OWNER'S MANUAL

AIR-TO-WATER HEAT PUMP

Please read this manual carefully before operating your set and retain it for future reference.

Original instruction

ENGLISH	**ITALIANO**	**ESPAÑOL**	**FRANÇAIS**
DEUTSCH	**ΕΛΛΗΝΙΚΑ**	**ČEŠTINA**	**NEDERLANDS**
POLSKI	**ROMÂNĂ**	**PORTUGUÊS**	**MAGYAR**
БЪЛГАРСКИ	**SRPSKI**	**HRVATSKI**	**SLOVENŠČINA**
DANSK	**CATALÀ**	**УКРАЇНСЬКА**	

Outdoor Unit
HM513MR UXC0

Indoor Unit
PHCSL0 ENCXLEU

MFL05760201
Rev.02_032626

www.lg.com

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INTRODUCTION

Read this manual

Inside you will find many helpful hints on how to use and maintain your AWHP properly. Just a little preventive care on your part can save you a great deal of time and money over the life of your product.

You'll find many answers to common problems in the chart of troubleshooting tips. If you review our chart of Troubleshooting Tips first, you may not need to call for service at all.

How to find additional model information

Energy Labels and Product Fiches for all possible combinations can be found at

https://www.lg.com/global/support/cedoc/cedoc.

Search for outdoor unit name in cedoc page.

For your records

Staple your receipt to this page in case you need it to prove the date of purchase or for warranty purposes. Write the model number and the serial number here:

Model number :

Serial number :

You can find them on a label on the side of each unit.

Dealer’s name :

Date of purchase :

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This manual may contain images or content different from the model you purchased.

This manual is subject to revision by the manufacturer.

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SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE USE

The following safety guidelines are intended to prevent unforeseen risks or damage from unsafe or incorrect operation of the appliance.

Safety Messages

This symbol is displayed to indicate matters and operations that can cause risk.
Read the part with this symbol carefully and follow the instructions in order to avoid risk.

WARNING

This indicates that the failure to follow the instructions can cause serious injury or death.

CAUTION

This indicates that the failure to follow the instructions can cause the minor injury or damage to the product.

Notes for Flammable Refrigerant

The following symbols are displayed on units.

A2L

This symbol indicates that this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.

This symbol indicates that the Owner's Manual should be read carefully.

This symbol indicates that service personnel should be handling this equipment with reference to the Installation Manual.

This symbol indicates that information is available in the Owner's Manual or Installation Manual.

WARNING INSTRUCTIONS

⚠ WARNING

- To reduce the risk of explosion, fire, death, electric shock, injury or scalding to persons when using this product, follow basic precautions, including the following:

Installation

- Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.
  - There is risk of fire or electric shock.
- For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center.
  - There is risk of fire or electric shock.
- Always ground the unit.
  - There is risk of fire or electric shock.
- Install the panel and the cover of control box securely.
  - There is risk of fire or electric shock.
- Always install a dedicated circuit and breaker.
  - Improper wiring or installation may cause fire or electric shock.
- Use the correctly rated breaker or fuse.
  - There is risk of fire or electric.
- Do not modify or extend the power cable.
  - There is risk of fire or electric shock.
- Do not install, remove, change, inspection and maintenance, repair or reinstall the unit by yourself (customer).
  - There is risk of fire, electric shock, explosion, or injury.
- Do not change, remove the safety devices.
  - There is risk of death, injury.
- For antifreeze, always contact the dealer or an authorized service center.
  - Almost the antifreeze is a toxic product.
- For installation, always contact the dealer or an authorized Service Center.
  - There is risk of fire, electric shock, explosion, or injury.
- Do not install the unit on a defective installation stand.
  - It may cause injury, accident, or damage to the unit.
- Be sure the installation area does not deteriorate with age.
  - If the base collapses, the unit could fall with it, causing property damage, unit failure, and personal injury.
- Do not install the water pipe system as Open loop type.
  - It may cause failure of unit.

- Use a vacuum pump or inert (nitrogen) gas when doing leakage test or purging air. Do not compress air or oxygen and do not use flammable gases.
  - There is the risk of death, injury, fire or explosion.
- Make sure the connected condition of connector in product after maintenance.
  - Otherwise, it may cause product damage.
- Do not touch leaked refrigerant directly.
  - There is risk of frostbite.
- Copper in contact with refrigerants shall be oxygen-free or deoxidized, for example Cu-DHP as specified in EN 12735-1 and EN 12735-2.
- Compliance with national gas regulations shall be observed.
- Refrigerant tubing shall be protected or enclosed to avoid damage.
- The installation of pipe-work shall be kept to a minimum.
- A brazed, welded, or mechanical connection shall be made before opening the valves to permit refrigerant to flow between the refrigerating system parts.
- A vacuum valve shall be provided to evacuate the interconnecting pipe and/or any uncharged refrigerating system part.
- Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification. (Include the corresponding tools and required personal protective equipment)
- Any person who is involved with working on or breaking into a refrigerant circuit wear appropriate protective equipment and have a fire extingusher available.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- Do not pierce or burn.
- Be aware that refrigerants might not contain an odour.
- Dismantling the unit, treatment of the refrigerant oil and eventual parts should be done in accordance with local and national standards.
- Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that can be displaced during normal operation shall be protected against mechanical damage.
- Pipe-work shall be securely mounted and guarded from physical damage.
- Mechanical connections (mechanical connectors or flared joints) shall be accessible for maintenance purposes.
- Connect the water for filling or refilling the heating system as specified by EN 1717/EN 61770 to avoid contamination of drinking water by return flow.
- The appliance shall be installed in accordance with the national wiring regulation.
- Make sure installation necessary safety devices.
- Do not let refrigerant enter the sewage system.
- Always check for gas (refrigerant) leakage before installation or repair of unit by using the gas sniffer (Gas sniffer must be suitable for R290).
  - There is risk of explosion or fire and failure of unit.

Operation

- Take care to ensure that power cable could not be pulled out or damaged during operation.
  - There is risk of fire or electric shock.
- Do not place anything on the power cable.
  - There is risk of fire or electric shock.
- Do not plug or unplug the power supply plug during operation.
  - There is risk of fire or electric shock.
- Do not touch (operate) the unit with wet hands.
  - There is risk of fire or electric shock.
- Do not place a heater or other appliances near the power cable.
  - There is risk of fire or electric shock.
- Do not allow water to run into electric parts.
  - There is risk of fire, failure of the unit, or electric shock.
- Do not store or use flammable gas or combustibles near the unit.
  - There is risk of fire or failure of unit.
- Do not use the unit in a tightly closed space for a long time.
  - It may cause damage to the unit.
- When flammable gas leaks, turn off the gas and open a window for ventilation before turning the unit on.
  - There is risk of explosion or fire.
- If strange sounds, or smell or smoke comes from unit, turn the breaker off or disconnect the power supply cable.
  - There is risk of electric shock or fire.
- Stop operation and close the window in storm or hurricane. If possible, remove the unit from the window before the hurricane arrives.
  - There is risk of property damage, failure of unit, or electric shock.
- Take care so that children may not step on the outdoor unit.
  - Otherwise, children may be seriously injured due to falling down.
- Do not open the front cover of the unit while operation. (Do not touch the electrostatic filter, if the unit is so equipped.)
  - There is risk of physical injury, electric shock, or unit failure.
- Do not touch any electric part with wet hands. you should be power off before touching electric part.
  - There is risk of electric shock or fire.
- Do not touch refrigerant pipe and water pipe or any internal parts while the unit is operating or immediately after operation.
  - There is risk of burns or frostbite, personal injury.
- If you touch the pipe or internal parts, you should be wear protection or wait time to return to normal temperature.
  - Otherwise , it may cause burns or frostbite, personal injury.
- Turn the main power on 6 hours ago before the product starting operation.
  - Otherwise, it may cause compressor damage.

- Do not touch electric parts for 10 minutes after main power off.
  - There is risk of physical injury, electric shock.
- The inside heater of product may operate during stop mode. It is intended to protect the product.
- Be careful that some part of the control box are hot.
  - There is risk of physical injury or burns.
- When the unit is soaked (flooded or submerged), contact an Authorized Service Center.
  - There is risk of fire or electric shock.
- Be cautious that water could not be poured to the unit directly.
  - There is risk of fire, electric shock, or unit damage.
- Ventilate the unit from time to time when operating it together with a stove, etc.
  - There is risk of fire or electric shock.
- Turn the main power off when cleaning or maintaining the unit.
  - There is risk of electric shock.
- Take care to ensure that nobody could step on or fall onto the unit.
  - This could result in personal injury and unit damage.
- Do not install the product where the noise or hot air from the outdoor unit could damage or disturb the neighborhoods. It may cause a problem for your neighbors and hence dispute.
- If the unit is not used for long time, we strongly recommend not to switch off the power supply to the unit.
  - There is risk of water freezing.
- If the unit is not used and switch off the power supply to the unit for long time, we strongly recommend to drain off all water in the unit by certificated person.
  - There is risk of water freezing.
- The appliance shall be stored in an area where the room size corresponds to the room area as specified for operation.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- The appliance shall be stored so as to prevent mechanical damage from occurring.
- The appliance shall be stored in a room without continuously operating open flames (for example an operating gas appliance) or other potential ignition sources (for example an operating electric heater, hot surfaces).
- Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
- Servicing shall be performed only as recommended by the manufacturer.
- Mechanical connectors used indoors shall comply with ISO 14903. When mechanical connectors are reused indoors, sealing parts shall be renewed. When flared joints are reused indoors, the flare part shall be re-fabricated.
- Periodic(more than once/year) cleaning of the dust or salt particles stuck on the heat exchangers by using water.
- Keep any required ventilation openings clear of obstruction.
- Electrical components shall only be replaced with parts specified by the appliance manufacturer.
- Replacement with other parts may result in the ignition of refrigerant in the event of a leak.

