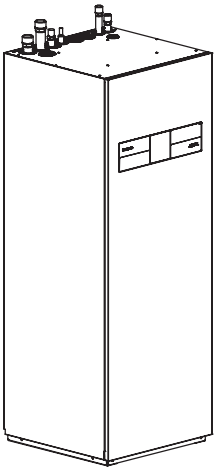
Panasonic

Operating Instructions

Air-to-Water Hydromodule + Tank



Model No.

Indoor Unit
WH-ADC0309K3E5
WH-ADC0309K6E5
WH-ADC0309K3E5AN
WH-ADC0309K6E5AN

Outdoor Unit
WH-UDZ03KE5
WH-UDZ05KE5
WH-UDZ07KE5
WH-UDZ09KE5

ENGLISH

Before operating the system, please read these operating instructions thoroughly and keep them for future reference.

WEB-ACXF55-34130-EN

Thank you for purchasing Panasonic product.

Installation Instructions attached.

Serial number and production year please refer to name plate.

Table of contents

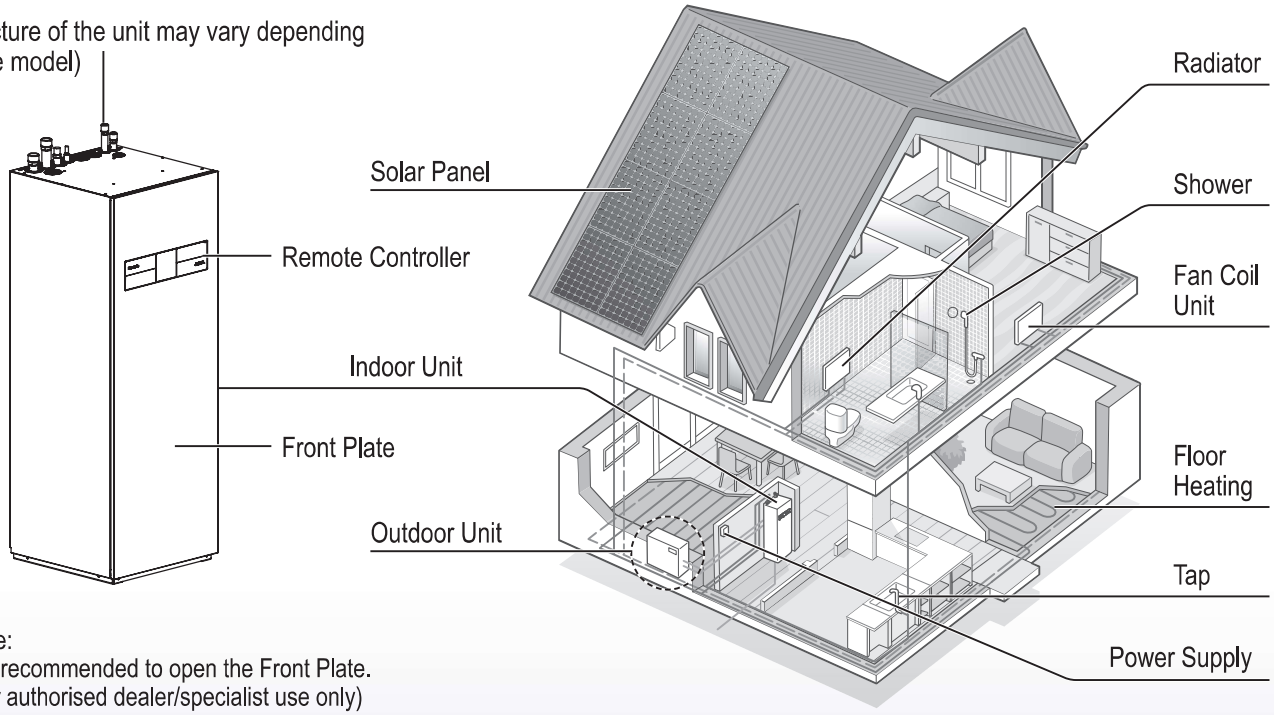
Before use, make sure the system has been installed correctly by an authorised dealer according to the given instructions.

- **Panasonic Air-to-Water** is a split system, consisting of two units: indoor and outdoor units. The indoor unit consist of the hydromodule and 200L sanitary water tank.
- These operating instructions describe how to operate the system using the indoor and outdoor units.
- As for the operation of other products such as radiator, external thermo controller, and underfloor units, refer to the operating instructions of each product.
- System could be locked to operate in HEAT mode and disable COOL mode.
- Some functions described in this manual may not be applicable to your system.
- Ensure that incoming water is clean. When water tapped from a private well or spring water, it may be necessary to supplement with an extra water filter.
- Do avoid using water containing salt, acid, and other impurities which may corrode the tank and its component.
- Consult your nearest authorised dealer for further information.

*1 The system is locked to operate without COOL mode. It can be unlocked only by authorised installers or our authorised service partners.
*2 Only displayed when COOL mode is unlocked (This means when COOL mode is available)

System overview

(Structure of the unit may vary depending on the model)



Note:
Not recommended to open the Front Plate.
(For authorised dealer/specialist use only)

The illustrations in this manual are for explanation purposes only and may differ from the actual unit.
They are subject to change without notice for future improvement.

Children aged from 3 to 8 years are only allowed to operate the tap connected to the water heater.

Operating conditions

	WH-UDZ series		*1, *2 COOLING (CIRCUIT)
	HEATING (TANK)	HEATING (CIRCUIT)	
Water outlet temperature (°C) (Min. / Max.)	- / 65*3	20 / 55 (Below Ambient -15 °C) *4 20 / 60 (Above Ambient -10 °C) *4	5 / 20
Outdoor ambient temperature (°C) (Min. / Max.)	-20 / 35 (WH-UDZ03KE5) -25 / 35 (WH-UDZ05/07/09KE5)		10 / 43

When the outdoor temperature is out of the range in the table, the heating capacity will drop significantly and the outdoor unit may stop operating for its protection.
The unit will restart automatically after the outdoor temperature returns to the specified range.
*3 Above 55 °C, only possible with backup heater operation.
*4 Between outdoor ambient -10 °C and -15 °C, the water outlet temperature gradually decreases from 60 °C to 55 °C.

Safety precautions

To prevent personal injury, injury to others or property damage, please comply with the following:
Incorrect operation due to failure to follow instructions below may cause harm or damage, the seriousness of which is classified as below:

⚠ **WARNING**	This sign warns of death or serious injury.
⚠ **CAUTION**	This sign warns of injury or damage to property.

The instructions to be followed are classified by the following symbols:

	This symbol denotes an action that is PROHIBITED.
	These symbols denote actions COMPULSORY.

⚠ WARNING

Indoor unit and outdoor unit

This appliance can be used by children aged from 3 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.

Please consult an authorised dealer or specialist to clean the internal parts, repair, install, remove, disassemble and reinstall the unit. Improper handling will cause leakage, electric shock or fire.

Confirm with authorised dealer or specialist on usage of any specified refrigerant type. Using refrigerant type other than the specified may cause product damage, burst and injury etc.

Do not use means to accelerate the defrosting process or to clean, other than those recommended by manufacturer.
Any unfit method or using incompatible material may cause product damage, burst and serious injury.

Do not install the unit in a potentially explosive or flammable atmosphere. Failure to do so could result in fire.

Do not insert your fingers or other objects into the Air to water indoor or outdoor unit, rotating parts may cause injury.

Do not touch the outdoor unit during lightning, it may cause electric shock.

Do not sit or step on the unit, you may fall down accidentally.

Do not install the indoor unit outdoors. This is designed for indoor installation only.

Power supply

Do not use a modified cord, joint cord, extension cord or unspecified cord to prevent overheating and fire.

To prevent overheating, fire or electric shock:

- Do not share the same power outlet with other equipment.
- Do not operate with wet hands.
- Do not over bend the power supply cord.

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

This unit is equipped with Residual Current Circuit Breaker/Earth Leakage Circuit Breaker (RCCB/ELCB). Ask an authorised dealer to check RCCB/ELCB operation regularly, especially after installation, inspection, and maintenance. RCCB/ELCB malfunction may result in electric shock and/or fire.

It is strongly recommended that Install Residual Current Device (RCD) on-site to prevent electric shock and/or fire.

Before obtaining access to terminals, all supply circuits must be disconnected.

Stop using the product if any abnormality/failure occurs and disconnect the power supply. (Risk of smoke/fire/electric shock)
Examples of abnormality/failure

- RCCB/ELCB trips frequently.
- Burning smell is observed.
- Abnormal noise or vibration of the unit is observed.
- Hot water leaks from the indoor unit.

Contact your local dealer immediately for maintenance/repair.

Wear gloves during inspection and maintenance.

This equipment must be earthed to prevent electrical shock or fire.

Prevent electric shock by switching off the power supply:
-Before cleaning or servicing,
-When extended non-use.

This appliance is for multiple uses. To avoid electric shock, burn and/or fatal injury, make sure to disconnect all power supplies before accessing any terminal in the indoor unit.

⚠ CAUTION

Indoor unit and outdoor unit

Do not wash the indoor unit with water, benzine, thinner or scouring powder to avoid damage or corrosion at the unit.

Do not install the unit close to any combustibles or at bathroom. Otherwise, it may cause electric shock and/or fire.

Do not touch the sharp aluminium fin, sharp parts may cause injury.

Do not use the system during sterilisation in order to prevent scalding with hot water, or overheating of shower.

Do not dismantle the unit for cleaning purpose to avoid injury.

Do not step onto an unstable bench when cleaning the unit to avoid injury.

Do not place a vase or water container on the unit. Water may enter the unit and degrade the insulation. This may cause an electric shock.

Prevent water leakage by ensuring drainage pipe is:
- Connected properly,
- Kept clear of gutters and containers, or
- Not immersed in water

After a long period of use or use with any combustible equipment, aerate the room regularly.

After a long period of use, make sure the installation rack does not deteriorate to prevent the unit from falling down.

Remote Controller

Do not wet the Remote Controller. Failure to do so may result in electric shock and/or fire.

Do not press the buttons on the Remote Controller using hard and sharp objects. Failure to do so may cause damage to the unit.

Do not wash the Remote Controller using water, benzine, thinner or scouring powder.

Do not inspect or maintain the Remote Controller by yourself. Consult an authorised dealer in order to prevent personal injury caused by incorrect operation.

⚠ WARNING

This appliance is filled with R32 (mild flammable refrigerant).
If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.

Indoor unit and outdoor unit

The appliance shall be installed, and/or operated in a room with floor area larger than A_{min} (m²) and keep away from ignition sources, such as heat/sparks/open flame or hazardous areas such as gas appliances, gas cooking, reticulated gas supply systems or electric cooking appliances, etc. (Refer to Installation instructions table for A_{min} (m²))

Be aware that refrigerant may not contain an odour, highly recommended to ensure suitable flammable refrigerant gas detectors are present, operating and able to warn of a leak.

Keep any required ventilation openings clear of obstruction.

Do not pierce or burn as the appliance is pressurized. Do not expose the appliance to heat, flame, sparks, or other sources of ignition. Else it may explode and cause injury or death.

Precaution for using R32 refrigerant

The basic installation work procedures are the same as conventional refrigerant (R410A, R22) models.

Since the working pressure is higher than that of refrigerant R22 models, some of the piping and installation and service tools are special. Especially, when replacing a refrigerant R22 model with a new refrigerant R32 model, always replace the conventional piping and flare nuts with the R32 and R410A piping and flare nuts on the outdoor unit side. For R32 and R410A, the same flare nut on the outdoor unit side and pipe can be used.

The mixing of different refrigerants within a system is prohibited. Models that use refrigerant R32 and R410A have a different charging port thread diameter to prevent erroneous charging with refrigerant R22 and for safety.
Therefore, check beforehand.
[The charging port thread diameter for R32 and R410A is 1/2 inch.]

Must always ensure that foreign matter (oil, water, etc.) does not enter the piping. Also, when storing the piping, securely seal the opening by pinching, taping, etc. (Handling of R32 is similar to R410A.)

- Operation, maintenance, repairing and refrigerant recovery should be carried out by trained and certified personnel in the use of flammable refrigerants and as recommended by the manufacturer. Any personnel conducting an operation, servicing or maintenance on a system or associated parts of the equipment should be trained and certified.

