



Refrigerators/Freezers

Instruction manual



BC145V/GK60/GN60

SD1381/SDN1381

**PLEASE READ THE OPERATION MANUAL BEFORE USING.
SAVE THIS MANUAL FOR LATER USE.**

Safety Tips

- Position on a flat, stable surface.
- A service agent/qualified technician should carry out installation and any repairs if required. Do not remove any components or service panels on this product.
- Consult Local and National Standards to comply with the following:
 - Health and Safety at Work Legislation
 - BS EN Codes of Practice
 - Fire Precautions
 - IEE Wiring Regulations
 - Building Regulations
- DO NOT use jet/pressure washers to clean the appliance.
- DO NOT use the appliance outside.
- DO NOT use this appliance to store medical supplies.
- DO NOT use electrical appliances inside the appliance (e.g. heaters, ice-cream makers etc.).
- DO NOT allow oil or fat to come into contact with the plastic components or door seal. Clean immediately if contact occurs.
- DO NOT store products on top of the appliance.
- Bottles that contain a high percentage of alcohol must be sealed and placed vertically in the refrigerator.
- Always carry, store and handle the appliance in a vertical position and move by holding the base of the appliance.
- Always switch off and disconnect the power supply to the unit before cleaning.
- Keep all packaging away from children. Dispose of the packaging in accordance with the regulations of local authorities.
- If the power cord is damaged, it must be replaced by a agent or a recommended qualified technician in order to avoid a hazard.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety
- Children should be supervised to ensure that they do not play with the appliance

Introduction

Please take a few moments to carefully read through this manual. Correct maintenance and operation of this machine will provide the best possible performance from your product.

Pack Contents

The following is included:

- | | |
|------------------------------------|----------------------|
| • Refrigerator / Freezer | • Keys x2 |
| • Shelves – 2 big+1 small(200) | • Spacers x 2 |
| • Shelves – 3 big+1 small(400/600) | • Instruction manual |

Prides itself on quality and service, ensuring that at the time of packaging the contents are supplied fully functional and free of damage.

Should you find any damage as a result of transit, please contact your dealer immediately.

Installation



Note: If the unit has not been moved or stored in an upright position, let it stand upright for approximately 12 hours before operation. If in doubt allow the appliance to stand.

1. Remove the appliance from the packaging. Make sure that all protective plastic film and coatings are

thoroughly removed from all surfaces.

2. Maintain a distance of 2cm (0.7 inches) between the unit and walls or other objects for ventilation. Increase this distance if the obstacle is a heat source.



Note: Before using the appliance for the first time, clean the shelves and interior with soapy water.

Operation

1. General

ECS-10HT1 could be specially used in kitchen cabinet and air curtain cabinet, unit Celsius and Fahrenheit could be switched by menu, Max. two channel of sensors separately used for cabinet temperature adjustment and defrost control; Compressor and defroster relay could select the specification 30A-10A, or 17A-10A; The display of the controller could be selected as cabinet temperature or evaporator temperature; split design between control board and display panel, very convenient for repairing and replacement.

2. Technical parameters

2.1 Measuring range: $-50^{\circ}\text{C}\sim+90^{\circ}\text{C}$ or $-58^{\circ}\text{F}\sim194^{\circ}\text{F}$ (only when sensor calibration is 0)

2.2 Resolution: 1°C or 1°F ;

2.3 Accuracy: $-40^{\circ}\text{C}\sim50^{\circ}\text{C}, \pm 1^{\circ}\text{C}$, $51^{\circ}\text{C}\sim70^{\circ}\text{C}, \pm 2^{\circ}\text{C}$, others, $\pm 3^{\circ}\text{C}$
or $-40^{\circ}\text{F}\sim122^{\circ}\text{F}, \pm 2^{\circ}\text{F}$, $123^{\circ}\text{F}\sim158^{\circ}\text{F}, \pm 4^{\circ}\text{F}$, others, $\pm 6^{\circ}\text{F}$;

2.4 Cabinet temperature control range: $-50^{\circ}\text{C}\sim90^{\circ}\text{C}$ or $-58^{\circ}\text{F}\sim194^{\circ}\text{F}$;

2.5 Power supply: 220VAC、50/60Hz;

2.6 Power consumption: $<3\text{W}$

2.7 Output capacity:

Refrigeration: 30A/240VAC, normal open, directly drive a single phase 1.5HP (220VAC) load;
(or optional) 17A/240VAC, normal open, directly drive a single phase 1.0HP (220VAC) load

Defrost or lighting relay: 10A/240VAC, normal open, directly drive heater strip Max.1200W (220VAC);

(or optional) 05A/240VAC, normal open, directly drive heater strip Max.500W (220VAC).

Note: Defrost or lighting relay could be used as lighting relay or defrost relay.

When parameter U3=0, defrost/lighting relay is used as defrost output, and it has no function of lighting control at this time;

When parameter U3=1, defrost/lighting relay is used as lighting output, and it has no defrost function, defrost is proceeded as off-cycle defrost.

