MITSUBISHI ELECTRIC

ecodan

CYLINDER UNIT

EHPT20Q-VM2EA

OPERATION MANUAL FOR USER

For safe and correct use, please read this Manual thoroughly before operating the cylinder unit and the outdoor unit.

This Operation Manual should be kept safe with the unit or in an accessible place for future reference.

Contents

1 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 review, understand and adhere to them.**

Intended use

- **This product is designed and intended for domestic.**
- **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 or its associated controls.**

Used in this manual

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

⚠CAUTION:
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.**

⚠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 is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.**
- **Children should be supervised to ensure that they do not play with the appliance.**
- **If power supply cable is damaged, it must be replaced by 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.**
- **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.**
- **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.**

1 Safety Precautions

⚠CAUTION

- **Do not use sharp objects to press the buttons of the main controller as this will cause damage to the buttons.**
- **If power to unit is to be turned off for a long time, the water should be drained from the system.**
- **Do not place a container etc. filled with water on the top panel.**

Disposal of the Unit

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.

<Figure 1.1>

Your Mitsubishi Electric heating system 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 correctly at your local community waste collection/recycling centre.

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

Abbreviations and glossary

No.	Abbreviations/Word	Description
1	Compensation curve mode	Space heating incorporating outdoor ambient temperature compensation
2	COP	Coefficient of Performance (The efficiency of the heat pump)
3	Cylinder unit	Indoor primary thermal store tank and component plumbing parts
4	DHW mode	Domestic hot water heating mode for showers, sinks, etc.
5	Flow temperature	Temperature at which water is delivered to the primary circuit for thermal store or space heating
6	Freeze stat function	Space heating control routine to prevent water pipes freezing
7	FTC	Flow temperature controller (circuit board within cylinder unit that controls system).
8	Heating mode	Space heating through radiators or Underfloor heating
9	PRV	Pressure relief valve
10	Return temperature	Temperature at which water is returned from the primary circuit for thermal store and space heating
11	TRV	Thermostatic radiator valve – a valve on the entrance or exit of the radiator panel to control the heat output

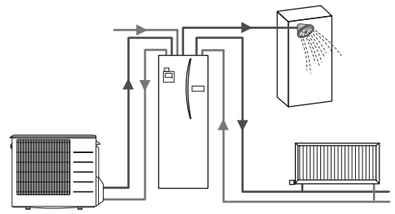
2 Introduction

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

This should be kept safe with the unit or in an accessible place for future reference.

Overview of the System

The Mitsubishi Electric Air to Water (ATW) heat pump system consists of the following components; outdoor heat pump unit and indoor cylinder unit incorporating main controller.



Schematic of packaged cylinder system

How the Heat Pump Works

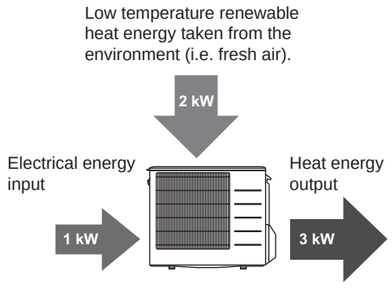
Space heating and DHW

Heat pumps take electric energy and low grade heat energy from the outdoor air to heat refrigerant which in turn heats water for domestic use and space heating.

The efficiency of a heat pump is known as the Coefficient of Performance or COP. This is the ratio of heat delivered to power consumed.

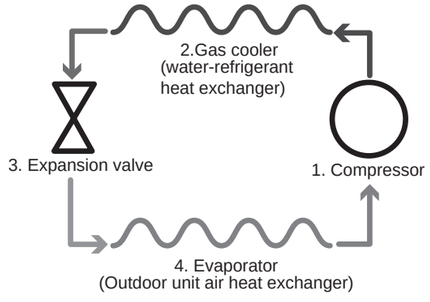
Heat pumps are generally most efficient when providing water at lower temperatures and when temperature difference between inlet and outlet of the outdoor unit is large.

The operation of a heat pump is similar to a refrigerator in reverse. This process is known as the vapour-compression cycle and the following is a more detailed explanation.



The first phase begins with the refrigerant being cold and low pressure.

