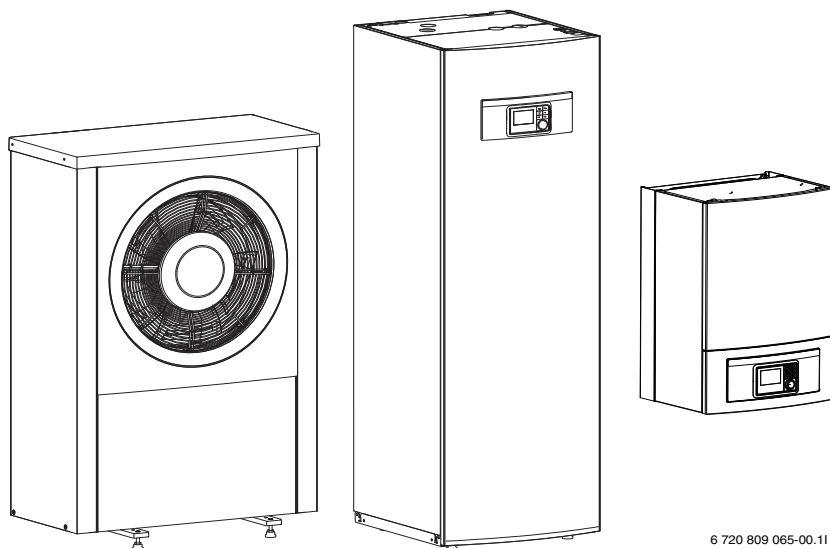


AirX, AirModule E 9/15, Airbox E/S

230V 1N~ / 400V 3N~



Operating Instructions

6 720 810 266 (2014/10)



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1 Key to symbols and safety instructions

1.1 Key to symbols

Warnings



Warnings in this document are identified by a warning triangle printed against a grey background. Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

The following keywords are defined and can be used in this document:

- **NOTICE** indicates a situation that could result in damage to property or equipment.
- **CAUTION** indicates a situation that could result in minor to medium injury.
- **WARNING** indicates a situation that could result in severe injury or death.
- **DANGER** indicates a situation that will result in severe injury or death.

Important information



This symbol indicates important information where there is no risk to people or property.

Additional symbols

Symbol	Explanation
▶	Step in an action sequence
→	Cross-reference to another part of the document
•	List entry
-	List entry (second level)

Table 1

1.2 General safety instructions

These operating instructions are intended for the user of the heating system.

- ▶ Read any operating instructions (heat pump, heating controls, etc.) carefully before operation and keep them.
- ▶ Observe the safety instructions and warnings.

Intended use

This heat pump must only be used as a heat appliance in a sealed hot water heating system for domestic purposes.

Any other use is considered inappropriate. Any damage that results from such use is excluded from liability.

Safety of electrical appliances for domestic use and similar purposes

The following requirements apply in accordance with EN 60335-1 in order to prevent hazards from occurring when using electrical appliances:

“This device can be used by children of 8 years and up as well and by people with reduced physical, sensory or mental capabilities or lacking in experience and knowledge, if they are supervised and have been given instruction in the safe use of the device and understand the resulting dangers. Children must not play with the device. Cleaning and user maintenance may not be performed by children without supervision”

“If the power supply cable is damaged, in order to avoid risks it must be replaced by the manufacturer or its customer service department or a similarly qualified person.”

Inspection and servicing

Regular inspection and maintenance are prerequisites for safe and environmentally compatible operation of the heating system.

We recommend you enter into a contract for the annual inspection and demand-dependent servicing with an authorised contractor.

- ▶ Have any work carried out only by an authorised contractor.
- ▶ If any faults are discovered, have them remedied immediately.

Modifications and repairs

Unprofessional modifications to the heat pump or other parts of the heating system can result in injury and/or damage to property or equipment.

- ▶ Have any work carried out only by an authorised contractor.
- ▶ Do not remove the casing of the heat pump.
- ▶ Do not modify the heat pump or other parts of the heating system in any way.

Room air

The air in the installation room must be free of combustible or chemically aggressive substances.

- ▶ Do not use or store combustible or explosive materials (paper, propellants, thinners, paints, etc.) within the vicinity of the appliance.
- ▶ Do not use or store corrosive substances (solvents, adhesives, chlorinated cleaning agents, etc.) within the vicinity of the appliance.

2 General

Cooling is disabled in the UK model to comply with the regulations for RHI.

Heat pump AirX is together with heat pump module AirModule or Airbox part of a series of heating systems that use outside air to provide energy for water transferred heat and hot water.

By reversing the process and extract heat from the water and release it into the outdoor air, the heat pump can if needed produce cooling. This however requires the heating system to be intended for cooling.

The heat pump outdoors is connected to a heat pump module indoors and possibly also an external heat source, which constitutes a complete heating system. The heat pump module with an integrated immersion heater, or the external source, acts as a supplement when additional heat is needed, for example if the outside temperature is too low for effective heat pump operation.

The heating system is operated via a user interface, which is found in the heat pump module. The user interface manages and supervises the system with different settings for heat, cold, hot water and other operations. The monitoring function will e.g. turn off the heat pump in case of disturbances to avoid damage to vital components.

2.1 Control unit

The user interface in the heat pump module manages heat production based on outside temperature sensors and possibly in combination with a room controller (accessories). House heating is automatically adjusted depending on the outside temperature.

The user determines the heating system temperature by setting the desired room temperature in the user interface or on the room controller.

A number of accessories can be connected to the heat pump module (e.g. pool, sun, and room controllers), providing extra functions and setting possibilities controlled via the user interface. You will find more information on the accessories in their user guides.

2.2 Use

After the heat pump and the heat pump module have been installed and taken into operation, some regular maintenance is required. This might include checking on an alarm, or other simple maintenance. The user is usually able to solve the problem, however if it remains, the retailer should be contacted.

3 System overview

The heating system consists of two parts: the heat pump, which is installed outdoors, and the heat pump module with or without integrated hot water cylinder, which is installed indoors (AirModule and Airbox E). Installation may be done using an external heat source, and the supplemental heat source will then consist of an existing electric/gas/oil boiler (Airbox S).

