

Grant Aeron³

Air to Water High Efficiency Heat Pump Range

User Instructions



Heating Controls



Special Text Formats

The following special text formats are used in this manual for the purposes listed below:



Warning of possible human injury as a consequence of not following the instructions in the warning.



Caution concerning likely damage to equipment or tools as a consequence of not following the instructions in the caution.



Used for emphasis or information not directly concerned with the surrounding text but of importance to the reader.



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Introduction

These instructions are intended to assist the user with the operation of a Grant Aeron³ air source heat pump. Full details on the Installation, Commissioning and Servicing of the heat pump are contained in the Installation Instructions supplied with the unit.



NOTE

In normal running mode your heating system remains on all the time. To adjust the temperature in house use the room thermostats. For domestic hot water this is set as hot water priority.

About your Heat Pump

Your Grant Aeron³ air source heat pump is a highly efficient and fully automatic unit that extracts heat energy from the outside air to heat your home.

The Grant Aeron³ is an 'air to water' heat pump. In operation, the fan (or fans) draws air through the finned coil evaporating the refrigerant in the heat pump. This refrigerant is then compressed to increase its heat energy before it passes through a heat exchanger transferring that heat energy to the water of your heating system.

Heat Pump display Pad

Your heat pump will usually be fitted with a display pad (refer to Figure 1). This will be electrically connected to the heat pump outside, but will be located in a convenient position within your home.

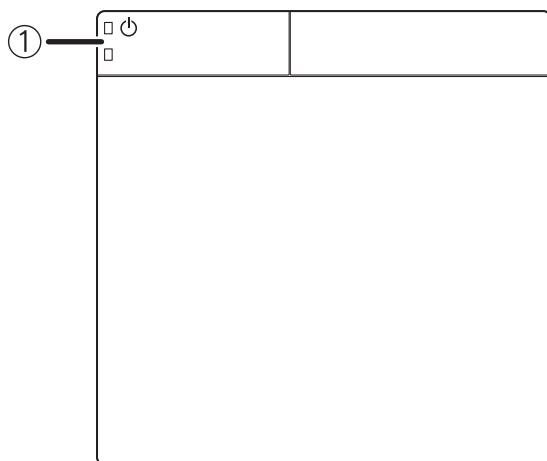


Figure 1: Heat pump display pad (with door closed)

The display pad has three principle functions.

- The first is to enable the heat pump operating parameters to be accessed and adjusted as required by the heat pump installer.
- The second is to provide a simple means of switching the heat pump ON or OFF as and when required using the ON/OFF button (1). Refer to the 'Switching the Heat Pump ON or OFF' section in these User Instructions.
- Thirdly, in the event that a fault is detected, a red LED on the ON/OFF switch of the display pad will flash and a warning icon and error code will be displayed on LCD screen and also on the Terminal PCB display.

The heat pump is supplied with the operating parameters set to the factory default values. However, these parameter settings should have been checked by the installer when the heat pump was commissioned and adjusted where necessary to ensure they are correctly set to suit your particular installation.

These heat pump operating parameters should NOT then be altered other than by either the installer or a Grant Service Engineer if and when necessary.

When switched ON, the display pad screen will display both the outside air temperature and inside air temperature (for the area where the display pad is located).



NOTE

The heat pump display pad does NOT control the ON and OFF times or temperatures of your heating system. These are controlled by your heating system controls. Refer to the 'Heating System Controls' section of these User Instructions.

The installer should have set the correct day and time that is also displayed on the display pad screen. If not, refer to the instructions provided in Section 9.2 of the Installation Instructions supplied with the heat pump.

Heating System Controls

Your Grant Aeron³ heat pump is NOT controlled by the display pad but will usually be controlled by a normal domestic heating control system.

This control system will typically consist of the following controls:

Room thermostats, programmable or non programmable, which keeps the areas at the desired temperatures.



