

Renewable Heating Technology

PRE-PLUMBED UNVENTED MAINS PRESSURE WATER HEATER WITH FTC6 CONTROL SYSTEM. FOR USE WITH ECODAN PUZ-(H)WM AIR SOURCE HEAT PUMP RANGE.

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OPERATION MANUAL

EHPT15X-UKHLDW1S EHPT17X-UKHLDW1S EHPT15X-UKHDW1S EHPT17X-UKHDW1S EHPT21X-UKHDW1S EHPT21X-UKHDW1L EHPT25X-UKHDW1L EHPT30X-UKHDW1L



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

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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	Cooling mode	Space cooling through fan-coils or underfloor cooling
4	Cylinder unit	Indoor unvented DHW tank and component plumbing parts
5	DHW mode	Domestic hot water heating mode for showers, sinks, etc.
6	Flow temperature	Temperature at which water is delivered to the primary circuit
7	Freeze stat. function	Heating control routine to prevent water pipes freezing
8	FTC	Flow temperature controller, the circuit board in charge of controlling the system
9	Heating mode	Space heating through radiators or Underfloor heating
10	Hydrobox	Indoor unit housing the component plumbing parts (NO DHW tank)
11	Legionella	Bacteria potentially found in plumbing, showers and water tanks that may cause Legionnaires disease
12	LP mode	Legionella prevention mode – a function on systems with water tanks to prevent the growth of legionella bacteria
13	Packaged model	Plate heat exchanger (Refrigerant - Water) in the outdoor heat pump unit
14	PRV	Pressure relief valve
15	Return temperature	Temperature at which water is delivered from the primary circuit
16	Split model	Plate heat exchanger (Refrigerant - Water) in the indoor unit
17	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:

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.

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.			
i	Further information is available in the OPERATION MANUAL, INSTALLATION MANUAL, and the like.			

- 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 sofety.
- 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.
- 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 2°C below the maximum allowable temperature of all the heat emitters. For Zone2, set the target flow temperature to a minimum of 5°C 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 sharp objects to press the buttons of the main remote 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.
- Do not place a container etc. filled with water on the top panel.

SAFETY PRECAUTIONS (cont.)

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.

Fig. 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 means that electrical and electronic equipment, batteries and accumulators at the end of their life, should be disposed of separately from your household waste.

INTRODUCTION

The purpose of this user 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 remote controller. If a chemical symbol is printed beneath the symbol (Figure 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.

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.

Main remote controller

To change the settings of your heating/cooling system please use the main remote controller. The following is a guide to viewing the main settings. Should you require more information please contact your installer or local Mitsubishi Electric dealer.

Cooling mode is available for ER series only.





Main screen

Main remote controller parts

Letter	Name	Function	
A	Screen	Screen in which all information is displayed.	
В	Menu	Access to system settings for initial set up and modifications.	
С	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

-4

When the system is switched off or the power supply is disconnected, the indoor unit protection functions (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.

Main screen icons

	Icon	Descrip	otion		
1	Legionella	When t	his icon is displayed 'Legionella preventior		
	prevention	mode' is active.			
2	Heat pump		'Heat pump' is running.		
			Defrosting		
		ÂIII	Emergency heating		
			'Quiet mode' is activated.		
3	Electric heater	When this icon is displayed the 'Electric heat			
4	Townst		r or immersion heater) are in use.		
4	Target temperature		Target flow temperature		
	lemperature	l	Target room temperature		
			Compensation curve		
5	OPTION		g the function button below this icon will dis		
			option screen.		
6	+		e desired temperature.		
7	-		se desired temperature.		
8	Z1 [←] Z→Z2	Pressing the function button below this icon sw			
			een Zone1 and Zone2.		
	Information		g the function button below this icon display rmation screen.		
9	Space heating	-	Heating mode		
9	(cooling) mode		Zone1 or Zone2		
			Cooling mode		
			Zone1 or Zone2		
10	DHW mode	Normal or ECO mode			
11	Holiday mode	When this icon is displayed 'Holiday mode' activate			
12	Ð	Timer			
	- Ŭ	Prohibit	ed		
	٢	Server control			
		Stand-by			
		Stand-by (*2)			
		Stop			
		Operati	ng		
13	Current	Î	Current room temperature		
	temperature		Current water temperature of DHW tank		
14		-	-		
14	f	The Menu button is locked or the switching of the operation modes between DHW and Heating opera-			
		tions are disabled in the Option screen. (*3)			
15	SD SD	SD memory card (NOT for the user) is inserted.			
16	Buffer tank control	When t active.	his icon is displayed 'Buffer tank control' i		
		Active. When this icon is displayed, 'Smart grid ready' is			
17	Smart grid ready	1 \//hor +			

*2 This unit is in Stand-by whilst other indoor unit(s) is in operation by priority.

*3 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 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.