The most common heating systems are consistent with one of these alternatives, however the system flexibility makes other combinations possible.

3.1 Description of the functions

In a house with water based heating a difference is made between heating water and domestic hot water (DHW). The heating water is for radiators and floor coils and hot water is for showers and taps.

If there is a DHW cylinder in the system, the user interface will make sure the heating of DHW is prioritised before heating of heating water for optimised comfort.



The heat pump stops around -20°C ; heating and DHW production is then taken over by the heat pump module or an external heat source.

3.1.1 Heat pump (outdoor unit)

The task of the heat pump is to retrieve energy from the outside air and transfer it to the heat pump module.

The heat pump is inverter operated, which means that it will automatically change the compressor speed to deliver the exact amount of energy required at the moment. The fan is also RPM controlled and will change its speed as needed. This provides the lowest possible energy consumption.

Defrosting

Ice might form on the evaporator during lower outside temperatures. In case there is enough ice to inhibit the air flow through the evaporator, an automatic defrosting will start. As soon as the ice is gone, the heat pump returns to its normal operation.

If the outside temperature is above $+5^{\circ}\text{C}$ the defrosting will be performed alongside continued heat production, however if the temperature is lower, the defrosting is done by way of a 4-way valve turning the heat medium direction in the circuit so that the hot gas from the compressor melts away the ice.

Function principle

The heat production principle:

- The fan sucks up air through the evaporator.
- The energy in the air makes the refrigerant boil. The resulting gas is drawn into the compressor.
- In the compressor, the pressure of the refrigerant is increased, and the temperature rises. The hot gas is pushed into the condenser.
- In the condenser, the energy is transferred from the gas to water in the heat transfer circuit. The gas is cooled down and turns into liquid.
- The pressure on the refrigerant is decreased and transferred back to the evaporator. When the refrigerant passes the evaporator, it turns back into gas.
- In the heat pump module, the energy is transferred from the heat transfer circuit to the house heating system and hot water cylinder.

3.1.2 Heat pump module (indoor unit)

The heat pump module task is to distribute the heat from the heat pump to the heating system and the hot water cylinder. The circulation pump in the heat pump module is RPM controlled, and will automatically

decrease in speed when demand is low. This decreases energy consumption.

When the heating demand is higher during cold outdoor temperatures, an additional heat source - a booster - may be required. This booster heater is either integrated or external, and its on/off is controlled by the user interface in the heat pump module. Please note that when the heat pump is running, the booster heater will only provide the heating output that the heat pump cannot produce itself. When the heat pump is able to provide all the heating needed, the booster is automatically turned off.

AirModule

Heat pump AirX connected to heat pump module AirModule provides a complete installation for both heating and domestic hot water, since the

heat pump module contains a hot water cylinder. Switching between heating and DHW is managed by an internal 3-way valve. The integrated booster in the heat pump module will turn on if needed.

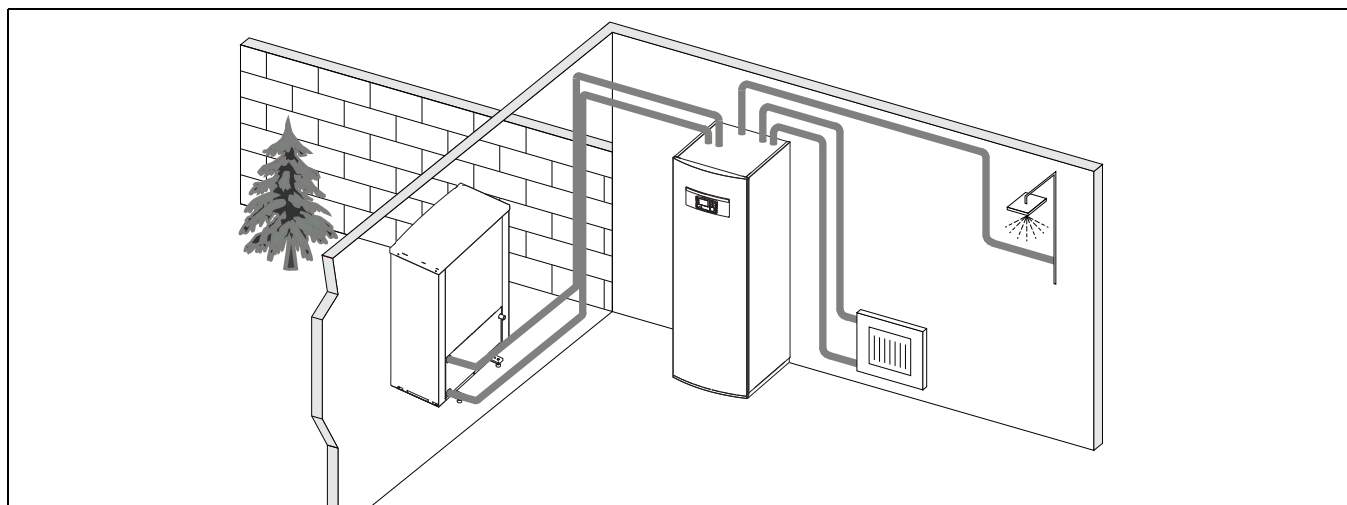


Fig. 1 Heat pump AirX, heat pump module AirModule with integrated hot water cylinder and immersion heater

Airbox E

When heat pump AirX is connected to heat pump module AirBox E, an external hot water cylinder is required if the purpose of the heat pump is

also to produce hot water. In this case, switching between heating and DHW is managed by an external 3-way valve. The integrated booster in the heat pump module will turn on if needed.