NOTE

With the Grant Aeron³ heat pump, Grant recommends that the hot water heating periods should be set to occur when the heat pump is NOT operating to provide heating, i.e. when the programmer is set to OFF for heating.

A room thermostat

This allows the required air temperature to be set. When the air temperature is below this setting the thermostat will 'call' for the heat pump to operate to provide heating. This is usually located in a downstairs area such as a hallway or living room, but you may have more than one room thermostat if your heating system is 'zoned'.



NOTE

For the heat pump to operate to provide heating, the room thermostat must be 'calling'.

Cylinder thermostat

This controls the temperature of the water in your hot water cylinder, provided that your hot water cylinder is being heated by the heat pump. When the water temperature in the cylinder is below the thermostat setting it will 'call' for the heat pump to operate to heat the hot water. Heating the hot water is given priority on all heat pump systems and the recommended setting prior to commissioning is 47°C.

The above is only a general description of the heating and hot water system controls that you may have. You must refer to the manufacturers' operating instructions provided with these controls for full details of their correct setting and operation.

The operation and setting of these system controls should be explained to you by the installer.

Cylinder Digital Stat



NOTE

When setting the stat please set no higher than 47°C for most efficient running of domestic hot water



WARNING

Do not set above 53°C at any stage without consulting Grant Engineering as it will affect your heating system

Grant Hot Water Boost Kit

In addition to the programmer and cylinder thermostat, to control the ON and OFF times of the water heating, you may also have a Grant Automatic DHW Boost Kit 2 control fitted.

This optional control allows the cylinder immersion heater to periodically raise the water temperature in the cylinder to 60°C to prevent Legionella. It incorporates a timer allowing it to be pre-set to automatically operate the immersion heater for the required period on either a daily or weekly basis. Refer to the Installation and User Instructions supplied with the Boost Kit for further information.



NOTE

The Immersion heater switch or switched isolator usually located on the wall next to your hot water cylinder, MUST be switched ON for the Boost Kit to automatically operate the immersion heater.

If fitted, the Boost Kit timer should have been set by the installer to suit your installation when your heat pump was commissioned. Refer to Section 5.4 of the Installation Instructions supplied with your AERONA³ heat pump for further details if required.



WARNING

If either the Immersion heater switch (on the wall), or the timer override, is set to OFF the anti-legionella function will not operate.

Time boost kit for Legionella protection

- Timer Spur must not be mounted on a flammable surface.
- Ensure that the Timer Spur does not come into contact with any combustible materials such as towels or bedding.
- Ensure at least a 300mm air space is allowed around the Timer Spur switch.
- A 12mm pattress is provided if extra spacing is required
- Twin Earth terminal provided.
- Fixing screw caps must be installed to maintain class 2 status

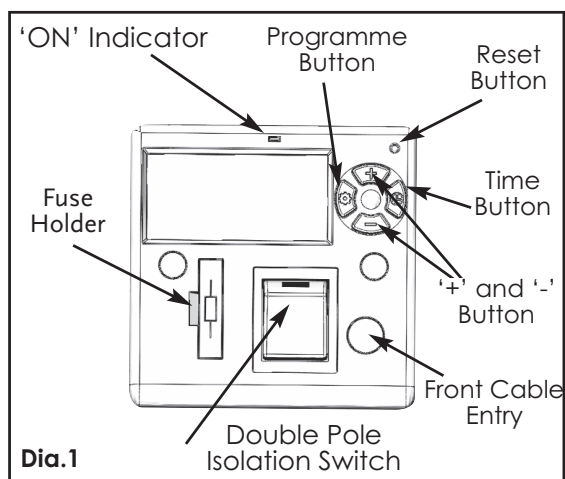


This unit should be installed by a competent person in accordance with the current IET Wiring Regulations. If in doubt consult a qualified electrician.



Where earthing termination is required this must be connected to a earth terminal as provided in a metal back box.

