KoolMore

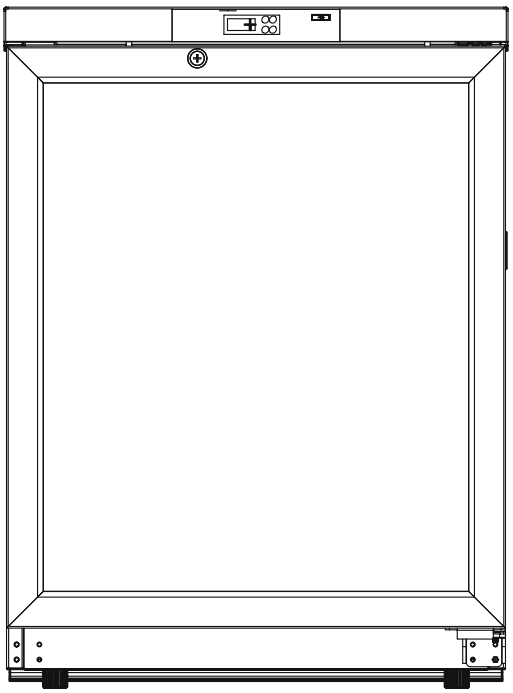
USER MANUAL

PHARMACY REFRIGERATOR

Countertop Pharmacy Refrigerator

Models:

KM-PHR-45C



Before using, please read the operating instructions carefully to ensure proper application and achieve satisfactory results.

For any service-related issues, please contact us:

718-576-6342 support@koolmore.com

706 Eastern Parkway STE 1G Brooklyn NY 11213

Stay informed with the latest information for your KoolMore KeepWarm Appliance.

If you need any assistance or have questions, our customer support team is here to help.

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I. SAFETY

Dear KoolMore users:
We appreciate your choice of the KoolMore medical cooler. We urge you to go through the subsequent details for a comprehensive grasp of the User Manual, which will aid in safe utilization of this device and minimize risks to both individuals and objects.

This equipment is intended for use in commercial, industrial, or institutional occupancies as defined in the Safety Standard for Refrigeration Systems, ANSI/ASHRAE 15`.

This symbol on the product means "For safety, keep away from flames or sources of fire.

Warningrisk of fire/flammable materials

WARNING: Ensure all ventilation openings are not obstructed.
WARNING: Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.
WARNING: Do not damage the refrigerant circuit
WARNING: In order to reduce flammability HAZARDS the installation of this equipment shall only be carried out by a suitably qualified person.
DANGER – Risk Of Fire Or Explosion. Flammable Refrigerant Used. To Be Repaired Only By Trained Service Personnel. Do Not Puncture Refrigerant Tubing.
CAUTION – Risk Of Fire Or Explosion. Flammable Refrigerant Used. Consult Repair Manual / Owner's Guide Before Attempting To Install Or Service This Equipment. All Safety Precautions Must Be Followed.
CAUTION – Risk Of Fire Or Explosion. Dispose Of Properly In Accordance With Federal Or Local Regulations. Flammable Refrigerant Used.
CAUTION – Risk Of Fire Or Explosion Due To Puncture Of REFRIGERANT Tubing. Follow Handling Instructions Carefully. FLAMMABLE REFRIGERANT Used
The installation and operating instructions shall indicate that component parts shall be replaced with like components and that servicing shall be done by the manufacturer's authorised personnel, so as to minimize the risk of possible ignition due to incorrect parts or improper service.

REFRIGERANT and BLOW gas used for the appliance are flammable. Therefore, when the appliance is scrapped, it shall be kept away from any fire source and be recovered by a special recovering company without corroding qualification other than be disposed by combustion, so as to prevent damage to the environment or any other harm.

