ecodan®

Renewable Heating Technology

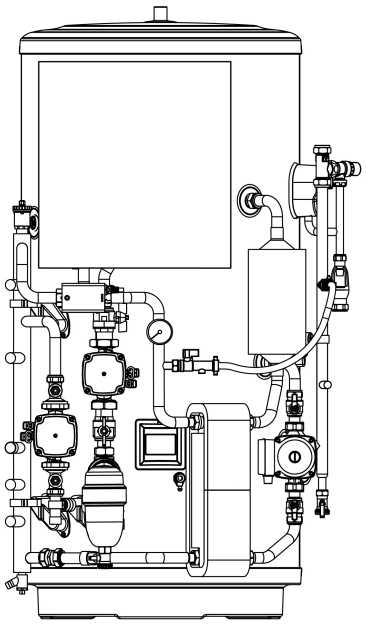
PRE-PLUMBED UNVENTED MAINS PRESSURE
WATER HEATER WITH FTC7 CONTROL SYSTEM.
FOR USE WITH ECODAN PUZ-WZ & PUZ-(H)WM
AIR SOURCE HEAT PUMP RANGE.

August 2024

Doc. No. 716858

OPERATION MANUAL

EHPT15X-UKHLEWS
EHPT17X-UKHLEWS
EHPT15X-UKHEWS
EHPT17X-UKHEWS
EHPT21X-UKHEWS
EHPT21X-UKHEWL
EHPT25X-UKHEWL
EHPT30X-UKHEWL



IMPORTANT: PLEASE READ AND UNDERSTAND THESE INSTRUCTIONS BEFORE OPERATING THE UNIT.
PLEASE LEAVE THIS MANUAL WITH THE CUSTOMER FOR FUTURE REFERNCE.

CONTENTS

For safe and correct use, please read this operation manual thoroughly before operating the unit.

Abbreviations and glossary

No.	Abbreviations/Word	Description
1	Weather compensation curve mode	Space heating/cooling incorporating outdoor ambient temperature compensation
2	Cooling mode	Space cooling through fan-coils or underfloor cooling
3	Cylinder unit	Indoor unvented DHW tank and component plumbing parts
4	DHW mode	Domestic Hot Water heating mode for showers, sinks, etc.
5	Flow temperature	Temperature of the water in the supply (flow) pipe
6	Freeze stat. function	Heating control routine to prevent water pipes freezing
7	FTC	Flow Temperature Controller, the circuit board in charge of controlling the system
8	Heating mode	Space heating through radiators or underfloor heating
9	Hydrobox	Indoor unit housing the component plumbing parts (NO DHW tank)
10	Legionella	Bacteria potentially found in plumbing, showers and water tanks that may cause Legionnaires disease
11	LP mode	Legionella Prevention mode – a function on systems with water tanks to prevent the growth of legionella bacteria
12	Packaged model	Plate heat exchanger (Refrigerant - Water) in the outdoor heat pump unit
13	PRV	Pressure Relief Valve
14	Return water temperature	Temperature of the water in the pipe system after heat or cool has been released
15	Split model	Plate heat exchanger (Refrigerant - Water) in the indoor unit
16	TRV	Thermostatic Radiator Valve – a valve on the entrance or exit of the radiator panel to control the heat output

Safety Precautions

► Before operating this unit, it is important to read the safety precautions.

► The following safety points are provided to prevent injury to yourself and damage to the unit please adhere to them.

Used in this manual

⚠ WARNING:	⚠ CAUTION:
Precautions listed under this title should be observed to prevent injury or death to the user.	**Precautions listed under this title should be observed to prevent damage to the unit.**

- **Follow the instructions provided in this manual and local regulations when using this unit.**

MEANINGS OF SYMBOLS DISPLAYED ON THE UNIT

	**WARNING** (Risk of fire)	This mark is for R32 refrigerant only. Refrigerant type is written on nameplate of outdoor unit. In case that refrigerant type is R32, this unit uses a flammable refrigerant. If refrigerant leaks and comes in contact with fire or heating part, it will create harmful gas and there is risk of fire.
	Read the OPERATION MANUAL carefully before operation.	
	Service personnel are required to carefully read the OPERATION MANUAL and INSTALLATION MANUAL before operation.	
	Further information is available in the OPERATION MANUAL, INSTALLATION MANUAL, and the like.	