1. The refrigerant within the circuit is compressed as it passes through the compressor. It then becomes a hot highly pressurised gas. The temperature also rises typically to 90°C.
2. The hot refrigerant gas then passes across one side of a heat exchanger. Heat from the refrigerant gas is naturally transferred to the cooler side (water side) of the heat exchanger. As the temperature of the refrigerant decreases, it naturally changes state from a gas to a liquid.
3. Now as a cold liquid it still has a high pressure. To reduce the pressure the liquid passes through an expansion valve. The pressure drops but the refrigerant remains a cold liquid.
4. The final stage of the cycle is when the refrigerant passes into the evaporator and evaporates. It is at this point when some of the free heat energy in the outside air is absorbed by the refrigerant and it returns to its original gas state.



It is only the refrigerant that passes through this cycle; the water is heated as it travels through the heat exchanger (Gas cooler). The heat energy from the refrigerant passes through the heat exchanger to the cooler water which increases in temperature. This heated water forms the primary circuit and is circulated and used to serve the space heating system and the thermal store tank.

The hot water stored within the tank is subsequently used to generate domestic hot water. (The tank water is NOT the actual hot water that is typically used for shower or sink appliances.)

2 Introduction

Economical Best Practice

Air source heat pumps can provide both hot water and space heating all year. The system is different to a conventional fossil fuel heating and hot water system. The efficiency of a heat pump is shown by its coefficient of performance as explained in the introduction. The following points should be noted to achieve the most efficient and economical operation of your heating system.

Important points about heat pump systems

- The hot water produced by the heat pump is typically at a lower temperature than a fossil fuel boiler.

Implications

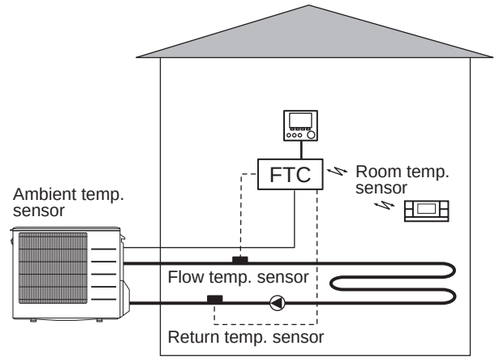
- If the heat pump is being used for DHW the time at which tank heat up occurs should be scheduled using the SCHEDULE function (see page 12). Ideally this should be during the night time when normally, less space heating is required and economy electricity tariffs can be taken advantage of (see page 10).
- In most situations space heating is best performed using the room temperature mode. This enables the heat pump to analyse current room temperature and react to changes in a controlled manner utilising the specialised Mitsubishi Electric controls.
- Using the SCHEDULE and HOLIDAY functions prevent unnecessary Space or DHW heating when the property is known to be unoccupied, for instance during the working day.
- Due to lower flow temperatures, heat pump heating systems should be used with large surface area radiators or under-floor heating. This will provide a steady heat to the room whilst improving efficiency and so lowering running costs of the system as the heat pump does not have to produce water at very high flow temperatures.

Overview of Controls

Built into the cylinder unit is the Flow Temperature Controller (FTC).This device controls the function of both the outdoor heat pump unit and the cylinder unit. The advanced technology means that by using an FTC controlled heat pump you can not only make savings compared to traditional fossil fuel type heating systems but also compared to many other heat pumps on the market.

As explained in the earlier section, 'How the Heat Pump Works,' heat pumps are most efficient when providing low flow temperature water. The FTC advanced technology enables the room temperature to be kept at the desired level whilst utilising the lowest possible flow temperature from the heat pump, i.e. operate most efficiently.

In room temp. (Auto adaptation) mode the controller uses temperature sensors around the heating system to monitor space and flow temperatures. This data is regularly updated and compared to previous data by the controller to predict changes in room temperature and adjust the temperature of water flowing to the space heating circuit accordingly. By monitoring not only the outdoor ambient, but the room and heating circuit water temperatures, the heating is more consistent and sudden spikes in required heat output are reduced. This results in a lower overall flow temperature being required.