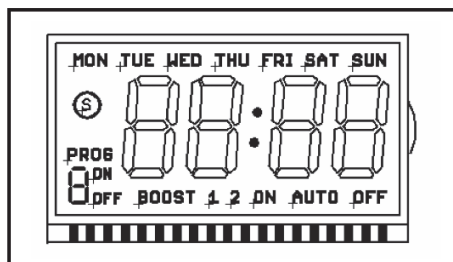
Operating Instructions



Reset The Device

1. To fully reset this unit press the recessed 'Reset' button with a insulated blunt probe.
2. A full display will show when the battery is charged, then revert to the default screen (- -: --). No display indicates that the battery requires charging for a minimum 3 hour period. (Dia.2 - Full display)

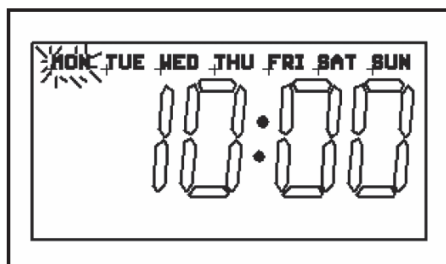
Dia.2



Setting the Day and Time of the week

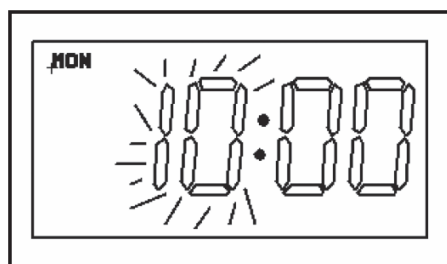
1. Press the 'TIME' button Setting for 2 seconds.
Day of week will start flashing (example shows 7 Day setting Dia.3)

Dia.3



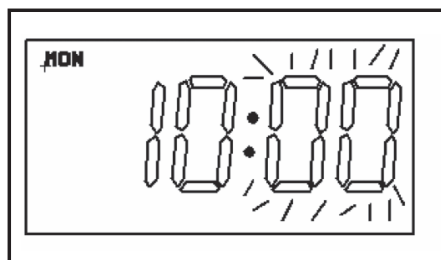
2. Use the '+' or '-' button to change the display to the correct day of the week.
3. Press the 'TIME' button and the hour digits will flash. (Dia.4)

Dia.4



4. Use the '+' or '-' button to set the hours.
5. Press the 'TIME' button and the minute digits will flash. (Dia.5)

Dia.5



6. Use the '+' or '-' button to set the minutes.
7. Press the 'TIME' button to save the setting and return to operating mode.

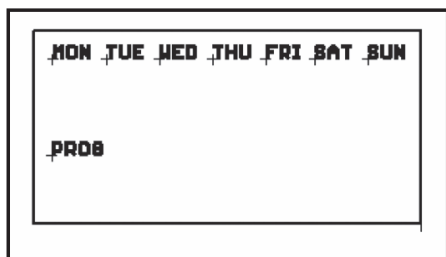


If '+' or '-' button is held for more than 2 seconds, the selected time digit will add or decrease quickly (about 5 steps per second), if no key is pressed within 60 seconds the display will return to operating mode.

Programming the ON/OFF times

1. Press the 'PROG' button and hold for 2 seconds, after 2 seconds the display will show (example shows 7 Day setting Dia.6)

Dia.6



Only ONE of the following options can be used at one time.

2. Use the '+' or '-' button to change the day grouping (PROG) at the top of the display. This will step through the following programming options:

7 DAY - MON TUES WED THU FRI SAT SUN

All of them have the same programming.

OR

5 DAY - MON TUE WED THU FRI

Are grouped as one group, and they will all have the same programming. SAT and SUN will be programmed individually.

OR

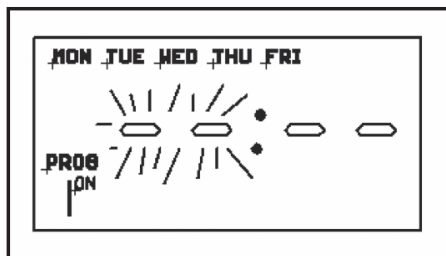
INDIVIDUAL DAY -

Each day will have its program set individually. MON followed automatically in programming by each of the other days. To copy times set for an individual day to another day (e.g. copy Sat set times to Sun), please see PROGRAM DUPLICATION below.