Warning

1. Use a grounded outlet to prevent shocks. If not grounded, get technicians to set up a grounding wire.
2. Position the cooler on a stable, level surface to avoid toppling or injuries.
3. When extending the power cord, maintain a thickness >2 mm² and a length ≤3 m (9.8 feet).
4. Only qualified technicians should dismantle or reassemble the cooler.
5. Use the power source specified on the cooler's label.
6. For operation below 126.5V, use a stabilizer >1,000 W suited for the motor. Seek professional advice if unsure.
7. The cooler should have a three-pronged plug for standard US outlets.
8. Always keep the grounding pin intact and ensure secure plug connections.
9. When unplugging, grip the plug, not the cord.
10. Disconnect malfunctioning refrigerators to avoid electrical hazards.
11. Before servicing, disconnect the refrigerator from power.
12. Ensure no inhalable substances are present during maintenance.
13. Store hazardous materials in the refrigerator in secure locations only.
14. Unplug the refrigerator during extended non-use periods.
15. If leaving the refrigerator unattended, ensure proper removal by professionals.
16. Avoid storing or using volatile items or sprays near the refrigerator.
17. Don't store aggressive chemicals like acids or bases inside.
18. Keep plastic packaging away from children.
19. Keep the refrigerator's vicinity clear to prevent tipping.
20. The refrigerator shouldn't be placed outdoors.
21. Avoid placing the refrigerator in damp or humid areas.
22. Don't self-repair the refrigerator to prevent hazards.
23. Don't connect the refrigerator to inappropriate grounding.
24. Avoid operating switches with wet hands.
25. Keep heavy objects and water containers off the refrigerator.
26. Prevent metal objects from entering the refrigerator.

CAUTION

- Keep the refrigerator free from obstructions.
- Check settings after power interruptions.
- Avoid changing settings frequently.
- Restart the refrigerator after a 5-minute power cut-off.
- Wear gloves during maintenance tasks.
- Use proper technique when closing the door.
- Handle refrigerator at angles less than 45°.
- Ensure clear ventilation openings.
- Defrost only as recommended.
- Handle the refrigerator gently to avoid injuries.
- Use door handles appropriately.

- Protect the refrigerator's circuitry.
- Use only approved appliances inside the refrigerator.

Precautions for use:
- Confirm cabinet temperature before adding items; don't exceed 1/3 volume.
- Displayed temperature varies from actual; it stabilizes over time.
- Use the testing hole correctly; ensure thermal insulation when plugging back.
- Clean with neutral cleaner; avoid harsh chemicals.
- Turn off power during extended non-use.
- Minimize door opening times for stable conditions.
- Temperature rise post-door opening is normal; stabilizes in an hour.
- High humidity may cause condensation on glass door; improve ventilation if it happens.

II. Product Features

Category	Description
Product Features	Can store medicines, vaccines, reagents, and materials between 2°-8°C.
Accurate Temperature Control	- Displays an accuracy of 0.1°C.
	- Ranges from 2°C to 8°C with in-box fluctuations of ±2°C.
	- USB interface allows temperature data storage at any time.
Efficient Refrigeration	-High quality compressor and optimized refrigeration system provide strong refrigeration capacity, safety, and reliability
	- Maintains a uniform temperature and efficient cooling.
	- Uses embedded air duct and air curtain technologies.
Safety Features	- Alarms for high and low temperature, power failure, and sensor issues.
	- Customizable alarm temperatures.
	- Safety door lock for sample protection.
User-Friendly Design	- Multi-layer encryption shelves and adjustable heights.
	- Energy-saving inner LED lights.
	- Operates within a 115V±10% voltage range.

III. Product Installation

Product Handling:

- When transporting the pharmacy refrigerator, ensure it is moved with care, using the handcart method shown in the accompanying image, cushioning the unit appropriately.
- Upon arrival at the desired location, remove all packing materials and the bottom cushion. Relocate the refrigerator to its final placement within the house or facility.
- Once positioned, allow the unit to sit undisturbed for about 2 hours before turning the power on. This allows it to acclimate to its new environment.

Installation Environment

The refrigerator is designed for indoor use and should be placed in an environment with a pollution level of Class 2. It also requires protection from overvoltage, specifically up to Class II.