CAUTION INSTRUCTIONS

CAUTION

- To reduce the risk of minor injury to persons, malfunction, or damage to the product or property when using this product, follow basic precautions, including the following:

Installation

- Keep level even when installing the unit.
  - To avoid vibration or water leakage.
- Two or more people to lift and transport the unit. Avoid personal injury.
- If anyone other than a licensed Professional installs, repairs, or alters LG Electronics Air Conditioning Products, the warranty is voided.
  - All costs associated with repair are then the full responsibility of the owner.
- Do not insert a drain hose in drain or soil pipe.
  - Bad smells can occur and it results in a corrosion of a heat exchanger or pipe.
- Do not install the unit in potentially explosive atmospheres.
- Refrigerants are pre-charged in the factory to the outdoor unit. Additional refrigerants need to be charged depending on the length and size of pipe.
- Make the connections securely so that the outside force of the cable may not be applied to the terminals.
  - Inadequate connection and fastening may generate heat and cause a fire.

Operation

- Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer AWHP, not a precision refrigeration system. There is risk of damage or loss of property.
- Use a soft cloth to clean. Do not use harsh detergents, solvents, etc.
  - There is risk of fire, electric shock, or damage to the plastic parts of the unit.
- Do not step on or put anything on the unit.
  - There is risk of personal injury and failure of unit.
- Use a firm stool or ladder when cleaning or maintaining the unit.
  - Be careful and avoid personal injury.
- Do not turn on the breaker or power under condition that front panel cabinet, top cover, control box cover are removed or opened.
  - Otherwise it may cause fire, electric shock, explosion or death.
- The appliance shall be disconnected from its power source during service and when replacing parts.
- Means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
- The Installation kit supplied with the appliance are to be used and that old Installation kit should not be reused.
- 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. Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
- The instructions for service to be done by specialized personnel, mandated by the manufacturer or the authorized representative may be supplied in only one Community language which the specialized personnel understand.
- 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.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- Replace the all batteries in the remote control with new ones of the same type. Do not mix old and new batteries or different types of batteries. There is risk of fire or product failure.
- The manufacturer should specify other potential continuously operating sources known to cause ignition of the refrigerant used.
- In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.

Safety Instructions for the Service

Checks to the area

- Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, the following precautions shall be complied prior to conducting work on the system.

Work procedure

- Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

General work area

- All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

Checking for presence of refrigerant

- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres.
- Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. nonsparking, adequately sealed or intrinsically safe.

Presence of fire extinguisher

- If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

No ignition sources

- No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it can lead to the risk of fire or explosion.
- All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

Ventilated area

- Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

Checks to the refrigerating equipment

- Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed.
- If in doubt consult the manufacturer's technical department for assistance.
- The following checks shall be applied to installations using flammable refrigerants:
  - the refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed;
  - the ventilation machinery and outlets are operating adequately and are not obstructed;
  - if an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
  - marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
  - refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which can corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

Checks to electrical devices

- Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures.
- If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with.
- If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used.
- This shall be reported to the owner of the equipment so all parties are advised.
- Initial safety checks shall include:
  - that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
  - that no live electrical components and wiring are exposed while charging, recovering or purging the system;
  - that there is continuity of earth bonding.

Sealed electrical components

- Sealed electrical components shall not be repaired.

Cabling

- Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects.
- The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

Detection of flammable refrigerants

- Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks.
- A halide torch (or any other detector using a naked flame) shall not be used.
- The following leak detection methods are deemed acceptable for all refrigerant systems.
  - Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity can be inadequate, or can need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.)
  - Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
  - Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.
  - Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine can react with the refrigerant and corrode the copper pipe-work.

NOTE

- Examples of leak detection methods are
  - bubble method,
  - fluorescent agent method.

  - If a leak is suspected, all naked flames shall be removed/extinguished.
  - If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.
  - Removal of refrigerant shall be according to Refrigerant removal and circuit evacuation proecdure.

Refrigerant removal and circuit evacuation

- When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:
  - safely remove refrigerant following local and national regulations;
  - evacuate;
  - purge the circuit with inert gas (optional for A2L);
  - evacuate (optional for A2L);
  - continuously flush with inert gas when using flame to open circuit;
  - open the circuit.
- The refrigerant charge shall be recovered into the correct recovery cylinders.
- The manufacturer shall specify the inert gases that can be used.
- Compressed air or oxygen shall not be used for purging refrigerant systems.

NOTE

- An example of an inert gas is dry nitrogen.

- Purging of the refrigerant circuit shall be achieved by breaking the vacuum in the system with inert gas and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum.
- This process shall be repeated until no refrigerant is within the system.
- The system shall be vented down to atmospheric pressure to enable work to take place.
- Ensure that the outlet of the vacuum pump is not close to any potential ignition sources and that ventilation is available.

Charging procedures

- In addition to conventional charging procedures, the following requirements shall be followed.
  - Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.
  - Cylinders shall be kept in an appropriate position according to the instructions.
  - Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.
  - Label the system when charging is complete (if not already labelled).
  - Extreme care shall be taken not to overfill the refrigerating system.
- Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas.
- The system shall be leak-tested on completion of charging but prior to commissioning.
- A follow up leak test shall be carried out prior to leaving the site.

Decommissioning

- Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail.
- It is recommended good practice that all refrigerants are recovered safely.
- Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant.
- It is essential that electrical power is available before the task is commenced.
  1) Become familiar with the equipment and its operation.
  2) Isolate system electrically.
  3) Before attempting the procedure, ensure that:
     a) mechanical handling equipment is available, if required, for handling refrigerant cylinders;
     b) all personal protective equipment is available and being used correctly;
     c) the recovery process is supervised at all times by a competent person;
     d) recovery equipment and cylinders conform to the appropriate standards.
  4) Pump down refrigerant system, if possible.
  5) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
  6) Make sure that the cylinder is situated on the scales before recovery takes place.
  7) Start the recovery machine and operate in accordance with instructions.
  8) Do not overfill cylinders (no more than 80 % volume liquid charge).
  9) Do not exceed the maximum working pressure of the cylinder, even temporarily.
  10) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
  11) Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

Labelling

- Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant.
- The label shall be dated and signed.
- For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

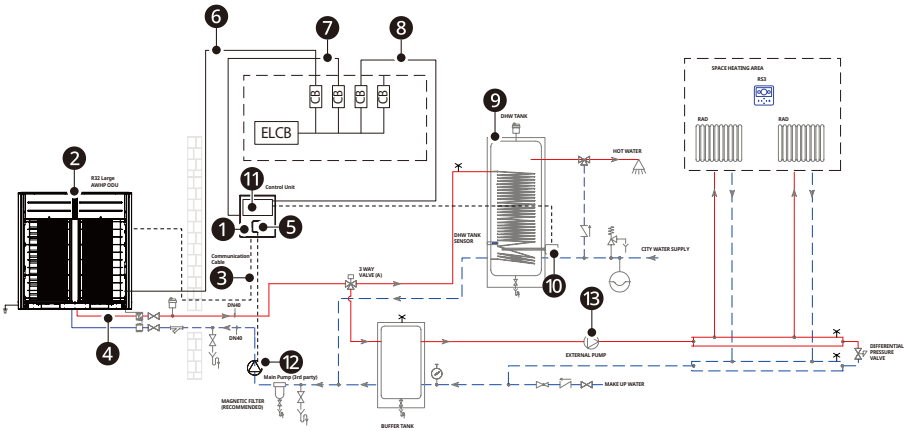
Recovery

- When removing refrigerant from a system, either for servicing or decommissioning, it is required to follow good practice so that all refrigerants are removed safely.
- When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed.
- Ensure that the correct number of cylinders for holding the total system charge is available.
- All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant).
- Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
- The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant.
- Consult manufacturer if in doubt. In addition, a set of calibrated weighing scales shall be available and in good working order.
- Hoses shall be complete with leak-free disconnect couplings and in good condition.
- The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged.
- Do not mix refrigerants in recovery units and especially not in cylinders. If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant.
- The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process.
- Draining of oil from a system shall be carried out safely.

Qualification of workers

- The manual shall contain specific information about the required qualification of the working personnel for maintenance, service and repair operations. Every working procedure that affects safety means shall only be carried out by competent persons.
  Examples for such working procedures are :
  - breaking into the refrigerating circuit;
  - opening of sealed components;
  - opening of ventilated enclosures.