3. Once the desired day grouping is selected, press 'PROG' button to move onto programming ON/OFF times. Display will show PROG 1 ON, and the hour digits flashing (24 hour clock) (Dia.7).

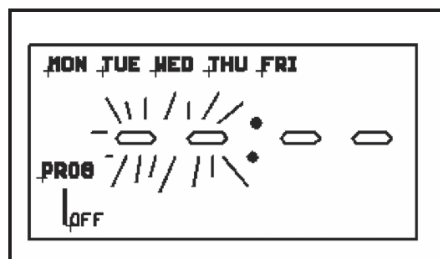
(Example shown is for 5 + 1 + 1 + day program)

Dia.7



4. Use the '+' or '-' to set the hours and the 'PROG' to change between hours and minutes. Followed by '+' or '-' again to set the Minutes. Press 'PROG' to change to program OFF time. (Dia.8)

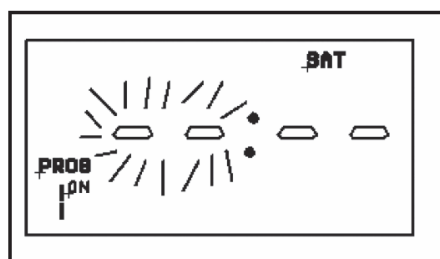
Dia.8



5. Use the '+' or '-' to set the OFF time in the same way as for PROG 1 ON time.

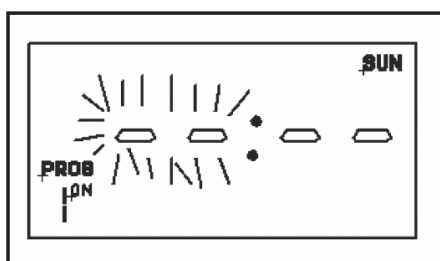
6. Press 'PROG' to scroll through program 2 ON, program 2 OFF, program 3 ON, program 3 OFF, program 4 ON, program 4 OFF, adding in times as required. If you wish to omit programmes just leave dashes in that ON/OFF location. Press 'PROG' to move to the next linked day (SAT follows the 5 day group automatically) (Dia.9).

Dia.9



7. Set ON/OFF times as before. Press 'PROG' to move to the next linked day (SUN follows the SAT automatically) (Dia.10).

Dia.10



8. Set ON/OFF times as before.

9. Once program 4 OFF has been set, press 'PROG' to exit program mode and return to operating mode.

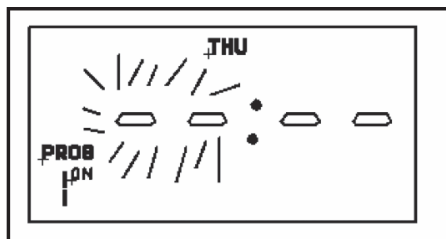
Program Duplication

There are two copy functions: copy one day to another, or copy one day to all other days. When programming for 'Individual Day' or '5 Day' you can copy the programmed data from one day to another day.

1. When setting ON time of 'PROG' 1, press 'TIME' button and then use '+' or '-' to select the day you want to copy.

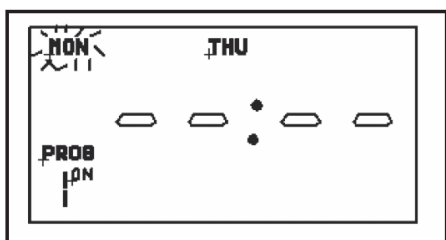
2. Press 'TIME' button twice to copy the data of the selected day to current day. Or press 'TIME' button for 2 seconds to copy the data of the selected day to the following days. (Example shown for copying data TUE to THU) When the ON/OFF times for WED are set, the display will show 'THU':- (Dia.11).