The ideal ambient temperature for the refrigerator ranges between 16°C and 32°C. However, for best performance, it's recommended to maintain a temperature of 18°C to 25°C. If this range isn't achieved naturally, using air conditioning is advised.

The environmental humidity should be kept below 80% RH (Relative Humidity) for optimal operation.

The refrigerator's location should be free from significant dust exposure, specifically up to a pollution degree of 2. Additionally, avoid places with excessive mechanical movement or vibration.

When determining the placement, consider the altitude. The refrigerator should be positioned at altitudes below 2,000 meters.

Ensure the power source provides a voltage within 115V±10% to keep the refrigerator operating efficiently.

The refrigerator's functionality is affected by ambient temperature. If placed in an environment that doesn't meet the above criteria, it might not operate correctly. In such cases, make necessary environmental adjustments before using.

Avoid installing the refrigerator outdoors. Exposure to rain can lead to electric leakage or even electric shock, posing potential hazards.

For protection against external elements, the refrigerator has an ingress protection rating of IPX0. This means it doesn't offer protection against water or dust ingress.

Installation Site

- It's crucial not to place the device in cramped or confined spaces. Choose a location that ensures easy access and minimizes the chance of goods blocking airflow or causing storage issues.
- The installation location should be stable and free from flammable materials, ensuring the appliance remains upright during operation and minimizing hazards.
- It's important to shield the device from direct sunlight as this could impact its performance.
- Ensure that each refrigerator has its own dedicated power outlet. Verify that the power connection uses a standard 110V outlet and that both the plug and socket are securely connected.
- Before operating the device, check the provided working voltage. In areas where voltage might fluctuate, consider investing in a voltage stabilizer. If you decide to use one, its power capacity should be greater than 400W, ensuring that the device's voltage needs are adequately met.
- Grounding the device is crucial for safety. If your power outlet isn't equipped with a ground, or if you're unsure about its effectiveness, enlist the services of professional engineers or technicians to ensure proper grounding.

Warnings:

For safety reasons, never attempt to ground the refrigerator using unconventional methods like gas pipes, water pipes, telephone lines, or lightning rods. These methods could introduce the risk of electrical shock.
Once installed, ensure the power plug remains easily accessible. This design allows for quick disconnection in emergencies. Additionally, avoid placing objects near the refrigerator's vent to ensure unobstructed airflow.

Notes:

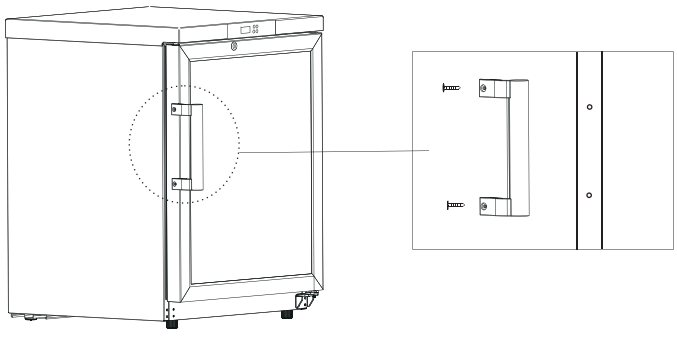
Ambient temperature plays a significant role in the performance of the device. If the surrounding temperature is outside the range of 104°F-140°F, the refrigerator may not function as expected. It's important to note that the device uses an intermittent operating mechanism. Before use, adjust the environment accordingly.

For storage and transportation purposes, it's advisable to maintain temperatures within the 104°F-140°F range and a relative humidity of 10%-90%.

Alarm port: 30Vdc, 2A Max, to be connected to SELV circuit
USB port: 5Vdc, 1A Max, to be connected to SELV circuit.

Preparation Before Use

1. Start by removing all the exterior packaging from the product. This includes the protective foam that is within the packing box.