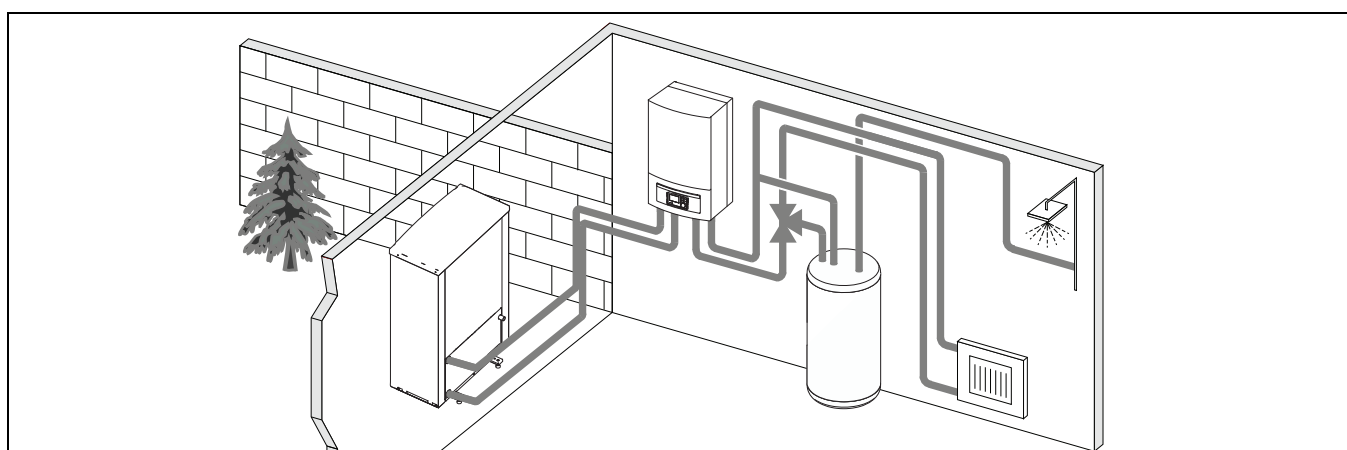


Fig. 2 Heat pump AirX, heat pump module Airbox with immersion heater, external hot water cylinder

Airbox S

When heat pump AirX is connected to heat pump module AirBox S, an external hot water cylinder is required if the purpose of the heat pump is also to produce hot water. In this case, switching between heating and

DHW is managed by an external 3-way valve. The module contains a mixing valve that regulates the heat from the external booster, which is turned on when needed.

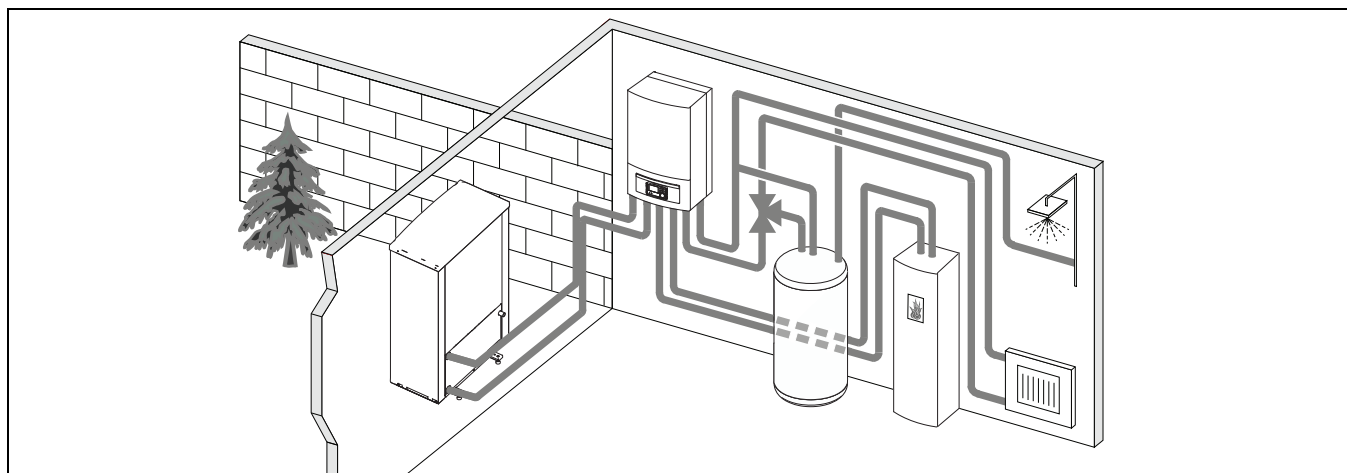
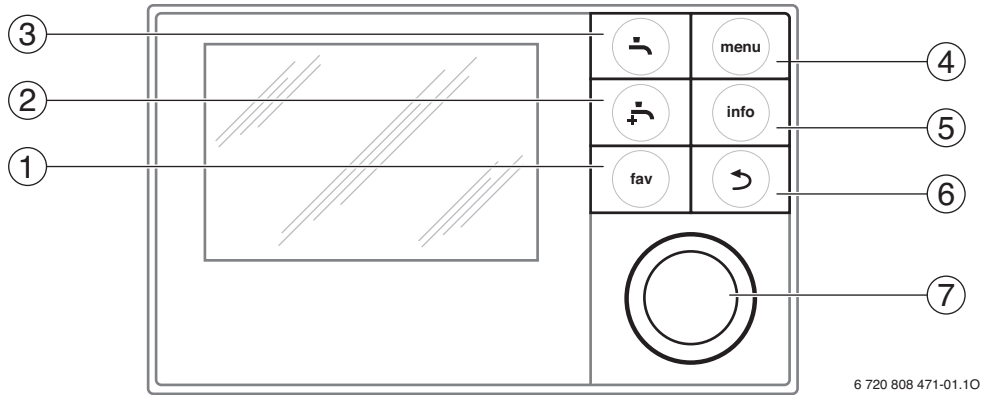


Fig. 3 Heat pump AirX, heat pump module Airbox without immersion heater, external hot water cylinder and external booster

4 Overview of the most common functions



In the user interface operating instructions you will find a complete description of all functions and settings.