Dia.11



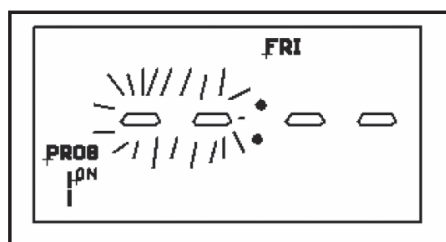
3. Press 'TIME' button then the icon 'MON' will be flashing (Dia.12).

Dia.12



4. Use '+' or '-' button to select 'TUE', then press 'TIME' button twice to copy the data. The display will show: (Dia.13).

Dia.13



Modifying or adding new programmes

1. Press 'PROG' button and hold for approx 2 seconds, the display will show: (Dia.14).

Dia.14



2. Use '+' or '-' button to select the day grouping which requires modifying or a new day grouping for a new programme.

3. For modification press 'PROG' repeatedly to arrive at the programme time requiring modification then use '+' or '-' button to make the change. Press 'PROG' repeatedly again to arrive at the next time requiring modification and use '+' or '-' button to make the change.

Operating mode

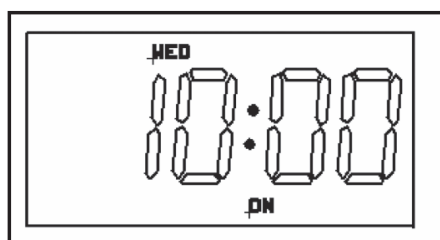


Operating mode needs to be set to allow programmed times to function

1. Use '+' button to set the output mode.

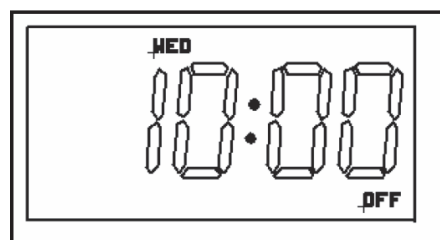
ON - Output to permanently ON and omit the program (Dia.15).

Dia.15



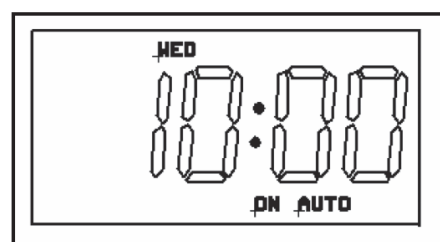
OFF - Output to permanently OFF and omit the program (Dia.16).

Dia.16



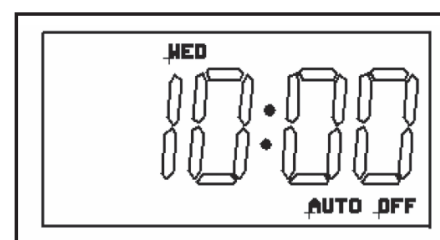
ON AUTO - Output to ON until next program OFF period (Dia.17).

Dia.17



OFF AUTO - Output to OFF until next program ON period (Dia.18).

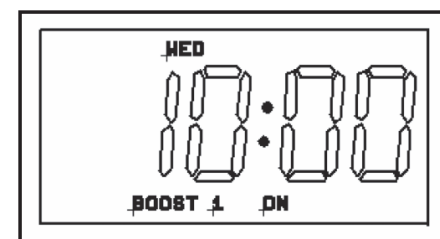
Dia.18



One and two hour boost

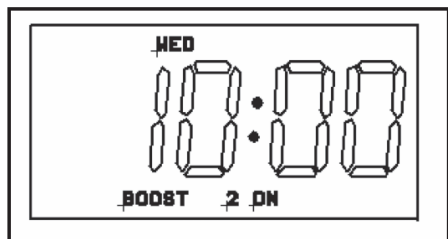
1. Pressing '-' (Boost) once in normal operating mode turns on for 1 hour period (Dia.19).