PRODUCT INTRODUCTION



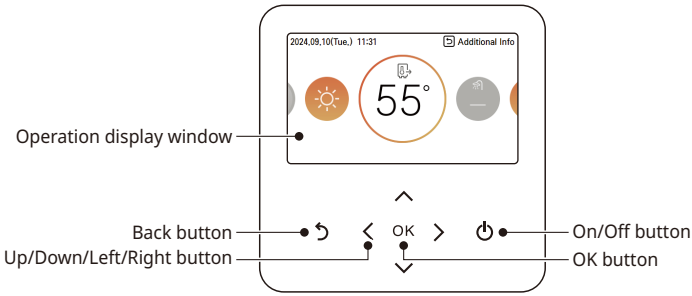
Description

No	Name	No	Name
❶	Control Unit	❽	Circuit breaker for DHW boost heater*
❷	Outdoor unit	❾	DHW Tank*
❸	Communication cable	❿	DHW boost heater*
❹	Heating water pipes	⓫	DHW Tank kit
❺	Remote controller	⓬	Main Pump (3rd party)
❻	Power supply outdoor unit	⓭	External Pump
❼	Power supply indoor unit	* Optional ELCB : Earth-leakage circuit breaker CB : Circuit breaker	

Refrigerant			R32
Max allowable pressure	High side [MPa]		4.32
	Low side [MPa]		2.4
Operating temperature of leaving water (Min. ~ Max.)	Heating [°C]	For Fan coil unit / Radiator	25 ~ 65
		For under floor	25 ~ 65
	Cooling [°C]	For Fan coil unit	5 ~ 27
		For under floor	16 ~ 27
	DHW		25 ~ 80
Inlet water pressure [MPa] (Min. ~ Max.)			0.03 ~ 1
Operating temperature of Air temperature (Min. ~ Max.)	Heating [°C]		-25 ~ 35
	Cooling [°C]		-15 ~ 48

- Additional Information : Serial number is refer to the barcode on the product.
- Above 60 ℃ Operation is available only when the heater is operating (Backup Heater & Booster Heater)

Remote controller



Operation display window	Operation and Settings status display
Back button	When you move to the previous stage from the menu's setting stage
Up/down/left/right button	When you change the menu's setting value
OK button	When you save the menu's setting value
On/Off button	When you turn ON/OFF the AWHP

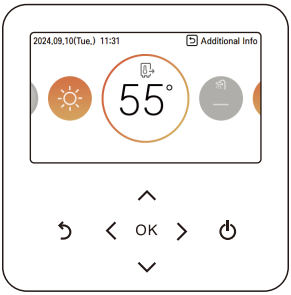
NOTE

- The remote controller is located on the indoor unit from factory. It can be repositioned at living space using cover plate accessory kit and then used to sense room air temperature (if applicable).
- Some functions may not be operated and displayed depending on the product type.
- The actual product can be different from above contents depending upon model type.
- When using simultaneous operation system, whenever press remote controller button, system will approximately operate after 1~2 minutes.

DESCRIPTION OF THE OPERATION

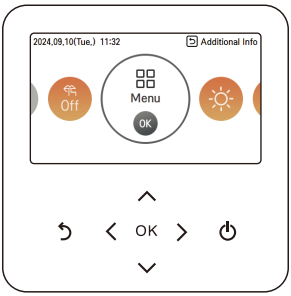
Main screen

In the main screen, press [< , > (left/right)] button to select the category to set, and you can control by pressing [∧ , ∨ (up/down)] button.

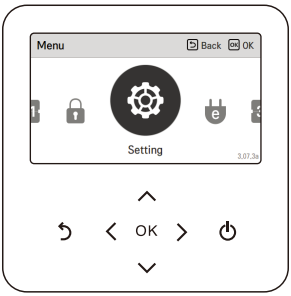


Menu screen

In the main screen, press [< , > (left/right)] button to select the menu and press [**OK**] button to move to menu screen.

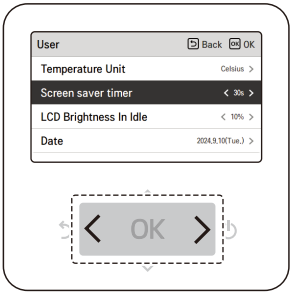


In the menu screen, press [< , > (left/right)] button to select the category to set, and press [**OK**] button to move to the detail screen.



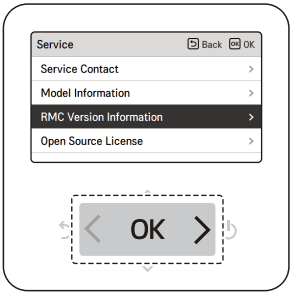
Setting screen

Select the category to set using [∧ , ∨ (up/down)] button.



In each detail screen of the menu, as in the box in the left figure, when "<, >" icons are displayed at the same time, you can immediately apply the setting value by pressing [<, > (left/right)] button.

- For the values that can be set in each category, refer to the detail manual for each function.



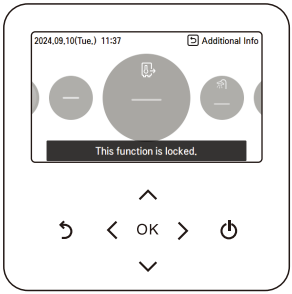
In each detail screen of the menu, as in the box in the left figure, if only ">" icon is displayed, you can move to the detail setting screen by pressing [> (right) or **OK**] button.

- For the values that can be set in each category, refer to the detail manual for each function.

Popup screen

The toast message is the message displayed at the bottom of the screen when an operation is turned On/Off or if a function is set / canceled.

The popup message is mainly displayed when an error occurred in the product.



< Toast message >

< Popup message >

Monitoring

In the main screen, you can enter the monitoring screen by pressing [**Back**] button

In the monitoring screen, you can check the following information,

- The room temperature
- The water inlet / outlet temperature
- The water pump operation
- The water flow rate
- The water pressure
- The solar heat temperature
- The outdoor temperature

NOTE

- Some information may not be visible if the function is disabled or not available for the model.

Returning to the screen

In the main screen, after moving to the category by pressing [**<** , **>** (left/right)] button, if there is no remote controller operation, after 10 seconds, it returns to the main screen basic position. (basic position: indoor temperature display part)

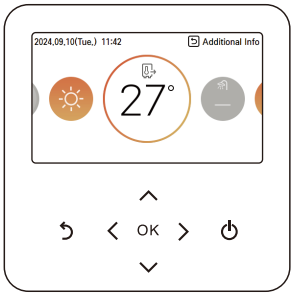
In the screens except the main screen, if there is no remote controller operation for 1 minute, it moves to the main screen.

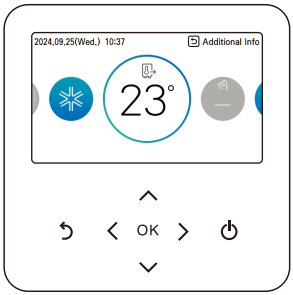
TEMPERATURE SETTING

Controlling desired temperature

You can easily control to the desired temperature.

- In the main screen, press [<, > (left/right)] button to select the desired temperature category, and press [∧, ∨ (up/down)] button to set the desired temperature.
  - In the cooling, heating, and AI/auto mode, the desired temperature control is possible.





Setting	Description
Leaving water temperature	If the desired temperature is lower than the water temperature, the heating is not performed. Set the desired temperature higher than the water temperature. (In cooling mode desired temperature is higher than the water temperature, the cooling is not performed.)
DHW tank temperature	DHW tank temperature setting is available when DHW tank is installed.
Water inlet temperature	This operation is changed to the temperature sensor only, the inlet temperature sensor, and temperature control logic is the same as the leaving water temperature operation.

NOTE

- The function can be activated according to the installer setting.
- Circuit 1 = Direct circuit
- Circuit 2 = Mixing circuit

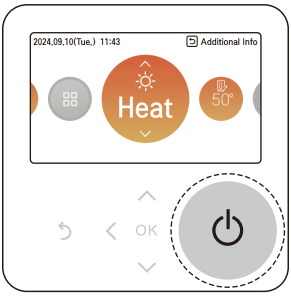
OPERATION SETTING

On / Off

THERMA V™ will be turned on or off.

Press the remote controller's ⏻ [**On/Off**] button.

- If the product is in operation, [**On/Off**] button will be illuminated.
- If the product is in off, [**On/Off**] button backlight will be off.



Operation mode

You can easily control the desired operation mode.

In the main screen, press [< , > (left/right)] button to select the operation mode or home leave or hold category, and press [∧ , ∨ (up/down)] button to set the operation mode.

- Some products may not support some operation modes.

Mode	Description
Cool	Cool the room to the desired temperature. Activated when No. 4 ON of indoor unit PCB DIP SW 2. (Refer to Installer manual.)
Heat	Heats the room to the desired room temperature.
AI / Auto	Mode and set temperature are adjusted automatically related to outside temperature (as set by Installer). Temperature adjustment is possible.

※ When Remote controller is off, Only frost protection is enabled.

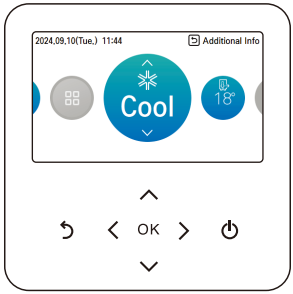
⚠ WARNING

- Cooling should only be activated, if the distribution system is designed to carry cold water. Misuse can lead to damages.

Cooling operation

Cooling operation's minimum setting temperature is 5 °C.

- The desired temperature can be controlled in the units of 1 °C.
  - Set the desired temperature lower than the water temperature.
  - water temperature is displayed on the default screen of the remote controller.
  - If your unit is operating in cooling mode and you press the [**On/Off**] button the cooling operation will shut off.



NOTE

- Activated when No. 4 ON of indoor unit PCB DIP SW 2 (Refer to Installer manual.)
  - Cooling operation must not be activated, if distribution system is not designed to carry cold water. Misuse can lead to damages.

What is 3 minutes delay function?

After the cooling stops, when the product is started right away, the reason that the cold water does not come out is that it is the function to protect the compressor.

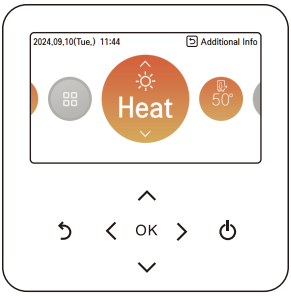
The compressor starts after 3 minutes and the cold water comes out.

NOTE

- The compressor starts after 3 minutes and the cold water comes out.
- In the cooling operation, you can select the desired temperature in the range of 5 °C~27 °C.
- The favorable temperature difference between the water inlet temperature and outlet temperature is 5 °C.

Heating operation

- The desired temperature can be controlled in the units of 1 °C.
  - Set the desired temperature higher than the water temperature.
  - Water temperature is displayed on the default screen of the remote controller.
  - If your unit is operating in heating mode and you press the [**On/Off**] button the heating operation will shut off.