3 Your Heating System

Product specification

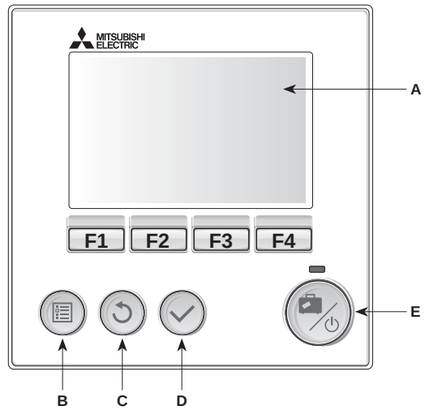
Model name			EHPT20Q-VM2EA
Modes			Space & DHW heating
Nominal thermal store tank volume			200 L
Overall unit dimensions			1600 × 595 × 680 mm (Height × Width × Depth)
Weight (empty)			77 kg
Weight (full)			283 kg
Primary expansion vessel (Accessory item)	Nominal volume		18 L or 25 L
	Charge pressure		1.0 bar (100 kPa)
Safety device	Water circuit (Thermal store tank)	Control thermistor (THW1)	42 - 72°C
		Control thermistor (THW3)	80 °C
		Pressure relief valve (2 No. devices)	3.0 bar (300 kPa)
		Flow sensor	Min. flow 1.3 L/min
		Manual reset thermostat	90 °C
	Booster heater	Manual reset thermostat	90 °C
		Thermal Cut-out (for dry run prevention)	121 °C
Primary circuit circulating pump	Thermal store and space heating		Grundfos Solar PML 25-145 180
	Hot water supply		Grundfos Solar PML 25-145 180
Connections	Primary circuit		ϕ 22.0
	Secondary (potable) circuit		ϕ 22.0
Target temperature range	Space heating	Flow temperature *1	25 - 60 °C
		Room temperature	10 - 30 °C
	DHW supply maximum temperature		40 - 70 °C
Guaranteed operating range	Ambient *2		0 - 35 °C (80%RH)
	Outdoor temperature		- 15 - 35 °C
Electrical data	Control board	Power supply (Phase, voltage, frequency)	230V N~ 50 Hz
		Current	12.8 A
		Breaker (Local supply)	20 A
	Booster heater	Power supply (Phase, voltage, frequency)	230V N~ 50 Hz
		Capacity	2 kW
		Current	8.7 A
		Breaker	16 A
Sound power level			40 dB(A)
Maximum secondary (potable) water supply pressure			10 bar (1 MPa)
Maximum primary working pressure			2.5 bar (250 kPa)
Minimum primary working pressure			1.0 bar (100 kPa)

*1 Depending on the ambient conditions, it may not reach the set temperature.
*2 The cylinder's environment MUST be frost-free.

4 Customizing Settings for Your Home

To change the settings of your heating system please use the main controller located on the front panel of the cylinder unit. The following is a guide to viewing the main settings. Should you require more information please contact your installer or local Mitsubishi Electric dealer.

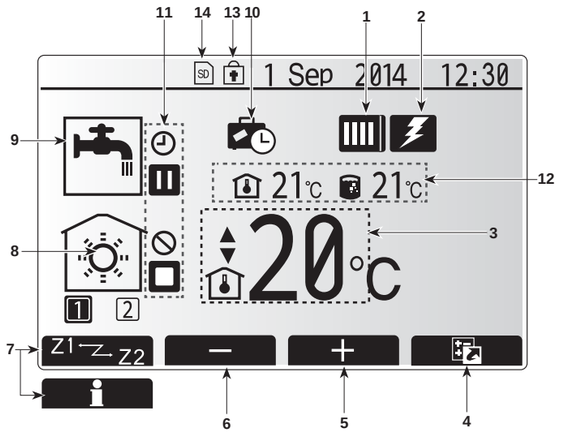
Main Controller



<Main controller parts>

Letter	Name	Function
A	Screen	Screen in which all information is displayed
B	Menu	Access to system settings for initial set up and modifications.
C	Back	Return to previous menu.
D	Confirm	Used to select or save. (Enter key)
E	Power/Holiday	If system is switched off pressing once will turn system on. Pressing again when system is switched on will enable Holiday Mode. Holding the button down for 3 secs will turn the system off. (***1**)
F1-4	Function keys	Used to scroll through menu and adjust settings. Function is determined by the menu screen visible on screen A.

***1**
When the system is switched off or the power supply is disconnected, the cylinder unit protection functions (e.g. freeze stat function) will NOT operate. Please beware that without these safety functions enabled, the indoor unit and water pipe works may potentially become exposed to frost damage.



