

Panasonic

AQUAREA USER GUIDE

FOR BI-BLOC, MONOBLOC & ALL IN ONE

WH-ADC...G...
WH-SDC...F...
WH-SXC...F...
WH-SHF...F...
WH-MDC...F...
WH-MHF...F...



AQUAREA USER GUIDE/ FOR BI-BLOC, MONOBLOC AND ALL IN ONE SYSTEMS 2014




Summary

1. Safety precautions	2	6. Error Fault Codes.....	10
2. Overview of ASHP system supplied	3	7. Maintenance Schedule/Regular Checks.....	11
3. Control panel function	5	8. Technical Support Contact details	11
4. Operating Instructions of System.....	5	9. Recycling of Units	11
5. Troubleshooting	9		

Model

Serial number

1. Safety precautions

- **Indoor/outdoor unit**
- Do not sit or step on the unit
 - Do not place anything on top or beneath the units
 - Do not insert fingers into unit, rotating parts may cause injury
 - Do not touch the sharp aluminium fins on outdoor unit, sharps parts may cause injury
 - Do not wash the indoor unit with water, benzene, thinners or scouring powder
 - Service to units should be carried out by Qualified Personnel only.

- **Control Panel**
- Do not let the control panel get wet,
 - Do not press the buttons on the control panel with hard, pointed objects. Otherwise it may cause damage

2. Overview of ASHP system supplied

Panasonic Aquarea heat pump

In this manual, you will find useful information that will allow you to operate your Panasonic Aquarea system to provide heating & hot water in the most efficient and cost effective way.

Overview of System

The centre of your system is the market leading high performance "Panasonic Aquarea" air source heat pump. This heat pump can provide all your heating and hot water, heating will be delivered using underfloor, traditional radiators or fan assisted radiators. Hot water will be supplied from a cylinder. Delivery of heat is usually controlled by the Panasonic controller, which will automatically operate your heat pump when heating is required during the heating season and hot water all year round. Room heating control will be from room wall mounted thermostats or on the radiators (TRVs).



1b

Bi-Bloc option



1c

New All in One option



1a

1b

1c

Aquarea air to water heat pumps

Panasonic has developed an extensive range of air-to-water heat pumps designed to efficiently convert free air into sustainable heating and hot water. Fitted externally to your home and designed to operate in all year round weather conditions (-20 °C), it's the smart efficient alternative to oil, gas and electric heating systems.



2

Aquarea Air. High efficient radiators for heating and cooling (Optional)

- High efficient radiators working with water at 35°C.
- No need for two kits if both floor heating and radiators are required.
- As the product is efficient, it opens the possibility to also provide cooling while still meeting construction requirements.

Panasonic offers a cooling mode within its heat pump range for low consumption homes.



3

KNX

Modbus®

ZigBee
Control your world

Heating control App for smartphone, tablet or computer (Optional)

The heating control App allows you to control the heating and hot water system via your smart phone, tablet or computer with ease, whether at home or away. The heat pump can be also connected to house management system using KNX, Modbus or Zig Bee interfaces.

4



Water tanks (Optional)

- High efficient tank solution: specially designed to improve the efficiency of the domestic hot water production .
- Low energy losses
- High exchange surface for high efficiency and short time to heat up the water.
- 180, 200, 300, & 400 L versions
- WH-TD20E3E5-UK / WH-TD30E3E5-UK
- PAW-TE18C2E3HI-UK / PAW-TE18C2E3STD-UK
- PAW-TE30C2E3STD-UK / PAW-TE40C2E3STD-UK

2. Overview of ASHP system supplied

Heating & Hot Water preparation in detail



Radiators (Panel Heaters)

To optimise the maximum efficiency and lowest flow rate from the heat pump to heat the room, radiators can be wider or deeper than radiators you expect to see when connected to a boiler system.

For maximum efficiency and individual room temperature control, Thermostatic Radiator Valves (TRV's) are fitted.

Most radiator thermostats will either have numbers or roman numerals marked on them when they are adjusted, the higher the number, the warmer the room target set will be.



Underfloor Heating (UFH)

Where underfloor heating is installed you will see a manifold in a cupboard with pipes coming off them and going into the floor, these pipes heat the floor and therefore the room, the room temperature will be controlled by a room thermostat connected.

