ADLÅR

User Manual

Aurora II & FJORD I

6 | 10 | 14 kW

80 | 120 | 200 | 300 L

Welcome to your Adlår Heat Pump

Congratulations on choosing sustainable heating. To ensure that you get the most out of your heat pump, we have put together a concise and easy-to-use operating manual for you. Let's get started!

Maintenance Tips:
To keep your heat pump in top condition, simply follow a few guidelines. Clean the dirt filter regularly and keep the outside surface free of dirt and obstacles. For professional maintenance, the Adlår team is always ready to help you.

Need Help?
Do you have questions or are you stuck? Our support team are here to help. Feel free to contact us by phone or email, and we will be happy to help you.

Thank you for choosing the Adlår Heat Pump. We are confident that you will enjoy this user friendly and energy-efficeinct heating solution. Experience the comfort and sustainability that your heat pump offers all your round.

Warmest regards,
Team Adlår

Stay up to date:
Our heat pump is continuously being developed. Additional instructions and/or information are processed in the most current version of the manual. This is always available via our website or by scanning the QR code below on your device.

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WHAT IS A HEAT PUMP

A heat pump is a sustainable system that extracts energy from the outside air to heat or cool your home. Instead of using energy directly for heat, the heat pump transfers heat using a coolant and a compressor. This results in an efficiency that is up to four times higher than traditional heating systems. This saves you energy and reduces CO2 emissions.

ADVANTAGES OF A HEAT PUMP

A heat pump is more than just an efficient way of heating and cooling; it is a smart choice for the future. By using energy from nature in a sustainable way, a heat pump not only helps to increase your living comfort, but also to reduce your energy costs. In this way, you combine comfortable living with care for the environment, while investing in a greener future for the next generations.

SAFETY INSTRUCTIONS

Safety always comes first. Our heat pumps are designed with reliability and ease of use in mind, but correct operation and installation are essential to ensure optimum and safe operation. Therefore, carefully follow the safety instructions and ensure that maintenance and service are only carried out by qualified specialists. This way, you not only protect your home, but also yourself and your family. Because care and safety go hand in hand for years of carefree comfort.

If abnormal conditions such as abnormal noise, odor, smoke, temperature increase, electrical leakage, fire or burning smells, etc. are detected during use, switch off the power immediately and contact our customer service.

Observe the following safety instructions:

1. **Installation:** During the installation, ensure that the Adlår team know any specific details about your property. If you have existing plumbing or electrical issues that are not raised, this could be dangerous to our installation teams and to you and your home.
2. **Ventilation:** Ensure sufficient ventilation around the heat pumps to ensure efficiency.
3. **Electircal Safety:** The appliance must be electrically protected by a residual current device and an installation circuit breaker or a combination of these (residual current device). It must also be properly earthed. The Adlår team can only check your electrical earthing across other devices, it is your responsibility to ensure all exciting devices are earthed properly.
4. **Maintenance:** Never perform maintenance on the heat pump yourself. Only have this done by authorized technicians.
5. **Safe Environment:** Make sure that no flammable materials are stored near the heat pump.
6. **Rotating Parts:** Do not insert fingers or objects into the ventilation area..
7. **Refrigerant:** Avoid contact with the refrigerant and never open the refrigerant lines.
8. **Switching Off:** The heat pump must never be completely switched off in an environment with a temperature below 5 °C. If it is out of use for a long time due to a power failure or other circumstances, it is recommended to drain the system water and switch off the power supply to avoid outside pipework freezing,
9. **Settings:** The operating parameters of the heat pump and the set values of the protection device are selected by the manufacturer. Users must not arbitrarily change the set value or short-circuit a protection device. Such actions may cause damage to the heat pump and void warranty.