2. Verify the contents by counting the included accessories. Compare the items you have to the contents listed in the packing list. Should you find any discrepancies or missing items, make sure to contact the after-sales service as soon as possible.
3. When setting up the refrigerator, ensure there's a space of at least 10 cm surrounding it. This gap promotes adequate ventilation and aids in dissipating heat, ensuring efficient performance.
4. Check and adjust the refrigerator's feet. Proper adjustment ensures that the appliance remains stable and doesn't move or wobble during its operation.

5. Next, focus on the door handle. Retrieve the accessory bag, which contains the handle and screws. Attach the handle to the door using either a standard or electric screwdriver, aligning it with the pre-drilled mounting hole on the door's side. Once attached, place the screw cover in position to conceal the screws.

6. Additionally, locate the back bracket inside the pharmacy refrigerator. Securely fix this bracket to the appliance's back plate using the provided screws.

Warning:

Safety first: Be cautious with the appliance's plastic bags. Always place them out of children's reach to prevent the risk of suffocation accidents.

IV. Start-up

Initial Setup:

Once the equipment has been positioned, leveled, and cleaned, ensure it remains untouched for at least 24 hours before you turn it on. This step ensures optimal functioning.

Power Connection: Connect the power cord to a socket that matches the required specifications and can handle the device's load.

Switch Activation: After ensuring proper power connection, turn on both the power switch and the lamp switch. This action verifies the operational status of the refrigerator's lamp.

Temperature Check: Before filling the refrigerator, confirm that it reaches and maintains the desired temperature. If everything seems fine after a 24-hour cycle, you can start placing a small quantity of items inside.

Batch Filling: When adding items to the refrigerator, do it in batches. Each batch shouldn't exceed one-third of the appliance's total capacity. Ensure the equipment has been off and remains off for at least 12 hours before introducing another batch.

Operational Caution: Avoid constantly opening the door, especially during the cooling cycle. Excessive interruptions can cause a rise in internal temperature.

Operation after Powering-Off

Memory Feature: The equipment is designed to remember set values. In case of power outages, it will resume from where it stopped once power is restored.

Warning & Precautions:

If you switch the power off, remember that you cannot re-energize the refrigerator immediately. Wait for at least five minutes to prevent potential harm to the compressor or the system.

If you anticipate not using the refrigerator for an extended period, unplug the power cord. For models with batteries, ensure you turn off the battery switch. This step prevents unforeseen electrical issues.

If you are leaving the refrigerator in a location where no one will monitor it for an extended period, ensure children cannot access it. Additionally, make sure its door remains securely closed.

Inspections:

Assign a dedicated person to regularly inspect the refrigerator. They should check its current condition, note down any abnormalities, and record its operational status. If any anomalies are detected, especially ones that could compromise the items stored inside, immediately transfer those items to another functional refrigerator. After rectifying the identified issue, you can then replace the items in their original position.

Temperature Range:

This product is specifically designed as a medical refrigerator, operating within a temperature range of 35.6°F-46.4°F.
It is essential to verify that the environment within the refrigerator aligns with the storage needs of the items. This precaution ensures the safety and integrity of the stored items and prevents potential financial setbacks due to damages.

Temperature and Humidity:

The inertia of the refrigeration process may lead to disparities between the displayed and the actual internal temperature and humidity. Such variances are expected and do not indicate a malfunction.

Storage Precautions:

Avoid placing items directly between the base of the interior lining and the bottom shelf. This arrangement ensures optimal airflow and prevents obstruction of air ducts.

Usage Warnings:

Refrigerators primarily serve as storage equipment. Overloading the refrigerator, especially with many warm items at once, can strain the compressor. This strain may lead to extended operation times, causing the internal temperature to drop gradually and potentially impacting the device's lifespan. Always add items in batches, allowing the temperature to stabilize incrementally.
Be cautious not to inflict any damage on the refrigeration circuit.
Refrain from using electrical appliances within the refrigerator unless they possess the necessary production permits.

Note: Due to potential modifications and variances between models, the product you receive may slightly differ from the depicted diagram. Always refer to the actual product for the most accurate representation. The provided diagram is meant to highlight the functionality of the components.