You should use the function buttons to access more information. When this screen is displayed pressing F1 will display the current status and pressing F4 will take the user to the option menu 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/cooling, or detailed information on energy or capacity.

The option screen allows quick setting of the following;

- Forced DHW (if DHW tank present) to turn ON/OFF press F1
- DHW operating mode (if DHW tank present) to change mode press F2
- Space heating/cooling operating mode to change mode press F3
- Energy monitor

Following accumulated energy values are displayed.

- (I): 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 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.

Main Settings Menu

To access the main settings menu press button B 'MENU'

- The following menus will be displayed;
- [DHW]
- (Cylinder unit or hydrobox (or FTC BOX) plus locally supplied DHW tank) [Heating/Cooling]
- [Schedule timer]
- [Holiday mode]
- [Initial settings]
- [Service] (Password protected)

[Initial Settings]

- 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 edit.
- 3. Use the relevant function buttons to edit each initial setting then press CON-FIRM to save the setting.

Initial settings that can be edited are

- [Date/Time] *Be sure to set it to the local standard time.
- [Language]
- [Summer time] •
- [Temp. display]
- [Contact number]
- [Time display]
- [°C/°F]
- [Room sensor settings]

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



Home screen



Option screen



Main settings menu screen



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

- When 2-zone temperature control is active and wireless remote controllers are available, from Room RC zone select screen, select zone No. to assign to each remote controller.
- From Sensor setting screen, select a room sensor to be used for monitoring the room temperature from Zone1 and Zone2 separately.

Control option	Corresponding initial settir	Corresponding initial settings room sensor		
(Website manual)	Zone1	Zone2		
A	Room RC1-8 (one each	*		
	for Zone1 and Zone2)			
В	TH1	*		
С	Main remote controller	*		
D	*	*		

* Not specified (if a field-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.



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

<Eco mode>

DHW mode can run in either 'Normal' or 'Eco' mode. Normal mode will heat the water in the DHW tank more quickly using the full power of the heat pump. 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.

Return to the DHW/legionella prevention menu.

Forced DHW

The forced 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 'Forced DHW' function can be used to prevent the system from routinely switching to space heating/cooling and continue to provide DHW tank heating.

Forced DHW operation is activated by pressing button F1 and Back button in the 'Option Screen'. After 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/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.

There are 3 heating modes

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

Room temp. (Auto adaptation) mode

This mode is explained in detail in 'Overview of Controls' Section.

Flow temp. mode

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

Explanation of compensation curve

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

The 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 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 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.





C: Outdoor ambient temp

[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 either flow temp., room temp., heating, 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 should be pressed. 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 "Main remote 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/ Cooling/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.

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.
- Use F2/F3 button to point at a starting month of the Schedule 2, then press CONFIRM.
- Use F2/F3 button to point at an ending month of the Schedule 2, then press CONFIRM.
- 7. Press F4 to save settings.

<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.
- The schedule timer sub menu will be displayed. The icons show the following modes;
 - [Heating]
 - [Cooling]
 - [DHW]
- 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/ cooling 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/cooling and DHW (whichever is selected) is allowed.

5. In the preview menu screen press F4 button.

6. First select the days of the week you wish to schedule.

- 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.



Schedule 2 period preview screen



Schedule 1 mode select screen



Preview screen



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.

 -1
 Heating1
 12:30

 -....
 0
 2:45AM→12:00AM

 -....
 0
 2:45AM→12:00AM

 AM12
 3
 6
 9
 12

 PM12
 3
 6
 9
 12

 PM12
 3
 6
 9
 12

Time of period setting screen 1



Time of period setting screen 2

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.

Notes:

- The schedule timer for space heating/cooling 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. CON-FIRM 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.

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	Scheduled control off period	Check schedule settings and change if necessary.	
(systems with DHW tank)	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	Prohibit, schedule or holiday mode selected	Check settings and change as appropriate.	
set temperature.	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 control only	Check the battery power and replace if flat.	
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 tempera- ture 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 sys- tem from operating but the outdoor unit operates.	Freeze stat. function is active.	Normal operation no action necessary.	
Pump runs without reason for short Pump jam prevention mechanism to inhibit the bui of scale.		p Normal operation no action necessary.	
Mechanical noise heard coming from	Heaters switching on/off	Normal operation no action necessary.	
indoor unit	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 con- tact 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

All setting will be saved for 1 week with no power, after 1 week Date/Time ONLY will be saved.

SERIAL NUMBER

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

 Image: Sequential number for each unit: 00001–99999

 Month of manufacture: A (1), B (2), C (3), D (4), E (5), F (6), G (7), H (8), J (9), K (10), L (11), M (12)

 Year of manufacture (western calendar) : 2018 → 8, 2019 → 9

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

UNITED KINGDOM Mitsubishi Electric Europe Living Environmental Systems Division Travellers Lane Hatfield Hertfordshire AL10 8XB

A Declaration of Conformity is available on request.