DEFINITIONS:

1. **COP (Coefficient of Performance):** The ratio between the heat or cooling energy delivered and the electrical energy consumed. For example, a COP of 4 means that the pump delivers 4 times as much energy as it consumes.
2. **SCOP (Seasonal Coefficient of Performance):** Average efficiency over a full heating season. SCOP takes into account fluctuations in outside temperature.
3. **Refrigerant:** The liquid/gas in the system that absorbs and releases heat through evaporation and condensation.
4. **Compressor:** Part of the heat pump that compresses the refrigerant, causing the temperature to rise and heat to be released.
5. **Condensor:** Heat exchanger in which the refrigerant condenses and releases the absorbed heat to the home's heating system.
6. **Evaporator:** Part where the refrigerant evaporates and absorbs the ambient heat (air, soil, or water).
7. **Heating Curve:** The relationship between the outside temperature and the desired supply temperature of the heating system. Used to set the system optimally.
8. **Flow Temperature:** The temperature of the heating water that flows from the heat pump to the distribution system (such as radiators or underfloor heating).
9. **Return Temperature:** The return temperature is the temperature of the heating water that flows back to the heat pump from the distribution system (such as radiators or underfloor heating). This temperature is important because a lower return temperature ensures a higher efficiency of the heat pump.
10. **Modulating Heat Pump:** A heat pump that can adjust its capacity to the demand, instead of just switching on/off. This increases efficiency and extends its lifespan.
11. **Buffer Tank:** A storage tank for heated water, which prevents temperature fluctuations and ensures stable operation of the system.
12. **Bypass Control / AVDO:** The AVDO is a differential pressure controller that ensures that, when valves in the system close (for example thermostatic radiator valves), the pressure difference in the pipes does not become too high. The AVDO automatically opens a bypass when the pressure becomes too high, thus maintaining the water flow and ensuring circulation of the system.

HOW THE SYSTEM WORKS

What makes the Aurora II special is that it works with dynamic heating controls. In contrast to fixed heating control, the dynamic heating adapts flexibly based on various factors, such as the desired indoor (room) temperature and the insulation of the home.

This means that the heat pump not only looks at the outside temperature, but also takes into account changes in heat demand during the day. In this way, it ensures that the system never has to work unnecessarily hard, which increases energ efficiency and reduces energy costs.

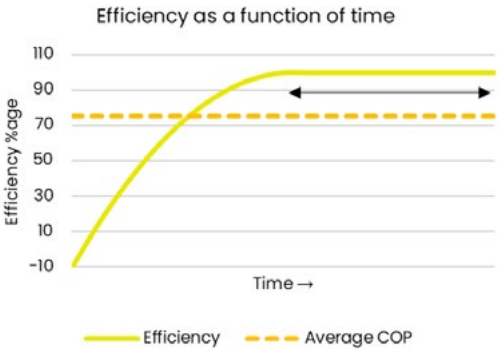
In short, the Aurora II offers an advanced heating system that automatically adapts to the weather conditions and the specific needs of your home. This not only provides ultimate comfort, but also an optimal return on your energy consumption, so that you can heat both sustainably and comfortably.

RUNNING CONSTANTLY

Heat pumps work most efficiently holding temperature at a constant rate, with long cycle periods. By switching compressor frequencies and temperatures up to heat hot water, the efficiency of the system is going to drop off significantly. The following graph illustrates heat pump efficiency over time, where you can see initial efficiency during a ramp up actually starts off negative.

To get the best results from your heat pump therefore you want to run your heat pump constantly throughout the day, rather than having ON/OFF periods, as with a boiler system.