Main screen

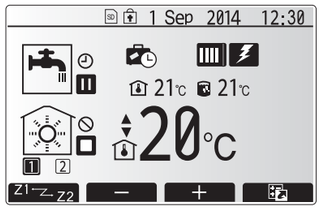
<Main screen icons>

	Icon	Description
1	Heat pump	‘Heat pump’ is running.
		Defrosting.
		Emergency heating.
2	Electric heater	When this icon is displayed the ‘Electric heaters’ (booster heater) are in use.
3	Target temperature	Target flow temperature
		Target room temperature
		Compensation curve
4	OPTION	Pressing the function button below this icon will display the option screen.
5	+	Increase desired temperature.
6	-	Decrease desired temperature.
7	Z1⇄Z2	Pressing the function button below this icon switches between Zone1 and Zone2.
	Information	Pressing the function button below this icon displays the information screen.
8	Space heating mode	Heating mode Zone1 or Zone2
9	DHW mode	Domestic hot water heating mode
10	Holiday mode	When this icon is displayed ‘Holiday mode’ activated.
11		Timer is activated.
		Prohibited
		Server control is activated.
		Stand-by
		Stopped
		Operating
12	Current temperature	Current room temperature
		Current water temperature of thermal store tank
13		The Menu button is locked or the switching of the operation modes between DHW and Heating operations are disabled in the Option screen.(***2**)
14		SD memory card is inserted. Normal operation.
		SD memory card is inserted. Abnormal operation.

***2 To lock or unlock the Menu, press the BACK and CONFIRM keys simultaneously for 3 seconds.**

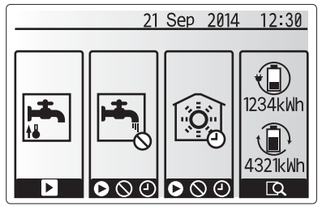
General Operation

In general operation the screen displayed on the main controller will be shown as in the figure on the right.
This screen shows the target temperature, space heating mode, DHW mode, additional heat source being used, holiday mode, and the date and time.
You should use the function buttons to access more information. When this screen is displayed pressing F1 (for 1 second) will display the current status and pressing F4 will take the user to the option menu screen.



Home screen

<Option screen>
This screen shows the main operating modes of the system.
Use function buttons to switch between Operating (►), Prohibited (⃠) and Timer (🕘) for DHW and space heating, or detailed information on energy or capacity.



Option screen

The option screen allows quick setting of the following;

1 Forced DHW — to turn ON/OFF press F1 (OFF - long press)
2 DHW operating mode — to change mode press F2
3 Space heating operating mode — to change mode press F3
4 Energy monitor

The following accumulated energy values are displayed :-
: Consumed electrical energy in total (month-to-date)
: Delivered heat energy in total (month-to-date)

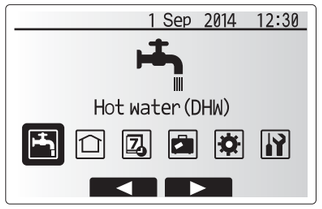
To monitor the energy values in each operation mode for [month-to-date / last month / the month before last / year-to-date / last year], press F4 to access to the Energy monitor menu.

Note:
If more detailed 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.

Main Settings Menu

To access the main settings menu press button B 'MENU'
The following menus will be displayed left to right :-

- Hot water (DHW)
- Heating
- Schedule timer
- Holiday mode
- Initial settings
- Service (Password protected)



Main settings menu screen

Initial Settings

1. From the main settings menu use F2 and F3 buttons to highlight 'Initial settings' icon and select by pressing CONFIRM.
2. Use F1 and F2 buttons to scroll through the menu list. When the required title is highlighted then press CONFIRM to enable / allow edit.
3. Use the relevant function buttons to edit each initial setting then press CONFIRM to save the setting.

Icon	Description
	Hot water (DHW)
	Heating
	Schedule timer
	Holiday mode
	Initial settings
	Service

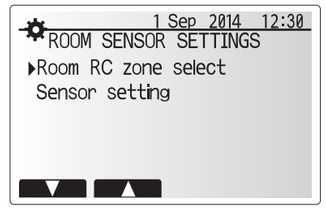
Initial settings that can be edited are

- Date / Time
- Summer time
- Temp. display
- Contact number
- Time display
- °C/°F
- Room sensor settings

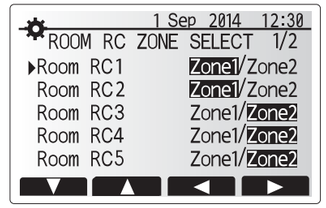
To return to the main Settings menu press the BACK button.