⚠ ⚠WARNING

- **The unit should NOT be installed or serviced by the user. If installed incorrectly water leakage, electric shock and fire may result.**
- **NEVER block discharges from emergency valves.**
- **Do not operate the unit without emergency valves and thermostatic cut-outs being operational. If in doubt contact your installer.**
- **Do not stand on or lean on unit.**
- **Do not place objects on top or below the unit and observe service space requirements when placing objects next to the unit.**
- **Do not touch the unit or controller with wet hands as electric shock may result.**
- **Do not remove the panels of the unit or try to force objects inside the unit's casing.**
- **Do not touch protruding pipework as it may be very hot and cause burns to the body.**
- **Should the unit start vibrating or making abnormal noises stop operation, isolate from the power supply and contact the installer.**
- **Should the unit start to produce any burning smells stop operation, isolate from the power supply and contact the installer.**
- **Should water be visibly being discharged through the tundish stop operation, isolate from the power supply and contact the installer.**
- **This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.**
- **In the case of a refrigeration leak, stop the operation of the unit, thoroughly ventilate the room and contact the installer.**
- **If power supply cable is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.**
- **Do not place containers with liquids on top of the unit. If they leak or spill the unit may be damaged and fire could occur.**
- **When installing, relocating, or servicing the cylinder unit and the hydrobox, use only the heat pump's specified refrigerant to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines. If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.**
  The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.
- **In heating mode, to avoid the heat emitters being damaged by excessively hot water, set the target flow temperature to a minimum of 2ºC below the maximum allowable temperature of all the heat emitters. For Zone2, set the target flow temperature to a minimum of 5ºC below the maximum allowable flow temperature of all the heat emitters in Zone2 circuit.**
- **This appliance is primarily intended for domestic use. For commercial applications this appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.**
- **Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.**
- **The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).**
- **Do not pierce or burn.**
- **Be aware that refrigerants may not contain an odour.**

⚠ CAUTION

- **Do not use a sharp object to handle the touch screen of the main remote controller as this will cause damage or scratch the touch screen.**
- **If power to unit is to be turned off for a long time, the water of DHW tank should be drained.**
- **Do not drain the water in the primary circuit and do not turn off the power.**
- **Do not place a container, etc. filled with water on the top panel.**

Safety Precautions

■ Disposal of the Unit

<Figure 1.1>

Note: This symbol mark is for EU countries only.
This symbol mark is according to the directive 2012/19/EU Article 14 Information for users and Annex IX, and/or to the directive 2006/66/EC Article 20 Information for end-users and Annex II.
Your Mitsubishi Electric products have been manufactured with high quality materials and components which can be recycled and/or reused. The symbol in Figure 1.1 means that electrical and electronic equipment, batteries and accumulators at the end of their life, should be disposed of separately from your household waste.

If a chemical symbol is printed beneath the symbol (Figure 1.1), this chemical symbol means that the battery or accumulator contains a heavy metal at a certain concentration. This is indicated as follows;
Hg: mercury (0.0005%), Cd: cadmium (0.002%), Pb: lead (0.004%)
In the European Union there are separate collection systems for used electrical and electronic products, batteries and accumulators.
Please dispose of this equipment, batteries and accumulators at your local community waste collection/recycling centre according to your local regulations.

Contact your local Mitsubishi Electric dealer for country-specific details on disposal.
Please, help us to conserve the environment we live in.