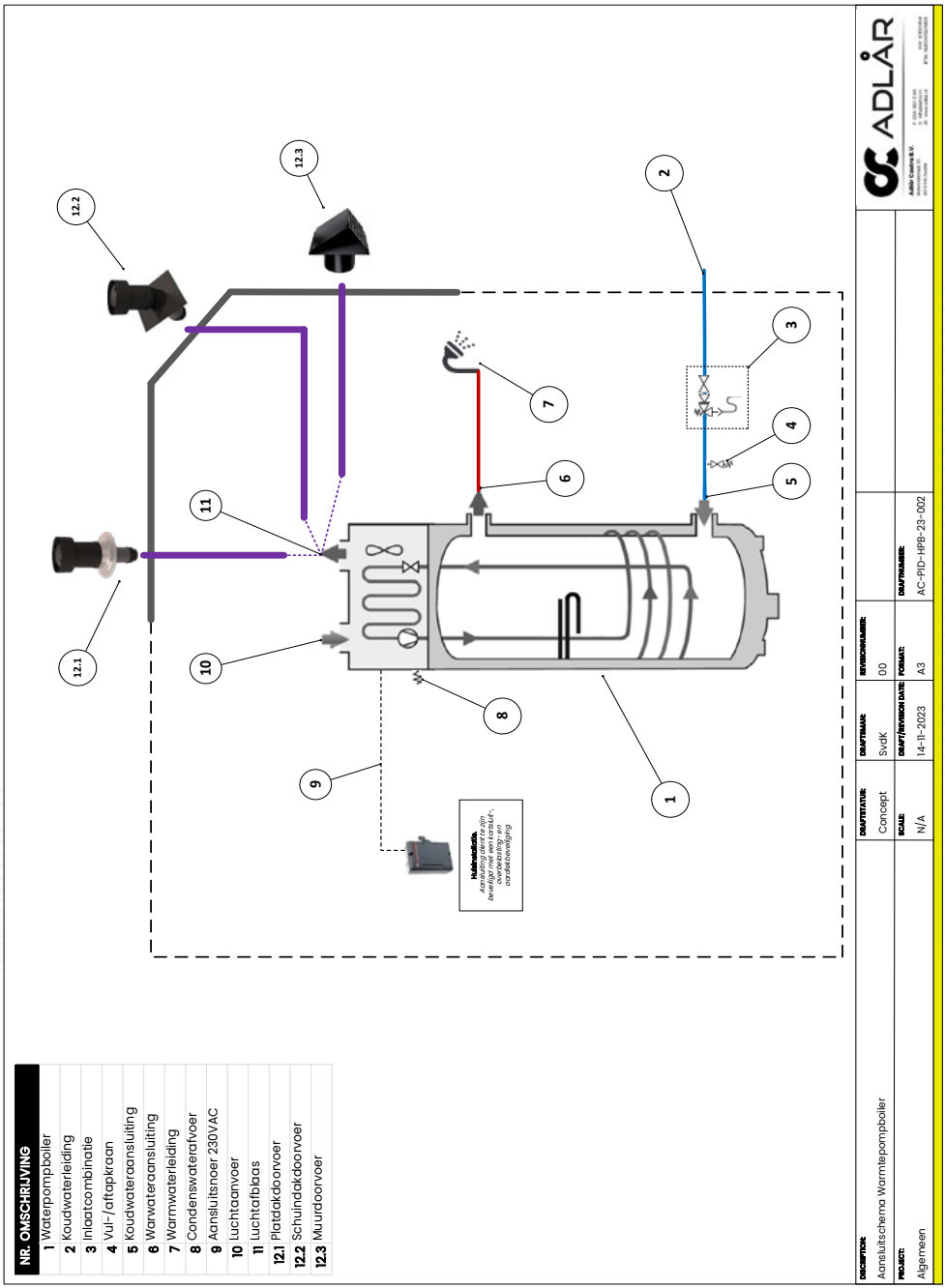
If you are going to be out of your house for long periods, or prefer a cool house during the night, you can create set back temperatures, where the heat pump reduces its output and temperature rather than dropping completely.