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Fig. 4 Keys

Pos.	Key	Designation	Explanation
1		Favourites key	<ul style="list-style-type: none"> ▶ Press this key to show favourite functions for heating circuit 1. ▶ Keep this key pressed down to change Favourites menu settings.
2		Extra DHW key	<ul style="list-style-type: none"> ▶ Press this key to activate the extra DHW function.
3		DHW key	<ul style="list-style-type: none"> ▶ Press this key to select DHW mode.
4		Menu key	<ul style="list-style-type: none"> ▶ Press this key to enter the main menu.
5		Info key	When a menu is shown: <ul style="list-style-type: none"> ▶ Press this key for more information about the selected menu option. When standard display is active: <ul style="list-style-type: none"> ▶ Press this key to enter the information menu.
6		Return key	<ul style="list-style-type: none"> ▶ Press this key to return to the previous menu or to cancel changes. For maintenance or when an error has been detected: <ul style="list-style-type: none"> ▶ Press this key to switch between standard display and error message. ▶ Keep this key pressed down to switch between a menu and the standard display.
7		Selector	<ul style="list-style-type: none"> ▶ Turn the selector to change a set value (e.g. the temperature) or to select a menu or menu option. When the display is off: <ul style="list-style-type: none"> ▶ Press the selector to turn on the display. When the display is on: <ul style="list-style-type: none"> ▶ Press the selector to open a selected menu or menu option, or confirm a set value (e.g. temperature) or a message, or to close a pop-up window. When standard display is active: <ul style="list-style-type: none"> ▶ Press the selector to activate the input window for heating circuit options in the standard display (only valid for installations with at least two heating circuits).

Table 2 Keys

4.1 Changing the room temperature

Operation	Results
If some day you are cold or feel it is too hot: temporarily change the room temperature	
<p>Automatic mode</p> <p>Change the room temperature until the next switching time</p> <ul style="list-style-type: none"> Turn the selector to set desired room temperature. The corresponding time slot is displayed in grey in the time program bar chart. Wait a few seconds or press the selector. The user interface operates with the modified setting. The change applies until the next switching time in your heating time program is reached. After this, the time program settings are restored. <p>Undoing a temperature change</p> <ul style="list-style-type: none"> Turn the selector until the corresponding time slot turns back to black in the time program bar chart and press the selector. The change is undone. 	<p>6 720 811 136-05.10</p>
If you are always cold or feel it is too hot: set desired room temperature (e.g. for heating and setback operating mode)	
<p>Optimised operation</p> <ul style="list-style-type: none"> Activate optimized operation (→ chapter 4.2). Wait a few seconds or press the selector to close the pop-up window. Turn the selector to set desired room temperature. Wait a few seconds or press the selector. Confirm the change in the pop-up window by pressing the selector (or undo the change by pressing the Return key). Current room temperature is shown in a pop-up window in the lower part of the display. The user interface operates with the modified settings. 	<p>6 720 811 136-06.10</p>
<p>Automatic mode</p> <ul style="list-style-type: none"> Press the menu key to enter the main menu. Press the selector to open the Heating/Cooling menu. Turn the selector to highlight the Temperature settings menu. Press the selector to open the menu. If two or more heating circuits are installed: turn the selector to highlight Heating circuit 1, 2, 3 or 4 and press the selector. 	<p>6 720 811 136-07.10</p>
<ul style="list-style-type: none"> Turn the selector to highlight Heating or Setback. Press the selector. Turn the selector to highlight desired setback operation setting. Press the selector to activate selected setting. <p>When temperature control is activated:</p> <ul style="list-style-type: none"> turn the selector and press it to set the temperature. The temperature setting value limits are determined by the settings for the other operating mode. The user interface operates with the modified settings. The settings apply to all heating time programs (when two or more heating circuits are set it only applies to the selected heating circuit). 	<p>6 720 811 136-08.10</p>

Table 3 Room temperature

4.2 Setting the operating mode

Optimised operation is active with the standard settings, since this operating mode ensures the most effective heat pump operation.

Operation	Results
If you want to activate optimised operation (without time program)	
<ul style="list-style-type: none"> Press the menu key to enter the main menu. Press the selector to open the Heating/Cooling menu. Press the selector to open the Operating mode menu. If two or more heating circuits are installed: turn the selector to highlight Heating circuit 1, 2, 3 or 4 and press the selector. Turn the selector to highlight Optimised and press the selector. Return to the standard display by pressing the Return key and keeping it pressed down. Desired room temperature is shown in the lower part of the display, in a pop-up window. The user interface will change the permanent room temperature to the desired room temperature. 	<p>6 720 811 136-04.10</p>
If you want to activate automatic mode (and use the time program)	
<ul style="list-style-type: none"> Press the menu key to enter the main menu. Press the selector to open the Heating/Cooling menu. Press the selector to open the Operating mode menu. If two or more heating circuits are installed: turn the selector to highlight Heating circuit 1, 2, 3 or 4 and press the selector. Turn the selector to highlight Auto and press the selector. Return to the standard display by pressing the Return key and keeping it pressed down. All temperatures set in the current time program for heating are shown in the lower part of the display, in a pop-up window. Current temperature flashes. The user interface regulates the room temperature according to the active heating time program. 	<p>6 720 811 136-05.10</p>

Table 4 Getting started – Activating operating modes

4.3 Selecting a heating circuit for the standard display

The standard display only ever shows data for a single heating circuit. If two or more heating circuits are installed, a setting can be made to

determine which heating circuit the data in the standard display relates to.

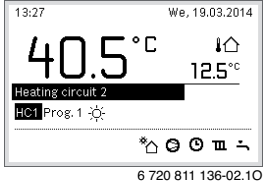
Operation	Results
<ul style="list-style-type: none"> ▶ If the display is on, press the selector. Current selected heating circuit number, operating mode and name (optional) is shown in the lower part of the display. ▶ Turn the selector to select a heating circuit. Only heating circuits that exist in the system are displayed for selection. ▶ Wait a few seconds or press the selector. The standard display displays the selected heating circuit. 	 <p>The screenshot shows a digital display with the following information: Time 13:27, Date We, 19.03.2014, Current temperature 40.5°C, Target temperature 12.5°C, Heating circuit 2, and Prog. 1. There are also some icons at the bottom right.</p>

Table 5 General – Heating circuit in standard display

4.4 Favourite functions

The Favourites key provides direct access to the functions that you use most often with heating circuit 1. When you press the Favourites key for the first time, the menu Configuration of the Favourites menu appears.

Here, you are able to save your personal favourites and modify the Favourites menu according to your needs on a later occasion.

The Favourites key function depends on the heating circuit shown in the standard display. The settings that are modified in the Favourites menu only apply to heating circuit 1.