V. Operating instructions

Button(s)	Function
SET	- Display current temperature set point (St) when held for 3s (if unlocked). - Save and exit settings when held for 3s (in setting status).
▲ (UP)	- Toggle between parameters. - Increase selected parameter value.
▼ (DOWN)	- Toggle between parameters. - Decrease selected parameter value.
SET + FN	- Unlock or lock the controller when held together for 3s.
SET + ▲	- Access the general menu settings when held together for 3s.
▲ + ▼ (for 3s)	- Enter the time-setting interface of the recorder.
▲ (for 3s)	- Export data to a USB flash drive (if supported).

Display Symbol	Meaning
	Refrigeration symbol flashing: refrigeration ON delay;
	Refrigeration symbol normally on: The compressor is started and refrigeration begins;
	Power supply symbol normally on: The external power supply of the controller is connected;
	Lock symbol normally on: The controller is locked;
	Alarm symbol flashing: The controller is in alarm status;
	Defrost symbol flashing: defrosting and dripping time;
	Defrost symbol normally on: The controller is in defrosting status;

Controller Parameters and Operation

The controller displays and controls the temperature measured by the cabinet temperature sensor under normal conditions, and displays "E01" when the cabinet temperature sensor fails.

Control Temperature Setting

In the unlocked status, press the SET button for more than 3s, and the display screen will display the current control temperature set point St; press the button ▲ or ▼ to increase or decrease the value, and press the SET button for more than 3s to confirm the parameter value. If there is any parameter change, the parameter value will flash for 2s, and then the system will store the modified parameter value and exit the interface; otherwise, it will exit directly.

Setting of General Menu Parameters

a. In the normal operation status, after unlocking, press SET + ▲ at the same time for more than 3s, and the display screen will display the parameter code "H";

b. Scroll through parameters (H, L, Mod) with buttons ▲ and ▼;

c. Press the SET button to confirm the parameter, and the parameter value is displayed;

d. Increase or decrease the parameter value with buttons ▲ or ▼;

General Menu Parameters:

- Briefly press the "SET" button to confirm any changes made.
- Continue adjusting other parameters as needed.
- To save and finalize settings, hold the "SET" button for three seconds.

Time Setting (Optional USB):

- After unlocking the device, simultaneously press and hold both the UP and DOWN buttons for 3 seconds to access the time settings interface.
- If there's a malfunction with the USB data recorder, a "nDR" message will appear on the display.
- In the absence of USB issues, you can adjust the time values. Use the UP and DOWN buttons to toggle between year ("yer"), month ("mtH"), day, hour ("HH"), and minute ("MM"). Confirm your time setting by pressing the "SET" button. Remember to press and hold the "SET" button for 3 seconds to save and exit. If no buttons are pressed for 10 seconds, the interface will exit without saving. Note: When a USB flash drive is inserted or removed, the controller will emit a short buzz for half a second.

Data Export (optional USB):

- In standard operation mode and after unlocking, hold the "UP" button for 3 seconds to access the data export interface.
- If the USB data recorder isn't functioning correctly, "nDR" will appear on the screen. If no USB flash drive is detected, "nUS" will be shown.
- To select the data range for export, use the UP or DOWN button. Choices range from M1 to M12. Each represents a month from the current time. Confirm your selection by pressing and holding the "SET" button for 3 seconds. Note: if the exported data is substantial, the system might continue exporting after exiting the interface. "ULD" will be displayed during this process, and the system will automatically exit once the export is complete.