Do not use a high insulated product in floor finishing as this will inhibit the heat being transferred from floor to air, and in turn increase the flow temperature to achieve target air temperature, with increased running costs.



Fan Coil (fan Assisted Radiators)

Designed to operate at a lower flow temperatures than traditional radiators to heat the room and ideal to be used with heat pumps where underfloor is not an option.

The Panasonic Aquarea system main components

Outdoor Unit

The outdoor unit extracts temperature from the air when the fan is turning to start the process of changing this low temperature to a high temperature using a compression cycle, once the compression cycle is carried out the heat is transferred to the heating or hot water depending on requirements.



Monobloc

Panasonic supply 2 types of heat pumps, firstly a Monobloc system, in this system the hot water produced to feed the heating and hot water is produced externally from the property inside the outdoor unit.



Bi-Bloc

The other Panasonic unit is called a Bi-Bloc system this unit generates hot water from an internal unit (Hydro module) connected to an outdoor unit.



All in one*

New All in One hydromodule + 200l tank

Panasonic has developed a highly efficient solution, easy to install.

Based on the Bi-Bloc system, you have an outdoor unit, with the Hydro Module and DHW Cylinder all in one cabinet indoors.

*Preliminary design. Significant changes may occur.



Cylinder

Where a system is installed to supply hot water there will be a cylinder with ready to use stored hot water at approximately 50°C, this water is lower than you would expect from a boiler system but hotter than you require for washing/showering 39-44°C, more volume is stored to compensate for less cold water mixing for use, therefore saving money on not heating water to a higher stored temperature.



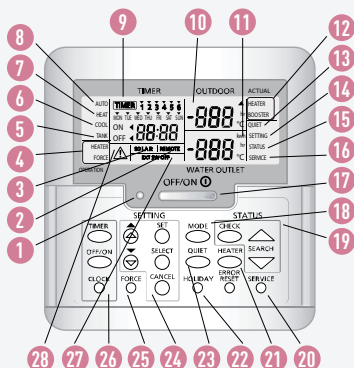
Room Thermostat

This allows a simple adjustment to the room temperature, the higher the room target set the higher the running cost. It can be supplied as an option by Panasonic (PAW-A2W-RTWIRED or PAW-A2W-RTWIRELESS) or another one can be used.

3. Control panel function

Panasonic Controller

The Controller is found as a separate unit internally installed for the Monobloc unit, on the Bi-Bloc system the controller is found on the internal Hydro module.



No Displays

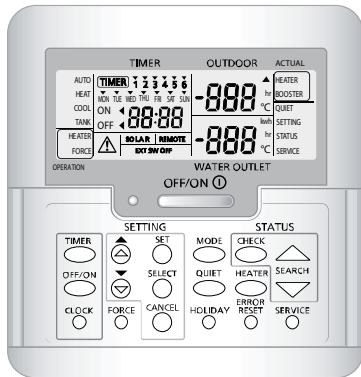
- 1 Operation LED
- 2 Display of external room thermostat
- 3 Display if Solar (Hydro) active (if installed)
- 4 Indicator that back up heater is enabled (■) or disabled (nothing showing)
- 5 Hot-water tank operation display (ON / OFF)
- 6 Cooling operation display (ON/OFF), (if applicable)
- 7 Heating operation display (ON / OFF)
- 8 Auto Mode OFF/ON Indicator
This icon indicates auto mode OFF/ON operation.
- 9 Display of timer setting and time
- 10 Display of outside temperature
- 11 Display of Heat Pump water flow temperature
- 12 Indicator that back up heater for heat pump and electric immersion heater for the hot water tank is operating (on/off)
- 13 Display for quiet mode (ON / OFF)
- 14 Display for system programming (ON / OFF)
- 15 Display for system status (ON / OFF)
- 16 Display for in service mode (Engineers use only)