Introduction

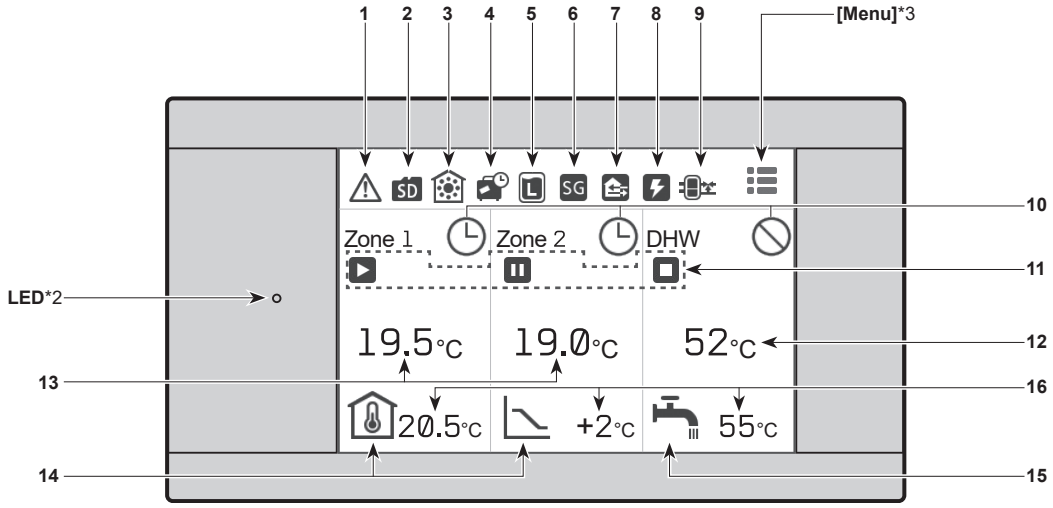
The purpose of this user manual is to inform users how their air source heat pump system works, how to run the system at its most efficient and how to change settings on the main remote controller.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.
Children should be supervised to ensure they do not play with the appliance.
This user manual should be kept with the unit or in an accessible place for future reference.

Customising Settings for Your Home

■ Main remote controller

To change the settings of your heating/cooling system, please use the main remote controller located on the wall or the front panel of the cylinder unit or hydrobox. The following is a guide to viewing the main settings. Should you require more information, please contact your installer or local Mitsubishi Electric dealer. Some functions are not available depending on the system configuration. These functions are grayed out or not shown.
Note: The terms displayed on the remote controller are enclosed in square brackets.



[Home screen] (Full screen*1)

<Home screen icons>

No.	Icons	Description
1	⚠	Alert (for multiple outdoor units control) Touching the menu icon displays error codes.
	J1	Alert Error codes are displayed.
2	SD	SD card is inserted. Normal operation
	SD	SD card is inserted. Abnormal operation
3		Heating mode
		Cooling mode
4		Holiday schedule is activated.
5	L	Legionella prevention mode is running.
6	SG	Smart grid ready is running.
7		Compressor is running.
		Compressor is running and defrosting.
		Compressor is running and in quiet mode. The sound level is shown at left side of the icon.
	⚠	Emergency heating
8		Electric heater is running.

No.	Icons	Description
9		Boiler is running.
		Buffer tank control is running.
10		Schedule
		Prohibited
		Cloud control
11		Operation
		Standby
		This unit is in standby whilst other indoor unit(s) is in operation by priority.
		Stop
12	Actual DHW tank temperature values	
13	Actual room temperature values [-- °C] appears when the unit is not connected to the room RC (Remote Controller) and it is under control other than Auto Adaptation.	

No.	Icons	Description
14		Weather compensation curve When the operation stops: Black During heating operation: Orange During cooling operation: Blue
	*4	Auto Adaptation (Target room temperature) When the operation stops: Black During heating operation: Orange
		Flow temperature (Target flow temperature) When the operation stops: Black During heating operation: Orange During cooling operation: Blue
15		DHW icon is displayed when DHW is enabled. When the operation stops: Black During operation: Orange
16	Target temperature values The settable temperature differs depending on the control logic.	

- The screen will turn off when the main remote controller is not operated for a while. Touching any part of the screen turns it on again.
- From [Touch screen] in [Setting], the brightness can be adjusted.
- By selecting [Always on] for [Backlight time] from [Touch screen] in [Setting], the backlight stays lit for 30 seconds and after it dims down.

***1 From [Setting], the screen can be switched to the full screen or the base screen.**
The base screen does not display the operation icons and the target temperature values.
***2 From [Display] in [Setting], the LED lamp can be turned on/off.**
***3 Pressing and holding the menu icon for 3 seconds switches the lock menu to on/off.**
Some functions cannot be edited when the lock menu is on.
(The icon changes to when the lock menu is on.)
***4 Auto Adaptation cannot be selected during the cooling mode.**

Customising Settings for Your Home

■ General Operation

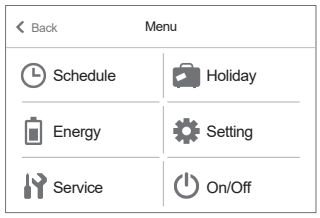
In general operation, the screen displayed on the main remote controller will be shown as in the figure on the right.
This screen shows the target temperature, space heating mode, DHW mode (if DHW tank is present in system), any additional heat sources being used, holiday mode, and the date and time.

