illuminated on the display.
4. This product adjusts the ice-making and ice-removal times based on the environmental NTC.

| Ambient Temperature | First Ice Making Time | Ice Making Time | Ice Making Time |
|---|---|---|---|
| <15°C | 390s | 250s | 60s |
| 15°C to 25°C | 510s | 420s | 40s |
| ≥25°C | 600s | 520s | 20s |

## Cleaning and maintenance

1. Before cleaning, disconnect the power supply. Use a clean cloth dipped in an appropriate amount of clean water or detergent to wipe the inside and outside of the refrigerator. Avoid rinsing directly with water to prevent damage to the electrical components.

2. If the refrigerator is not used for an extended period, clean both the inside and outside, keep it dry, and implement moisture-proof and dust-proof measures to prevent mold and odors.

## Error Code Description

1. If the compressor, module, fan, temperature sensor, or input voltage is abnormal, or the input voltage is too low, an error code will appear on the display, and the compressor will stop functioning.
2. After resolving the issue, unplug the power supply and reconnect it to restore the temperature display inside the unit. After 1 minute, the compressor cooling mode will resume operation.

**See the table for code descriptions:**

| Error Code | Description | Solution |
|---|---|---|
| E0 | Temperature sensor is damaged. | Check or replace the temperature sensor. |
| E1 | Input voltage is too low. | Check the input voltage and adjust the battery protection level. |
| E2 | DC fan has over current protection triggered. | Inspect the cooling fan. |
| E3 | Compressor startup is abnormal and requires protection. | Disconnect the power supply and wait for 30 minutes before turning it on again. |
| E4 | Compressor speed is abnormal and requires protection. | Adjust the compressor operation mode (MAX/ECO). |
| E5 | Module temperature is excessively high. | Move the refrigerator to a ventilated area to lower the module temperature. |
| E6 | Module hardware has failed. | Power on again after 30 minutes of power outage. If the fault persists, replace the module. |
| E7 | Environmental temperature sensor is damaged. | Check or replace the environmental temperature sensor. |
| E8 | Ice full temperature sensor is damaged. | Check or replace the ice full temperature sensor. |

# FAQ

1. If the product does not work properly.
1.1 Check if the power supply is on.
1.2 Check if the voltage is too low.
1.3 Check all connections from the battery to the refrigerator for loose or poor contact.
1.4 Inspect the fuse.
1.5 Verify if the refrigerator is turned on.
1.6 Ensure the temperature setting is not too high.

2. If the cooling performance is poor.
2.1 There may be too much food in the refrigerator.
2.2 The temperature of the food inside may be too high.
2.3 Ensure the door is closed properly.
2.4 Check if the door seal (sealing ring) is damaged.
2.5 Verify that the ventilation around the refrigerator is adequate.
2.6 Confirm that the ambient temperature is not too high.
2.7 Check if the temperature setting is incorrect.

3. You hear a running water sound in the refrigerator.
This is normal and caused by the flow of refrigerant.

4. The refrigerator makes a loud noise when starting up.
4.1 Ensure the refrigerator is placed on a flat, level surface.
4.2 Check for surrounding objects that may be vibrating or causing movement.
4.3 When the compressor starts, the motor transitions from standstill to high speed, which may result in slightly louder sounds initially. Once stabilized, the noise will decrease. This is a normal phenomenon.

5. Water beads around the housing or door seal.
It is normal for moisture in humid air to condense into water droplets when it contacts the cooler outer shell.

# Specifications

| | |
|---|---|
| AC Power Supply | 100-240V |
| DC Power Supply | 12/24V |
| Rated Power | 120W |
| Total Capacity | 32L |
| Ice Making | 6 Pieces Every 8-9 Minutes |
| Cooling Range | -20°C to 20°C |
| Refrigerant | R134a |
| Material | ABS |
| Net Weight | 16.8kg |
| Product Size | 700×438×446mm |
| Temperature Display Range | -30°C to 50°C |
| Standard Voltage Input Range | DC12V/24V, maximum not exceeding DC30V |

# Optimal Storage Temperature

| | | |
|---|---|---|
|  | Purified water | 5°C |
|  | Drinks | 5°C |
|  | Fresh juice | 8°C to 10°C |
|  | Wine | 13°C |
|  | Fruit | 5°C to 8°C |
|  | Vegetables | 3°C to 10°C |
|  | Delicatessen | 4°C |
|  | Seafood | -3°C |
|  | Meat | -18°C |
|  | Frozen food | -18°C |

## Disposal

This product must not be disposed of as unsorted household waste. It is important to separate such waste for proper treatment and recycling, in compliance with local waste management regulations.

## Warranty

Products that you buy directly from our **Powerology** website or shop come with a 24-month warranty.

The 24-month warranty applies to products purchased directly from our **Powerology** website or store. If **Powerology** products are bought from any of our verified retailers, then the product is eligible for only a 12-month warranty. To extend your product's warranty, visit our website **powerology.me/warranty** and fill in your details in the provided form along with an uploaded picture of the product to process your request. Once approved, you will receive a confirmation email of the extended product warranty. Upload the required information within 48 hours of purchase to be eligible for a 24-month warranty period.

For more info, please check:
**powerology.me/warranty**

## Contact Us

If you have any questions about this Privacy Policy, please contact us at: **hey@powerology.me**
Website: **powerology.me**
Instagram: **powerology_official**
Facebook: **powerology.ME**