NOTE

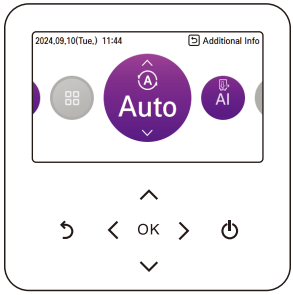
In the heating operation, temperature setting range vary by model.

- You can select the desired temperature in the range of 15 °C ~ 65 °C.
- When the electric backup heater is not used, the minimum temperature of the water temperature can be set from 34 °C to 20 °C.

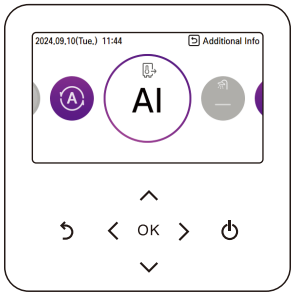
AI / Auto operation

In order to save energy and to give highest comfort, setting temperature will follow outside temperature. If outdoor temperature decreases, heating capacity for the house will increase automatically in order to keep same room temperature. All parameters will be set by installer during start-up procedure and will be adapted to the site characteristic.

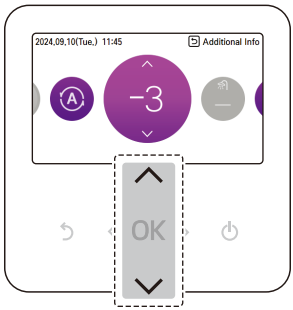
1 Select AI / Auto mode.



2 Select the desired temperature category.



3 Adjust the desired temperature level by press [∧ , ∨ (up/down)] button.



NOTE

- The Auto temperature (set by Installer) can be adjusted if needed.
- -5 ~ -1: The preset temperature curve is lowered by 1 to 5 degrees.
- AI: Preset is kept.
- 1 ~ 5: The preset temperature curve is lifted by 1 to 5 degrees.
- <Temperature adjust step (unit : degrees)>

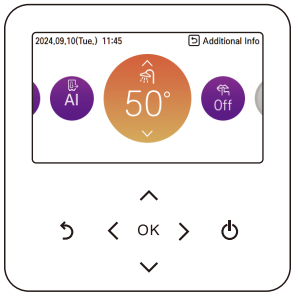
  -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5

  ← Colder Warmer →

- Refer to Installer manual for detailed explanation and guidance how to set the weather-dependent operation.

DHW heating operation

Function to set whether or not to use a installed DHW tank.



NOTE

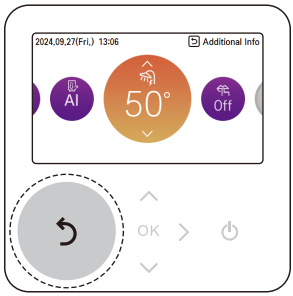
- This function is not used when the DHW tank is not installed.
- If you want to know more information, refer function on installation information section.

Quick DHW tank heating

If there is urgent DHW heating demand, Quick DHW Tank Heating mode can be used to reduce the time to reach target DHW tank temperature by forcibly turning on DHW tank heater.

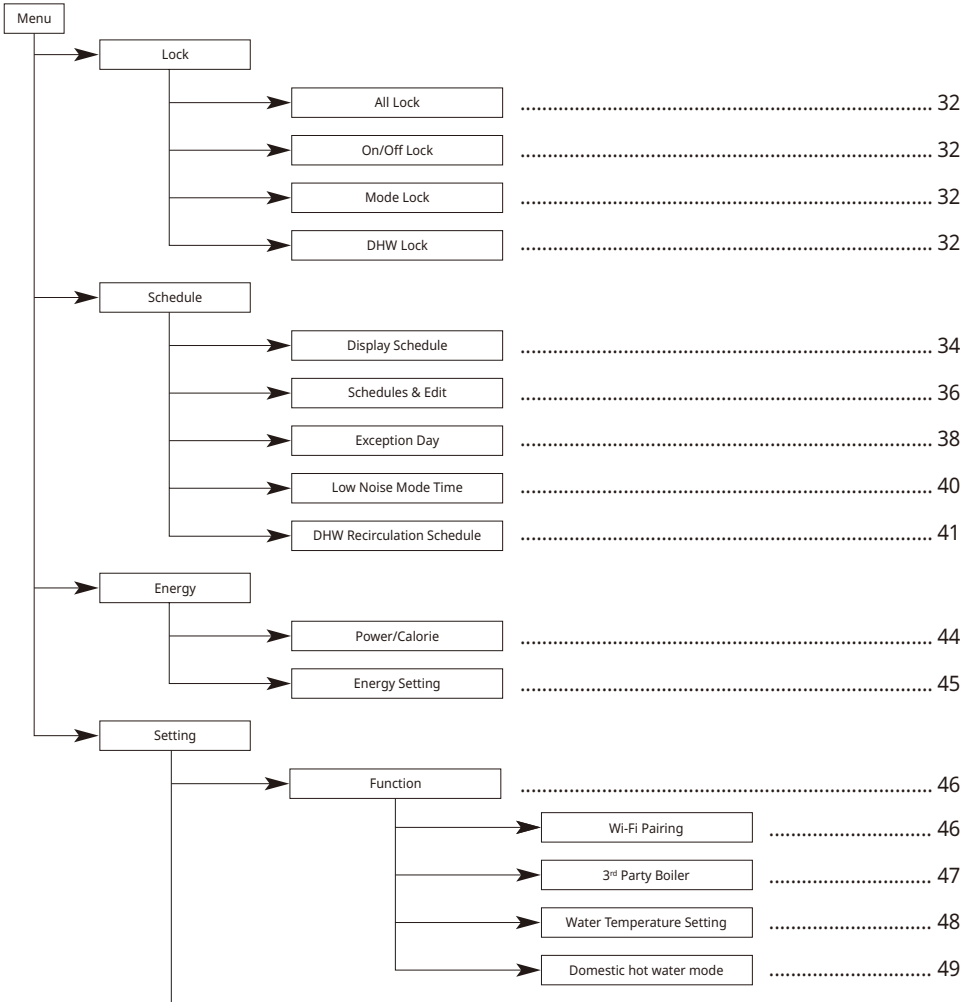
After reaching target DHW tank temperature or by user's input to stop, Quick DHW Tank Heating mode will be finished.

1 Press down [**Back**] button for a second focused on DHW Heating Operation.



OVERVIEW OWNER'S SETTINGS

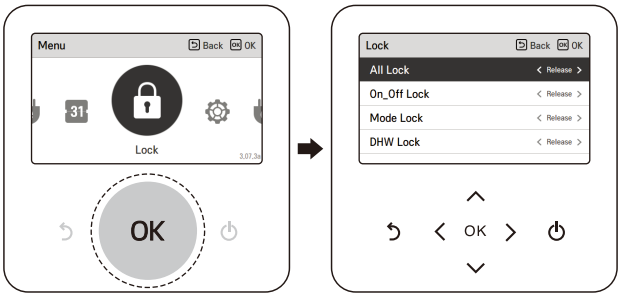
Menu structure



- User 50
  - Language 51
  - Temperature Unit 52
  - Screen Saver Timer 53
  - LCD Brightness In Idle 53
  - Date 54
  - Time 55
  - Summer Time 56
  - Password 57
  - Schedule Reset 58
  - Theme 59
  - Auto return to main screen 59
  - System Reboot 59
- Service 60
  - Service Contact 60
  - Model Information 61
  - RMC Version Information 61
  - Open source license 61

LOCK SETTING

How to enter Lock setting



Lock setting – all, on/off, mode, DHW lock

- It is the function to lock the button operation of the remote controller so that children or other persons cannot use it without permission.
- It is the function to limit the desired temperature range that can be set in the wired remote controller.

Mode	Description
All Lock	It locks all button operation of the remote controller.
On/Off Lock	It locks the On/Off button operation of the remote controller.
Mode Lock	It locks the operation mode button operation of the remote controller.
DHW Lock	It locks the DHW On/Off button operation of the remote controller.

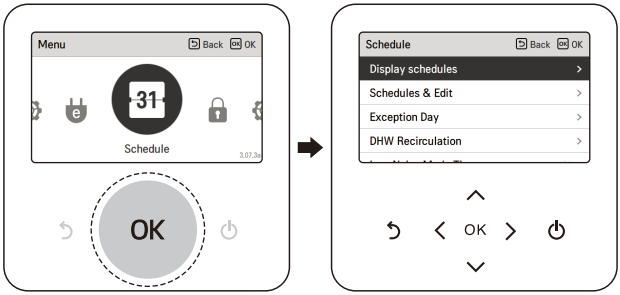
NOTE

- DHW lock is not used when the DHW tank is not installed.
- In the central controller, when the central control temperature range lock is set, the wired remote controller's temperature lock setting is cleared.
- The temperature change by external equipment is reflected regardless of the remote controller temperature range lock.

SCHEDULE SETTING

How to enter schedule

- There are 4 options in schedule formula ,depending on product function.
  - Room : Space heating and cooling
  - DHW : Hot water heating
  - DHW heater : Hot water boost heater
  - DHW recirculation : Hot water recirculation pump



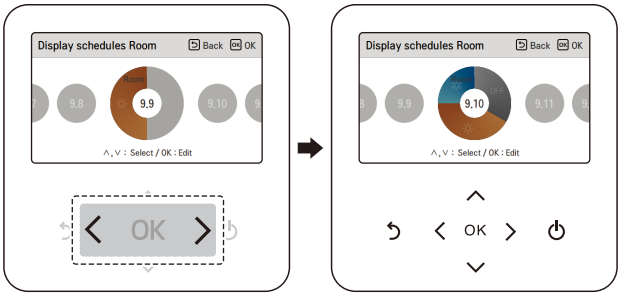
NOTE

- Even though there is a heater of hot water tank schedule option, it cannot be activated in case of disinfection setting.