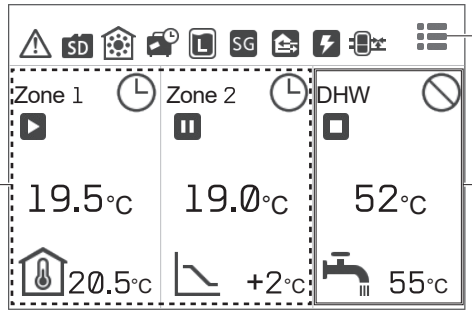
Screen switching
Touch each area on the home screen to access [Heating / Cooling], [DHW], or [Menu].
- [Heating / Cooling]: Touch the area surrounded by dotted lines in the left.
- [DHW]: Touch the area surrounded by double lines in the right.
- [Menu]: Touch the main menu icon ☰.

The following items can be edited in each screen.
- [Heating / Cooling]: Temperature settings for [Zone 1] and [Zone 2], editing of various settings (from the edit icon ✎), switching [Schedule] to on/off, switching [Always Off] to on/off
- [DHW]: Switching the Eco mode to on/off, temperature settings of DHW, starting/cancelling the Boost operation
- [Menu]: Various settings ([Schedule], [Holiday], [Energy], [Setting], [Service], and [On/Off])

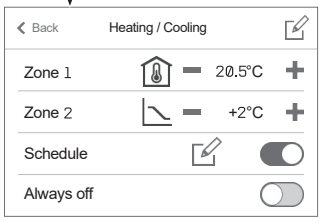
Note:
State description indicated by toggle.
Active; ●, Inactive; ○

[Menu]

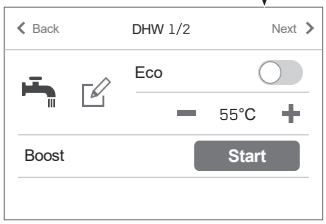




[Home screen]



[Heating / Cooling]



[DHW]

[Heating / Cooling]

The heating/cooling menus deal with space heating/cooling using normally either a radiator, fan-coil, or underfloor heating/cooling system depending on the installation.

- Edit icon ✎ in the upper right: [Control logic], [Weather compensation curve], [Mode], and [Auto change over] can be set.
- [Zone 1] / [Zone 2]: The target temperature can be changed by +/-.
- [Schedule]: It can be activated/deactivated by the toggle (● / ○). Touching the edit icon ✎ switches the screen to the schedule setting.
- [Always off]: It can be activated/deactivated by the toggle (● / ○).
- [Auto change over]: When the toggle is on, the operation switches to heating/cooling automatically based on the outdoor temperature.

There are 3 heating modes available and 2 cooling modes.
- Heating room temperature (Auto adaptation) (🏠)
- Heating flow temperature (🌡)
- Heating weather compensation curve (📉)
- Cooling flow temperature (🌡)
- Cooling weather compensation curve (📉)

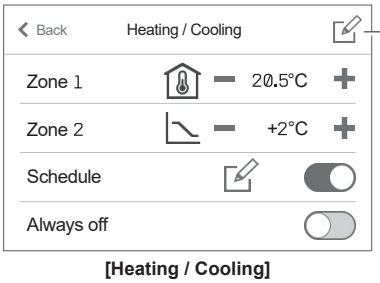
Heating room temperature (Auto adaptation)
Auto adaptation measures the room temperature and outside air temperature, then calculates the required heating capacity for the room. The water flow temperature is automatically controlled according to the required heating capacity.

Flow temperature
The temperature of the water flowing to the circuit is set by the installer to best suit the space heating/cooling system design, and user's desired requirements.

Weather compensation curve
As the seasons change, space heating/cooling demands typically change. To prevent the heat pump from producing excessive flow temperatures for the primary circuit, the weather compensation curve mode can be used to maximise efficiency and reduce running costs.

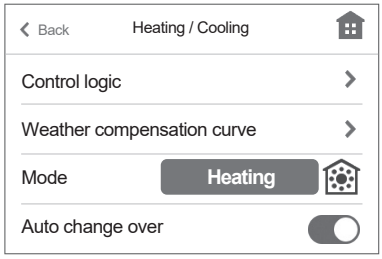
The weather compensation curve is used to restrict the flow temperature of the primary space heating circuit dependent on the outdoor temperature. The FTC uses information from both an outdoor temperature sensor and a temperature sensor on the primary circuit supply to ensure the heat pump is not producing excessive flow temperatures if the weather conditions do not require it.