Safety precautions

- Any part of refrigerating circuit (evaporators, air coolers, AHU, condensers or liquid receivers) or piping should not be located in the proximity of heat sources, open flames, operating gas appliance or an operating electric heater.
- The user/owner or their authorised representative shall regularly check the alarms, mechanical ventilation and detectors, at least once a year, where as required by national regulations, to ensure their correct functioning.
- A logbook shall be maintained. The results of these checks shall be recorded in the logbook.
- In case of ventilations in occupied spaces shall be checked to confirm no obstruction.
- Before a new refrigerating system is put into service, the person responsible for placing the system in operation should ensure that trained and certified operating personnel are instructed on the basis of the instruction manual about the construction, supervision, operation and maintenance of the refrigerating system, as well as the safety measures to be observed, and the properties and handling of the refrigerant used.
- The general requirement of trained and certified personnel are indicated as below:
  a) Knowledge of legislation, regulations and standards relating to flammable refrigerants; and,
  b) Detailed knowledge of and skills in handling flammable refrigerants, personal protective equipment, refrigerant leakage prevention, handling of cylinders, charging, leak detection, recovery and disposal; and,
  c) Able to understand and to apply in practice the requirements in the national legislation, regulations and Standards; and,
  d) Continuously undergo regular and further training to maintain this expertise.
  e) Air-conditioner piping in the occupied space shall be installed in such a way to protect against accidental damage in operation and service.
  f) Precautions shall be taken to avoid excessive vibration or pulsation to refrigerating piping.
  g) Ensure protection devices, refrigerating piping and fittings are well protected against adverse environmental effects (such as the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris).
  h) Expansion and contraction of long runs piping in refrigerating systems shall be designed and installed securely (mounted and guarded) to minimize the likelihood hydraulic shock damaging the system.
  i) Protect the refrigerating system from accidental rupture due to moving furniture or reconstruction activities.
  j) To ensure no leaking, field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0.25 times the maximum allowable pressure (>1.04 MPa, max 4.15 MPa). No leak shall be detected.

1. Installation (Space)

- Product with flammable refrigerants, shall be installed according to the minimum room area, A_{min} (m^2) mentioned in Installation Instructions.
- In case of field charge, the effect on refrigerant charge caused by the different pipe length has to be quantified, measured and labelled.
- Must ensure the installation of pipe-work shall be kept to a minimum. Avoid use dented pipe and do not allow acute bending.
- Must ensure that pipe-work shall be protected from physical damage.
- Must comply with national gas regulations, state municipal rules and legislation. Notify relevant authorities in accordance with all applicable regulations.
- Must ensure mechanical connections be accessible for maintenance purposes.
- In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.
- When disposal of the product, do follow to the precautions in #12 and comply with national regulations. Always contact to local municipal offices for proper handling.

2. Servicing

2-1. Service personnel

- The system is inspected, regularly supervised and maintained by a trained and certified service personnel who is employed by the person user or party responsible.
- Ensure the actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.
- Ensure refrigerant charge not to leak.
- Any qualified 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 authorizes their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.
- 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.

2-2. Work

- 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 precautions in #2-2 to #2-8 must be followed before conducting work on the system.
- Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapour being present while the work is being performed.
- All maintenance staff and others working in the local area shall be instructed and supervised on the nature of work being carried out.
- Avoid working in confined spaces. Always ensure away from source, at least 2 meter of safety distance, or zoning of free space area of at least 2 meter in radius.
- Wear appropriate protective equipment, including respiratory protection, as conditions warrant.
- Keep all sources of ignition and hot metal surfaces away.

2-3. 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 flammable atmospheres.
- Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non sparking, adequately sealed or intrinsically safe.
- In case of leakage/spillage happened, immediately ventilate area and stay upwind and away from spill/release.
- In case of leakage/spillage happened, do notify persons down wind of the leaking/spill, isolate immediate hazard area and keep unauthorized personnel out.

2-4. 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 at hand.
- Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

2-5. No ignition sources

- No person carrying out work in relation to a refrigerating system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. They must not be smoking when carrying out such work.
- All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable 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.

2-6. 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.

2-7. 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 actual 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 may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are properly protected against being so corroded.

2-8. Checks to electrical devices

- Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures.
- Initial safety checks shall include but not limit to:-
  - That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking.
  - That there no live electrical components and wiring are exposed while charging, recovering or purging the system.
  - That there is continuity of earth bonding.
- At all times the manufacturer's maintenance and service guidelines shall be followed.
- If in doubt consult the manufacturer's technical department for assistance.
- 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.
- The owner of the equipment must be informed or reported so all parties are advised thereinafter.

3. Repairs to sealed components

- During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc.
- If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
- Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.
- Ensure that apparatus is mounted securely.
- Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres.
- Replacement parts shall be in accordance with the manufacturer's specifications.

NOTE: The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment.
Intrinsically safe components do not have to be isolated prior to working on them.

4. Repair to intrinsically safe components

- Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
- Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere.
- The test apparatus shall be at the correct rating.
- Replace components only with parts specified by the manufacturer. Unspecified parts by manufacturer may result ignition of refrigerant in the atmosphere from a leak.

5. 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.

6. Detection of flammable refrigerants

- Under no circumstances shall potential sources of ignition be used in the searching or detection of refrigerant leaks.
- A halide torch (or any other detector using a naked flame) shall not be used.

7. The following leak detection methods are deemed acceptable for all refrigerant systems

- No leaks shall be detected using detection equipment with sensitivity to detect leakage of 5g/year of refrigerant or better under a pressure of at least 0.25 times the maximum allowable pressure (>1.04 MPa, max 4.15 MPa), for example, a universal sniffer.
- Electronic leak detectors may be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may 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, for example, bubble method and fluorescent method agents. The use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
- 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. The precautions in #8 must be followed to remove the refrigerant.

8. Removal and evacuation

- When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to: remove refrigerant -> purge the circuit with inert gas -> evacuate -> purge with inert gas -> open the circuit by cutting or brazing.
- The refrigerant charge shall be recovered into the correct recovery cylinders.
- The system shall be purged with OFN to render the appliance safe.
- This process may need to be repeated several times.
- Compressed air or oxygen shall not be used for this task.
- Purging shall be achieved by breaking the vacuum in the system with OFN 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.
- When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.
- This operation is absolutely vital if brazing operations on the pipe work are to take place.
- Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and there is ventilation available.

OFN = oxygen free nitrogen, type of inert gas.

9. 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 minimize 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).
  - Extreme care shall be taken not to over fill the refrigerating system.
- Prior to recharging the system it shall be pressure tested with OFN (refer to #7).
- 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.
- Electrostatic charge may accumulate and create a hazardous condition when charging and discharging the refrigerant. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before charging/discharging.

10. Decommissioning

- Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details.
- 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.

a) Become familiar with the equipment and its operation.

b) Isolate system electrically.

c) Before attempting the procedure ensure that:

- mechanical handling equipment is available, if required, for handling refrigerant cylinders;
- all personal protective equipment is available and being used correctly;
- the recovery process is supervised at all times by a competent person;
- recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.

e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

f) Make sure that cylinder is situated on the scales before recovery takes place.

g) Start the recovery machine and operate in accordance with instructions.

h) Do not over fill cylinders. (No more than 80 % volume liquid charge).

i) Do not exceed the maximum working pressure of the cylinder, even temporarily.

j) 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.

k) Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

- Electrostatic charge may accumulate and create a hazardous condition when charging or discharging the refrigerant. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before charging/discharging.

11. Labelling

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

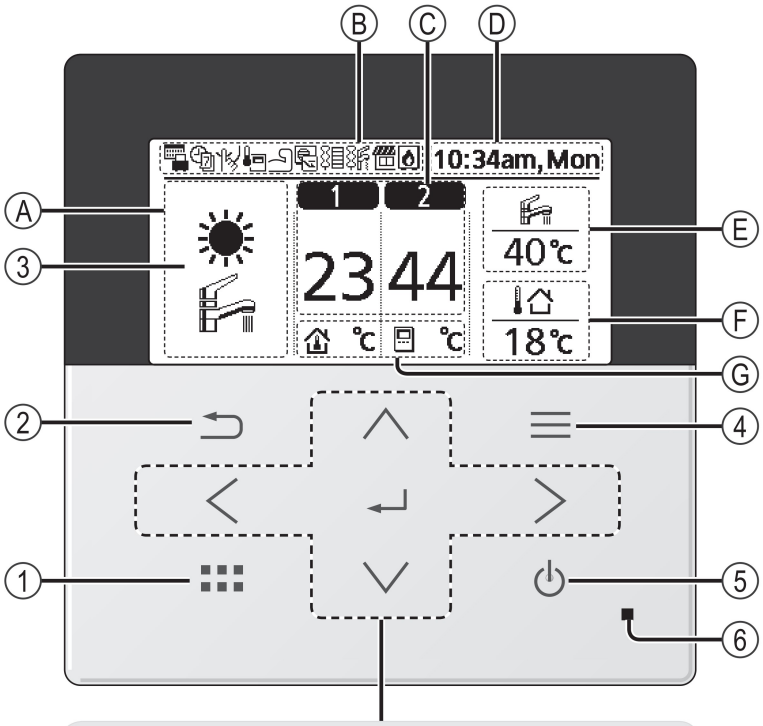
12. Recovery

- When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice 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 are 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.
- 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 flammable refrigerants.
- 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.
- Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.
- The recovered refrigerant shall be returned to the refrigerant supplier 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 evacuation process shall be carried out prior to returning the compressor to the suppliers.
- Only electric heating to the compressor body shall be employed to accelerate this process.
- When oil is drained from a system, it shall be carried out safely.

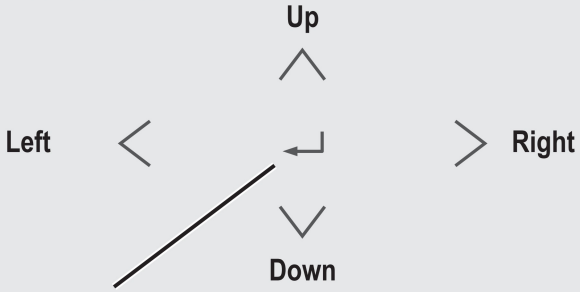
Remote Controller buttons and display

The LCD display as shown in this manual are for instructional purpose only, and may differ from the actual unit.

Buttons / Indicator	
①	**Quick Menu button**
②	**Back button** Returns to the previous screen
③	**LCD Display** (Actual - Dark background with white icons)
④	**Main Menu button** For function setup
⑤	**ON/OFF button** Starts/Stops operation
⑥	**Operation indicator** Illuminates during operation, blinks during alarm.

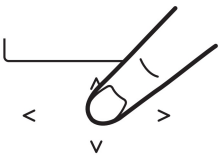


Cross key buttons
Selects an item.

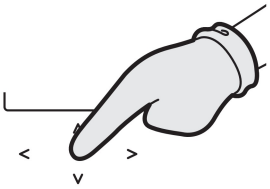


Enter button
Fixes the selected content.

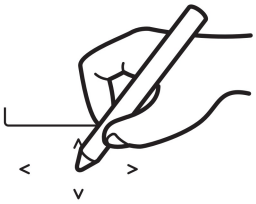
Press centre



No glove



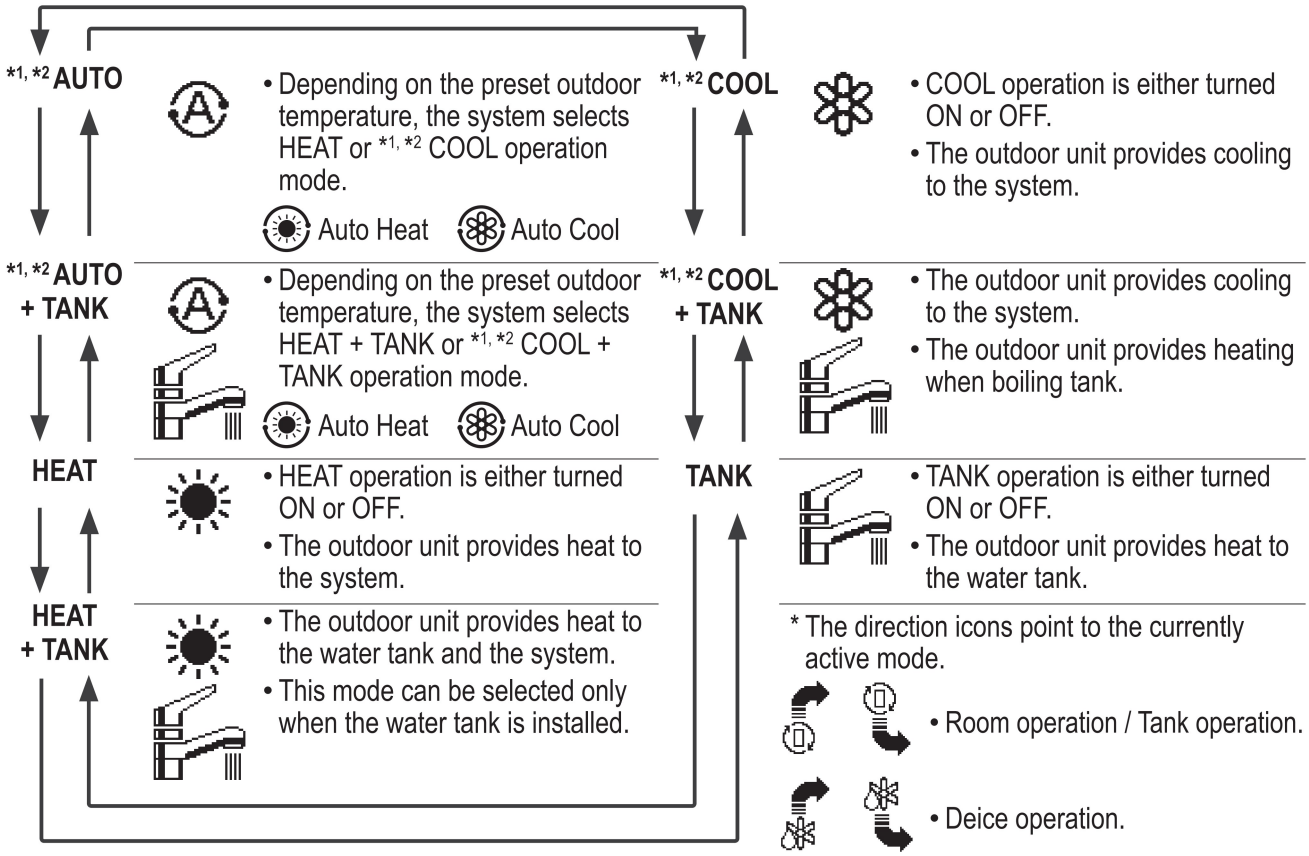
No pen



Remote Controller buttons and display

Display

Ⓐ **Mode selection**



Ⓑ **Operation icons**

The status of operation is displayed.
Icon will not display (under operation OFF screen) whenever operation is OFF except weekly timer.