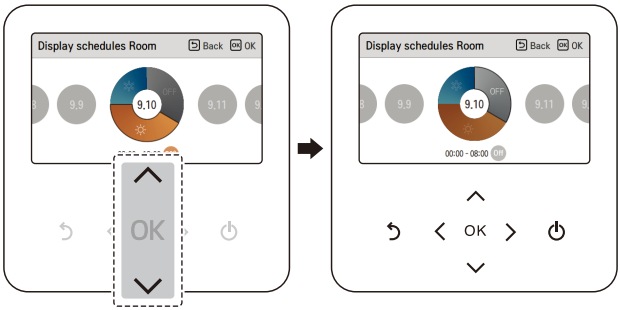
Display schedule

It is the function that can check the status of the timer (schedule) saved in the remote controller.

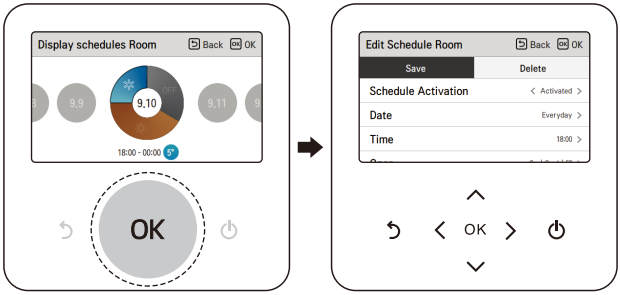
- In the schedule list, select the daily schedule status category, and press [**OK**] button to move to the detail daily schedule status screen.
- You can use the remote controller's [**<** , **>** (left/right)] button to check the timer information of other dates.



- You can use the remote controller's [**∧** , **∨** (up/down)] button to check the corresponding date's other timer information.



- Select the timer information, and press [**OK**] button to move to the corresponding timer's edit screen.



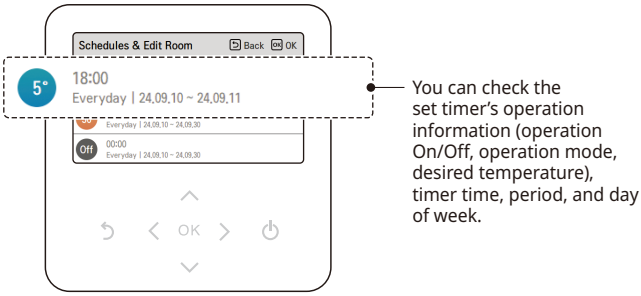
NOTE

- In the daily schedule status screen, even if the timer (schedule) is set, if the corresponding date is designated as an exception date, the schedule will not be performed.
- Less than 5 schedules per day is recommended.

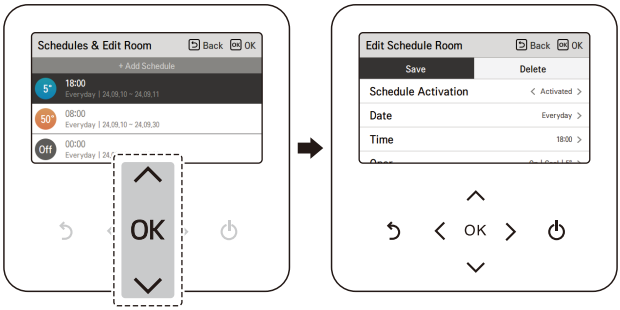
Schedules & Edit

It is the function that can check the status of the timer (schedule) saved in the remote controller.

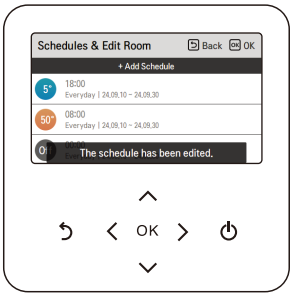
- In the schedule list, select the daily schedule status category, and press [**OK**] button to move to the daily schedule status detail screen.



- You can edit the saved schedule's timer information.
  - Select the schedule to edit using [∧ , ∨ (up/down)] button, and press [**OK**] button to move to the edit screen.



- Select the timer information, and press [**OK**] button to move to the corresponding timer's edit screen.



< If schedule is changed >

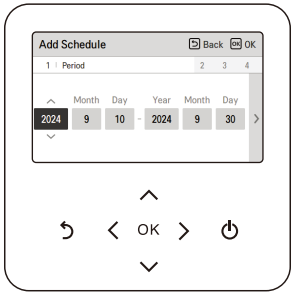
< If schedule is deleted >

Schedules & Edit – Add schedule

Description of each stage in Add schedule

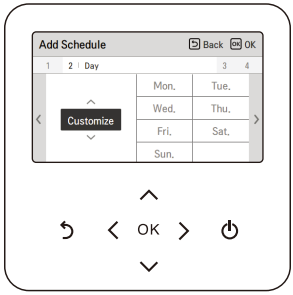
1 Period setting

- It sets the period to perform the timer.



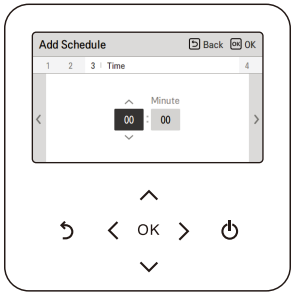
2 Day of week setting

- It sets the day of week to perform the timer.
  – You can select 'Everyday / Weekend / Weekdays / Individual selection.



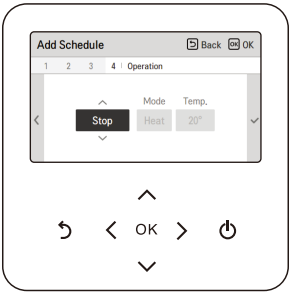
3 Time setting

- It sets the start time for the timer.

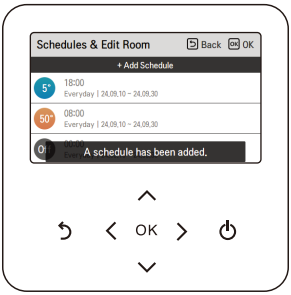


4 Operation setting

- It sets the timer operation information.
  - If ‘Stop’ is selected, you cannot set the mode / temperature.



5 Add schedule is completed

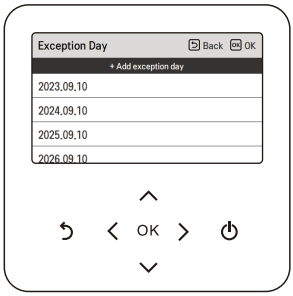


When stages 1~4 are completed, along with the message of ‘schedule is added’, it moves to View and edit schedule screen.

Exception Day

It is the function to automatically stop the operation on the set timer day.

- In the schedule list, select the exception day category, and press [**OK**] button to move to the Exception day designation detail screen.
- In the exception day, you can check, and add/change/delete the exception day information saved in the remote controller.
  - To add an exception day, in the Exception day registration detail screen, designate year/month/day, and press [**OK**] button to save the Exception day.
  - Select the Exception day to edit using [∧ , ∨ up/down)] button, and press [**OK**] button to move to the edit screen.

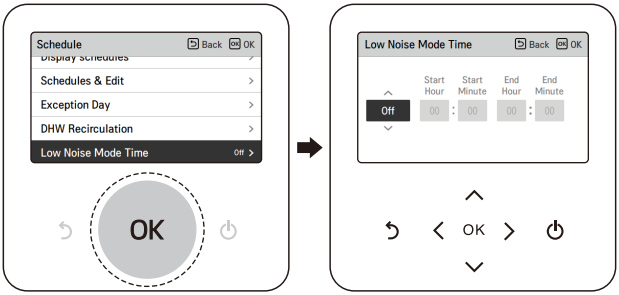


  - In the exception day edit screen, you can check, delete/change the corresponding exception day's setting contents.
  - When you change the exception day information, you need to save it after the change.

Low Noise Mode Time

It is the function to set the start and end time of the outdoor unit's low noise mode operation.

- After setting the start time and the end time, press [**OK**] button to move to the upper level list.
- If the start time and the current time are the same, it enters the outdoor unit low noise operation mode, and in the monitoring screen, 'in outdoor unit low noise operation mode' message is displayed.
- If the end time and the current time are the same, the outdoor unit low noise operation mode is cleared.



NOTE

- Low noise mode time setting function can be set only when the installer setting's outdoor unit function Master/Slave setting is set to "Master".
- Low noise mode time setting function is only available in some products.

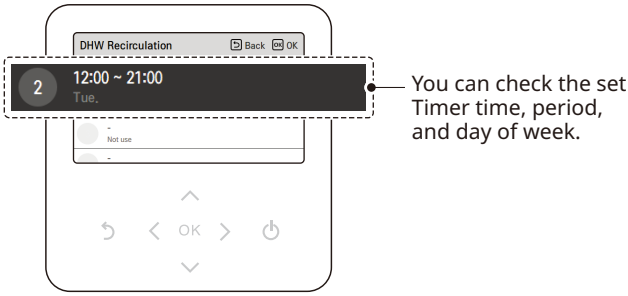
⚠ CAUTION

- When you enter the low noise operation, the heating (cooling) capacity may be degraded.

DHW Recirculation Schedule

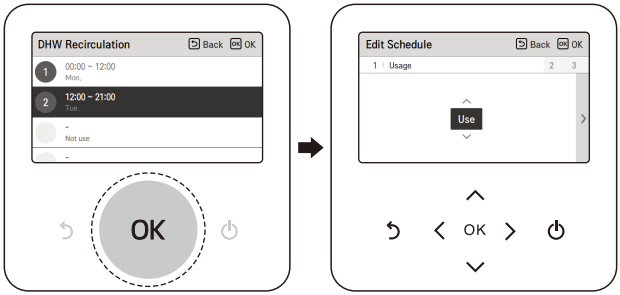
It is the function that can check the status of DHW recirculation timer (schedule) saved in the remote controller.