Alarm Description

Code	Cause	Action
E01	Cabinet temperature sensor fault	The alarm sign flashes, E01 is displayed, the buzzer sounds immediately, and the compressor is in proportional operation status.
E02	Display sensor fault	The alarm sign flashes, E02 is displayed, and the buzzer sounds immediately.
AH	High (H) temperature alarm	AH and temperature are alternately displayed, the alarm sign flashes, and the buzzer starts to sound after Δt2 time passes.
AL	Low (L) temperature alarm	AL and temperature are alternately displayed, the alarm sign flashes, and the buzzer starts to sound after Δt2 time passes.
dor	Door open or not closed tightly	The alarm sign flashes. After Δt3 time passes, door and temperature are alternately displayed and buzzing starts.
None	Ambient temperature > 95°F	The alarm symbol flashes; the cabinet temperature and the ambient temperature are displayed alternately.
None	Power outage	The alarm symbol is displayed; the buzzer sounds intermittently for 2 min; the temperature is displayed intermittently for 20h.

VI. Maintenance

Warning

- Always disconnect the power before conducting any repairs or maintenance to ensure safety against electrical shock or potential injuries.
- Be cautious about inhaling any medications or suspended particles nearby to avoid health risks.

Note

- Avoid sprinkling water directly on the unit, as this could affect the electrical components and induce rust.
- Abstain from using hot water, harsh detergents, or organic solvents when cleaning the cabinet.
- Do not place heavy items atop the device, which may cause it to deform or undergo undue pressure.

Device Maintenance

Defrosting: The device features automatic defrosting for user convenience.

Cleaning:

- For optimal performance, cleanse the pharmacy refrigerator monthly.
- A damp cloth can be used to wipe minor external and internal dirt. If the refrigerator has significant dirt, use a cloth soaked in a neutral detergent. Always ensure to rinse and then dry with a clean cloth.
- Avoid storing items on or inside the refrigerator that could potentially harm the device or disrupt its electrical insulation.
- The compressor and related mechanical components are sealed, eliminating the need for lubrication.

Device Deactivation

- When storing the device in an unsupervised area for extended periods:
- Ensure it's off and unplugged.
- Clean both the interior and exterior using a warm, damp cloth followed by drying.
- Always lock the device to ensure child safety and prevent any unintentional access, reducing risks like suffocation.

End-of-Life Instructions

Once the device approaches its lifespan's conclusion:

- It should be decommissioned and entrusted to certified recycling entities for appropriate scrapping and disposal, in line with local guidelines and regulations.
- It's crucial that individuals without proper credentials refrain from taking apart or tampering with the device unauthorizedly.

- Any discarded device should be allocated to specified zones, ensuring they remain out of children's reach to prevent potential hazards.