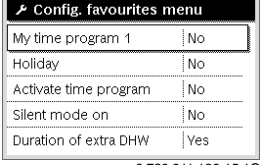
Operation	Results
When you want to use a Favourites function: open the Favourites menu	
<ul style="list-style-type: none"> ▶ Press the Favourites key to open the Favourites menu. ▶ Turn the selector and press to select a favourite function. ▶ Modify settings (this is done in the same way as in the main menu). 	
If you want to modify the favourite functions list according to your own needs: Modify Favourites menu	
<ul style="list-style-type: none"> ▶ Press the Favourites key and keep it pressed down until the menu Configuration of the Favourites menu is shown. ▶ Turn and press the selector to select a function (Yes) or to cancel your selection (No). The changes are effective immediately. ▶ Press the Return key to close the menu. 	 <p>The screenshot shows a menu titled 'Config. favourites menu' with the following settings: My time program 1 (No), Holiday (No), Activate time program (No), Silent mode on (No), and Duration of extra DHW (Yes).</p>

Table 6 Favourite functions

5 Maintenance

The heat pump requires a minimum of maintenance, however, some servicing is still required to get optimal performance from your heat pump. Check the following items a few times per year:

- Remove dirt and leaves
- Cover
- Evaporator



DANGER: The heat pump is connected to high current.
▶ Break the power supply before rectifying.



Using the wrong cleaning product may damage the installation!
▶ Do not use acid or chlorine based products since they contain abrasives.

5.1 Remove dirt and leaves

- ▶ Use a brush to remove the dirt and leaves from the heat pump.

5.2 Protective covers

Over time dust and other dirt will collect on the heat pump.

- ▶ If required, wipe the cover with a damp cloth.
- ▶ Scratches and damage to the outer cover should be treated with rust protection.
- ▶ The lacquer can be protected with car wax.

5.3 Evaporator

If a film has formed (e.g. dust or dirt) on the evaporator surface, it must be removed.



WARNING: The thin aluminium fins are fragile and can be damaged if careless. Never wipe the delicate fins with a cloth.
▶ Use protective gloves to protect your hands from cuts.
▶ Do not use a too powerful water jet.

To clean the evaporator:

- ▶ Spray the evaporator fins with the cleaning product on the back of the heat pump.
- ▶ Rinse off dirt and the cleaning product with water.

5.4 Snow and ice

In some geographical regions or during periods of heavy snow, snow can get stuck on the back of the heat pump.

- ▶ Carefully brush the snow off the fins.

5.5 Moisture



NOTICE: If you often find moisture near the heat pump module or the fan convactor, this might indicate gaps in the condensation insulation.
▶ Turn off the heat pump and contact your retailer if you find moisture surrounding one of the heat system components.

Moisture might develop under the heat pump (outdoors) due to condensation not collected by the condensate pan. This is normal and does not require any action.

5.6 Checking the safety valves



The safety valve should be checked by a qualified engineer - usually as part of an annual service visit.



Water is expelled from the safety valve during heat-up. Never close the safety valve.

- ▶ Check the DHW safety valve by pressing the valve lever.
- ▶ Check that the safety valve leakage drain hose is not plugged.

5.7 Particle filter

Check the heating system and collector system particle filters

The filters will prevent dirt from entering the heat pump. Operating problems might occur if these are blocked.



It is not necessary to empty the installation in order to clean the filters. Filter and shut-off valve are integrated.

Cleaning the strainer

- ▶ Close the valve (1).
- ▶ Screw off the hood (by hand), (2).
- ▶ Take out the strainer and clean it by running water over it.
- ▶ Put the strainer back; it has rails that fit into the groove in the valve to avoid incorrect installation (3).

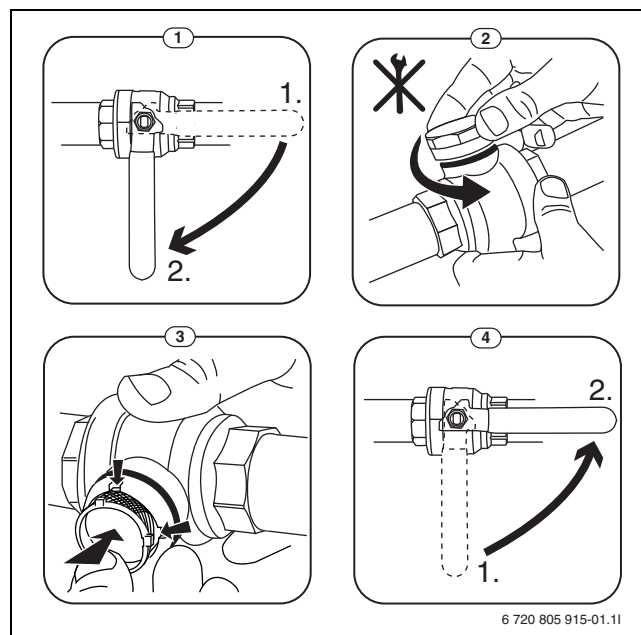


Fig. 5 Filter version without circlip

- ▶ Screw back the hood (by hand).
- ▶ Open the valve (4).

5.8 Pressure Switch and Overheat protection



Pressure switch and overheat protection are only in heat pump module with integrated electrical supplement. Overheat protection must be manually reset if it trips.



The pressure switch and overheat protection are connected in series, triggered alarm or information in the control unit means either low pressure in the system or to high temperature in the additional heater.

If the pressure switch has tripped resets itself when the pressure is sufficient in the system.

- ▶ Check the pressure gauge.
- ▶ If the pressure is below 0.5 bar, slowly increase the pressure in the heating system by adding water to the filling valve to a maximum of 2 bar.
- ▶ Contact the installer or retailer if you are unsure of how to proceed.

To reset the overheat protection on AirModule:

- ▶ Pull out the front cover by the bottom and lift it off upwards.
- ▶ Press the button hard on the overheating protection.
- ▶ Put the front cover back.