Dia.19



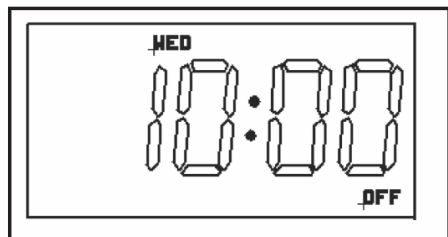
2. Pressing '-' (Boost) twice turns output on for a 2 hour period (Dia.20).

Dia.20



3. Pressing '-' (Boost) button three times cancels the (Boost) ON period (Dia.21).

Dia.21

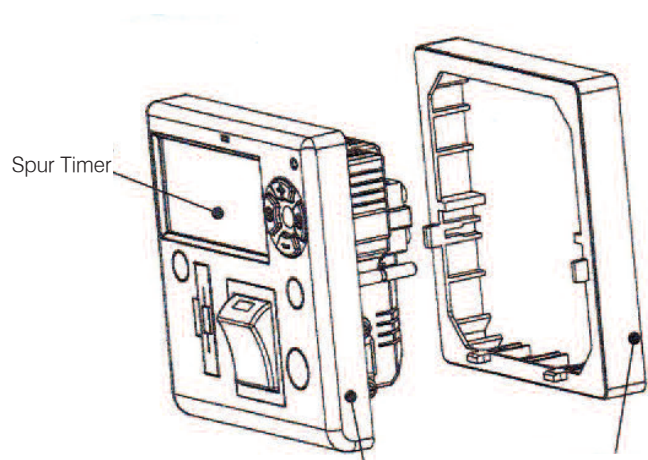


Operation

With the Automatic DHW Boost Kit 3 fitted, the HW cylinder thermostat should be set to 47°C for optimum operation. When the heat pump raises the cylinder to this temperature the cylinder thermostat will be 'satisfied'

The time boost kit should be set as required to raise the temperature in the cylinder to 60°C, usually for an hour or two weekly, or as determined by the installer to match the occupants requirements.

If an amount of hot water drawn off is small, the temperature drop in cylinder may be minimal and the cylinder thermostat may not detect it. In this case the cylinder thermostat will continue to supply the demand to the Boost Kit and the Immersion heater will continue to operate.



12.5mm thick pattress front plate thickness 12.5mm

FUSED TIMER SPUR SWITCH - 7 DAY

Ideal for control of towel rails, panel heaters, immersion heaters & fan heaters.

- Energy saving
- Easy to program
- 'Boost' and 'Advance' controls
- Surface/flush mounting
- Front cable entry
- Will fit 25 - 47mm back boxes



SPECIFICATIONS

T205 - C	
Product Finish	White
Product Dimensions	86.5 x 86.5 x 40mm (46.5mm including switch on front)
Product Weight	180 gms
Bar-code	5012739634949
Voltage	230V - 50Hz
Rated Impulse Voltage	2,500V
Pollution Degree	2
Display	LCD
Operating Temp	-5°C to +40°C
Battery Life	700 hrs
Max Load	Resistive 13A inductive 6A
Isolation	Double Pole Isolation Switch
Settings	28 ON and OFF Easy set - day / 5 day / 7 day blocks
Max Wattage	3000W
Operating Temp	-5°C to +40°C
Main housing material	Polycarbonate
Fixings	2 x 35mm, 3.5mm/2 x 25mm, 3.5mm Fixing screws
Guarantee	1 Year
Certification & Conformity	BS 1363-4:1995+A4:2012, BS EN 60730-1:2011, BS EN 60730-2-7:2010, BS 4662:2006+A1:2009

To Switch the Heat Pump ON or OFF (via the Display Pad)

To switch the heat pump ON:

- 1. First, check the power supply to the heat pump is switch ON at the weatherproof isolator. This is usually located outside next to the heat pump.
- 2. Press and hold the ON/OFF switch (1) for 3 seconds. Refer to Figure 3.
- 3. When the Green LED is lit the heat pump is ON.