- Holiday operation status
- Weekly Timer operation status
- Quiet operation status
- Zone:Room Thermostat →Internal sensor status
- Powerful operation status
- Demand Control or SG ready or SHP status
- Room Heater status
- Tank Heater status
- Solar status
- Bivalent status (Boiler)

Ⓒ **Temperature of each zone**

Ⓓ **Time and day**

Ⓔ **Water Tank temperature**

Ⓕ **Outdoor temperature**

Ⓖ **Sensor type/Set temperature type icons**

- Water Temperature →Compensation curve
- Water Temperature →Direct
- Pool only
- Room Thermostat →External
- Room Thermostat →Internal
- Room Thermistor

*1 The system is locked to operate without COOL mode. It can be unlocked only by authorised installers or our authorised service partners.
*2 Only displayed when COOL mode is unlocked (This means when COOL mode is available).

Initialization

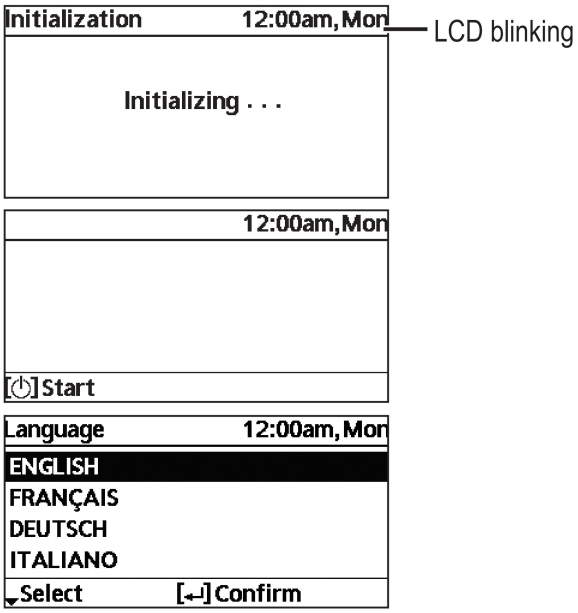
Before starting to install the various menu settings, please initiate the Remote Controller by selecting the language of operation and installing the date and time correctly.
When power is turned on for the first time, it becomes the setting screen automatically. It can also be set from personal setting of the menu.

Selecting the language

Wait while the display is initializing.
When initializing screen ends, it turns to normal screen.
When any button is pressed, language setting screen appears.

① **Scroll with ∨ and ∧ to select the language.**

② **Press ↵ to confirm the selection.**



Setting the clock

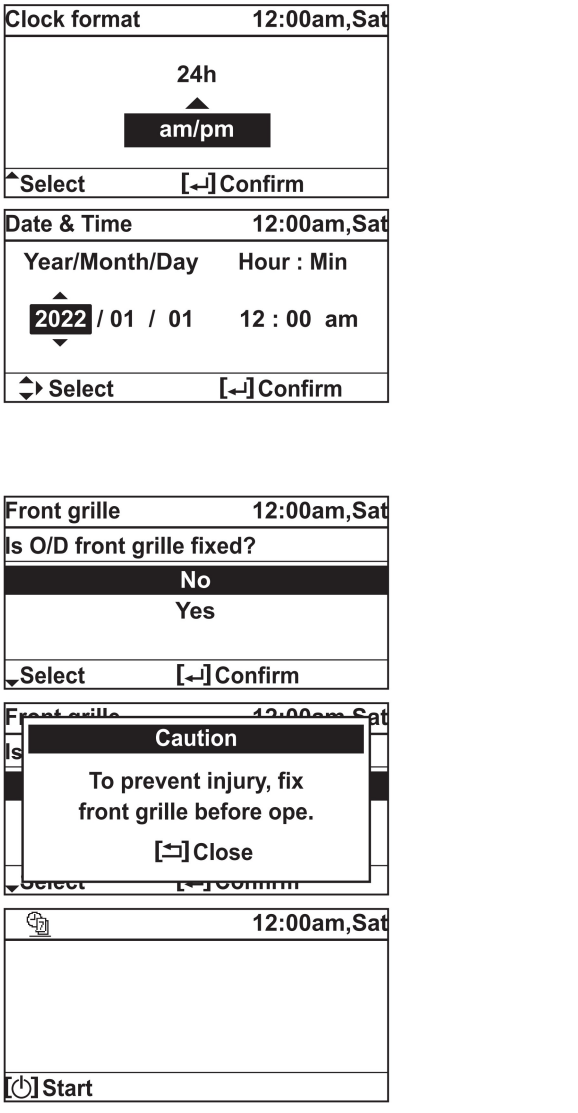
① **Select with ∨ or ∧ how to display the time, either 24h or am/pm format (for example, 15:00 or 3:00 pm).**

② **Press ↵ to confirm the selection.**

③ **Use ∨ and ∧ to select year, month, day, hour and minutes. (Select and move with > and press ↵ to confirm.)**

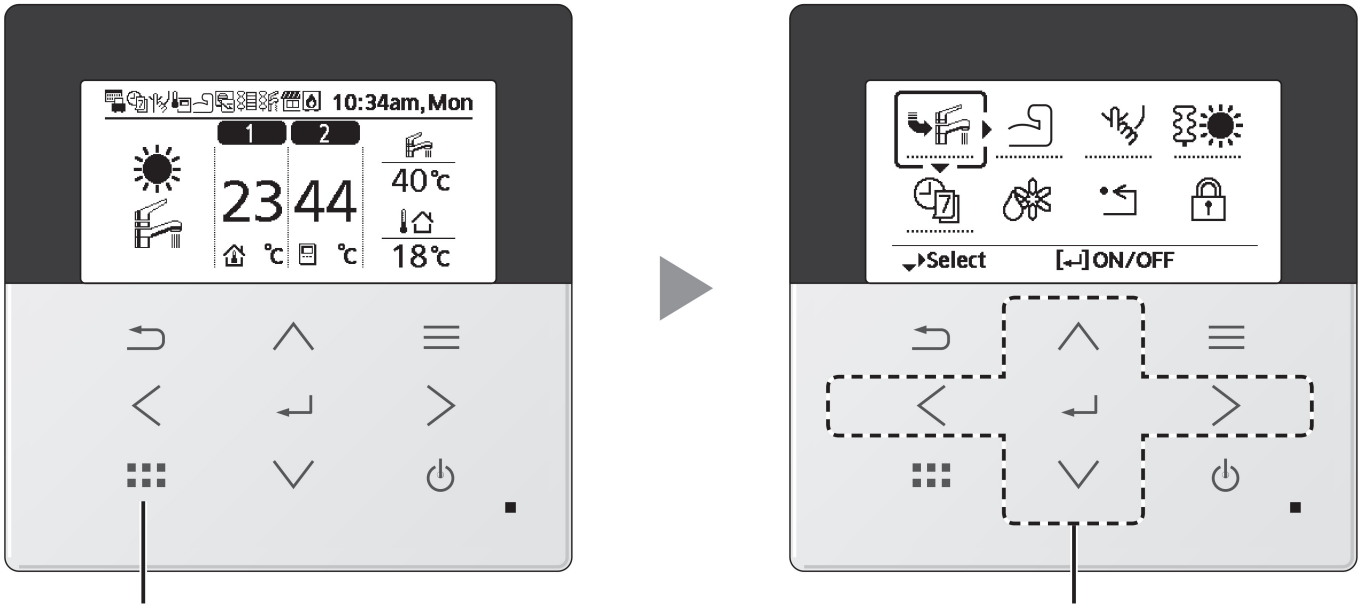
④ **Once the time is set, time and day will appear on the display even if the Remote Controller is turned OFF.**

⑤ **Final precaution step to check and confirm whether outdoor front grille is fixed before operating the unit for safety purpose.**
Select Yes if outdoor front grille is already fixed. Then it will proceed to main screen.
Select No if outdoor front grille is not yet fixed. A caution message will pop up to remind on the installation.



Quick Menu

After the initial settings have been completed, you can select a quick menu from the following options and edit the setting.



① Press ⋮⋮⋮ to display the quick menu.

② Use ∧ ∨ < > to select menu.

③ Press ↵ to turn on/off the select menu.

Quick Menu

Force DHW	Powerful	Quiet	Force Heater
Weekly Timer	Force Defrost	Error Reset	R/C Lock

Select	Select each setting and confirm the setting according to the instructions displayed at the bottom of the screen. (The icons refer to each selection key.)
[↵] ON/OFF	

To return to the Main Screen,

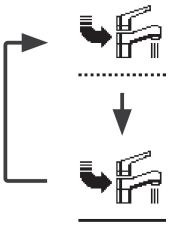
Press ⋮⋮⋮ or ↩ .

How to use the Quick Menu

Force DHW

Select this icon to turn the Tank DHW on or off.

Press ↵ to confirm your selection.



• Force DHW is turned off.

• Force DHW is turned on.

Note:

• Force DHW is disabled when Force Heater is turned on.

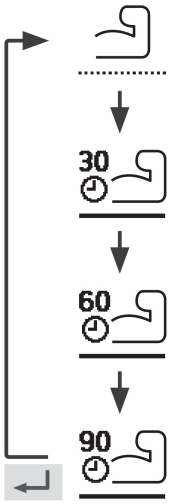
• When Force DHW is turned off, operation & mode should change back to the previous memorized status.

Powerful

Select this icon to operate the heating/cooling system powerfully.

Press ↵ to confirm your selection.

(The powerful operation starts approximately 1 minute after ↵ is pressed.)



• Powerful mode is set off.

• The Powerful mode operates for 30 minutes.

• The Powerful mode operates for 60 minutes.

• The Powerful mode operates for 90 minutes.

Note:

• Powerful is disabled when operation is turned OFF.

How to use the Quick Menu

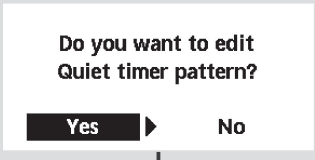
Quiet

Select this icon to operate quietly.

Press ↵ to confirm your selection.

(The quiet operation starts approximately 1 minute after ↵ is pressed.)

- • Quiet mode is set off.
- ↵
- • The Quiet mode operates at level 1.
- ↵
- • The Quiet mode operates at level 2.
- ↵
- • The Quiet mode operates at level 3.
  Level 3 is the most quiet mode.
- ↵
- • Select this to set a timer for the Quiet mode operation.
- After 1 sec delay.



Select "Yes".

• Select "Yes" using < > buttons.

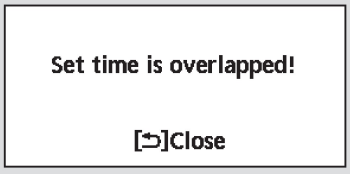
Select pattern "1" ~ "6".

Select "Edit".

• If you select "Delete", the timer setting of the selected pattern will be deleted.

Set the hour and minutes.

Select the level of Quiet.



Note:

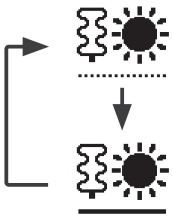
• If the time overlaps with another pattern, "Set time is overlapped!" will appear on the screen.