<Room sensor settings>
For room sensor settings it is important to choose the correct room sensor depending on the heating mode the system will operate in.
Please see also Installation Manual of the cylinder unit.

1. From the Initial settings menu select Room sensor settings.



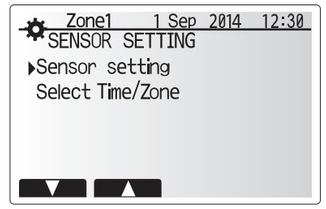
2. When 2-zone valve ON/OFF control is active and wireless remote controllers are available, from Room RC zone select screen, select zone No. to assign to each remote controller.

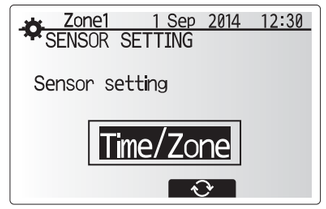


3. From Sensor setting screen, select a room sensor to be used for monitoring the room temperature from Zone1 and Zone2 separately.

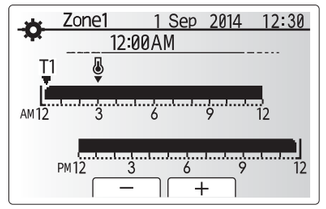
Control option ("Remote Controller Options" (Installation manual))	Corresponding initial settings room sensor	
	Zone1	Zone2
A	Room RC1-8 (one each for Zone1 and Zone2)	*
B	TH1	*
C	*	*

* Not specified (if a local-supplied room thermostat is used)
Room RC1-8 (one each for Zone1 and Zone2) (if a wireless remote controller is used as a room thermostat)





4. From Sensor setting screen, select Time / Zone to make it possible to use different room sensors according to the time schedule set in the Select Time/Zone menu. The room sensors can be switched up to 4 times within 24 hours.



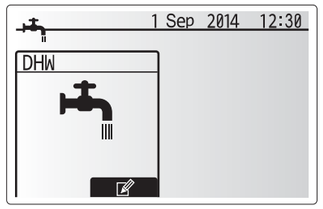
Time/Zone schedule setting screen

Domestic Hot Water (DHW)

The domestic hot water menu controls the operation of thermal store tank heat - ups.

<DHW mode settings>

1. To edit the mode, press down the MENU button for 3 secs, then select “hot water”.
2. Press F2 key to display the HOT WATER (DHW) SETTING menu.
3. Use F1 and F2 keys to scroll through the menu selecting each component in turn by pressing CONFIRM. See the table below for description of each setting.
4. Enter the desired number using the function keys and then press CONFIRM.



Menu subtitle	Function	Range	Unit	Default value
DHW supply max. temp. *1	Desired temperature of supply hot water	40 - 70	°C	55
DHW supply max. temp. drop	Difference in temperature between DHW supply max. temp. and DHW supply min. temp.	15 - 30	°C	15
DHW max. operation time	Max time allowed for stored water heating DHW mode	30 - 120	min	60
DHW mode restriction	The time period after DHW mode when space heating has priority over DHW mode temporarily preventing further stored water heating (Only when DHW max. operation time has passed.)	30 - 120	min	30
DHW storage volume *2	The amount of stored hot water. DHW max. amount and DHW restart amount can be selected. (See Figure 4.1)	Normal / E. Save	—	Normal

*1 Depending on the ambient conditions, it may possibly not reach the set temperature.

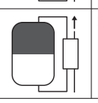
*2 Selection of E. Save will increase efficiency of operation. However, it should NOT be selected if there is concern about possible shortage of DHW provision.

If you wish to make changes contact installer.