Your installer will set the parameters of the graph depending on local conditions and type of space heating/cooling used in your home. It should not be necessary for you to alter these settings. If however you find that over a reasonable operating period the space heating/cooling is not heating/cooling or is overheating/too cold your home, please contact your installer so they can check your system for any problems and update these settings if necessary.

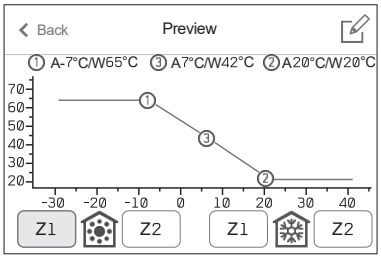


Touch

[Heating / Cooling]



[Heating / Cooling]



[Preview]

Customising Settings for Your Home

Domestic Hot Water [DHW]

The domestic hot water and legionella prevention menus control the operation of DHW tank heat ups.

[Eco]

Eco mode can be activated/deactivated by the toggle (/). Eco mode takes a little longer to heat the water in the DHW tank but the energy used is reduced. This is because heat pump operation is restricted using signals from the FTC based on measured DHW tank temperature.

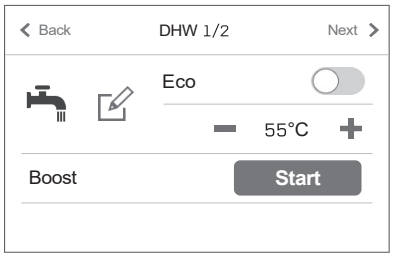
Note:

The actual energy saved in Eco mode will vary according to outdoor ambient temperature.

[Boost]

The boost DHW function is used to force the system to operate in DHW mode. In normal operation the water in the DHW tank will be heated either to the set temperature or for the maximum DHW time, whichever occurs first. However should there be a high demand for hot water, boost DHW function can be used to prevent the system from routinely switching to space heating/cooling and continue to provide DHW tank heating.

The boost DHW operation can be started or cancelled by the [Start]/[Cancel] button in the [DHW] screen. After the DHW operation finishes, the system will automatically return to normal operation.



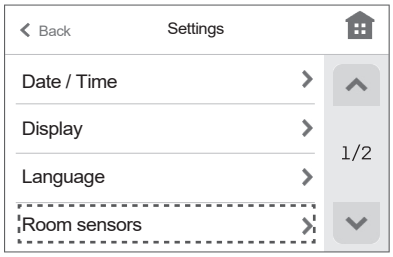
[DHW]

[Menu]

The following items can be set.

- [Schedule]
- [Holiday]
- [Energy]
- [Setting]
- [Service]
- [On/Off]: When the power is off (*), the icon changes to .

* When the system is switched off or the power supply is disconnected, the indoor unit protection function (e.g.freeze stat.function) will NOT operate. Please beware that without these safety functions enabled the indoor unit may potentially become exposed to damage.



[Settings]

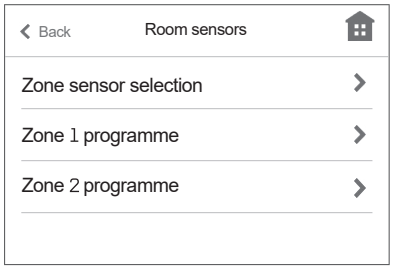
[Room sensors]

For [Room sensors], it is important to choose the correct room sensor depending on the heating and cooling mode the system will operate in.

1. From [Setting], select [Room sensors].
2. When 2-zone temperature control is active and wireless remote controller are available, select [Zone sensor selection], and then select zone No. to assign each wireless remote controller.
3. From [Zone 1 programme] or [Zone 2 programme], select the room sensor and the schedule to be used for each zone.

After completing the setting of each programme, touch the confirm icon to save the settings.

The schedule settings can be changed up to 4 times within 24 hours.