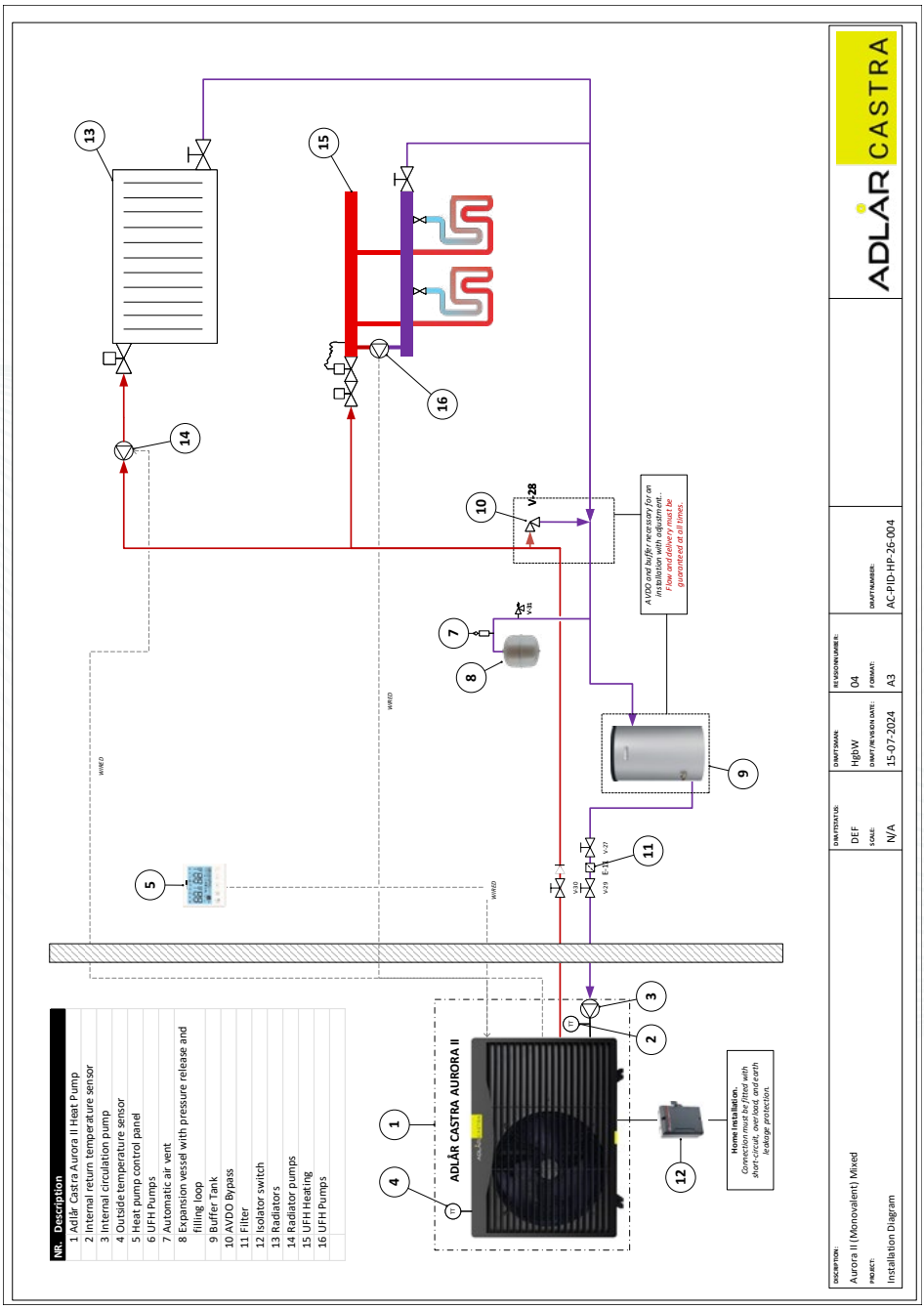
DUAL HEAT PUMP SYSTEM

What makes the Aurora II special is that it works with dynamic heating controls. In contrast to fixed heating control, the dynamic heating adapts flexibly based on various factors, such as the desired indoor (room) temperature and the insulation of the home.

SCHEMA - FJORD I CYLINDER



SCHEMA - ALL ELECTRIC IN-LINE HEATING & COOLING



UNLOCK & LOCK DISPLAY

When the lock symbol is displayed,
press and hold for 5 seconds. A confirmation sound will follow.

The screen will automatically lock after 60 seconds of inactivity.

SWITCHING THE HEAT PUMP ON/OFF

SWITCHING ON:

1. Hold for 2 seconds to turn the heat pump **ON**
(Active mode symbol lights up in the display)

SWITCHING OFF*:

2. Hold for 2 seconds to turn the heat pump **OFF**.
(Active mode symbol will no longer light up in the display

***IMPORTANT:** It is not necessary to turn off the heat pump. The dynamic heating curve control ensures that the heat pump never switches on when the set room temperature is lower than the desired temperature.

As soon as there is a need for heating again, the heat pump switches on automatically.

ACTIVE MODES:

Press the (M) button to change modes when the screen is unlocked.

SYMBOOL	MODE
❄	Cooling
☀	Heating
	No function
	No function
+ ❄	No function
+ ☀	No function
+	No function

IMPORTANT: Only use the **Cooling** ❄ or **Heating** ☀ modes.
The other modes have no function, which means the heat pump will not function correctly if selected.

OPERATING SYMBOLS:

During operation normal symbols are as follows:

1. **Circulation pump:** This symbol will appear in the bottom left of the display during most of operation. Two arrows indicate water is circulating.
2. **Fan:** This symbol willl only appear when the fan is active. This will NOT remain ON all the time.
3. **Compressor:** This symbol looks like a tank with a flame. It will appear next to the fan symbol. This symbol will only appear when the heat pump is actively heating.