To switch the heat pump OFF:

- 1. Press and hold the ON/OFF switch (1) for 3 seconds. Refer to Figure 3.
- 2. When the Green LED is no longer lit the heat pump is OFF

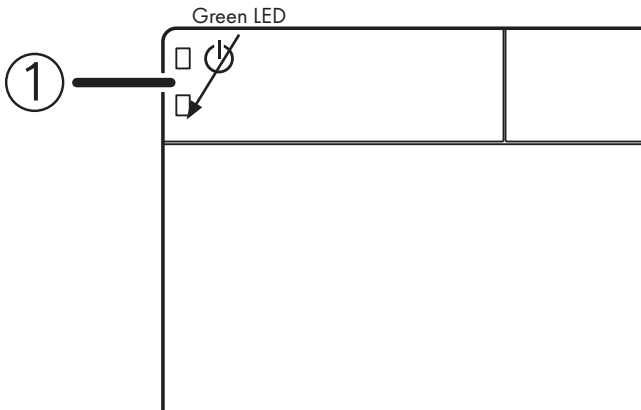


Figure 3: ON button with indicator LED



Whilst the heat pump is switched ON and ready to operate it may not start!

In order for the heat pump to start (when it is switched ON) there must also be a 'demand' from the heating system controls. Refer to the 'Heating System Controls' section of these User Instructions.

To Switch the Heat Pump ON or OFF (without the Display Pad)

Your heat pump may have been installed without a display pad connected. If this is the case, you can still switch the heat pump off by simply switching the external electrical isolator to OFF. This isolator is usually located on the outside wall of your house next to the heat pump.



If the electrical supply to the heat pump is switched off at the external isolator, the frost protection function will NOT operate. Refer to the 'Frost Protection' section of these User Instructions.

To switch the heat pump back on: Switch the external electrical isolator back to ON.



Even when the heat pump is switched ON and ready to operate it may not start!

In order for the heat pump to start (when it is switched ON) there must also

be a 'demand' from the heating system controls. Refer to the 'Heating System Controls' section of these User Instructions.

Display Pad Panel

The operation of the heat pump is indicated in the top right hand corner of the display padscreen using the following symbols:

	This indicates the frost protection is activate. Refer to the 'Frost Protection' section of these User Instructions.
	This indicates the defrost cycle is active.
	This indicates a heating demand. If this is displayed on the display pad screen the programmer and room thermostat are 'calling' If the 'sun' symbol is flashing it indicates that the heat pump is in the heating mode but the heating has stopped due to a hot water heating demand that has priority.
	This indicates a hot water demand. If this is displayed on the display pad screen the programmer and cylinder thermostat are 'calling'
	This indicates the heat pump fan is running.
	This indicates the circulating pump (in the heat pump) is running.
	This indicates the heat pump compressor is running. If this symbol is flashing it indicates that the operation of the compressor is being delayed by the internal controls of the heat pump. This delay should normally stop after a short period and the compressor (and heat pump) will operate.

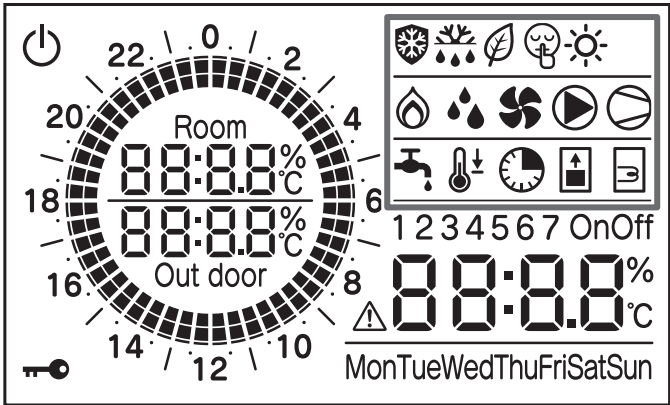


Figure 3: ON button with indicator LED

Weather Compensation

Your Grant Aeron³ heat pump has a built-in 'weather compensation' function that varies the heating system water temperature as the outdoor air temperature changes, i.e. as the outdoor air temperature falls the system flow temperature increases and vice versa. Refer to Section 3.7 of the Installation Instructions supplied with the heat pump.