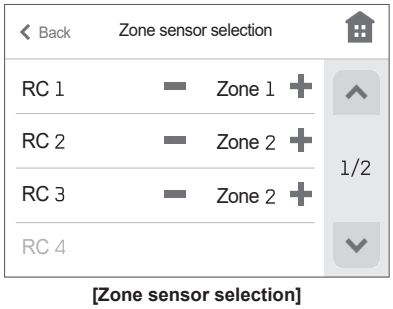


[Room sensors]

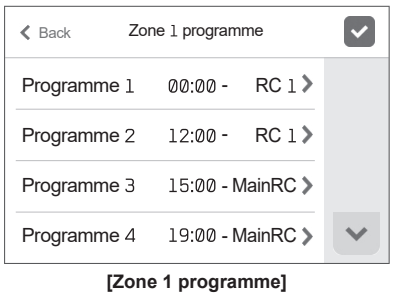
Control option *	Corresponding settings room sensor	
	Zone 1	Zone 2
A Zone 1; Auto Adaptation (Target room temperature) Zone 2; Weather compensation curve or flow temperature control	RC 1~8 (Wireless remote controller)	*1
B Zone 1; Auto Adaptation (Target room temperature) Zone 2; Weather compensation curve or flow temperature control	TH1 (Room temperature thermistor (option))	*1
C Zone 1; Auto Adaptation (Target room temperature) Zone 2; Weather compensation curve or flow temperature control	MainRC (Main remote controller)	*1
D Zone 1; Weather compensation curve or flow temperature control Zone 2; Weather compensation curve or flow temperature control	*1	*1

* Refer to the website manual for details.

* 1 Not specified (if a locally-supplied room thermostat is used)
Room RC 1-8 (if a wireless remote controller is used as a room thermostat)



[Zone sensor selection]



[Zone 1 programme]

Customising Settings for Your Home

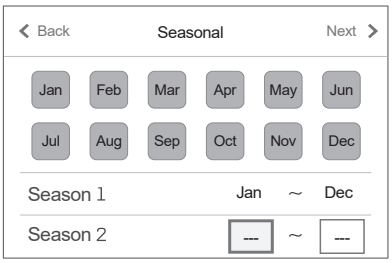
[Schedule]

From [Menu], touch [Schedule] to access the [Schedule] menu.

[Seasonal]
You can categorise months into 2 seasons.
You can activate/deactivate the heating/cooling operation in each season.

1. From [Schedule], select [Seasonal].
2. Select the period of [Season 2] (in light green).
3. The period other than [Season 2] is selected as [Season 1] automatically.
4. Touch [Next] to activate/deactivate the heating/cooling operation with the toggle (/).

[Schedule]



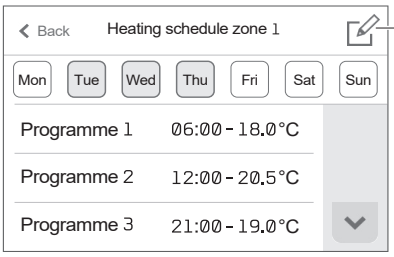
[Seasonal]

[Heating]
You can set 4 programmes of heating schedule in each day of the week.
It can be set during Auto Adaptation setting or when the remote controller is connected.

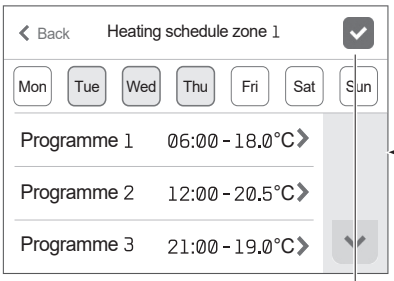
1. From [Schedule], select [Heating].
2. Touch the edit icon in the upper right of the screen to make it editable.
3. Select the day(s) of the week you want to schedule.
   * The day(s) you selected turns to light green.
4. Select the programme you want to schedule.
5. Set the starting time and the target temperature by +/-.
6. Touch the confirm icon in the upper right of the screen to save the settings.
   * You can confirm the settings of each day of the week on the [Heating schedule zone] screen.

Note:

- **The [Heating schedules] and the [Cooling schedules] are set in the same way. However, [Cooling schedules] can only be set when the room remote controller is connected.**
- **The [Heating schedules] and the [DHW schedule] are set in the same way.**
  On [DHW schedule] settings, however, you will select the time you want to prohibit the operation.
- **Touching the trash box icon on the [Programme] screen in [Heating schedules] or on the [Prohibited] screen in the [DHW schedule] deletes each setting.**
- **On the [Heating schedules] and [DHW schedule] screen, touching the confirm icon in the upper right saves the setting.**



[Heating schedule zone 1] Preview



[Heating schedule zone 1] Edit

Save the settings.