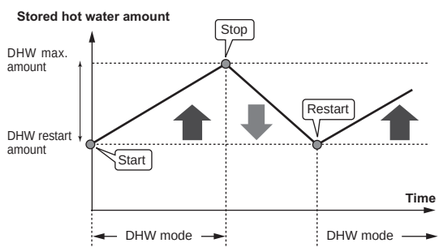
Explanation of DHW operation

- When the DHW storage volume shows a decrease of 50 L from the DHW max. amount, DHW mode operates and the flow from the primary heating circuit is diverted to heat the water in the thermal store tank.
- When the amount of the stored hot water reaches the ‘DHW max. amount *1.’ or if the ‘DHW max. operation time’ set by the installer is exceeded DHW mode ceases to operate. (See Figure 4.2)

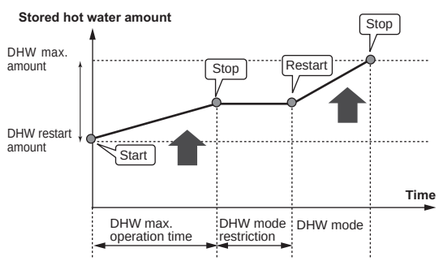
  *1 The DHW max. amount is 200L when the DHW storage volume set by the installer is 'normal' and 150L when it is 'Energy save'.
- Whilst DHW mode is in operation primary hot water is NOT directed to the space heating circuit.
- Directly after DHW max. operation time ‘DHW mode restriction’ will routinely operate. The duration of this feature is set by the installer and during its operation, DHW mode can not (normally) be reactivated, allowing time for the system to deliver primary hot water to the space heating if required. However,if at this time there is no current demand for space heating, the system will automatically resume DHW mode. This will continue until the unit receives a demand for space heating. (See Figure 4.3)
- After the ‘DHW mode restriction’ operation the DHW mode can operate again and thermal store tank heating will continue according to system demand.

DHW storage volume	E. Save	Normal
DHW max. amount	150L 	200L 
DHW restart amount	100L 	150L 

<Figure 4.1>



<Figure 4.2>



<Figure 4.3>

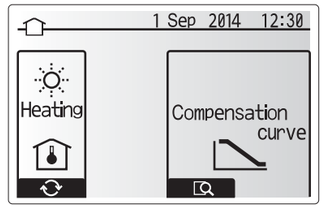
Forced DHW

The Forced DHW function is used to force the system to operate in DHW mode. In normal operation the water in the thermal store 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 ‘Forced DHW’ function can be used to prevent the system from routinely switching to space heating and continue to provide DHW tank heating.

Forced DHW operation is activated by pressing button F1 and Back button in the ‘Option Screen’ . After Forced DHW operation finishes, the system will automatically return to normal operation. To cancel forced DHW operation hold down button F1 in the ‘Option Screen’.

Heating

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



There are 3 heating modes

- Heating room temp. (Auto adaptation) ( )
- Heating flow temp. ( )
- Heating compensation curve ( )

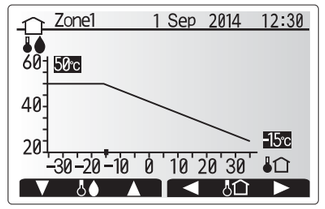
  To edit compensation mode, press down the MENU button for 3 secs.

<Room temp. (Auto adaptation) mode>

This mode is explained in detail in ‘Overview of Controls’ Section (page 5).

<Flow temp. mode>

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



: Flow temp.

: Outdoor ambient temp.

Explanation of compensation curve

During late spring and summer usually the demand for space heating is naturally reduced.To prevent the heat pump from producing excessive flow temperatures for the primary circuit, the compensation curve mode can be used to reduce flow temperatures, maximise efficiency and reduce running costs.

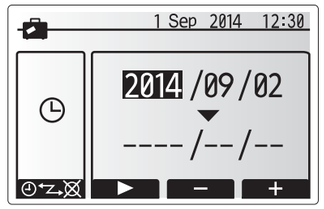
The compensation curve is used to adjust the flow temperature of the primary space heating circuit dependent on the outdoor temperature. The FTC uses information from both an outdoor temperature sensor and a temperature sensor on the primary circuit, supply to ensure the heat pump is not producing excessive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

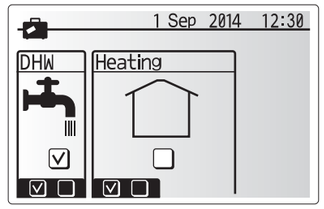
Your installer will set the parameters of the graph depending on local conditions and type of space heating used in your home. It should not be necessary for you to alter these settings. If however you find that over a reasonable trial operating period the space heating is not heating or is overheating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

Holiday Mode

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 space heating on either flow temp, room temp, or compensation curve heating and DHW all at reduced flow temperatures to save energy if the occupier is absent.
From the main menu screen press button E. Be careful not to hold down button E for too long as this will turn OFF the controller and system.
Once the holiday mode activation screen is displayed you can activate/deactivate and select the duration that you would like holiday mode to run for.