2.8 Input terminal: cabinet sensor, evaporator sensor (optional)

2.9 Work ambient temperature: $0^{\circ}\text{C}\sim55^{\circ}\text{C}$;

2.10 Storage temperature: $-25^{\circ}\text{C}\sim75^{\circ}\text{C}$;

2.11 Relative humidity: 20%~85% (non condensing)

2.12 Front panel protection level: IP65

3. Operation and display panel



4. Indicator light status description

Indicator light	Symbol	Status	Meaning
Setting	Set	ON	Parameter setting
		OFF	Status of temperature measuring and controlling
Refrigeration		ON	Refrigeration work
		OFF	Refrigeration stop
		FLASH	Refrigeration time delay
Defrost		ON	Defrost work
		OFF	Defrost stop

5. Keys function

5.1 Key description

Keys	Function
Set	Enter the status of parameter setting
	Switch between menu and parameter
▲	Adjust menu and parameters; open/close lighting
▼	Adjust menu and parameters;
	Press more than 10 to execute parameter one-key recovery
	Exit from parameter setting
	View evaporator sensor temperature
	Press 3s to start forced defrost
	Exit from one-key recovery status


5.2 Keys operation


6.2.1 Parameter adjustment

In the status of temperature measuring and controlling, press **Set** key for three seconds to enter user menu, display St, press Set key again, display the parameter value of St, then you could set temperature value by pressing ▲ or ▼ key.

When display St, press ▲ key, display Po, press Set key, display 00, then press ▲ or ▼ to input the menu password of administrator. After finishing input, press Set key, display Po. The controller will automatically verify the correctness of password, if correct, then it enters to administrator menu, press ▲ or ▼ to select all parameter items St、Po、C1、C2.....U3; if password incorrect, the controller will only stay at the parameter of St and Po, and it could not display other parameters items.

After selecting the parameter item, press Set key to enter current menu item parameter value setting, press ▲ or ▼ to adjust parameter value, and press Set key again to return to menu interface.


Under the status of parameter setting, press  key or no key operation within 30s, it will exit from parameter setting and automatically save the current parameter value.

Note: Administrator password input only valid once, after pressing  key to exit from parameter setting, you need to input the password again for next adjustment.


5.2.2 Temperature viewing

When parameter U1=00, it displays current cabinet temperature.

When parameter U1=01, it displays current evaporator temperature.


In the status of temperature measuring and controlling, press  to view the current evaporator sensor measured temperature value (evaporator sensor is enabled and keeps normal).

5.2.3 Manually forced operation

In the status of temperature measuring and controlling, Press  for three seconds to force the open or close of defrost.

When U3=01, that is, K2 relay works as lighting output, press ▲ key to open/close lighting.

5.2.4 Parameter recovery

In the status of temperature measuring and controlling, press the key ▼ for 10S, it displays the code HO and enter to the operation of one-key recovery. It could continue to select the parameter recovery items by pressing key ▼ and the selection range is H0~H7, press key  to execute the parameter recovery and then exit, if there is no parameter recovery operation within 30S, it will automatically exit from the mode without recovery of parameters.

Note: It requires a reliable power supply during this operation, or else, you need to operate it again after power on the controller and get a reliable power supply.

H0	Give up parameter recovery, no change of each parameter, no display of parameter recovery success code dr
H1	Recovery parameter value H1, recovery success display dr
H2	Recovery parameter value H2, recovery success display dr
H3	Recovery parameter value H3, recovery success display dr
H4	Recovery parameter value H4, recovery success display dr
H5	Recovery parameter value H5, recovery success display dr
H6	Recovery parameter value H6 recovery success display dr
H7	Recovery parameter value H7 recovery success display dr , it is used specially for production testing, user should not use it.

7. Control output

7.1 Compressor:

Normal status:

when the cabinet temperature is higher than temperature setting (St) + Temperature hysteresis(C1), and finish the compressor start Min interval, the compress will start;

When the cabinet temperature is lower than temperature setting (St), the compressor will close.

Cabinet sensor failure:

When parameter item A1=0, the function of “Run/stop in a proportional time” is closed, the compressor closes;

When parameter item A1=1, the function of “Run/stop in a proportional time” opens, the compressor will run and stop periodically according to the set time proportion (Start duration A2 and Stop duration

A3).

7.2 Defrost


1) d4=0, defrost is forbidden

2) d4=1:

1. When evaporator sensor is enabled (d1=1), evaporator sensor temperature is higher than defrost termination temperature (d8), defrost could not be started.

2. When evaporator sensor is enabled (d1=1), evaporator sensor temperature is lower than defrost termination temperature (d8), or evaporator sensor is disabled (d1=0), defrost could be started if any of the condition below is met:


a. When defrost cycle d4) finishes running, start defrosting

b. Hold and press key  for three seconds, start defrosting.

3) Under defrost status, if any of the condition below is met, defrost could be closed:

1. When evaporator sensor is enabled (d1=1), evaporator sensor temperature is higher than defrost termination temperature (d8), defrost is closed.

2. Max. defrost time (d7) finishes running, defrost is closed.

3. Hold and press key  for three seconds, close defrost.

4) U3=00, K2 relay works as defrost relay output, and defrost method is electrical heating defrost.