To reset the overheat protection on AirBox E:

- ▶ Contact the installer or retailer

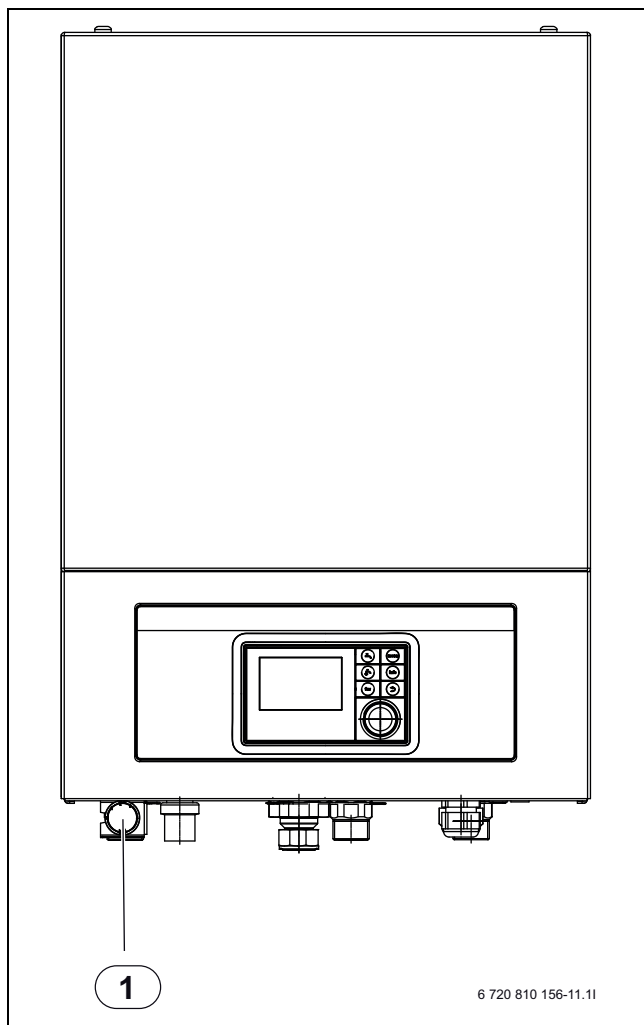
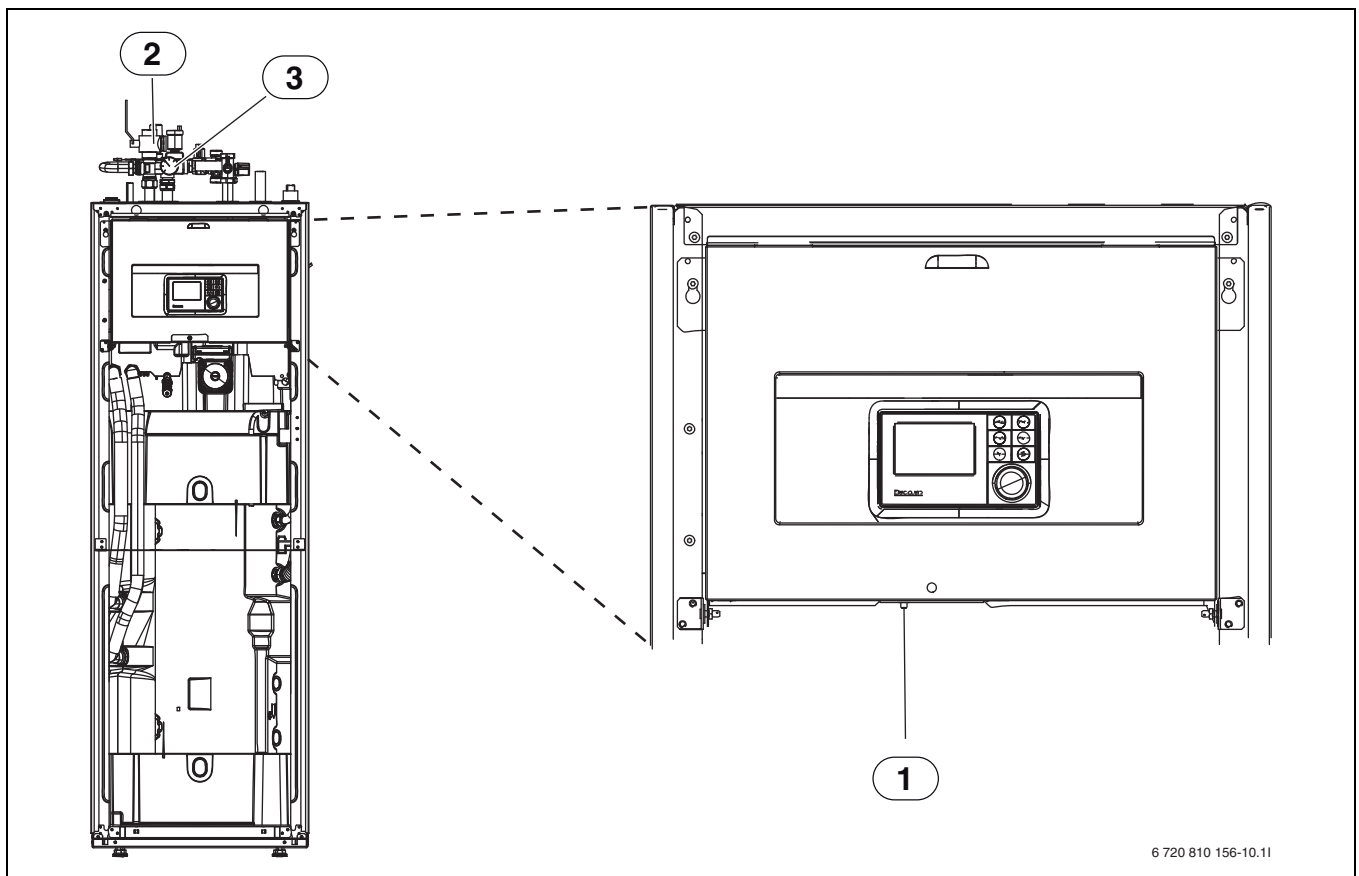


Fig. 6 AirBox E

[1] Pressure gauge



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Fig. 7 AirModule

- [1] Reset overheating protection
- [2] Particle filter
- [3] Pressure gauge

5.9 Cleaning the condensate pan



Warning: The thin aluminum fins of the evaporator are sharp and delicate and can be damaged by negligence.