Force Heater

Select to force the Heater on.

Press ↵ to confirm your selection.

(The Force Heater mode starts approximately 1 minute after ↵ is pressed.)

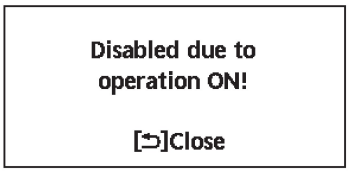


• Force Heater is turned off.

• Force Heater is turned on.

Note:

• Force Heater is disabled whenever operation is already on and “Disabled due to operation ON!” will be displayed.



How to use the Quick Menu

Weekly Timer

Select this icon to delete (cancel) or change the pre-set Weekly Timer.

Press ↵ to confirm your selection.

• Timer is not ON.

• Timer is set.

After 1 sec delay.

Select "Yes".

• If you select "No", the screen will return to the Main Screen.

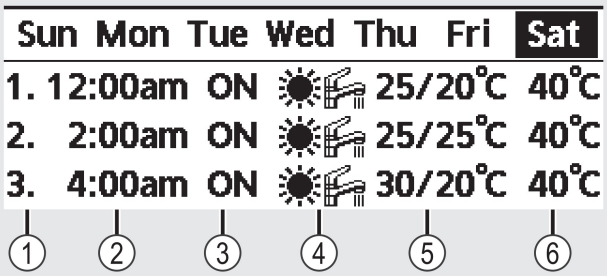
• Timer setup: Select Timer setup to edit the Weekly Timer.

• Timer copy: Select to copy a timer setting.

[Example of a Timer setup]

Select the day(s) which you wish to edit using ∧ ∨ buttons.

If all 6 patterns are not preset, this screen will be displayed.



① **Select pattern "1" ~ "6".**

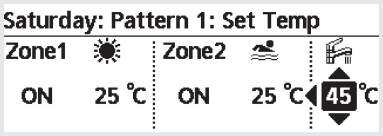
② **Set the hour and minutes of the Timer.**

③ **Select ON/OFF of the Timer.**

④ **Select the operation mode.**

• Select mode using ∧ ∨ buttons.

⑤ **Set the temperature for both Zone 1 and 2 (if your system has the 2-Zone setting).**



⑥ **Set the Tank temperature.**

Note:

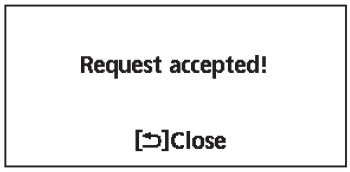
• Timer is disabled when Force Heater is turned on or Heat-Cool SW is enabled.

• If you have preset the Weekly Timer on 2 zones, you must repeat the same procedure with Zone 2.

Force Defrost

Select to defrost the frozen pipes.

Press ↵ to confirm your selection.
(When the mode is accepted, below screen will be displayed.)



Error Reset

Select to restore the previous settings when error has occurred.

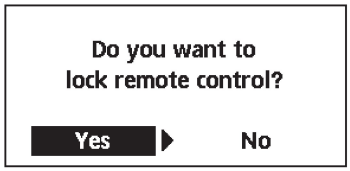
Press ↵ to confirm your selection.
(When the mode has been accepted, below screen will be displayed.)

- Make sure all units are turned off before selecting this mode which restores the whole system to the previous settings.

R/C Lock

Select to lock the Remote Controller.

Press ↵ to confirm your selection.
(When the mode has been accepted, below screen will be displayed.)



Select "Yes".
(The Main Screen will be locked.)

- If "No" is selected, the screen will return to the Main Screen.

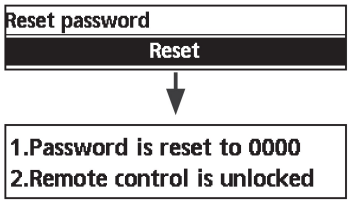
To unlock the Remote Controller

Press any key.
(When the mode has been accepted, below screen will be displayed.)

Enter any 4 digits of number (if the number is correct, the screen will be unlocked).

To reset forgotten password (under operation OFF screen)

Press ⮌ , ↵ and ＞ continuously for 5 seconds.
(When the mode has been accepted, below screen will be displayed.)



Select "Reset".

(The screen will be off after 3 seconds.)

Menus For user

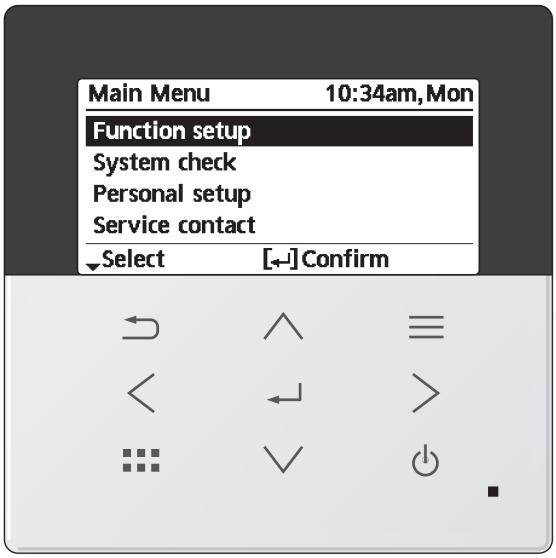
Select menus and determine settings according to the system available in the household. All initial settings must be done by an authorised dealer or a specialist. It is recommended that all alterations of the initial settings are also done by an authorised dealer or a specialist.

- After initial installation, you may manually adjust the settings.
- The initial setting remains active until the user changes it.
- The Remote Controller can be used for multiple installations.
- Ensure the operation indicator is OFF before setting.
- The system may not work properly if set wrongly. Please consult an authorised dealer.

To display <Main Menu>:

To select menu:

To confirm the selected content:

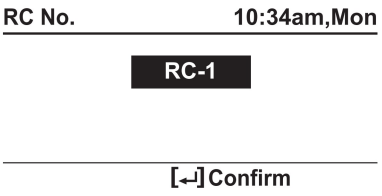
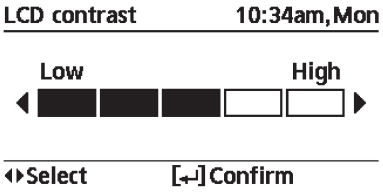
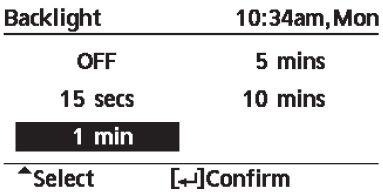
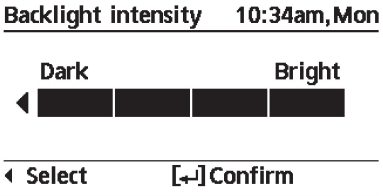
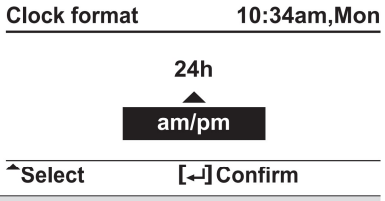
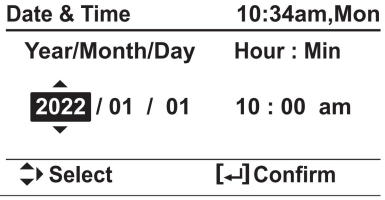


Menu	Default Setting	Setting Options / Display
1 Function setup		
1.1 > Weekly timer		
Once the weekly timer is set up, User can edit from Quick Menu. To set up to 6 patterns of operation on a daily basis. • Disabled if Heat-Cool SW is select "Yes" or if Force Heater is on.	**Timer setup** Select day of the week and set the patterns needed (Time / Operation ON/OFF / Mode)	Weekly timer 10:34am,Mon Sun Mon Tue Wed Thu Fri Sat 1. 8:00am ON 40℃ 2. 12:00pm ON 24/28℃ 40℃ 3. 1:00pm ON 12/10℃ ◆Day ▼Pattern [↵]Edit
	Timer copy Select day of the week	
1.2 > Holiday timer		
To save energy, a holiday period may be set to either turn OFF the system or lower the temperature during the period.	OFF	ON OFF
	> ON	
	Holiday start and end. Date and time	Holiday: End 10:34am,Mon Year/Month/Day Hour : Min 2022 / 01 / 01 10 : 00 am ◆Select [↵]Confirm
	OFF or lowered temperature	
• Weekly timer setting may be temporarily disabled during Holiday timer setting but it will be restored once the Holiday timer is completed.		
1.3 > Quiet timer		
To operate quietly during the preset period. 6 patterns may be set. Level 0 means the mode is off.	Time to start Quiet : Date and time	Quiet 10:34am,Mon Pattern Time Level 1 8:00am 0 2 5:00pm 1 3 11:00pm 3 ▼Select [↵]Edit
	Level of quietness: 0 ~ 3	

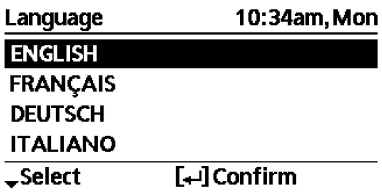
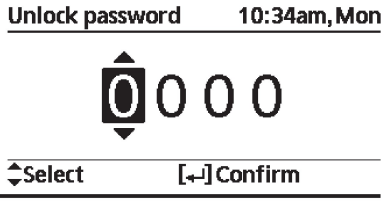
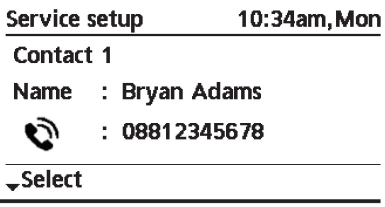
Menu	Default Setting	Setting Options / Display
1.4 > Quiet priority		
• To select priority during Quiet mode between Sound and Capacity. • If Sound priority is selected, unit will operate in quiet condition only. • If Capacity priority is selected, unit will operate in quiet condition but it will prioritize on providing required capacity at the same time.	Sound	Sound Capacity
1.5 > Room heater		
To set the room heater ON or OFF.	OFF	ON OFF
1.6 > Tank heater		
To set the tank heater ON or OFF.	OFF	ON OFF
1.7 > Sterilization		
To set the auto sterilization ON or OFF.	ON	ON OFF
• Do not use the system during sterilization in order to prevent scalding with hot water, or overheating of shower. • Ask an authorised dealer to determine the level of sterilization function field settings according to the local laws and regulations.		
1.8 > DHW mode (Domestic Hot Water)		
To set the DHW mode to Standard or Smart. • Standard mode have faster DHW Tank heat up time. Meanwhile Smart mode take longer time to heat up DHW time with lower energy consumption.	Standard	Standard Smart
To set the tank sensor to Top or Center. • Selection of the tank sensor to top slow down the start of boiling up the tank and reduce power consumption. Please change this selection to “Center” when the hot water becomes insufficient.	Top	Top Center

Menu	Default Setting	Setting Options / Display
2 System check		
2.1 > Energy monitor		
Present or historical chart of energy consumption, generation or COP.	**Present** Select and retrieve **Historical chart** Select and retrieve	Total consumption (1year) 0.0 kWh 1year 1 2 3 4 5 6 7 8 9 10 11 12 CMth Jan, 2022: 0.0 kWh Approx. Month Mode
• COP= Coefficient of Performance. • For historical chart, the period is selected from 1 day/1 week/1year. • Energy consumption (kWh) of heating, *1, *2 cooling, tank and total may be retrieved. • The total power consumption is an estimated value based on AC 230 V and may differ from value measured by precise equipment.		
2.2 > System information		
Shows all system information in each area.	**Actual system information of 11 items: Inlet / Outlet / Zone 1 / Zone 2 / Tank / Buffer tank / Solar / Pool / COMP frequency / Pump flowrate / Water pressure** Select and retrieve	System information 10:34am,Mon 1. Inlet : 0℃ 2. Outlet : 0℃ 3. Zone 1 : 0℃ 4. Zone 2 : 0℃ Page
2.3 > Error history		
• Refer to Troubleshooting for error codes. • The most recent error code is displayed at the top.	Select and retrieve	Error history 10:34am,Mon 1. -- 2. -- 3. -- 4. -- [↵] Clear history
2.4 > Compressor		
Shows the compressor performance.	Select and retrieve	Compressor 10:34am,Mon 1. Current frequency : 0 Hz 2. (OFF-ON) counter : 0 3. Total ON time : 0 h [⮌] Back
2.5 > Heater		
Total hours of ON time for Room heater/Tank heater.	Select and retrieve	Heater 10:34am,Mon Total ON time : 0h : 0h [⮌] Back

*1 The system is locked to operate without COOL mode. It can be unlocked only by authorised installers or our authorised service partners.
*2 Only displayed when COOL mode is unlocked (This means when COOL mode is available).