This function helps to improve the thermal efficiency of your heating system.

The heat pump is supplied with default settings for this weather compensation functions and these should be checked and altered, if required, by the installer during commissioning to suit your heating system.

When the actual outside air temperature is the above the 'maximum outdoor air temperature' setting of the weather compensation function the heat pump will NOT operate for heating, even if there is a demand from the heating system controls.

This is not a fault with the heat pump but the normal operation of the Weather Compensation function automatically preventing operation of the heat pump (and heating system) when the outside air temperature indicates that use of your heating system would be unnecessary and wasteful.



This does not apply to the hot water heating function of the heat pump. This will still operate even if the outside air temperature is greater than the maximum outdoor air temperature setting of the Weather Compensation function.

Frost Protection

Your Grant Aeron³ heat pump is fitted with automatic frost protection that will operate when either the outside air temperature or the system water temperature falls to a pre-set value (factory default setting 4°C). For further details refer to Section 8.3 of the Installation Instructions supplied with the heat pump.

This frost protection function will operate even when the heat pump is switched OFF at the remote controller. See the 'To Switch the Heat Pump ON and OFF' section of these User Instructions.



If the electrical supply to the heat pump is switched off, e.g. at the external isolator, the frost protection function will NOT operate.

As the heat pump frost protection involves the operation of the circulating pump, it is perfectly normal to hear the circulating pump running (when the heat pump is off) during periods of cold weather.

The circulating pump may operate for long periods, e.g. all night, when the conditions dictate but as this pump has a very low power consumption, the cost involved in protecting your heat pump is very small.

Looking after your Heat Pump

Grant Aeron³ Heat Pumps require very little maintenance but it is important that the air inlet grille (at the rear and left hand side of the unit) is kept clear at all times.

Remove any build-up of leaves, snow or any other debris from the air inlet grille.

Also, ensure that the fan outlet is not obstructed at all times.



Do not either:

Stack anything (e.g. garden furniture, bicycles, etc.) either on or against your heat pump.

Do not place any cover over the unit.

To ensure that it continues to operate efficiently your Grant Aeron³ heat pump should be serviced annually, as detailed in Section 10 of the Installation Instructions supplied with the unit. Contact your installer or service engineer to carry out this work.

Troubleshooting

If your heat pump fails to operate:

First check:	Is the power supply is switched ON at the external isolator?
If YES:	Check that the heat pump is switched ON at the display pad (if fitted). Refer to the 'Heat Pump remote Controller' section of these User Instructions.
If YES:	Check if there is a demand from the heating system controls. Refer to the 'Heating System Controls' section of these User Instructions.
If YES:	Check if the outside air temperature is greater than the 'maximum outside air temperature' setting of the Weather Compensation function, as this would prevent the heat pump from operating to meet a heating demand. Refer to the 'Weather Compensation' section of these User Instructions.
If YES:	Check the display on the remote controller. Is an error code displayed?
If YES:	What is the error code? Refer to Section 11 of the Installation Instructions supplied with the heat pump for a full list of the error codes. Contact your installer or service engineer for assistance.

Radiator temperatures

Your Grant heat pump is designed to work at lower operating temperatures than traditional oil or gas fired boilers. Radiators will therefore feel cooler to the touch, but this should not cause a problem with the heating of your house. The system will have been designed to work at these lower temperatures and the heat pump will be set to ensure the correct comfort levels are maintained.

Underfloor heating systems will require a longer pre-heat period to bring the floor up to operating temperature.

The heat pump has been designed to be as efficient as possible and will operate at a 'set point' temperature depending on conditions inside and outside of your house. Due to this, your radiators will be warmer some days and cooler others. This is normal and the heat pump is working correctly.



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