- Press button F1 to activate or deactivate holiday mode
- Use buttons F2, F3 and F4 to input the date which you would like holiday mode to activate or deactivate holiday mode for space heating.

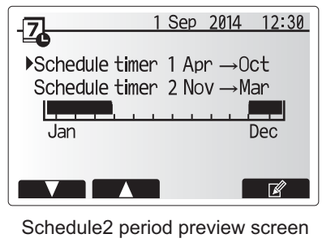




<Editing holiday mode>
Refer to the menu tree in “5.7 Main controller” of Installation Manual.
Should you require the Holiday mode settings e.g. the flow temp., room temp. to be altered you should contact your installer.

Schedule timer

Scheduled timer can be set in two ways, for example; one for summer and the other for winter. (Refer to as “Schedule 1” and “Schedule 2” respectively.) Once the term (months) for the Schedule 2 is specified, rest of the term will be specified as Schedule 1. In each Schedule, an operational pattern of modes (Heating/ DHW) can be set. If no operational pattern is set for Schedule 2, only the pattern for Schedule 1 will be valid. If Schedule 2 is set to full-year (i.e. March to Feb.), only the operational pattern for Schedule 2 will be valid.

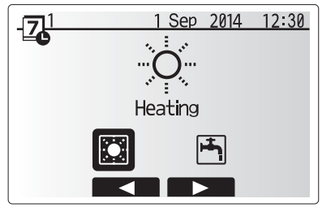


Schedule2 period preview screen

The schedule timer is activated or deactivated in the option screen. (See ‘General Operation’ section)

<Setting the Schedule period>

1. From the main settings menu use F2 and F3 to highlight the schedule icon then press CONFIRM.
2. The Schedule period preview screen is displayed.
3. To change the Schedule period, press F4 button.
4. The time bar edit screen is displayed.
5. Use F2/F3 button to point at a starting month of the Schedule2, then press CONFIRM.
6. Use F2/F3 button to point at an ending month of the Schedule2, then press CONFIRM.
7. Press F4 to save settings.



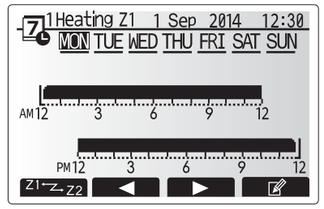
Schedule1 mode select screen

<Setting the Schedule timer>

1. From the main settings menu use F2 and F3 to highlight the schedule icon then press CONFIRM.
2. From the schedule 2 period preview screen use F1 and F2 to scroll through the selecting each subtitle in turn by pressing CONFIRM.
3. The schedule timer sub menu will be displayed. The icons show the following modes;
   - Heating
   - DHW
4. Use F2 and F3 buttons to move between mode icons press CONFIRM to be shown the PREVIEW screen for each mode.

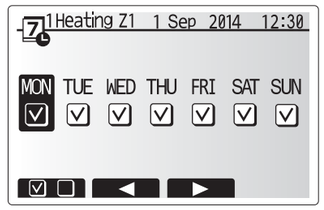
The preview screen allows you to view the current settings. In 2-zone heating operation, press F1 to switch between Zone1 and Zone2. Days of the week are displayed across the top of the screen. Where day appears underlined the settings are the same for all those days underlined. Hours of the day and night are represented as a bar across the main part of the screen. Where the bar is solid black, space heating and DHW (whichever is selected) is allowed.

5. In the preview menu screen press F4 button.



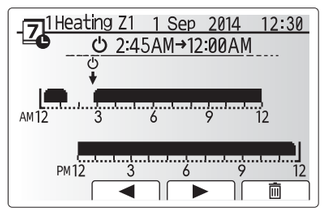
Preview screen

6. First select the days of the week you wish to schedule.
7. Press F2/F3 buttons to move between days and F1 to check or uncheck the box.
8. When you have selected the days press CONFIRM.