- In the schedule list, select the DHW recirculation schedule status category, and press [**OK**] button to move to the daily schedule status detail screen.



  – DHW recirculation schedule can be set up to 4 times.

- Select the timer information, and press [**OK**] button to move to the corresponding timer's edit screen.



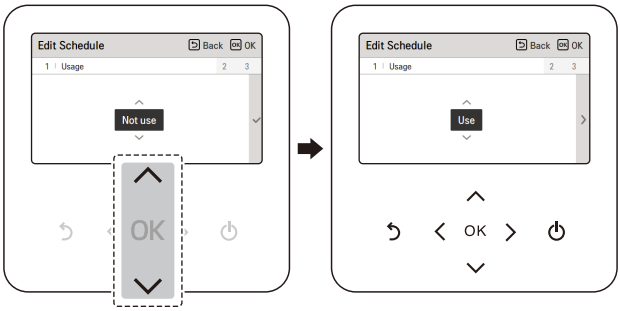
NOTE

- This function is not default.
- It can be activated, after setting value in installer mode.
- The Recirculation function will only be activated, if the "Recirculation time" (installer setting) is set additionally. Refer to Installer manual.

Description of each stage in Add schedule

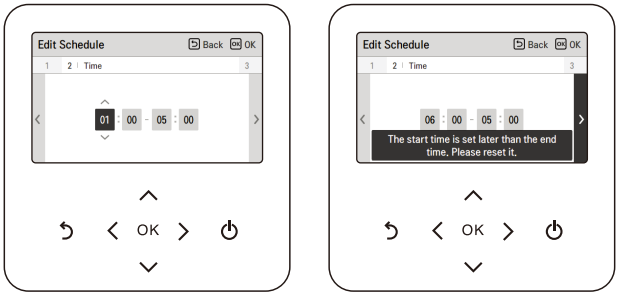
1 Usage setting

- It sets the use of the timer setting.
- Select ‘Use’ to move on the next stage.



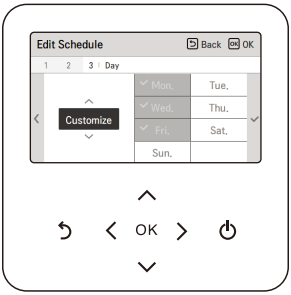
2 Time setting setting

- It sets the period to perform the timer.
- The end time cannot be earlier than the start time.



3 Day of week setting

- It sets the day of week to perform the timer.
- You can select ‘Customize / Weekend / Weekday / Everyday’.

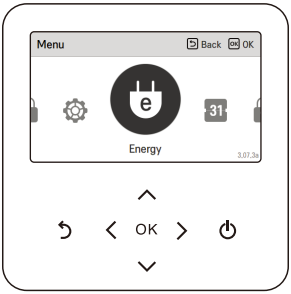


NOTE

- If you select ‘Not use’ again in stage 1 after completing the schedule setting, the timer does not work. but the setting value remains, and when selecting ‘Use’ again, the same setting value can be used.

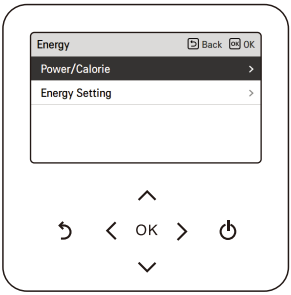
ENERGY MONITORING SETTING

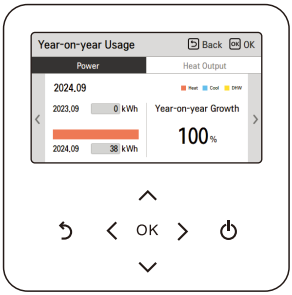
It provides useful information on the mount of energy and power during the week/month/year. Opening “Energy “option, these are presented on screen.



Power/Calorie

The information includes power usage / heat output produced and up to annual trend.



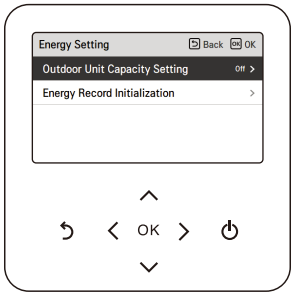


NOTE

- The calculated produced heat output and power are an estimation, the accuracy cannot be guaranteed.
- The energy data should NOT be used for being invoiced or requested to government incentive and subsidy.
- If use antifreeze agent(the antifreeze short pin(CN_ANTI_SW) must be open and switch No.8 in Option SW 1 must be on.), then the produced heat will NOT be calculated, nor will it be displayed on the user interface. This is because the increase of fluid viscosity makes the accuracy of the flow measurement and thus the accuracy of heat metering unreliable. Calibrated external meter must be used in this case.

Energy Setting

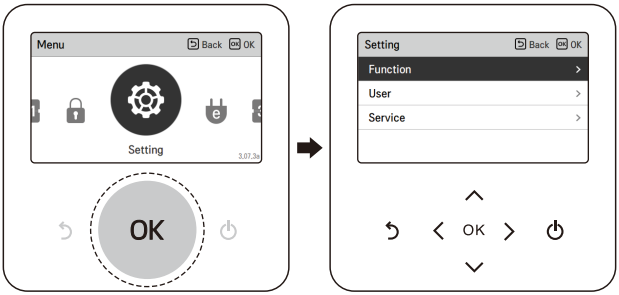
In addition, various energy settings are possible as shown below.
Current value reaches to defined target value, It alerts to you on display.



FUNCTION SETTING

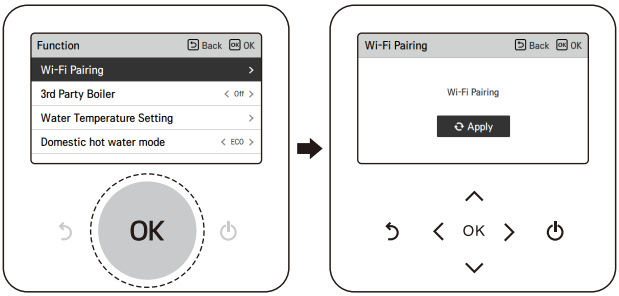
How to enter function setting

To enter the menu displayed at the bottom, you need to enter the function setting menu as follows.



Wi-Fi Pairing

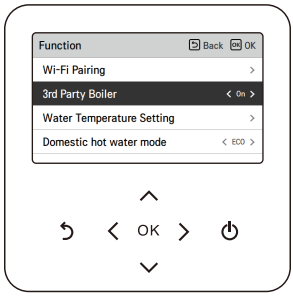
It is the function to control remotely through network with indoor unit.



3rd Party Boiler

NOTE

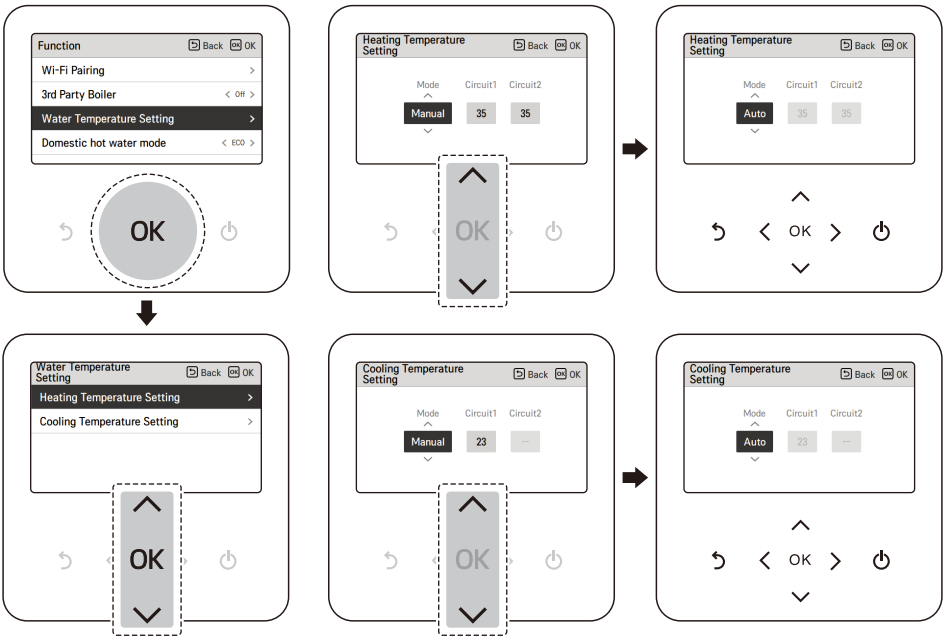
- This function is not default.
- It can be activated, after setting value in installer mode.



On/off mode of this option are opened by pushing "<" or ">" button simply and easily.

Water Temperature Setting

If you choose air+water temperature control way, this option is listed-up on function setting display. It is the function to set upper limit of water temperature while controlling the unit based on room air temperature.



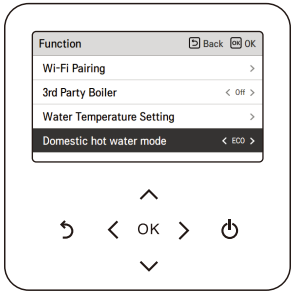
Value	Description
Manual	Manually setting water target temperature of heating and cooling mode
Auto	Automatically setting water target temperature depends on seasonal auto mode setting

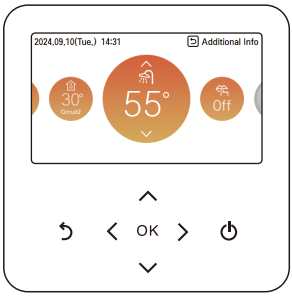
NOTE

- This function is not default.
- It can be activated, after setting value in installer mode.
- It can be different by model.