Menu	Default Setting	Setting Options / Display
3 Personal setup		
3.1 > Remote control No.		
• To display remote control number of a particular remote controller so that installer and end user are well informed. • Main remote controller is displayed as RC-1. Second remote controller is displayed as RC-2.	Select and retrieve	
3.2 > Touch sound		
Turns the operation sound ON/ OFF.	ON	
3.3 > LCD contrast		
Sets the screen contrast.	3	
3.4 > Backlight		
Sets the duration of screen backlight.	1 min	
3.5 > Backlight intensity		
Sets screen backlight brightness.	4	
3.6 > Clock format		
Sets the type of clock display.	am/pm	
3.7 > Date & Time		
Sets the present date and time.	Year / Month / Day / Hour / Min	

Menus For user

Menu	Default Setting	Setting Options / Display
3.8 > Language		
Sets the display language for the top screen.	ENGLISH / FRANÇAIS / DEUTSCH / ITALIANO / ESPAÑOL / DANISH / SWEDISH / NORWEGIAN / POLISH / CZECH / NEDERLANDS / TÜRKÇE / SUOMI / MAGYAR / SLOVENŠČINA / HRVATSKI / LIETUVIŲ / PORTUGUÊS / БЪЛГАРСКИ / EESTI / LATVIEŠU / ROMÂNĂ / SHQIP / SLOVENČINA / МАКЕДОНСКИ / УКРАЇНСЬКА / ΕΛΛΗΝΙΚΑ	
3.9 > Unlock password		
4 digit password for all the settings.	0000	
4 Service contact		
4.1 > Contact 1 / Contact 2		
Preset contact number for installer.	Select and retrieve	

Menu	Default Setting	Setting Options / Display

5 Installer setup > System setup

5.1 > Optional PCB connectivity

To connect to the external PCB required for servicing.	No	Yes No

• If the external PCB is connected (optional), the system will have following additional functions:

① Control over 2 zones (including the swimming pool and the function to heat water in it).
② Solar function (the solar thermal panels connected to either the DHW (Domestic Hot Water) Tank or the Buffer Tank.
• DHW is not applicable for WH-ADC *models.
③ External compressor switch.
④ External error signal.
⑤ SG ready control.
⑥ Demand control.
⑦ Heat-Cool SW

5.2 > Zone & Sensor

To select the sensors and to select either 1 zone or 2 zone system.	**Zone** • After selecting 1 or 2 zone system, proceed to the selection of room or swimming pool. • If the swimming pool is selected, the temperature must be selected for △T temperature between 0°C ~ 10 °C.	Zone & Sensor 10:34am,Mon Zone 1 Zone system 2 Zones system Select [↵] Confirm
	Sensor * For room thermostat, there is a further selection of external or internal. • If select internal, there is a further selection of RC-1 or RC-2 (only available when Zone selection is 1 zone system). Select RC-1 if main remote controller's thermistor is to be used for room temperature control and vice versa.	Zone & Sensor 10:34am,Mon Sensor Water temperature Room thermostat Room thermistor Select [↵] Confirm

5.3 > Heater capacity

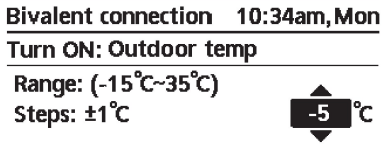
To reduce the heater power if unnecessary.* 3 kW / 6 kW / 9 kW * Options of kW vary depending on the model.		Heater capacity 10:34am,Mon 3 kW [↵] Confirm

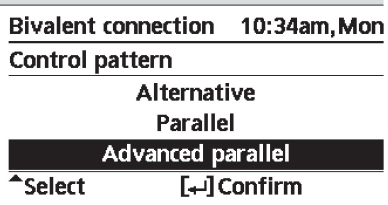
5.4 > Anti freezing

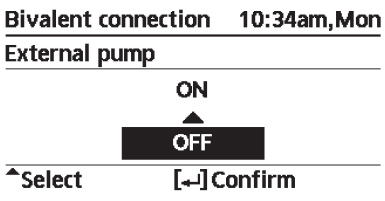
To activate or deactivate the water freeze prevention when the system is OFF	Yes	Yes No

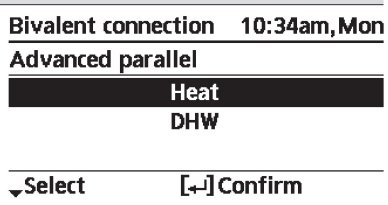
Menu	Default Setting	Setting Options / Display
5.5 > DHW capacity		
To select tank heating capacity to variable or standard. Variable capacity heat up tank with fast mode and keep the tank temperature with efficient mode. While standard capacity heat up tank with rated heating capacity.	Variable	Variable Standard
5.6 > Buffer tank connection		
To connect tank to the system and if selected YES, to set △T temperature.	No	Yes No
	> Yes	
	5 °C	Set △T for Buffer Tank Buffer tank 10:34am,Mon ΔT for Buffer tank Range: (0℃~10℃) Steps: ±1℃ 5 ℃ Select [↵] Confirm
5.7 > Base pan heater		
To select whether or not optional base pan heater is connected. * Type A - The base pan heater activates only during deice operation. * Type B - The base pan heater activates when outdoor ambient temperature is 5 °C or lower.	No	Yes No
	> Yes	
	A	Set base pan heater type*. Base pan heater type 10:34am,Mon A B Select [↵] Confirm
5.8 > Alternative outdoor sensor		
To select an alternative outdoor sensor.	No	Yes No
5.9 > Bivalent connection		
To select to enable or disable bivalent connection.	No	Yes No
> Yes		
To select either auto control pattern or SG ready input control pattern or smart control pattern. * This selection only display to select when optional pcb connection set to Yes.	Auto	Auto SG ready Smart

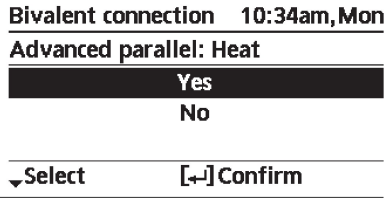
Menu	Default Setting	Setting Options / Display
To select a bivalent connection to allow an additional heat source such as a boiler to heat-up the buffer tank and domestic hot water tank when heatpump capacity is insufficient at low outdoor temperature. The bivalent feature can be set-up either in alternative mode (heatpump and boiler operate alternately), or in parallel mode (both heatpump and boiler operate simultaneously), or in advance parallel mode (heatpump operates and boiler turns on for buffer-tank and/or domestic hot water depending on the control pattern setting options).	**> Yes > Auto**	
	-5 °C	Set outdoor temperature for turn ON Bivalent connection.
	Yes > After selecting the outdoor temperature	
	Control pattern Alternative / Parallel / Advanced parallel • Select advanced parallel for bivalent use of the tanks.	
	Control pattern > Alternative	
	OFF	Option to set external pump either ON or OFF during bivalent operation. Set to ON if system is simple bivalent connection.
	Control pattern > Advanced parallel	
	Heat	Selection of the tank
	• "Heat" implies Buffer Tank and "DHW" implies Domestic Hot Water Tank.	
	Control pattern > Advanced parallel > Heat > Yes	
	• Buffer Tank is activated only after selecting "Yes".	
	-8 °C	Set the temperature threshold to start the bivalent heat source.
	0:30	Delay timer to start the bivalent heat source (in hour and minutes).
	-2 °C	Set the temperature threshold to stop the bivalent heat source.

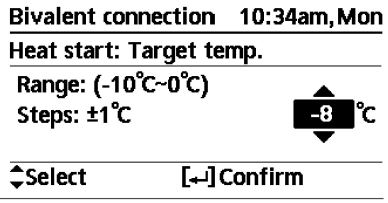


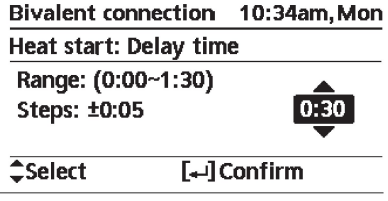


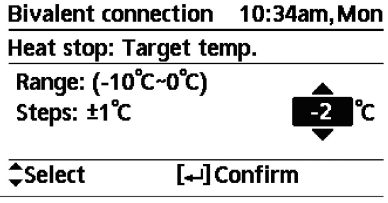




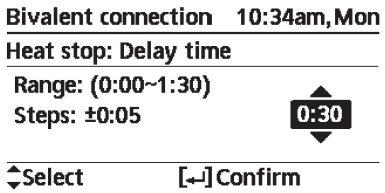


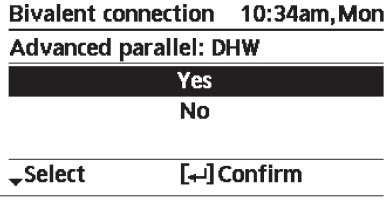


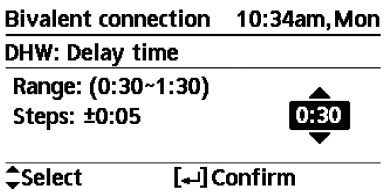




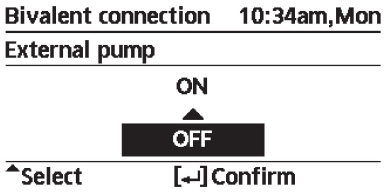
Menu	Default Setting	Setting Options / Display
	0:30	Delay timer to stop the bivalent heat source (in hour and minutes).
	Control pattern > Advanced parallel > DHW > Yes	
	• DHW Tank is activated only after selecting "Yes".	
	0:30	Delay timer to start the bivalent heat source (in hour and minutes).
SG ready input control for bivalent system follow below input condition.	**> Yes > SG ready**	
	OFF	Option to set external pump either ON or OFF during bivalent operation. Set to ON if system is simple bivalent connection.
To do settings related to electricity and boiler so that unit is able to determine whether to operate heat pump or boiler at a particular period depends on operating cost of both heat sources. These settings are electricity price, boiler price, season, schedule etc.	**> Yes > Smart**	
	OFF	Option to set external pump either ON or OFF during bivalent operation. Set to ON if system is simple bivalent connection.
	> Yes > Smart > After selecting for the external pump > Energy price	
	- Select **Electricity** to set on electricity price. - Select **Boiler** to set on boiler price and its efficiency.	

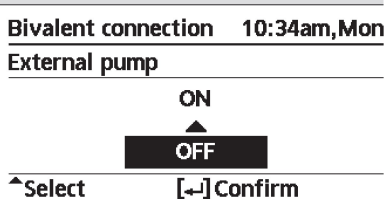


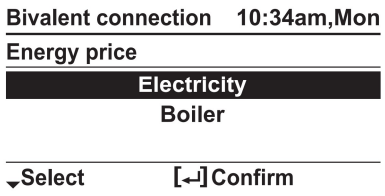


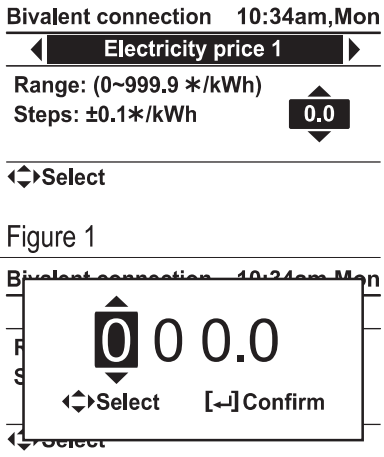
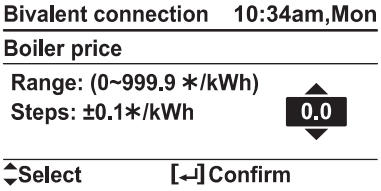
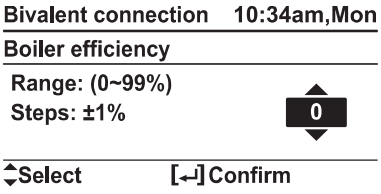


SG signal		Operation pattern
Vcc-bit1	Vcc-bit2	
Open	Open	Heat Pump OFF, Boiler OFF
Short	Open	Heat Pump ON, Boiler OFF
Open	Short	Heat Pump OFF, Boiler ON
Short	Short	Heat Pump ON, Boiler ON

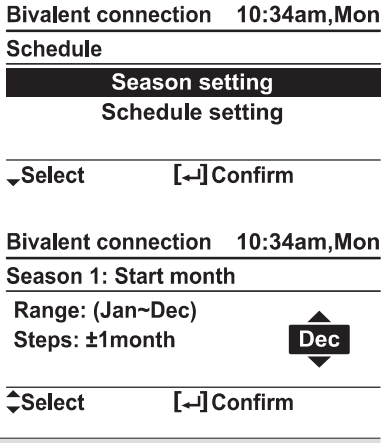
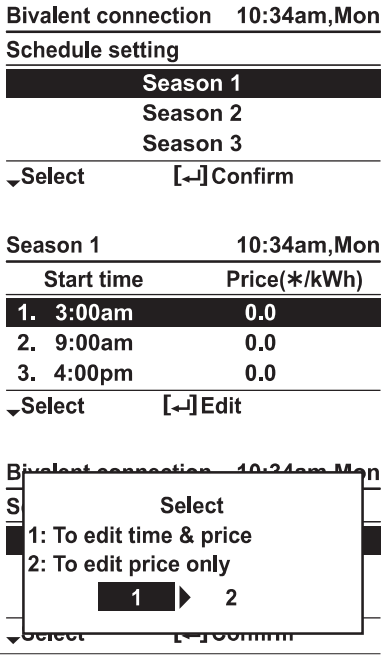