No Button assignment

- 17 Operation button (ON / OFF)
- 18 Operating mode selection button
Use this button to select the operating mode required.
- 19 System status buttons
These buttons are used for a series of status queries. Proceed as follows:
 - Press the CHECK button for 5 seconds to switch to Status mode.
 - Press the UP or DOWN button to open the following values:
 1. Compressor operating frequency
 2. Error code
 3. Water inlet temperature
 4. Water tank temperature
 - Press the CANCEL button or wait 30 seconds to quit Status mode.
- 20 Service button (Engineer use only)
- 21 Button for enabling the additional electric heater for the heat pump. The additional electric heater can only be used if this button is pushed. Note: If this button is not pressed, the additional electric heater for the heat pump is only used for:
 - Defrosting
 - Device startup
 - Frost protection mode
- 22 Holiday button
- 23 Quiet mode button
- 24 System programming buttons
These buttons are used to set temperature values.
- 25 Emergency heating mode button
This button allows the device to be operated in emergency heating mode with the additional electric heater for the heat pump, e.g. if the heat pump is defective.
Press the ON / OFF button to switch off emergency heating mode.
- 26 Timer programming buttons
These buttons are used to set the time and the weekly timer.
- 27 The system is turned off by an external switch.
- 28 ⚠ Warning sign on display this is to say the following: Indicator that DHW is stored at +60 °C – WARNING "HOT"

4. Operating Instructions of System

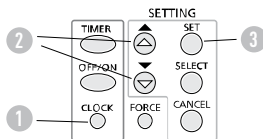
Operating Instructions (Controller)



REMOTE CONTROL PREPARATION

Setting Current Day and Time

- 1 Press the CLOCK button
- 2 Press the UP or DOWN button to set the current weekday
- 3 Press the SET button to confirm the setting
- 4 Repeat steps 2 and 3 to enter the current time



*Note

The current weekday and time must be set when:

- The power supply is switched on for the first time,
- After a long interruption to the power supply.

The current time set is the time basis for all timer functions

- In normal operation, the the and buttons are not in use.
- If cooling is activated then you may/will not be eligible for government grants.

*1 The system is locked to operate without COOL mode. It can be unlocked only by authorised installers or our authorised service partners.

*2 Only displayed when COOL mode is unlocked (Means when COOL mode is available).



OFF/ON

REMOTE CONTROL PREPARATION

Press to turn unit on or off

- When unit is ON, operation LED is lit and the actual temperature for water outlet and outdoor ambient are shown on the remote control display.



MODE

To select operation mode

→ AUTO → AUTO + TANK → HEAT → HEAT + TANK → TANK → COOL + TANK → COOL

HEAT MODE

- To turn ON or OFF the heating operation.
- In this mode the heat pump will provide energy only for the Heating of the property.

HEAT + TANK MODE

- In this mode the heat pump will provide energy to the DHW cylinder or the Heating or the property. (actual mode of operation will not be indicated, and only if DHW cylinder is connected to the heat pump control)
- This operation is not used when the DHW water tank is not installed.

TANK MODE

- To turn ON or OFF the DHW tank operation.
- In this mode the heat pump will provide energy only to the DHW (cylinder) only if the cylinder is connected to the heat pump control).

COOL + TANK MODE (*1, *2)

- Heat pump provides cooling to the property
- The heat pump controls the booster heater in the DHW cylinder (only if DHW cylinder is connected to the heat pump control)

COOL MODE (*1, *2)

- The panel is either turned ON or OFF.
- To turn ON or OFF the heat pump cooling operation



QUIET

To enjoy quiet environment

- This operation reduces heat pump unit noise. In this condition, it may cause decrease in heating capacity.

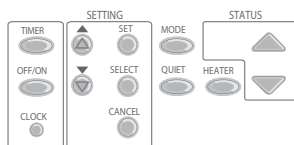
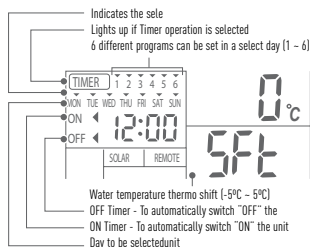
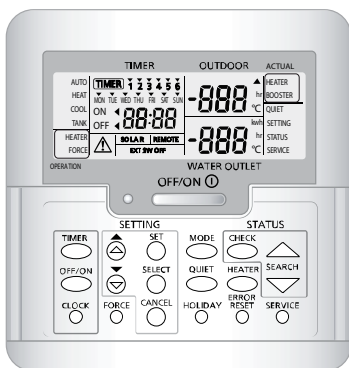
HEATER



To enable the backup heater

- The backup heater will only operate when the setting conditions are fulfilled.
- To disabled the Heater operation manually, press the respective button again.