U3=01, at this time, no defrost relay and defrost method is off-cycle defrost.

7.3 Lighting:

U3=01: K2 relay works as lighting relay, press ▲ to open the lighting and press ▲ key again to close the lighting.

7.4 Alarm reminding

When the cabinet temperature sensor failure, display E1 in digital tube;

When the evaporator sensor failure, display E2 in digital tube.

When the buzzer output selection 9A4) is 1, if the controller occurs alarm, the buzzer beeps; and when all alarm is relieved, buzzer mutes, or you could press any time to mute it. If new alarm occurs after relieving all alarm, buzzer will beep again.

Code	Reason
E1	Cabinet temperature sensor failure
E2	Evaporator sensor failure
H0	one-key recovery failure
dr	one-key recovery success
E2C	Evaporator sensor disabled while display is selected as evaporator sensor temperature

8. Wiring notice

ACN,ACL power supply, J2,J3 compressor output, J2,J4 defrost output; J6 cabinet temperature sensor, J5 evaporator sensor; the ends of connection cable is separately connected to power supply board J7 and display panel J8.

9. Safety rules:

★Danger:

1. Strictly distinguish the power wire, relay output, sensor down-lead and data line, and the relay could not be overloaded.
2. Prohibit connecting the wire terminals without electricity cut-off.

★Warning:

Prohibit using this unit under the environment of over damp, high temp., strong electromagnetism interference or strong corrosion.

★Notice:

1. The power supply should conform to the voltage value indicated in the instruction, and make sure a steady power supply.
2. To avoid the possible interference, the sensor down-lead/data line and power wire should be kept in a proper distance.

Storing Food

To get the best results from your appliance, follow these instructions:

- Only store foodstuffs in the appliance when it has reached the correct operating temperature.
- Do not place uncovered hot food or liquid inside the appliance.
- Wrap or cover food where possible.
- Do not obstruct the fans inside the appliance.
- Avoid opening the doors for prolonged periods of time.

Lock/Unlock the Doors

A lock is fitted to the doors to ensure foodstuffs are kept secure within your appliance. Use the keys provided to lock/unlock the door.

Cleaning, Care & Maintenance

- Always wipe dry after cleaning.
- Clean the door seal with water only.
- Switch off and disconnect from the power supply before cleaning.
- Clean the interior of the appliance as often as possible.
- Do not use abrasive cleaning agents. These can leave harmful residues.
- Do not allow water used in cleaning to run through the drain hole into the evaporation pan.
- A agent or qualified technician must carry out repairs if required.

Cleaning the Condenser

Periodically cleaning the condenser can extend the life of the appliance. Recommend that a agent or qualified technician clean the condenser.

Troubleshooting

If your appliance develops a fault, please check the following table before making a call to the Helpline.

Fault	Probable Cause	Action
The appliance is not working	The unit is not switched on	Check the unit is plugged in correctly and switched on
	Plug and lead are damaged	Call agent or qualified Technician
	Fuse in the plug has blown	Replace the fuse
	Power supply	Check power supply
	Internal wiring fault	Call agent or qualified Technician
The appliance turns on, but the temperature is too high/low	Too much ice on the evaporator	Defrost the appliance
	Condenser blocked with dust	Call agent or qualified Technician
	Doors are not shut properly	Check doors are shut and seals are not damaged
	Appliance is located near a heat source or air flow to the condenser is being interrupted	Move the refrigerator to a more suitable location
	Ambient temperature is too high	Increase ventilation or move appliance to a cooler position
	Unsuitable foodstuffs are being stored in the appliance	Remove any excessive hot foodstuffs or blockages to the fan
	Appliance is overloaded	Reduce the amount of food stored in the appliance
The appliance is leaking water	The appliance is not properly leveled	Adjust the screw feet to level the appliance (if applicable)
	The discharge outlet is blocked	Clear the discharge outlet
	Movement of water to the drain is obstructed	Clear the floor of the appliance (if applicable)
	The water container is damaged	Call agent or qualified Technician
The appliance is unusually loud	Loose nut/screw	Check and tighten all nuts and screws
	The appliance has not been installed in a level or stable position	Check installation position and change if necessary

Electrical Wiring

The plug is to be connected to a suitable mains socket. This appliance is wired as follows:

- Live wire (colored brown) to terminal marked L
- Neutral wire (colored blue) to terminal marked N
- Earth wire (colored green/yellow) to terminal marked E

This appliance must be earthed, using a dedicated earthing circuit.

If in doubt consult a qualified electrician.

Electrical isolation points must be kept clear of any obstructions. In the event of any emergency disconnection being required they must be readily accessible.

Compliance

The WEEE logo on this product or its documentation indicates that the product must not be disposed of as household waste. To help prevent possible harm to human health and/or the environment the product must be disposed of in an approved and environmentally safe



recycling process. For further information on how to dispose of this product correctly, contact the product supplier, or the local authority responsible for waste disposal in your area.

Parts have undergone strict product testing in order to comply with regulatory standards and specifications set by international, independent, and federal authorities.

Products have been approved to carry the following symbol:

WARNING

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.



Children should be supervised to ensure that they do not play with the appliance.