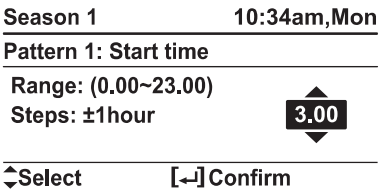
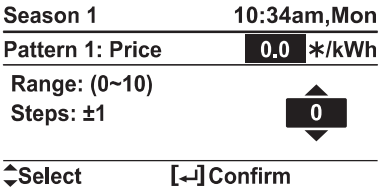
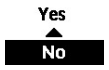
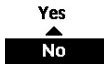
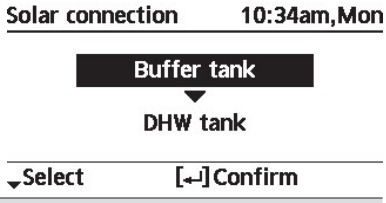
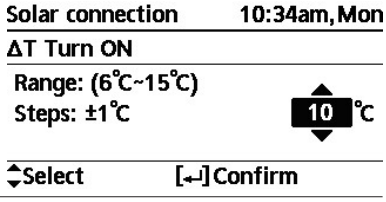




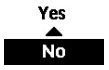
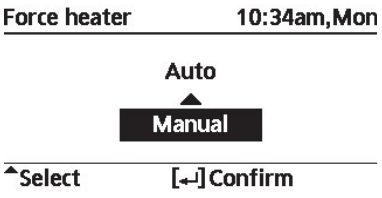
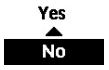
Menu	Default Setting	Setting Options / Display
	> Yes > Smart > After selecting for the external pump > Energy price > Electricity	
	0.0 * / kWh - There are total 10 different prices can be set for Electricity: Electricity price 1 ~ Electricity price 10 - Range is 0 ~ 999.9 * / kWh - Press ∧ or ∨ to enter a setting screen as shown in Figure 1. Then start setting the value of electricity price. - After finish setting a particular electricity price (eg. Electricity price 1), press < or > to go and set for other electricity price. * Set the price according to value provided by electrical supply company.	 Figure 1
	> Yes > Smart > After selecting for the external pump > Energy price > Boiler	
	0.0 * / kWh - Refer to method of Electricity price setting above for setting of boiler price. - After finish setting of boiler price, set the boiler efficiency (Range : 0 ~ 99%).	
	0% * Set the price according to value provided by boiler or gas supply company.	

Remark : * implies cents in most currency except Czech crown.

Menu	Default Setting	Setting Options / Display
	> Yes > Smart > After selecting for the external pump > Schedule > Season setting	
	Season 1 : Dec (Refers to Winter season) Season 2 : Mar (Refers to Spring season) Season 3 : Jun (Refers to Summer season) Season 4 : Oct (Refers to Autumn season) - There are total 4 seasons to be set - Set the starting month for each season. (Eg. when Season 1 is set to Dec and Season 2 is set to Mar, month of December to February will be treated as Season 1).	
	> Yes > Smart > After selecting for the external pump > Schedule > Schedule setting	
	Start time (Pattern 1) : 3:00am Start time (Pattern 2) : 9:00am Start time (Pattern 3) : 4:00pm Start time (Pattern 4) : 9:00pm - For each season, there are total 4 patterns can be set. Price (Pattern 1/2/3/4) : 1 - Set the target start time and the appropriate electricity price for each pattern. - Select “1” to edit both start time and electricity price. Select “2” to edit electricity price only.	

Menu	Default Setting	Setting Options / Display
	- Range of start time displayed can be in “24h” or “am/pm” format depend on setting of “Clock format”.	
	- Range of electricity price is 0 ~ 10 which refers back to the 10 different electricity price set previously (under “Energy price > Electricity”: Electricity price 1 ~ Electricity price 10). The price displayed on the upper right corner indicates the previous set value of Electricity price 1 to Electricity price 10. * When the price is set to “0”, the electricity price will be treated as 0.0 * / kWh. It is for the convenience of installer when 0.0 is the desired setting value for a particular time.	
5.10 > External SW		
	No	
5.11 > Solar connection		
• The optional PCB connectivity must be selected YES to enable the function. • If the optional PCB connectivity is not selected, the function will not appear on the display. • DHW is not applicable for WH-ADC *models.	No	
	> Yes	
	Buffer tank — Selection of the tank	
	> Yes > After selecting the tank	
	10 °C — Set △T ON temperature	

Menu	Default Setting	Setting Options / Display
	> Yes > After selecting the tank > △T ON temperature	
	5 °C	Set △T OFF temperature Solar connection 10:34am,Mon ΔT Turn OFF Range: (2℃~9℃) Steps: ±1℃ 5 ℃ Select [↵] Confirm
	> Yes > After selecting the tank > △T ON temperature > △T OFF temperature	
	5 °C	Set Antifreeze temperature Solar connection 10:34am,Mon Anti freeze Range: (-20℃~10℃) Steps: ±1℃ 5 ℃ Select [↵] Confirm
	> Yes > After selecting the tank > △T ON temperature > △T OFF temperature > After setting the antifreeze temperature	
	80 °C	Set Hi limit Solar connection 10:34am,Mon Hi limit Range: (70℃~90℃) Steps: ±5℃ 80 ℃ Select [↵] Confirm
5.12 > External error signal		
	No	Yes No
5.13 > Demand control		
	No	Yes No
5.14 > SG ready		
	No	Yes No
	> Yes	
	120 %	Capacity (1) & (2) of DHW (in %), Heat (in %) and Cool (in °C) SG ready 10:34am,Mon Capacity [1-0]: DHW Range: (50%~150%) Steps: ±5% 120 % Select [↵] Confirm
5.15 > External compressor SW		
	No	Yes No
5.16 > Circulation liquid		
To select whether to circulate water or glycol in the system.	Water	Circulation liquid 10:34am,Mon Water Glycol Select [↵] Confirm

Menu	Default Setting	Setting Options / Display
5.17 > Heat-Cool SW		
	No	
5.18 > Force heater		
To turn on Force heater either manually (by default) or automatically.	Manual	
5.19 > Force defrost		
If auto selection is set, outdoor unit will start defrost operation if long heating hour operate during low outdoor temperature.	Manual	
5.20 > Defrost signal		
To turn on defrost signal to stop fan coil during defrost operation. (If defrost signal set to yes, bivalent function will not available to use)	No	
5.21 > Pump flowrate		
To set variable flow pump control or fix pump duty control.	△T	
5.22 > DHW Defrost		
Allow system to run defrost by using hot water instead of room unit for better room comfort.	Yes	
5.23 > Heating control		
To select unit operation condition whether to achieve set temperature faster or to save energy.	Comfort	

Menu	Default Setting	Setting Options / Display
5.24 > External meter		
To set which external meter to be used depends on meter connection. There are generation meters and various types of electricity meters. For generation meters, there are two connection systems :- a) One generation meter system : Heat-cool meter only b) Two generation meter system : Heat-cool meter and Tank meter	Heat-cool meter : No * Tank meter : No Elec. meter HP : No Elec. meter 1 (PV) : No Elec. meter 2 (Building) : No Elec. meter 3 (Reserve) : No * Only available when Heat-cool meter select Yes	External meter 10:34am,Mon Heat-Cool meter Tank meter Elec. meter HP Elec. meter 1 (PV) Select [↵] Confirm External meter 10:34am,Mon Elec. meter HP Elec. meter 1 (PV) Elec. meter 2 (Building) Elec. meter 3 (Reserve) Select [↵] Confirm
	> Heat-cool meter	
	- Set Heat-cool meter to Yes when this generation meter is connected. - It is to measure energy generation of heat pump unit during heating, cooling and DHW operation (one generation meter system) or during heating and cooling only (two generation meter system).	Yes No
	> Tank meter	
	- Set Tank meter to Yes when this generation meter is connected. - It is to measure energy generation of heat pump unit during DHW operation. * Only available to select when Heat-cool meter is set to Yes. Only set Tank meter to Yes when the connection is two generation meter system.	Yes No
	> Elec. meter HP	
	- Set Elec. meter HP to Yes when this electricity meter is connected. - It is to measure energy consumption of heat pump unit.	Yes No
	> Elec. meter 1 (PV)	
	- Set Elec. meter 1 (PV) to Yes when this electricity meter is connected. - It is to measure energy generation of solar system. * This data will be displayed only on Cloud system.	Yes No
	> Elec. meter 2 (Building)	
	- Set Elec. meter 2 (Building) to Yes when this electricity meter is connected. - It is to measure energy consumption of the building. * This data will be displayed only on Cloud system.	Yes No

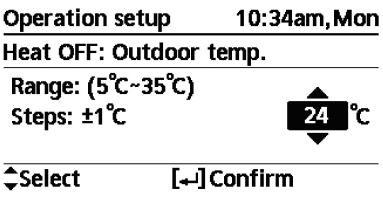
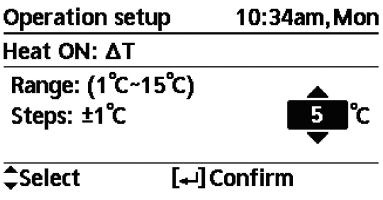
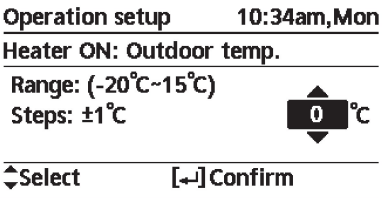
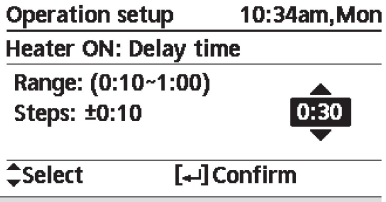
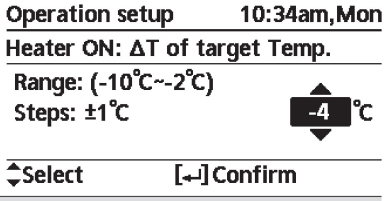
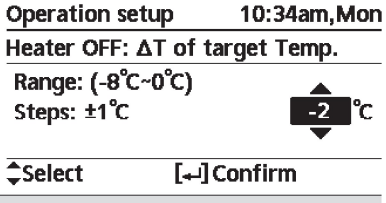
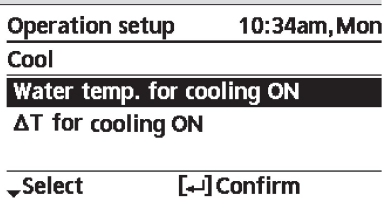
Menu	Default Setting	Setting Options / Display
	> Elec. meter 3 (Reserve)	
	- Set Elec. meter 3 (Reserve) to Yes when this electricity meter is connected. - It is to measure energy consumption * This data will be displayed only on Cloud system.	Yes ▲ No
5.25 > Electrical anode		
To enable or disable operation of electrical anode.	Yes (only for WH-ADC0309K6E5AN model) No (for non -AN models)	Yes ▼ No

(NOTE) : If [Approx.] is shown on Energy Monitor display, data displayed on the remote controller is obtained through heat pump's internal calculation.
If [Approx.] is NOT shown on Energy Monitor display, data** displayed on the remote controller is obtained by External Meters.
Data stored on the Aquarea unit can be mixed between internal calculation and External Meters.
**In order to know the exact consumption or generation, please use as reference always the External Meters' data.