- ▶ Wear gloves to protect hands from cuts
- ▶ Be careful not to damage the fins

If the user interface shows an alarm indicating that the heat pump cover requires cleaning, the condensate pan should be cleared of dirt and leaves, which inhibit defrosting.

- ▶ Screw off the protective cover.
- ▶ Clean the condensate pan with a cloth or soft brush.
- ▶ Put the protective cover back.

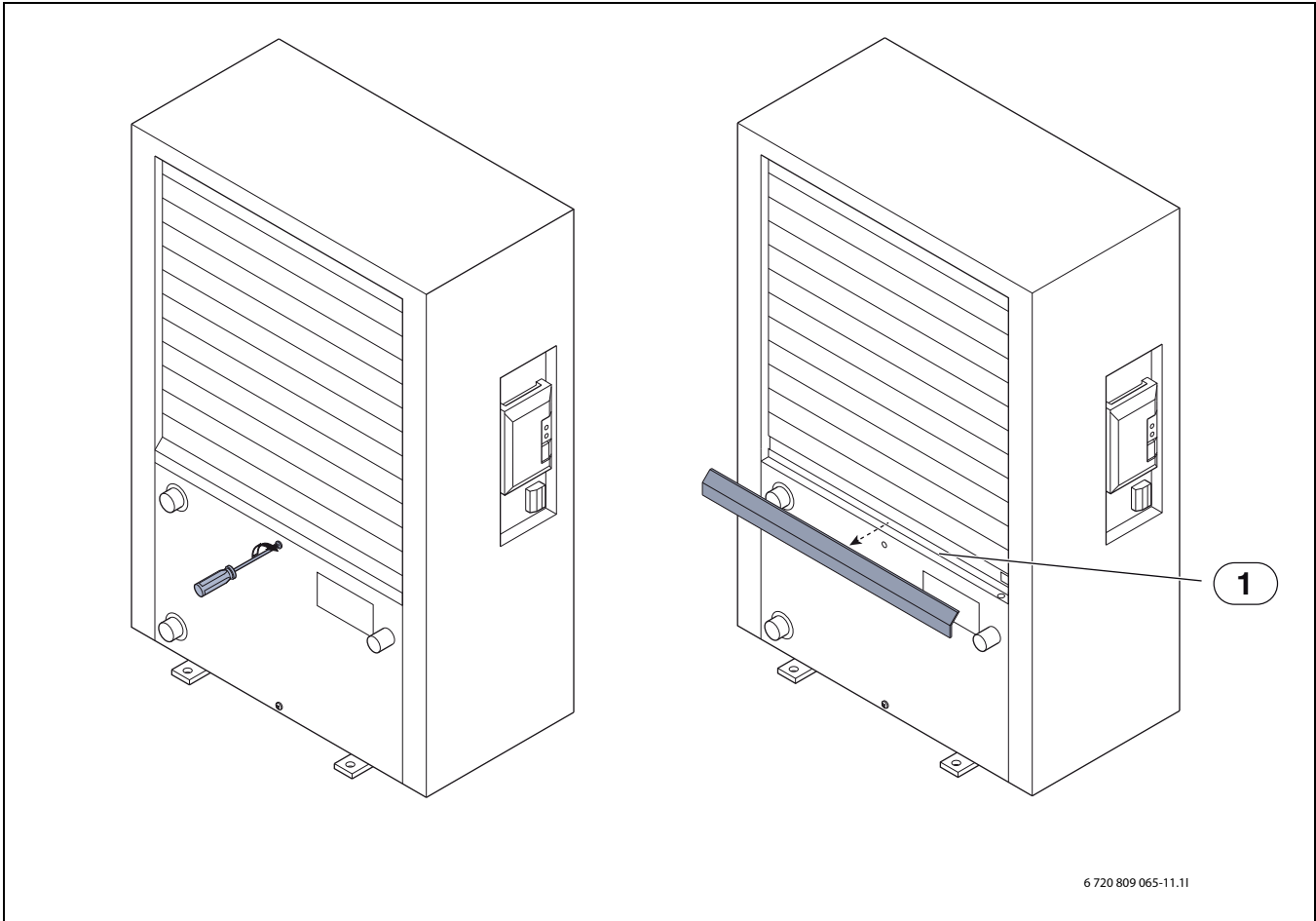


Fig. 8 Heat pump condensate pan

[1] Condensate pan

6 Connection for IP-module

The heat pump module AirModule has a built in IP-module, which is available as an accessory to the AirBox. The IP-module may be used to manage and monitor the heat pump module and the heat pump from a mobile unit. It is used as an interface between the heating system and a network (LAN) and enables the SmartGrid function.



Use of all the functions requires an internet connection and a router with an available RJ45 output. This may incur additional costs. Managing the installation from a cell phone requires the free app **IVT Anywhere**.

Commissioning



Please refer to the router documentation during commissioning.

The router must be configured as follows:

- DHCP enabled
- Ports 5222 and 5223 may not be blocked from outgoing traffic.
- Free IP address available
- The address filter (MAC filter) must not filter out the module.

During commissioning of the IP-module, the following is possible:

- Internet
The module automatically obtains an IP address from the router. The name and address of the target server are stored in the standard settings of the module. As soon as an internet connection is established, the module automatically logs on to the server.
- Local network
The module must not be connected to the internet. It can also be used in a local network. In this case, however, the module cannot be reached via the internet, and the module software cannot automatically update.
- The app **IVT AnyWare**
When the app is opened for the first time, the predefined login name and password must be entered. The login information can be found on the IP-module data plate.
- SmartGrid
The heat pump module can communicate with the electricity market and will in this case adjust operation so that the heat pump operates at its maximum when the cost of electricity is lower. See the website for further information.



NOTICE: You will lose your login information when you change IP-module!

Each IP-module has its own unique login information.

- ▶ Enter your login information after commissioning in the appropriate field.
- ▶ Change the information according to the new IP-module if it has been changed.



You can also change the password in the user interface.

Login data for IP-module

Manufact.no.: _____

Login name: _____

Password: _____

Mac: _____

7 Environment / disposal

Environmental protection is a fundamental corporate strategy of the Bosch Group.