IMPORTANT: The symbols indicate operating modes. They are not permanently shown, and will change based on the operation state of the heat pump. If the set water is close to the inlet/outlet temperature then then symbols should turn off as the heat pump modulates.

SET WEATHER COMPENSATION MODE

Note: Only works when the heat pump is turned ON,
See "Turning the heat pump ON/OFF"

1. Press (V).

Is the right hand side temperature flashing (e.g. "45")?
--> Go to step 2

Is the right side temperature flashing with 2 letters (e.g. "HH5")?
--> Go to step 3

2. Hold (M) for 5 seconds.
3. Select your heating curve "HH8" by pressing (V) or (Λ).

See heating curves on page 14
and cooling curves on page 15.

SET HEATING LOW CURVES

Note: only works when the heat pump is turned ON
See "Turning the heat pump ON/OFF"

1. Press (V).

Is the right hand side temperature flashing (e.g. "45")?
--> Go to step 2

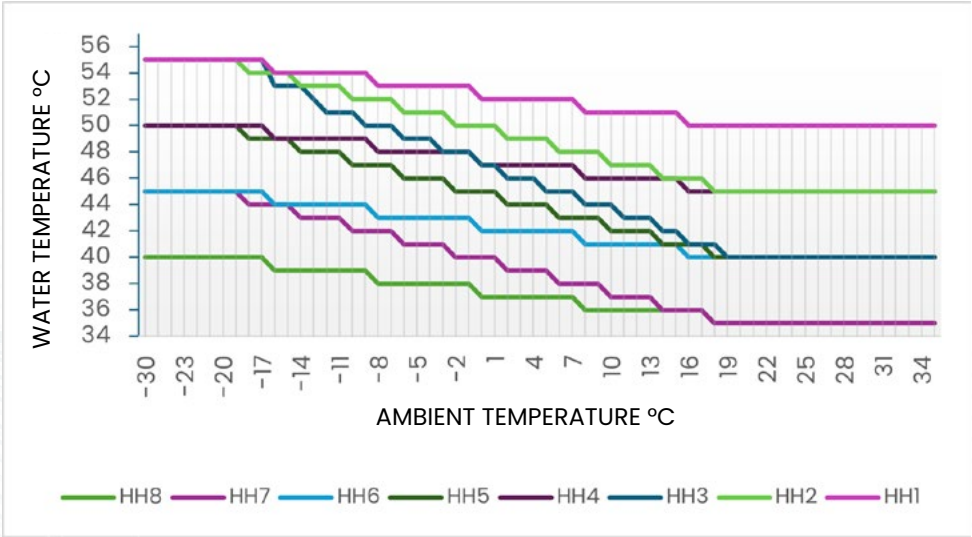
Is the right side temperature flashing with 2 letters (e.g. "HH5")?
--> Go to step 3

2. Hold (M) for 5 seconds.
3. Select your heating curve "HL8" by pressing (V) or (Λ).

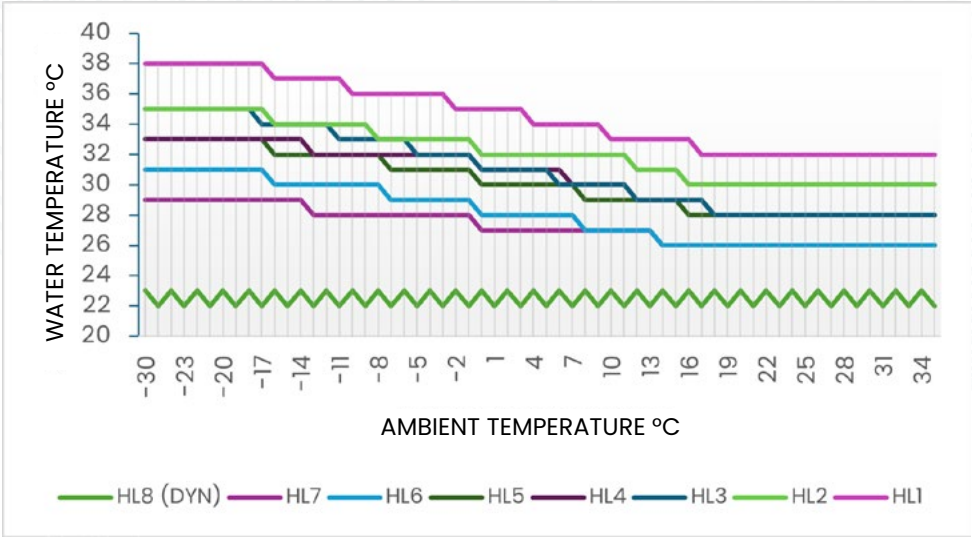
See heating curves on page 14
and cooling curves on page 15.