Day of week select screen

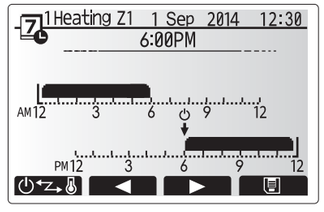
9. The time bar edit screen will be displayed.
10. Use buttons F2/F3 to move to the point at which you do not want the selected mode to be active press CONFIRM to start.
11. Use F3 button to set the required time of inactivity then press CONFIRM.
12. You can add up to 4 periods of inactivity within a 24 hour interval.



Time of period setting screen 1

13. Press F4 to save settings.

When scheduling heating, button F1 changes the scheduled variable between time and temperature. This enables a lower temperature to be set for a number of hours e.g. a lower temperature may be required at night when the occupants are sleeping.



Time of period setting screen 2

Note:

- **The schedule timer for space heating and DHW are set in the same way. However for DHW only time can be used as scheduling variable.**
- **A small rubbish bin character is also displayed choosing this icon will delete the last unsaved action.**
- **It is necessary to use the SAVE function F4 button to save settings. CONFIRM does not act as SAVE for this menu.**

Service Menu

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

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	System or power input is OFF.	Turn on the power/system
	DHW is scheduled "OFF"	Check schedule settings and change if necessary.
	All reserves of hot water from thermal store tank have been used.	Ensure DHW mode is operating and wait for thermal store tank to re-heat.
	Heat pump or booster heater not working	Contact installer.
	Air exists within pump A	Contact installer.
	Flow sensor jam / defect	Contact installer.
	Supply flow rate is too low.	Increase the delivery amount. (open tap further.)
Heating system does not get up to set temperature.	Prohibit, schedule or holiday mode selected	Check settings and change as appropriate.
	Incorrectly sized radiators or low flow rate setting	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 control only	Check the battery power and replace if flat.
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 thermal store tank into space heating circuit. This is only temporary and done to prevent system components from potential overheating. The amount of hot water directed into the space heating circuit is dependent on the pipe run between the outdoor unit and the cylinder unit.	Normal routine 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 abnormal malfunctions.	Contact installer.
Schedule function inhibits the system from operating but the outdoor unit is operational.	Freeze stat function may be active, to prevent freezing.	Normal operation no action necessary.
Pump runs without reason for short time.	Pump jam prevention control routine to inhibit the build up of scale.	Normal operation no action necessary.
Mechanical noise (minor) heard coming from cylinder unit	Booster heater switching on/off	Normal operation no action required.
	Pump operates during hot water supply	Normal operation no action necessary.
	3-way valve changing position between DHW and heating mode.	Normal operation no action necessary.
Abnormal cylinder noise during delivery of domestic hot water supply	Air present in pump A	Contact installer.
Noisy pipework	Air trapped in the system	Try bleeding radiators (if present) If the symptoms persist contact installer.
	Loosely supported pipe work.	Contact installer.
Water discharges from one of the pressure relief valves	The system has overheated or overpressurised	Switch off power to the cylinder unit and the booster heater then contact installer.
Small amounts of water drip from one of the pressure relief valves.	Dirt may be preventing proper tight seal in the valve	Twist the valve cap in the direction indicated 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 controller display.	The indoor or outdoor unit is reporting an abnormal condition	Make a note of the error code number plus any other observation(s) and contact installer.

<Power failure / outage>
Following any power failure (i.e. interrupted power input), ALL settings will be SAVED for a 1 week period only.
After 1 week, only Date / Time will be SAVED upon main controller.

Maintenance

Maintenance to the cylinder unit and outdoor unit should be carried out annually by a competent person only. Users should NOT try to service or replace parts of the cylinder unit by themselves. Failure to observe this instruction could result in injury to the user, damage to the unit and invalidate product warranty.

In addition to routine annual servicing it is necessary to replace or inspect some parts after a certain period of system operation. Please see tables below for detailed instructions.Replacement and inspection of parts should always be done by a competent person with relevant training and qualifications.

Parts which require regular replacement

Parts	Replace every	Possible failures
Pressure relief valve (PRV) Air vent (Auto) Manometer	6 years	Water leakage

Parts which require regular inspection

Parts	Check every	Possible failures
Water circulation pump 1 (i.e. main heating circuit pump)	50,000 hrs (7 years)	Water circulation pump failure

Parts which must NOT be reused when servicing

* O-ring
* Gasket

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

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