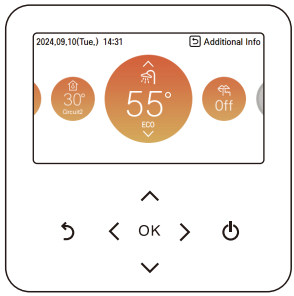
Domestic hot water mode

You can choose Domestic hot water mode (Comfort / Eco) by pressing button [< , > (left/right)].
Eco mode is an operation mode that can reduce electricity bill and improve efficiency.
Eco mode has a relatively slow rise in hot water temperature compared to Comfort.





Default (Comfort mode)

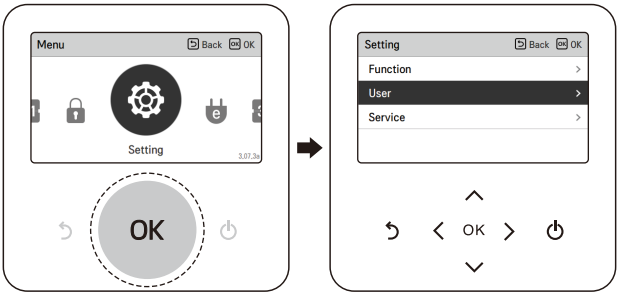


Eco mode

USER SETTING

How to enter user setting

To enter the menu displayed at the bottom, you need to enter the user setting menu as follows.

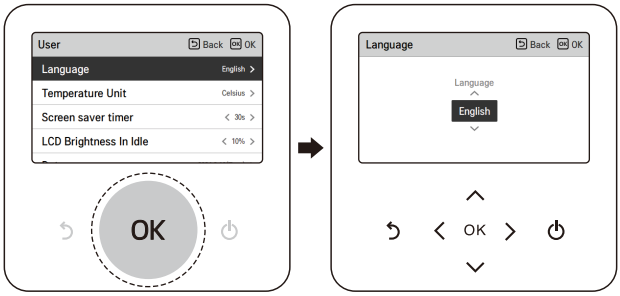


User Setting

- You can set the product user functions.
- Some functions may not be available in some product types.

Language

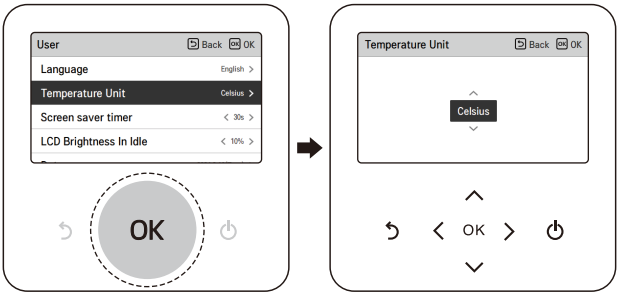
Set the language to be displayed on the remote controller.



Language		
한국어	English	Français
Deutsch	Italiano	Español
Русский	Polski	Português
中国	Čeština	Türk
Nederlands	Românesc	ελληνικά
Magyar	Български	Srpski
Hrvatski	Slovenščina	Dansk
українська	Svenska	

Temperature Unit

Set the temperature unit displayed on the remote controller.



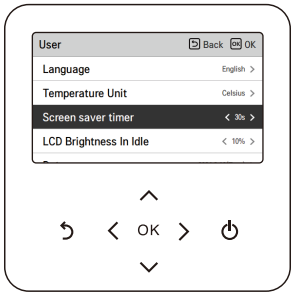
Value	Celsius
	Fahrenheit

CAUTION

- The temperature unit function may not work or work differently in some products.
- You cannot set the temperature unit in the slave wired remote controller.

Screen Saver Timer

Adjust the screen Off time of the remote controller.



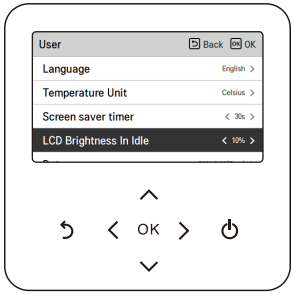
Value		
15 seconds	30 seconds (default)	1 minute

CAUTION

- Selecting longer stand by screen will decrease LCD lifespan.

LCD Brightness In Idle

Adjust the remote controller's screen brightness.



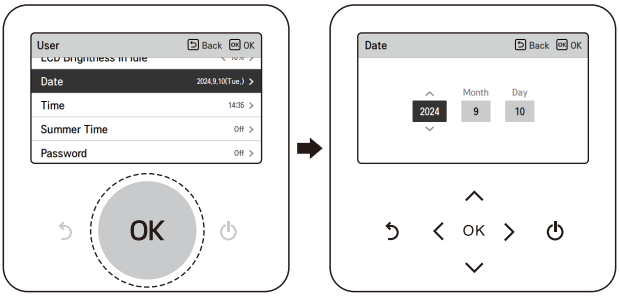
Value			
0 %	10 % (default)	20 %	30 %

CAUTION

- Selecting brighter stand by screen will decrease LCD lifespan.

Date

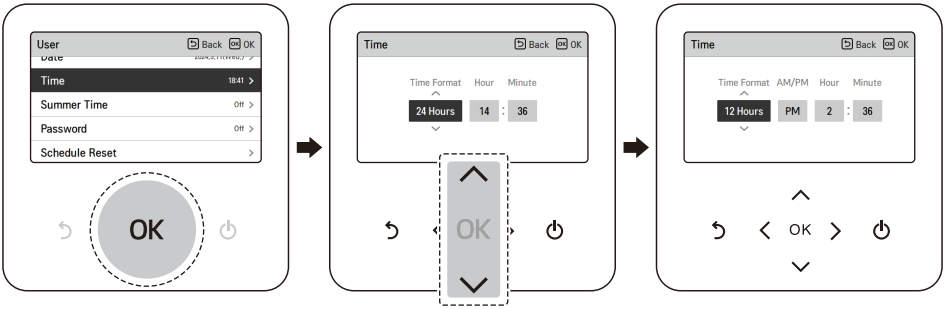
Set the date displayed on the remote controller.



Time

Set the time displayed on the remote controller.

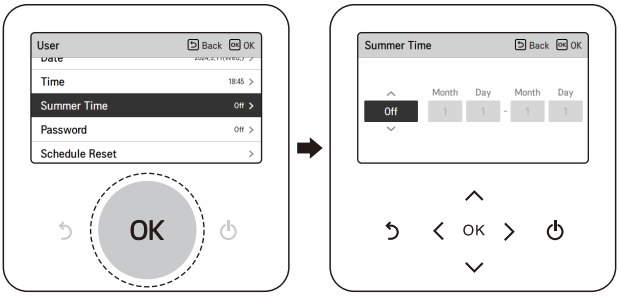
- In the screen, Time display can be presented in the form of AM / PM or 24 hours standard.



Summer Time

Set the daylight savings time dates in the remote controller.

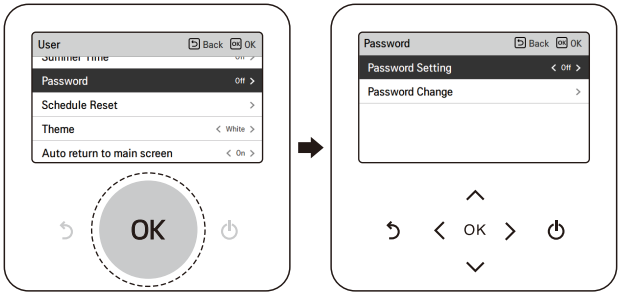
- Summer time: The system to advance the time by 1 hour from the spring when the day is longer and return back in the fall when the day gets shorter.
- When it becomes AM 02:00 on the DST start date, the current time changes to AM 03:00, and when it becomes AM 02:00 of the DST end date, the current time changes to AM 01:00.



Password

Set the password to prevent unauthorized change to remote controller settings.

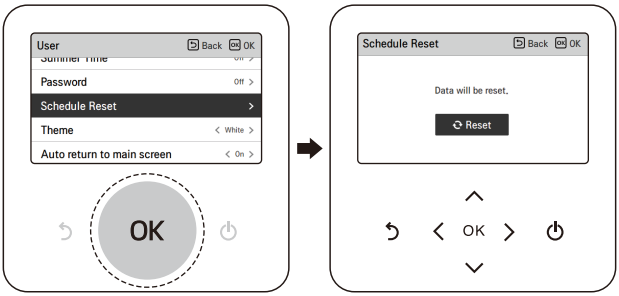
- If the password is set, when you enter “menu – setting”, you need to input password to enter the setting list.
- When you forgot the password, you can initialize the password using the installer setting’s “password initialization”.
- The initialized password is “0000”.



Schedule Reset

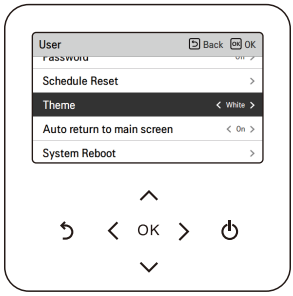
Initialize all timer settings in the remote controller.

- Enter the 'Schedule Reset' screen and press the [**OK**] button to reset Slee/Simple timer, On/Off timer, schedules and exception days in the remote controller.



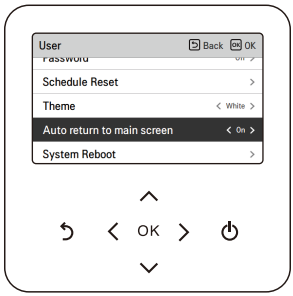
Theme

Set the theme of the remote controller screen.