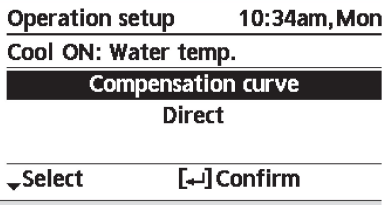
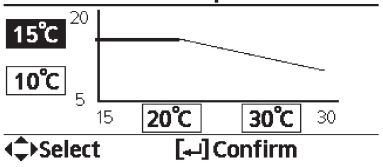
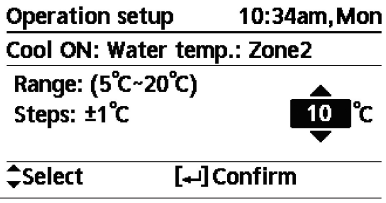
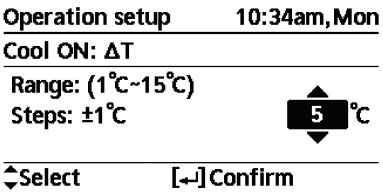
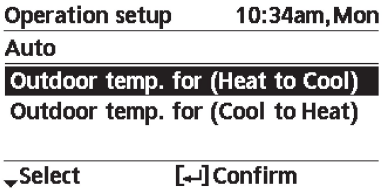
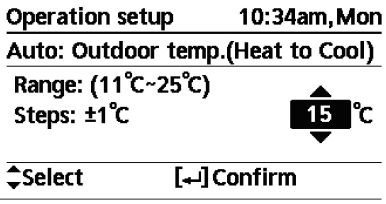
Remark : Elec. stands for "Electricity"
HP stands for "Heat pump"

Menu	Default Setting	Setting Options / Display
6 Installer setup > Operation setup		
To access to the four major functions or modes.	4 main modes Heat / *1, *2 Cool / *1, *2 Auto / Tank	Operation setup 10:34am,Mon Heat Cool Auto Tank Select [↵] Confirm
6.1 > Heat		
To set various water & ambient temperatures for heating.	Water temp. for heating ON / Outdoor temp. for heating OFF / △T for heating ON / Heater ON/OFF	Operation setup 10:34am,Mon Heat Water temp. for heating ON Outdoor temp. for heating OFF ΔT for heating ON Select [↵] Confirm
> Water temp. for heating ON		
Compensation curve	Heating ON temperatures in compensation curve or direct input.	Operation setup 10:34am,Mon Heat ON: Water temp. Compensation curve Direct Select [↵] Confirm
> Water temp. for heating ON > Compensation curve		
X axis: -5 °C, 15 °C Y axis: 55 °C, 35 °C	Input the 4 temperature points (2 on horizontal X axis, 2 on vertical Y axis).	Heat ON: Water temp.:Zone1 55℃ 60 35℃ 20 -20 -5℃ 15℃ 15 Select [↵] Confirm
• Temperature range: X axis: -20 °C ~ 15 °C, Y axis: See below • Temperature range for the Y axis input: 1. WH-UD model: 20 °C ~ 60 °C 2. WH-UH model & Back up heater is enabled: 25 °C ~ 65 °C 3. WH-UH model & Back up heater is disabled: 35 °C ~ 65 °C 4. WH-UX model: 20 °C ~ 60 °C • If 2 zone system is selected, the 4 temperature points must also be input for Zone 2. • “Zone 1” and “Zone 2” will not appear on the display if only 1 zone system.		
> Water temp. for heating ON > Direct		
35 °C	Temperature for heating ON	Operation setup 10:34am,Mon Heat ON: Water temp.:Zone2 Range: (20℃~60℃) Steps: ±1℃ 35 ℃ Select [↵] Confirm
• Min. ~ Max. range is conditional as follows: 1. WH-UD model: 20 °C ~ 60 °C 2. WH-UH model & Back up heater is enabled: 25 °C ~ 65 °C 3. WH-UH model & Back up heater is disabled: 35 °C ~ 65 °C 4. WH-UX model: 20 °C ~ 60 °C • If 2 zone system is selected, temperature set point must input for Zone 2. • “Zone 1” and “Zone 2” will not appear on the display if only 1 zone system.		

*1 The system is locked to operate without COOL mode. It can be unlocked only by authorised installers or our authorised service partners.
*2 Only displayed when COOL mode is unlocked (This means when COOL mode is available).

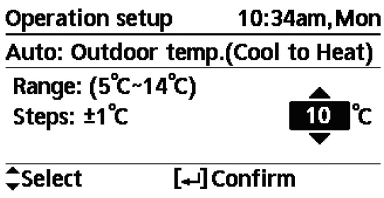
Menu	Default Setting	Setting Options / Display
	> Outdoor temp. for heating OFF	
	24 °C	Temperature for heating OFF 
	> △T for heating ON	
	5 °C	Set △T for heating ON. * This setting will not available to set when pump flowrate set to Max. duty. 
	> Heater ON/OFF	
	> Heater ON/OFF > Outdoor temp. for heater ON	
	0 °C	Temperature for heater ON 
	> Heater ON/OFF > Delay time for heater ON	
	0:30 min	Delay time for heater to turn on 
	> Heater ON/OFF > Water temperature for heater ON	
	-4 °C	Setting of water temperature to turn on from water set temperature. 
	> Heater ON/OFF > Water temperature for heater OFF	
	-2 °C	Setting of water temperature to turn off from water set temperature. 
6.2	**> *1, *2 Cool**	
To set various water & ambient temperatures for cooling.	Water temperatures for cooling ON and △T for cooling ON.	

*1 The system is locked to operate without COOL mode. It can be unlocked only by authorised installers or our authorised service partners.
*2 Only displayed when COOL mode is unlocked (This means when COOL mode is available).

Menu	Default Setting	Setting Options / Display
	> Water temp. for cooling ON	
	Compensation curve	Cooling ON temperatures in compensation curve or direct input. 
	> Water temp. for cooling ON > Compensation curve	
	X axis: 20 °C, 30 °C Y axis: 15 °C, 10 °C	Input the 4 temperature points (2 on horizontal X axis, 2 on vertical Y axis) 
	• If 2 zone system is selected, the 4 temperature points must also be input for Zone 2. • "Zone 1" and "Zone 2" will not appear on the display if only 1 zone system.	
	> Water temp. for cooling ON > Direct	
	10 °C	Set temperature for Cooling ON 
	• If 2 zone system is selected, temperature set point must input for Zone 2. • "Zone 1" and "Zone 2" will not appear on the display if only 1 zone system.	
	> △T for cooling ON	
	5 °C	Set △T for cooling ON * This setting will not available to set when pump flowrate set to Max. duty. 
6.3	**> *1, *2 Auto**	
Automatic switch from Heat to Cool or Cool to Heat.	Outdoor temperatures for switching from Heat to Cool or Cool to Heat. Outdoor temp. for (Heat to Cool) / Outdoor temp. for (Cool to Heat)	
	> Outdoor temp. for (Heat to Cool)	
	15 °C	Set outdoor temperature for switching from Heat to Cool. 

*1 The system is locked to operate without COOL mode. It can be unlocked only by authorised installers or our authorised service partners.
*2 Only displayed when COOL mode is unlocked (This means when COOL mode is available).

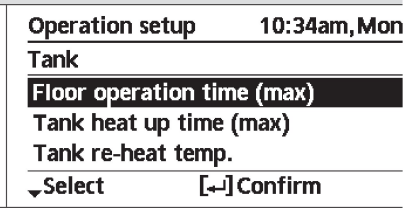
Menu	Default Setting	Setting Options / Display
	> Outdoor temp. for (Cool to Heat)	
	10 °C	Set outdoor temperature for switching from Cool to Heat.



6.4 > Tank

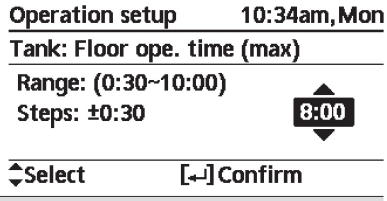
Setting functions for the tank.

	Floor operation time (max) / Tank heat up time (max) / Tank re-heat temp. / Sterilization	

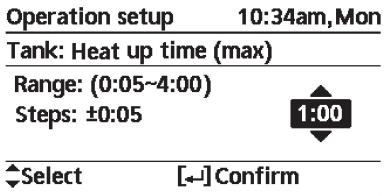


• The display will show 3 functions at a time.

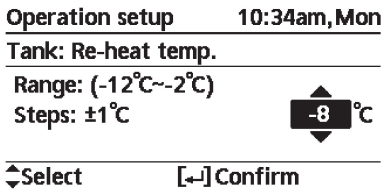
> Floor operation time (max)		
8:00	Maximum time for floor operation (in hours and minutes)	



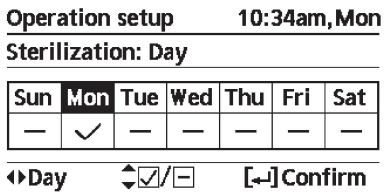
> Tank heat up time (max)		
1:00	Maximum time for heating the tank (in hours and minutes)	



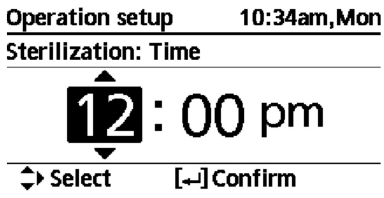
> Tank re-heat temp.		
-8 °C	Set temperature to perform reboil of tank water.	



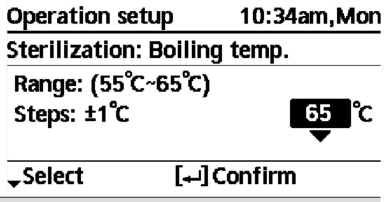
> Sterilization		
Monday	Sterilization may be set for 1 or more days of the week. Sun / Mon / Tue / Wed / Thu / Fri / Sat	

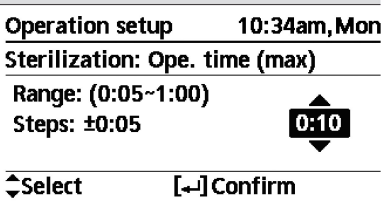


> Sterilization: Time		
12:00	Time of the selected day(s) of the week to sterilize the tank 0:00 ~ 23:59	



Menu	Default Setting	Setting Options / Display
	> Sterilization: Boiling temp.	
	65 °C	Set boiling temperatures for sterilize the tank.
	> Sterilization: Ope. time (max)	
	0:10	Set sterilizing time (in hours and minutes)





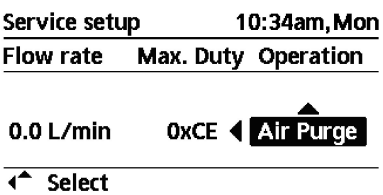
7 Installer setup > Service setup

7.1 > Pump maximum speed

To set the maximum speed of the pump.

Setting the flow rate, max. duty and operation ON/OFF of the pump.

Flow rate: XX:X L/min
Max. Duty: 0x40 ~ 0xFE,
Pump: ON/OFF/Air Purge

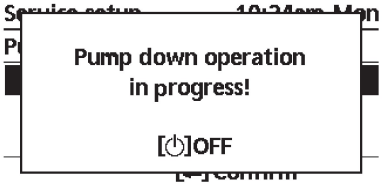


7.2 > Pump down

To set the pump down operation.

Pump down operation

ON



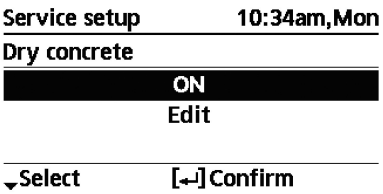
7.3 > Dry concrete

To dry the concrete (floor, walls, etc.) during construction.

Do not use this menu for any other purposes and in period other than during construction

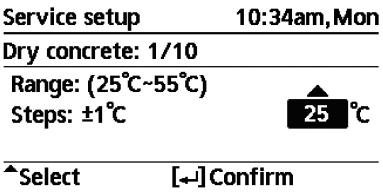
Edit to set the temperature of dry concrete.

ON / Edit



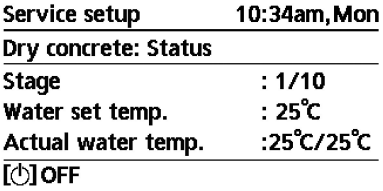
> Edit

Stages: 1 Temperature: 25 °C	Heating temperature for drying the concrete. Select the desired stages: 1 ~ 10, range: 1 ~ 99



> ON

Confirm the setting temperatures of dry concrete for each stage.



Menu	Default Setting	Setting Options / Display
7.4 > Service contact		
To set up to 2 contact names and numbers for the User.	Service engineer's name and contact number. Contact 1 / Contact 2	Service setup 10:34am,Mon Service contact: Contact 1 Contact 2 ▼Select [↵]Confirm
	> Contact 1 / Contact 2	
	Contact name or number. Name / phone icon	Service contact 10:34am,Mon Contact 1 Name : Bryan Adams : 08812345678 ▼Select [↵]Edit
	Input name and number Contact name: alphabet a ~ z. Contact number: 1 ~ 9	Contact-1 ▮ ABC/abc 0-9/Other ABCDEFGHIJKLMNOPQR Space STUVWXYZ abcdefghi BS jklmnopqrstuvwxyz Conf ◀▼▶Select [↵]Enter Number:▮ 1 2 3 (4 5 6) 7 8 9 - BS * 0 # _ Conf ◀▼▶Select [↵]Enter

8 Installer setup > Remote control setup			
• To select whether to use one remote controller or two remote controllers. • Select Single when one remote controller is connected. Select Dual when two remote controllers are connected. Second remote controller can be used for zone 2 room temperature control.	Single	Selection of one or two remote controllers.	Single ▼ Dual
		When Dual is selected, Main remote controller (RC-1) will start to communicate with second remote controller (RC-2) and display "RC-1 & RC-2 sync. in progress". They are ready to be used after this pop up screen disappears.	RC-1 & RC-2 sync. in progress!
		When both remote controllers have communication failure, it will display "Communication with RC-2 failed".	Communication with RC-2 failed! [⮌]Close

Cleaning instructions

To ensure optimal performance of the system, cleaning has to be carried out at regular intervals.
Consult an authorised dealer.