Operating Instructions (Controller)



Heating & Domestic Hot Water Operating Times Set Up

NOTE: This timer is not like normal timers you may have operated before, the Panasonic timer works on the basis of last command stands, once you start a command this will stand unless you ask for another command to operate/commence or switch the command "OFF"

Panasonic would recommend that you set your DHW preparation for 24/7 (standing heat loss on new cylinders is negligible).

It can also be advantageous to set your heating system to be active 24/7 during the heating demand season - consult your installer for the most efficient set up given your design and requirements.

Setting the weekly timer for operation of heat / tank to be activated To enter the Timer mode

1. Press the TIMER button.
2. Press the UP or DOWN button to select your desired day.
3. Press the SELECT button to confirm.
"1" will be blinking.
4. Press the SELECT button to set Program 1.
5. Press the OFF/ON button to select ON or OFF timer.
6. Press the UP or DOWN button to select your desired time.*
7. Press MODE to select operation to be carried out



If HEAT or HEAT + TANK is selected you are able to change the shift temperature with the UP or DOWN button.

Press the SET button to confirm Program 1.

The selected day is identified with the symbol.

After 2 seconds, the display will move to the next program.

8. Repeat the steps 4 to 7, starting with the OFF/ON button, to set additional commands 2 to 6 (if required).
9. If no buttons are pressed for 30 seconds during timer setting, or if you press the SET button, the current setting is saved and the timer setup is ended.

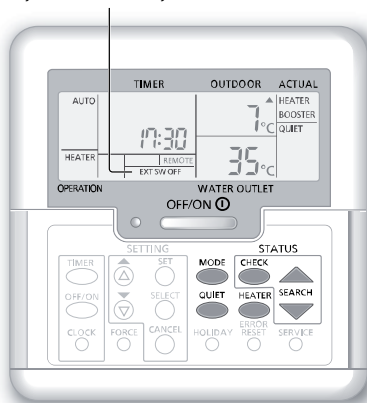
* In step 6 you can also activate QUIET or HEATER by pressing such buttons in the remote instead of the MODE one and following the same procedure

** If cooling is activated then you may/will not be eligible for government grants.

4. Operating Instructions of System


Operating Instructions (Controller)

The system is turned off by an external switch.






System status check mode

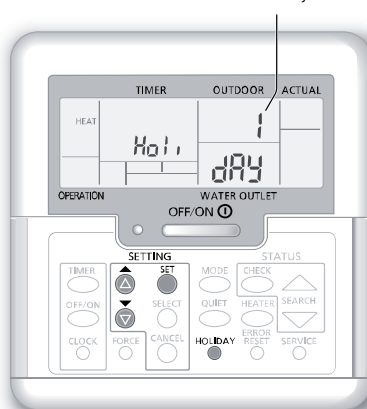


1. Press check.
(The display shows STATUS.)
2. Press UP or DOWN to check the selected mode.
 - Dry concrete (does not show during normal operation)
 - The Water Inlet Temperature
 - Tank Temperature
 - Compressor Running Frequency
 - Error History
 - Heat mode total power consumption (Up to 999 days)
 - Cool mode*1 total power consumption (Up to 999 days)
 - Tank mode total power consumption (Up to 999 days)
 - Press  to exit the STATUS mode.

*Note

- Once the STATUS mode is entered, the display shows STATUS.
- The STATUS mode cannot be activated when the display shows SETTING.
 - The total power consumption is an estimated value based on AC 230 V and may differ from value measured by precise equipment.
 - In normal operation,  the  and  buttons are not in use.

Desired days





Holiday mode



- By setting the day (s) in holiday mode, it promotes energy saving while you are on holiday, and enables the system to resume at the preset temperature after your holiday.
- Ensure that the system is OFF before setting.
- The system will resume operation automatically at 00:00 am after the holiday.
- The day the HOLIDAY mode was set is counted as day 1.

Example:

Setting the holiday mode on June 21, 08:00 am. By setting 3 days, the system resumes operation on June 24, 00:00 am.