The quality of our products, their economy and environmental safety are all of equal importance to us and all environmental protection legislation and regulations are strictly observed.

We use the best possible technology and materials for protecting the environment taking account of economic considerations.

Packaging

We participate in the recycling programmes of the countries in which our products are sold to ensure optimum recycling.

All of our packaging materials are environmentally compatible and can be recycled.

Used appliances

Used appliances contain valuable materials that should be recycled.

The various assemblies can be easily dismantled and synthetic materials are marked accordingly. Assemblies can therefore be sorted by composition and passed on for recycling or disposal.

Technical glossary

Heat pump

The central heat source. Placed outdoors, also referred to as an outside unit. Contains the cooling circuit. Waterborne heating or cooling is transferred from the heat pump to the heat pump module.

Heat pump module

Placed indoors and distributes the heat from the heat pump to the heating system or the water heater. Contains the user interface and the circulation pump for the water to the heat pump.

Heating installation

Includes the entire installation, with heat pump, heat pump module, water heater, heating system and accessories.

Heating system

Comprises the heat source, cylinders, radiators, underfloor heating system or fan convactor or a combination of these if the heating system has several heating circuits.

Heating circuit

The part of the heating system that distributes heat to different rooms. Consists of pipework, circulation pump and either radiators, underfloor heating system loops or fan convectors. Only one of these alternatives is possible in one circuit, but if there are e.g. two circuits in the heating system, then one may comprise radiators and the other underfloor heating system loops. A heating circuit can be installed with or without a mixing valve.

Heating circuit without mixing valve

A heating circuit without mixing valve does not contain a mixer; the temperature on the circuit is maintained completely by the heat from the heat source.

Heating circuit with mixing valve

A heating circuit with mixing valve contains a mixer, which mixes in the closed circuit water with the water from the heat pump. This means that the heating circuit with mixing valve can maintain a lower temperature than the rest of the heating system, which may be used to separate underfloor heating system loops that use a lower temperature from radiators that operate at a higher temperature.

Mixing valve

The mixing valve is a valve that seamlessly mixes cooler closed circuit water with water from the heat source to reach the desired temperature. The mixing valve may be placed in a heating circuit or in a heat pump module as an external booster mixer.

3-way valve

The 3-way valve distributes heat either to the heating circuits or to the water heater. The valve has two fixed modes, hence the heating and DHW production cannot occur simultaneously. This provides for the most effective operation, since DHW is always heated to a specific temperature, while the heating water temperature is adjusted continuously according to current outdoor temperature.

External booster heater

The external booster is a separate heat source, which is connected to the heat pump module with pipework. The heating from the booster is regulated via a mixing valve, and is therefore also called a mixing valve booster. The user interface manages the booster on/off based on the current heating requirements. The heat source is either an electric, oil or gas boiler.

Heat transfer circuit

The part of the heating system that transfers heat from the heat pump to the heat pump module.

Cooling circuit

Cooling is disabled in the UK model to comply with the regulations for RHI.

The main part of the heat pump, which retrieve energy from outside air and transfers it as heat to the heat transfer circuit. Consists of evaporator, compressor, condenser and expansion valve. The refrigerant circulates in the cooling circuit.

Evaporator

A heat exchanger between air and refrigerant. The energy in the air, which is sucked up through the evaporator makes the refrigerant boil and turn into gas.

Compressor

Makes the refrigerant circulate in the coolant circuit, from the evaporator to the condenser and back. Increases the gaseous refrigerant pressure. When the pressure increases, the temperature increases too.

Condenser

Is a heat exchanger between the refrigerant in the cooling circuit and the water in the heat transfer circuit. When heat is transferred, the refrigerant temperature decreases as it is condensed into a liquid.

Expansion valve

Decreases the refrigerant pressure when it comes from the condenser. The refrigerant is then transferred back to the evaporator, where the process starts over.

Inverter

Is found in the heat pump and enables RPM control of the compressor according to current heating requirements.

Setback phase

A time slot during automatic mode, with **Setback** operating mode.

Automatic mode

The heating system is heating in accordance with the time program and an automatic changeover takes place between operating modes.

Operating mode

The operating modes for heating are: **Heating** and **Setback**. These are indicated by the symbols and .

The operating modes for water heating are: **DHW**, **DHW reduced** and **Off**.

It is possible to set a temperature for each operating mode (except **Off**).

Frost protection

Depending on the selected frost protection, the heat pump will turn on when the outside and/or room temperature reaches below a certain set threshold. Frost protection prevents the heating system from freezing up.

Required room temperature (also desired or set temperature/set room temp.)

The room temperature to be achieved by the heating system. It can be set individually.

Default setting

Values permanently saved in the programming unit (e.g. complete time programs) that are available at any time and that can be reinstated according to demand.

Heating phase

A time slot during automatic mode, with **Heating** operating mode.

Child lock

The standard display settings and in the menu can only be modified if the child lock (key lock) has been disabled (→ page 8).

Mixing device

Assembly that automatically ensures that hot water can be drawn from the taps at a temperature no higher than the temperature set on the mixer.

Optimised operation

Automatic mode (the heating time program) is not active during optimized operation, instead the system is continuously heating according to the temperature set for optimized operation.

Reference room

The reference room is the room in the home where a room unit has been installed. The room temperature in this room acts as the control variable for the assigned heating circuit.

Switching time

A certain time at which the heating system starts to heat or hot water is produced, for example. A switching time is a component of a time program.

Temperature of an operating mode

A temperature that is assigned to an operating mode. The temperature is adjustable. See the explanations on operating mode.

Flow temperature

Temperature at which the heated water flows in the central heating system from the heat source to the heating surfaces in the rooms.

Hot water cylinder

A hot water cylinder stores large volumes of heated tap DHW. Thereby, sufficient DHW is available at the draw-off points (e.g. taps). This is a prerequisite for longer hot showers.

Time program for the heating system

This time program ensures automatic changeover between operating modes at defined switching times.



POWERED BY NATURE

Alto Energy Limited
Unit 17 Glenmore Business Centre
Witney, Oxfordshire OX29 0AA
United Kingdom
www.altoenergy.co.uk | support@altoenergy.co.uk