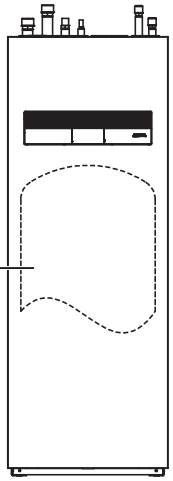
- **Disconnect the power supply before cleaning.**
- Do not use benzine, thinner or scouring powder.
- Use only soap (≃ pH7) or neutral household detergent.
- Do not use water hotter than 40 °C.

Regular Checks

Indoor unit

- Do not splash water directly.

Wipe the unit gently with a soft dry cloth.



Water pressure check

- Ensure that the water pressure is between 0.5 bar and 3.0 bar.
- In case the water pressure is out of the above range, consult an authorised dealer.
- Water pressure can be checked through following method:-
  Go to System check > System information > Water pressure

Safety relief valve

WH-ADC Hot water heater has two safety valves, one for the (TANK) and one for the (CIRCUIT).

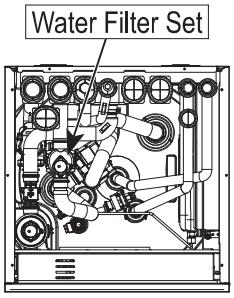
- The TANK's safety relief valve sometimes releases a little water after hot water usage. This is because the cold water, which enters the water heater, expands when heated, causing the pressure to rise and the safety valve to open.
- The CIRCUIT's safety relief valve must be completely closed and must not normally release any water.
- The functioning of the safety relief valve should be checked regularly. You can find the safety valve behind the inspection cover on the front.

Perform the checks as follows:

1. Open the valve.
2. Check that water flows through the valve.
3. Close the valve.
4. Check the system pressure, top up if required.

Water filter

- Clean the water filter at least once a year. Failure to do so may cause the filter to clog up, which may lead to system breakdown. Consult an authorised dealer.
- Please also remove dust on the magnet.



Outdoor unit

- Do not obstruct the air inlet and outlet vents. Failure to do so may result in low performance or system breakdown. Remove any obstruction to assure the ventilation.
- When it snows, clean and remove snow around the outdoor unit to prevent the air inlet and outlet vents from being covered with snow.

Tips: For extended non-use

- The water inside the Tank should be drained.
- Disconnect the power supply.

Info: Non serviceable criteria

Disconnect the power supply
then please consult an authorised dealer under the following conditions:

- Abnormal noise during operation.
- Water/foreign particles have entered the Remote Controller.
- Water leaks from the indoor unit.
- Circuit breaker switches off frequently.
- Power cord becomes excessively warm.

Maintenance

FILLING THE CIRCUIT SYSTEM

If the pressure is too low in the CIRCUIT system, it needs to be topped up. See the Installer Manual for more information.

VENTING THE CIRCUIT SYSTEM

In event of repeated filling of the CIRCUIT system, or if bubbling sounds are heard from the indoor module, the system may need venting. This is done as follows:

1. Turn off the power supply to the indoor module.
2. Vent the indoor module via the vent valves and the rest of the climate system via the relevant vent valves.
3. Keep topping up and venting until all air has been removed and the pressure is correct.

The climate system may require topping up after venting.

User

- In order to ensure optimal performance of the units, user may inspect and clear any obstruction on the air inlet and outlet vents of the outdoor unit.
- Users should not try to service or replace parts of the unit.
- Contact authorised dealer for scheduled inspection.

Dealer

- In order to ensure safety and optimal performance of the units, seasonal inspections on the units, functional check of RCCB/ELCB, field wiring and piping have to be carried out at regular intervals by authorised dealer.
- Specific to the Sanitary Water Tank, it is important to service the Water Filter Set periodically.

Troubleshooting

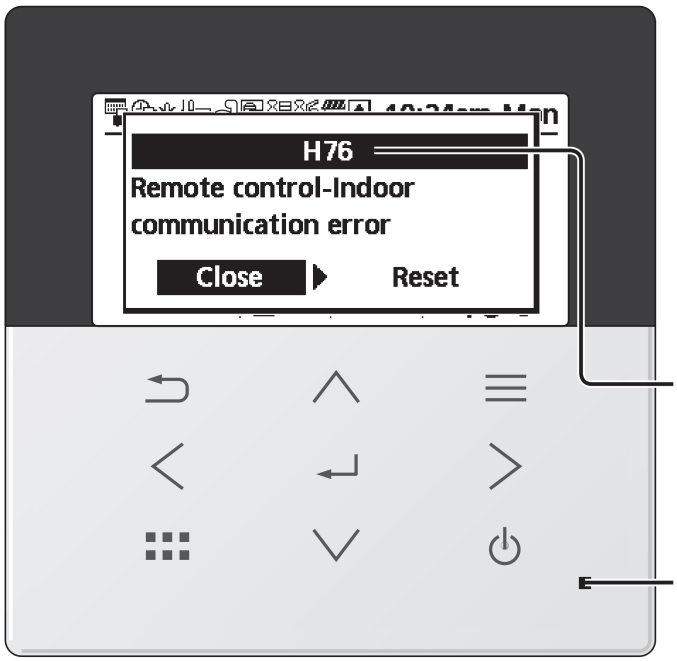
The following symptoms do not indicate malfunction.

Symptom	Cause
Water flowing sound during operation.	• Refrigerant flow inside the unit.
Operation is delayed a few minutes after restarting.	• The delay is a protection for the compressor.
Outdoor unit emits water/steam.	• Condensation or evaporation occurring in the pipes.
Steam comes out of the outdoor unit in the heating mode.	• It is caused by defrost operation in the heat exchanger.
Outdoor unit does not operate.	• It is caused by the protection control of the system when outdoor temperature is out of the operating range.
System operation switches off.	• It is caused by the protection control of the system. When the water inlet temperature is lower than 10 °C, the compressor stops and the backup heater power turns on.
System is hard to heat up.	• When the panel and the floor are heated simultaneously, warm water temperature may decrease, which may reduce the heating ability of the system. • When the outdoor air temperature is low, the system may need longer time to heat up. • Discharge outlet or intake inlet in the outdoor unit is blocked by some obstacle, such as a pile of snow. • When the preset water outlet temperature is low, the system may need longer time to heat up.
System does not heat up instantly.	• System will take some time to heat up the water if it starts to operate at cold water temperature.
Backup heater is automatically turned ON when it is disabled.	• It is caused by the protection control of the indoor unit heat exchanger.
Operation starts automatically when the timer is not set.	• Sterilization timer has been set.
Loud refrigerant noise continues for several minutes.	• It is caused by protection control during deice operation at outdoor ambient temperature lower than -10 °C.
*1, *2 COOL mode is unavailable.	• System has locked to operate in HEAT mode only.

Check the following before calling for servicing.

Symptom	Check
Operation in HEAT/*1, *2 COOL mode is not working efficiently.	• Set the temperature correctly. • Close the panel heater/cooler valve. • Clear any obstruction in the air inlet and air outlet vents of the outdoor unit.
Noisy during operation.	• Outdoor unit or indoor unit has been installed at an incline. • Close the cover properly.
System does not work.	• Circuit breaker has tripped/activated.
Operation LED is not lit or nothing is displayed on the Remote Controller.	• Power supply is working correctly, or a power failure has occurred.

*1 The system is locked to operate without COOL mode. It can be unlocked only by authorised installers or our authorised service partners.
*2 Only displayed when COOL mode is unlocked (This means when COOL mode is available).



Below is a list of error codes that may appear on the display when there is some trouble with the system setting or operation.

When the display shows an error code as indicated below, contact the number registered in the Remote Controller or a nearest authorised installer.

All switches are disabled except < > and ↵ .

Error No.	Error explanation
H12	Capacity mismatch
H15	Compressor sensor error
H20	Pump error
H21	Water pressure error
H22	Tank sensor 2 error
H23	Refrigerant sensor error
H27	Service valve error
H28	Solar sensor error
H31	Pool sensor error
H36	Buffer tank sensor error
H38	Brand mismatch error
H42	Low pressure protection
H43	Zone 1 sensor error
H44	Zone 2 sensor error
H62	Water flow error
H63	Low pressure sensor error
H64	High pressure sensor error
H65	Deice water circulation error
H67	External thermistor 1 error
H68	External thermistor 2 error
H70	Back-up heater OLP error
H72	Tank sensor 1 error
H74	PCB communication error
H75	Low water temp protection
H76	RC-1 & Indoor communication error RC-1 & RC-2 communication error
H90	Indoor-Outdoor communication error
H91	Tank heater OLP error
H95	Voltage connection error
H98	High pressure protection
H99	Indoor freeze prevention

Error No.	Error explanation
F12	Pressure switch activated
F14	Poor compressor rotation
F15	Fan motor lock error
F16	Current protection
F20	Compressor overload protection
F22	Transistor module overload protection
F23	DC peak
F24	Refrigerant cycle error
F25	*1, *2 Cool / heat cycle error
F27	Pressure switch error
F29	Low discharge super heat
F30	Water outlet sensor 2 error
F32	RC-1's internal thermostat error RC-2's internal thermostat error
F34	Indoor water heat exchanger leak
F35	External meter communication error
F36	Outdoor ambient sensor error
F37	Water inlet sensor error
F40	Outdoor discharge sensor error
F41	Power factor correction error
F42	Outdoor heat exchanger sensor error
F43	Outdoor defrost sensor error
F45	Water outlet sensor error
F46	Current transformer disconnection
F48	Evaporator outlet sensor error
F49	Bypass outlet sensor error
F50	Water inlet 2 sensor error
F51	Economizer outlet sensor error
F52	Bypass inlet sensor error
F95	*1, *2 Cooling high pressure error

* Some error code may not be applicable to your model. Consult authorised dealer for clarification.

*1 The system is locked to operate without COOL mode. It can be unlocked only by authorised installers or our authorised service partners.
*2 Only displayed when COOL mode is unlocked (This means when COOL mode is available).

Information

Information when connect to Network Adaptor (Optional Accessories Part)

⚠ WARNING

Before use, check the safety around the Air-to-Water system. Confirm human and living objects at surrounding before operation.
Incorrect operation due to failure to follow instructions may cause harm and damage.

Confirm the below before operation (inside premises)
- Timer setting condition. Unpredictable on/off operation may cause serious injury or damage to human and living objects.

Confirm the below before and during operation (outside from premises)
- If is known someone in the premises, notify the person from outside of new operation setting prior executing. This is to avoid sudden shock to the person and any serious health breakdown duly from operation changed.
- Please do not use this appliance when infant, physical dissability person or elderly who unable to operate the appliance by themselves in the premises.
- Check the setting and operation status frequently.
- Stop the operation when error code is displayed and consult an authorised dealer or specialist.

Please confirm before use
- The system may not usable when communication condition is bad. Please check “Operation Status” from the application display after operation. The following condition may happen in the remote operation.
  - Cannot operate, operation time is not reflected.
  - Air-to-Water operation is not reflected when operation is set outside of premises.
- It is recommended to lock screen the smart phone device to prevent miss-operation.
- Do not use other remote control, communication and operation device not specified by an authorised dealer or specialist.
- Use under the agreement of “Terms of Service” and “Handling of Personal Information” of Panasonic Smart Application.
- For extended non-use of Panasonic Smart Application, disconnect the network adaptor from the device.

Information for Users on Collection and Disposal of Old Equipment

Only for European Union and countries with recycling systems
These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries must not be mixed with general household waste.
For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points in accordance with your national legislation.
By disposing of them correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment.
For more information about collection and recycling, please contact your local authority.
Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union and some other European countries
If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.
[Information on Disposal in other Countries outside the European Union]
These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authority or dealer and ask for the correct method of disposal.

Symbols: Explanation of symbols that may be present in this manual.

	This symbol shows that this equipment uses a flammable refrigerant. If the refrigerant is leaked, together with an external ignition source, there is a possibility of ignition.		This symbol shows that the Operation Instructions should be read carefully.
	This symbol shows that a service personnel should be handling this equipment with reference to the Installation Instructions.		This symbol shows that there is information included in the Operation Instructions and/or Installation Instructions.