1. Press  to enter the HOLIDAY mode.
2. Press UP or DOWN to set the desired days.
(Setting range: 1 day ~ 999 days)
3. Press  to confirm the setting.

* Note

Press  or wait 30 seconds to exit the HOLIDAY mode.

5. Troubleshooting

The following symptoms do not indicate malfunction.

SYMPTOM	CAUSE
Flowing sound during operation.	➤ Refrigerant flow inside the unit.
Operation is delayed a few minutes after restarting.	➤ The delay is a protection to the unit's compressor.
Outdoor unit emits water/mist.	➤ Condensation or evaporation occurs on pipes
Outdoor unit emits mist during heating mode.	➤ This is due to defrost operation happens at the heat exchanger.
Outdoor unit does not operate.	➤ When the outdoor temperature is out of the operation condition range, the heatpump system enter protection control.
(Outdoor unit) Air-to-water Heatpump system operation will turn off.	➤ The heatpump system enter protection control. Compressor stops by water inlet temperature lower than 18°C; and backup heater power turn on by water inlet temperature lower than 23°C.
System difficult to heat-up.	➤ Multiple heating circuits can effect the performance at times. Is the snow pile blocking the discharge outlet or intake inlet of outdoor unit.
System cannot get warm instantly.	➤ Due to the nature of the heatpump system, it may take some time to heat-up the water if the unit is operated from cold-start.
Backup heater turn ON automatically when it is not enabled.	➤ The turn ON of backup heater is a protection to the indoor unit's heat exchanger.
Operation starts automatically even without ON Timer.	➤ The sterilisation timer has been set.

Check the following before calling for servicing .

SYMPTOM	CAUSE
Heating operation is not working efficiently.	➤ Check the temperature set on house/room thermostat Is the radiator valve (TRV) closed) Clear any obstructions of the air inlet or outlet vents of the outdoor unit
Noisy during operation.	➤ Check if the outdoor unit has been installed at an incline or a cover is not closed properly.
The outdoor unit does not work	➤ Check if the circuit breaker on house electrical distribution board has not tripped.
Operation LED is no lit or remote control display is blank.	➤ Is the power supply off or power failure.



Indicator that the domestic hot water in the cylinder is above +60 °C
(only if controlled by A2W heat pump)



The operation LED blinks and error code appear on remote control display.

- Turn the unit off and reveal the error code to authorised dealer.
- Timer operation cancel when error code occur.


FORCE



Force Heater Mode Button

- In case of a failure of the heat pump system but still power to the unit, the electric heaters can be activated to provide HEAT, HEAT+TANK or just TANK, check the mode of operation showing (check what is displayed on 6 & 8 on control panel)
- If a ■ showing against 6 or 8, then when the FORCE button is pressed this will be activated, if it is not showing then press then the MODE button until the required setting is displayed, once the FORCE button is pressed to activate the operation the ■ will disappear against HEATER BOOSTER (display 12) and the operation is set.
- Using FORCE heater mode, all operations are not allowed (this is an emergency operation and will incur higher running costs)
- Press (insert picture of on/off button) to stop the Force heater operation.