Auto return to main screen

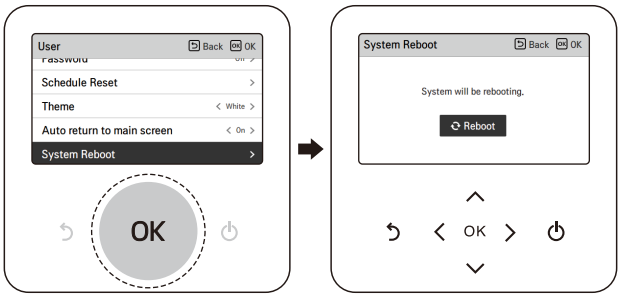
Set the auto return mode.



System Reboot

Restart the remote controller.

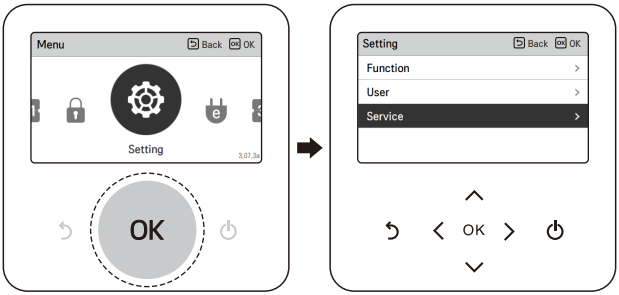
- In the user setting list, select the system restart setting category, and press [**OK**] button to move to the detail screen.
  - In the detail screen, when you press [**OK**] button, a popup message is displayed, press the [**OK**] button, to restart the system.
  - For forced reset, press down [**On/Off** + **Back**] button for 5 seconds to restart the system.



SERVICE SETTING

How to enter service setting

To enter the menu displayed at the bottom, you need to enter the service setting menu as follows.

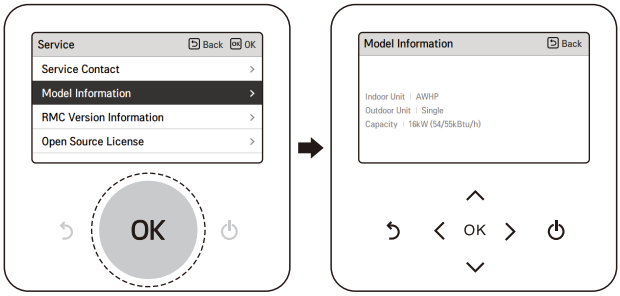


Service Contact

View Service Contact for service telephone no. A phone number must be entered for this in advance. Ask to enter phone number when installing.

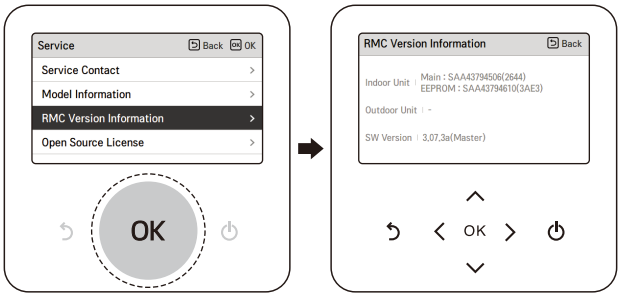
Model Information

View Model Information (Model /Serial No / Capacity).



RMC Version Information

View Model Information (Model /Serial No / Capacity).



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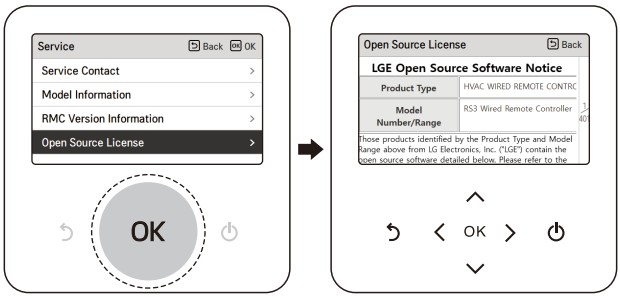
View Model Information (Model /Serial No / Capacity).



USING THERMOSTAT

The term "thermostat", which is widely used in this chapter, is a kind of 3rd party accessory. LG Electronics does not supply thermostat and it should be supplied 3rd party manufacturers.

Room thermostat can be used for easy and convenience control. To utilize thermostat more efficiently and correctly, this chapter presents information about using thermostat.

When thermostat is interlocked, the subject of Thermo On / Off is limited to the thermostat.

CAUTION

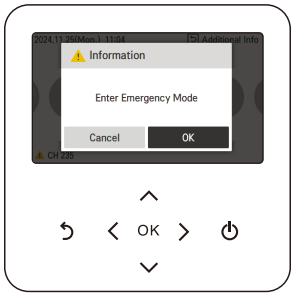
- Some electro-mechanical type thermostat has internal delay time to protect compressor. In that case, mode change can takes time more than user's expectation. Please read thermostat manual carefully if the product does not response quickly.
- Setting temperature range by thermostat can be different with that of the product. The heating or cooling set temperature should be chosen within the setting temperature range of the product.

How to use thermostat

To find how to turn on and off, how to set target temperature, how to change operating mode, etc, please refer thermostat operating manual provided by thermostat manufacturer.

EMERGENCY OPERATION

- If your heat pump has an error, a pop-up window will appear on the screen. In any case you should note down the Error code displayed and inform your installer or authorized service center.
- If an electrical heater is connected, Emergency operation might be possible - depending how severe the error is. Refer to the table for more information.



Emergency operation is not automatically restarted after main electricity power is reset.

- In normal condition, the product operating information is restored and automatically restarted after main electricity power is reset.
- But in emergency operation, automatic re-start is prohibited to protect the product.
- Therefore, user must restart the product after power reset when emergency operation has been running.

Error Code List

		Critical trouble / Error	Heavy trouble	Slight trouble	Option trouble
Description		Problem which can stop system operation, and can be resumed only after certificated professional's check.	Compressor cycle trouble. Emergency mode operation is performed by optional electric heater.	In most case, this trouble is concerned with sensor problems.	A problem is found for Option operation such as water tank heating.
Priority [1]		1	2	3	4
Availability of Emergency mode	Heat pump cycle	X	X	O	O[2]
	Backup heater	X	O[3]	O	O[2]
Related error codes		03, 09, 14, 15, 16, 20	02, 05, 06	01, 17, 18, 19	08, 13

1) If more than one trouble occurs (“Duplicated trouble”), the trouble with higher priority defines the consequences (whether Emergency operation is possible or not).

2) Operation possible without optional function that has trouble. For instance, when DHW sensor is broken (CH08), hot water heating is not available.

3) Heating operation only. Not possible to use Cooling function.

※ Energy consumption will increase while using Emergency mode. It should not be used for long periods.

- Main PCB assembly (Indoor)

Error Code	Description	Main Reasons
01*	Problem in Remote Room Air sensor	Remote air temperature sensor of Main PCB(indoor) is open or short.
02**	Problem in Refrigerant (Inlet side) sensor	Refrigerant inlet pipe temperature sensor of indoor unit is open or short..
03****	Communication error between indoor unit and wired remote controller	Communication between wired remote controller and indoor unit is not possible.
05**	Communication error between Main PCB(Indoor) and Main PCB(Outdoor Cycle)	There is no communication between the Main PCB(Indoor) and the Main PCB(Outdoor cycle).
06**	Problem in Refrigerant pipe sensor (Outlet side)	Refrigerant outlet pipe temperature sensor of indoor unit is open or short.
08***	Problem in Water Tank sensor	Domestic hot water tank temperature sensor of indoor unit is open or short.
09****	PCB Program (EEPROM) Fault	The optional EEPROM is loosely inserted in or disconnected from the Main PCB(Indoor)
13***	Problem in Solar-thermal sensor	Solar pipe temperature sensor of indoor unit is open or short.
14****	Problem in Flow rate	Low flow detection during pump operation
15****	Overheating of water pipe	The temperature of the water pipe has exceeded a certain temperature.
16****	Problems in sensors	An error code 17,18,19 error has occurred at the same time.
17*	Problem in Water-inlet sensor	Water inlet pipe temperature sensor of indoor unit is open or short.
18*	Problem in Water-outlet sensor	Water outlet pipe temperature sensor of indoor unit is open or short.
19*	Problem in Elec/Heater Water-outlet sensor	Electric backup heater outlet temperature sensor of indoor unit is open or short.
20****	Electric heater overheated	Fuse of electric heater is blown due to overheat.

- Notice of error code
  - Slight Trouble : *
  - Heavy Trouble : **
  - Other Trouble(O-Trouble) : ***
  - Critical Trouble / Error : ****

MAINTENANCE AND SERVICE

Maintenance activities

In order to ensure optimal availability of the unit, a number of checks and inspections on the unit and the field wiring have to be carried out at regular intervals, preferably yearly. This maintenance should be carried out by your local agreed technician.

When the unit is not going....

CAUTION

- If the product is not used for long time, we strongly recommend not to switch off the power supply to the product.
- If the unit is not used and switch off the power supply to the unit for long time, we strongly recommend to drain off all water in the unit by certificated person.
- When the power is applied for the first time, operate the product after preheating for 2 hours. To protect the unit by increasing the oil temperature of the compressor.
- If power is not supplied, some special product-protecting actions (such as water pump anti-locking) will not performed.

Call the service immediately in the following situations

- Anything abnormal such as burning smell, loud noise etc. happen. Stop the unit and turn the breaker off. Never try to repair by yourself or restart the system in such cases.
- Main power cord is too hot or damaged.
- Error code is generated by self diagnosis.
- Water leaks from unit.
- Any switch, breaker (safety, earth) or fuse fails to work properly.
- User must carry routine checkup & cleaning to avoid unit's poor performance.
- In case of special situation, the job must be carried out by the only service person.

⚠ CAUTION

- If the heating water contains antifreeze agent (glycole), do not drain the fluid into a sink, but collect it in a suitable container.
- Do not touch the water if it contains antifreeze agent.
- If the product has a leakage, do not operate the unit and contact dealer, seller or an authorized service center.

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