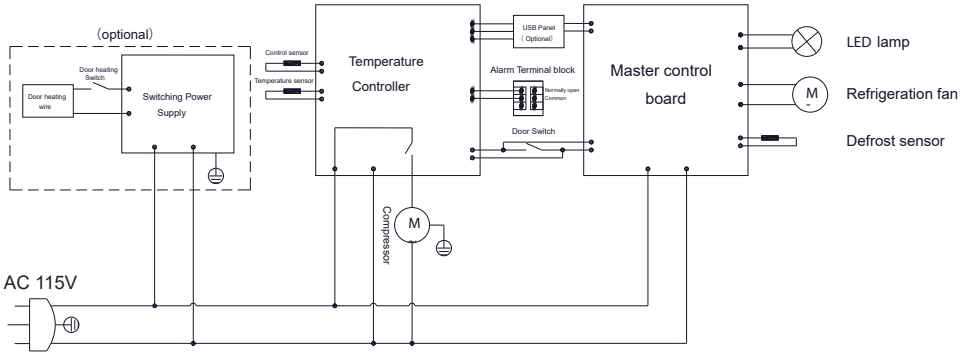
VII. Troubleshooting

Fault	Troubleshooting Method
Refrigerator not working	- Verify the input power supply meets the requirements.
	- Check if the plug and socket are in good contact.
	- Inspect if the input and control lines are faulty.
	- Determine if the voltage is too low.
	- Ensure not too many items are inside or if they're too large.
Refrigeration efficiency is reduced or the temperature is higher than expected	- Ensure adequate spacing between stored items.
	- Avoid placing the refrigerator in direct sunlight or near other heat sources.
	- Check if the door is being opened too frequently.
	- Ascertain if the surrounding temperature is too high.
	- See if the air duct is blocked.
	- Make sure the refrigerator is level.
	- Check if any part of the refrigerator is touching external objects or walls.
Excessive noise	- Understand that slight differences between actual noise and the indicated value can occur due to factors like stored items, ambient sounds, door not being shut properly, and the compressor's ON/OFF cycle.
Alarm indicator is active and there's an audible alert	- Confirm if the temperature of a newly added item is outside the 37.4-44.6°F range. The alarm will deactivate after some time.
	- Ensure the door is sealed properly. If not, close it securely.
	- Check if the battery level is low. The refrigerator will function normally after being on for a while.
	- Determine if the inside temperature exceeds the preset limit.

Specification	Details
Name	Medical Refrigerator
Model	KM-PHR-45C
External dimensions (W*D*H) (inches)	24.2-*23.4*-31.9
Internal dimensions (W*D*H) (inches)	19.9-*18.4*-24.4
Effective volume	4.45 cu.ft. (approx.)
Door	Transparent glass door
Foaming agent	Cyclopentane
Shelf	Plastic-dipped steel wire shelf (3 pcs.)
Load-bearing capacity per shelf	52.9 lbs. (approx.)
Cooling mode	Air cooling cycle
Outer/inner plate	Painted steel plate/painted steel plate
Condenser/evaporator	Built-in/built-in
Temperature controller	Computer control system
Refrigerant	R600a
Lighting	LED lamp
Net weight	94.8 lbs. (approx.)
Rated power supply	115V~/60Hz
Current	2.0A
Type of protection against electric shock	I
Sound Level (dB)	≤45dB

Packing List	Quantity
Instructions	1
Key	2
Accessory Bag	1
Steel Wire Shelf, including Mounting	3
Handle and Accessory Bag	1

Electrical Schematic Diagram



WARRANTY

LIMITED WARRANTY

Koolmore Supply, Inc. extends a limited warranty to the original purchaser, guaranteeing that this Koolmore product is free from manufacturing defects in material or workmanship for one year from the date of purchase.

Should you discover any such defect within the warranty period, Koolmore Supply, Inc., reserves the right to repair or replace the product without charge, or to cover the cost of replacement parts and repair labor needed to correct defects present at the time of purchase or resulting from regular usage, when the appliance has been installed, operated, and maintained as per the instructions provided.

At its sole discretion, Koolmore Supply Inc. may decide to replace the product. In such an event, your replacement appliance will carry the warranty for the remaining term of the original unit's warranty period.

This warranty is valid exclusively to the original purchaser of the product and only applicable within the United States. The warranty commences from the date of original consumer purchase. Proof of the original purchase date will be required to obtain service under this warranty.

Under this limited warranty, your sole and exclusive remedy will be product repair, as outlined above. All services must be provided by a Koolmore-designated service company.

To claim warranty or request repair service:
Email support@koolmore.com. Please include your name, address, phone number, warranty repair request, and a copy of your proof of purchase receipt. Alternatively, visit koolmore.com and use the contact us page. A Koolmore customer service representative will promptly arrange service for your appliance.

We thank you for choosing Koolmore.

WARRANTY EXCLUSIONS

This limited warranty will not cover:

1. Failure of the product to perform during power failures or interruptions, or due to inadequate electrical service.
2. Damage incurred during transportation or handling.
3. Damage caused by accidents, vermin, lightning, winds, fire, floods, or acts of God.
4. Damage resulting from accidents, alterations, misuse, abuse, improper installation, repair, or maintenance. This includes using any external device that alters or converts the voltage or frequency of electricity.
5. Unauthorized product modifications, repairs by unauthorized centers, or use of non-approved replacement parts.
6. Abnormal cleaning and maintenance not aligned with the user's manual.
7. Use of incompatible accessories or components.
8. Any costs associated with repairs or replacements under these excluded circumstances shall be the responsibility of the consumer.

KoolMore