6. Error Fault Codes

ERROR CODE	ERROR/PROTECTION TRIGGERED	RECOMMENDATIONS
F12	Pressure switch triggered	Contact your local Panasonic installer, quoting fault code
F14	Compressor abnormal	Contact your local Panasonic installer, quoting fault code
F15	Incorrect speed of the outdoor unit fan	Check there are NO obstruction of FAN in outdoor unit (leaves, sticks or snow). Switch off power before attempting to remove any obstruction. Fans can start without warning.
F16	Protection against excessive total operating current	Contact your local Panasonic installer, quoting fault code
F20	Compressor overheating guard	Contact your local Panasonic installer, quoting fault code
F22	Power transistor module overheating guard	Contact your local Panasonic installer, quoting fault code
F23	Direct current peaks in the outdoor unit	Contact your local Panasonic installer, quoting fault code
F24	Problems in the cooling circuit	Contact your local Panasonic installer, quoting fault code
F25	Problem switching between heating and cooling	Contact your local Panasonic installer, quoting fault code
F27	Pressure switch	Contact your local Panasonic installer, quoting fault code
F36	Outside temperature sensor	Contact your local Panasonic installer, quoting fault code
F37	Return temperature sensor in indoor unit	Contact your local Panasonic installer, quoting fault code
F40	Hot gas temperature sensor in the outdoor unit	Contact your local Panasonic installer, quoting fault code
F41	PFC circuit	Contact your local Panasonic installer, quoting fault code
F42	Temperature sensor of the heat exchanger in the outdoor unit	Contact your local Panasonic installer, quoting fault code
F43	Outdoor unit defrosting temperature sensor	Contact your local Panasonic installer, quoting fault code
F45	Supply temperature sensor in indoor unit	Contact your local Panasonic installer, quoting fault code
F46	Current converter open in outdoor unit	Contact your local Panasonic installer, quoting fault code
F95	Cooling high pressure guard in outdoor unit	Contact your local Panasonic installer, quoting fault code
H12	Unsuitable output between the indoor and outdoor unit	Contact your local Panasonic installer, quoting fault code
H15	Compressor temperature sensor	Contact your local Panasonic installer, quoting fault code
H20	Water pump abnormal	Reset once if reoccurring contact your local Panasonic installer, quoting fault code
H23	Liquid temperature sensor	Contact your local Panasonic installer, quoting fault code
H42	Compressor low pressure	Contact your local Panasonic installer, quoting fault code
H62 *	Water-side flow rate cut-out	Check & Clean in line filter. Remove air within the pipework. Reset the system. If fault occurs repeatedly (4 or more times in 24hrs) contact your local Panasonic installer quoting fault code.
H64	High-pressure sensor	Contact your local Panasonic installer, quoting fault code
H65	Defrost circulation error	Reset once if reoccurring contact your local Panasonic installer, quoting fault code
H70 *	OLP additional electric heater for heat pump	This error code can be reset via controller. System will appear to be running normally. You must contact your local Panasonic installer, quoting fault code for a full reset.
H72	Hot water tank temperature sensor	Contact your local Panasonic installer, quoting fault code
H76 *	Communication error between remote and HP	Reset error. Switch off (power) for 2 minutes. Wait 1 minute. If still present contact your local Panasonic installer, quoting fault code
H90	Communication errors between indoor and outdoor unit	Reset error. Ensure all isolators are switched on. Contact your local Panasonic installer, quoting fault code
H91 *	OLP electric immersion heater for hot-water tank	Check thermostat on cylinder is not set too high. Reset error. If reoccurring contact your local Panasonic installer quoting fault code.
H95	Indoor/outdoor unit incorrectly connected	Contact your local Panasonic installer, quoting fault code
H98	High pressure guard in outdoor unit	Contact your local Panasonic installer, quoting fault code
H99	Antifreeze protection for indoor unit heat exchanger	Contact your local Panasonic installer, quoting fault code
	Indicator ONLY - DHW is stored at above +60 °C – "WARNING HOT"	No action required

* Errors experienced following initial installation.

7. Maintenance Schedule/Regular Checks



Regular Checks

- Periodic inspection of indoor/outdoor units and connections.
- Ensure outdoor unit NEVER has obstacles covering the unit, especially in Autumn with leaves and Winter with snow.



Maintenance Schedule

An annual maintenance/service contract is recommended to ensure optimum performance from your Panasonic A2W Heat Pump, please contact an accredited Panasonic installer for more details.

8. Technical Support Contact details



Please call your installer as the first point of call, indicating the fault or fault code, otherwise please call Panasonic Technical Support 01344 853 303 for assistance.
(Your warranty card details will be required)

9. Recycling of Units



After the end of the product's service life, it must be disposed of appropriately.
The respective environmental protections regulations must be observed at the time of disposal.

Panasonic®

To find out how Panasonic cares for you,
log on to: www.aircon.panasonic.co.uk

Contact Details:

Telephone: 01344 853182
uk-aircon@eu.panasonic.com

Address: Panasonic Air Conditioning

Panasonic House
Willoughby Road
Bracknell
Berkshire
RG12 8FP



Do not add or replace refrigerant other than the specified type. Manufacturer is not responsible for the damage and deterioration in safety due to usage of the other refrigerant.