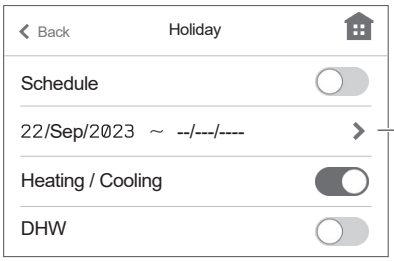
Customising Settings for Your Home

[Holiday]

Holiday mode can be used to keep the system running at lower flow temperatures and thus reduced power usage whilst the property is unoccupied. Holiday mode can run either flow temperature, room temperature, heating, weather compensation curve heating and DHW all at reduced flow temperatures to save energy if the occupier is absent.

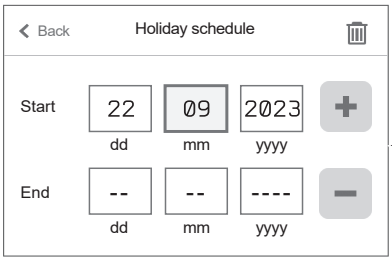
<Editing holiday mode>

- [Schedule]: It can be activated/deactivated by the toggle (/).
- The effective period of [Holiday] can be set by selecting the second line.
- [Heating / Cooling]: It can be activated/deactivated by the toggle (/).
- [DHW]: It can be activated/deactivated by the toggle (/).



[Holiday]

Touch



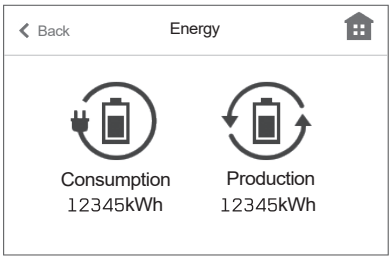
[Holiday schedule]

[Energy]

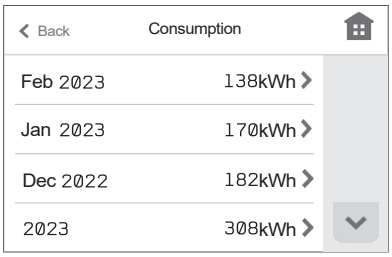
Page 1 ; Total consumption and total production energy for the current month are displayed.

Page 2 ; Year and month consumption/production values are displayed.

Note:
If a certain accuracy is required for the monitoring, the method to display captured data from external energy meter(s) should be set up. Contact your installer for further details.



[Energy] Page 1



[Energy] Page 2

[Setting]

From [Menu], touch [Setting] to access the [Setting] menu.

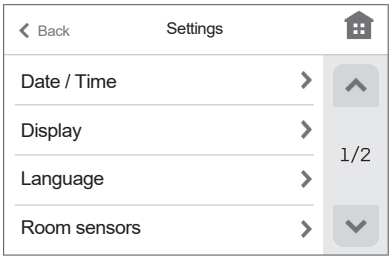
From [Setting], the following items can be edited.

- [Date/time]
- [Display] (Full screen/Base screen, LED On/Off, °C/°F)
- [Language]
- [Room sensors]
- [Contact number]
- [Touch screen] ([Calibrate screen]*1, [Clean screen]*2, [Brightness], and [Backlight time])

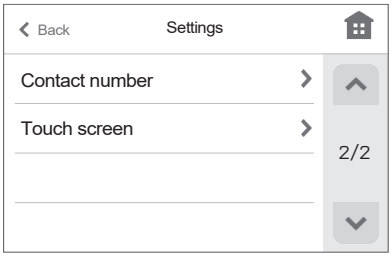
***1 Touching the 9 dots displayed on the screen starts calibration.**
To properly calibrate the touch panel, use a pointy but not sharp object to touch the dots.
* A sharp object may damage or scratch the touch screen.

***2 You can wipe the screen while touch operations are invalid for 30 seconds.**
Wipe with a soft dry cloth, a cloth soaked in water with mild detergent, or a cloth dampened with ethanol. Do not use acidic, alkaline, or organic solvents.

Touch the home icon in the upper right to return to the home screen.



[Settings] Page 1



[Settings] Page 2

[Service]

The service menu is password protected to prevent accidental changes being made to the operation settings, by unauthorised/unqualified persons.

Service and Maintenance

■ Troubleshooting

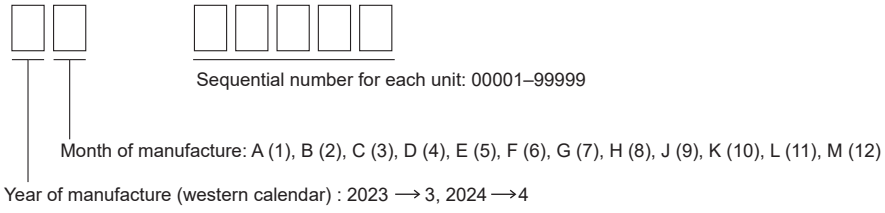
The following table is to be used as a guide to possible problems. It is not exhaustive and all problems should be investigated by the installer or another competent person. Users should not attempt to repair the system themselves.
At no time should the system be operating with the safety devices by-passed or plugged.

Fault symptom	Possible cause	Solution
Cold water at taps (systems with DHW tank)	Scheduled control off period	Check schedule settings and change if necessary.
	All hot water from DHW tank used	Ensure DHW mode is operating and wait for DHW tank to re-heat.
	Heat pump or electric heaters not working	Contact installer.
Heating system does not get up to set temperature.	Prohibit, schedule or holiday mode selected	Check settings and change as appropriate.
	Incorrectly sized heat emitters	Contact installer.
	The room in which the temperature sensor is located is at a different temperature to the rest of the house.	Reposition the temperature sensor to a more suitable room.
	Battery problem wireless remote controller only	Check the battery power and replace if flat.
	Malfunction of pump or mixing valve	Contact installer.
	Valves on heating system are closed.	Open the valves.
The cooling system does not cool down to the set temperature. (ONLY for ER series)	When the water in the circulation circuit is unduly hot, Cooling mode starts with a delay for the protection of the outdoor unit.	Normal operation no action necessary.
	When the outdoor ambient temperature is significantly low, Cooling mode does not start running to avoid freezing of the water pipes.	If the freeze stat. function is not necessary, contact installer to change the settings.
After DHW operation room temperature rises a little.	At the end of the DHW mode operation the 3-way valve diverts hot water away from the DHW tank into space heating circuit. This is done to prevent the cylinder unit components from overheating. The amount of hot water directed into the space heating circuit is dependent on the type of system and the pipe run between the plate heat exchanger and the cylinder unit.	Normal operation no action necessary.
Heating emitter is hot in the DHW mode. (The room temperature rises.)	The 3-way valve may have foreign objects in it, or hot water may flow to the heating side due to malfunctions.	Contact installer.
Schedule function inhibits the system from operating but the outdoor unit operates.	Freeze stat. function is active.	Normal operation no action necessary.
Pump runs without reason for short time.	Pump jam prevention mechanism to inhibit the build up of scale.	Normal operation no action necessary.
Mechanical noise heard coming from indoor unit	Heaters switching on/off	Normal operation no action necessary.
	3-way valve changing position between DHW and heating mode.	Normal operation no action necessary.
Noisy pipework	Air trapped in the system	Try bleeding radiators (if present) If the symptoms persist contact installer.
	Loose pipework	Contact installer.
Water discharges from one of the relief valves	The system has overheated or overpressurised	Switch off power to the heat pump and any immersion heaters then contact installer.
Small amounts of water drip from one of the relief valves.	Dirt may be preventing a tight seal in the valve	Twist the valve cap in the direction indicted until a click is heard. This will release a small amount of water flushing dirt from the valve. Be very careful the water released will be hot. Should the valve continue to drip contact installer as the rubber seal may be damaged and need replacing.
An error code appears in the main remote controller display.	The indoor or outdoor unit is reporting an abnormal condition	Make a note of the error code number and contact installer.
Heat pump is forced to turn ON and OFF.	Smart grid ready input (IN11 and IN12) is used, and switch-on and off commands are input.	Normal operation no action necessary.

<Power failure>
The Date/Time will be saved for 3 days with no power.

Serial number

■ The serial number is indicated on the SPEC NAME PLATE.



Please be sure to put the contact address/telephone number on this manual before handing it to the customer.

UNITED KINGDOM
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AL10 8XB

A Declaration of Conformity is available on request.

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