SELECT HEATING

HH1 - HH8

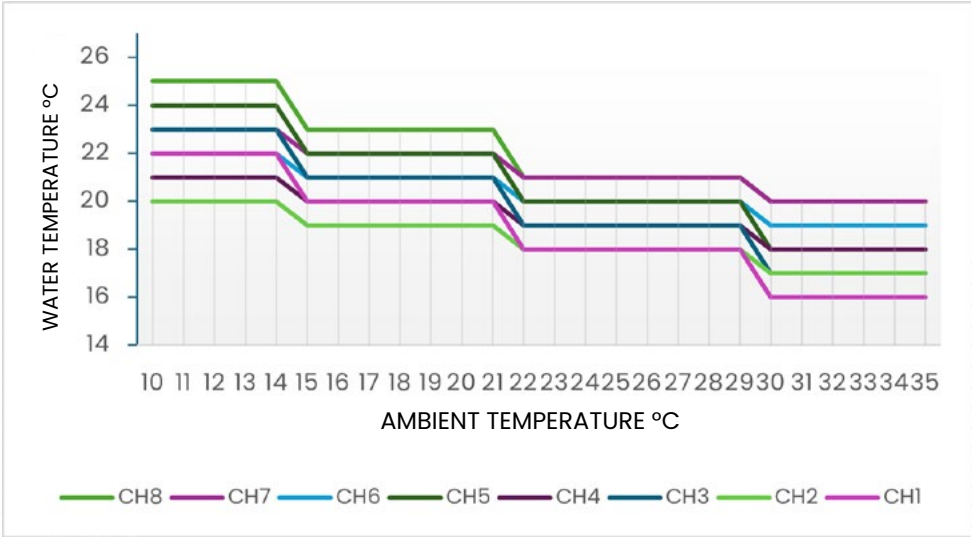


HL1 - HL8

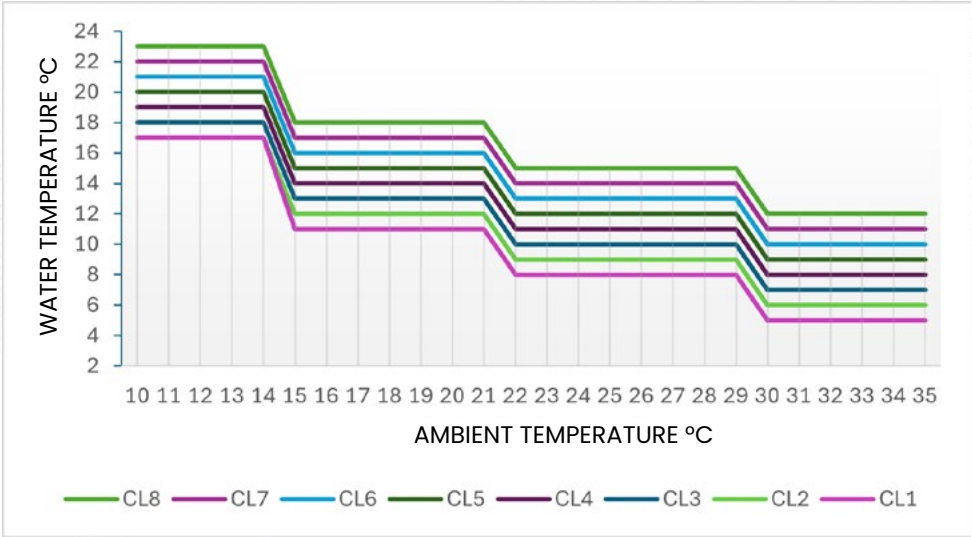


SELECT COOLING

CH1 - CH8



CL1 - CL8



WHICH HEAT CURVE SHOULD I SET?

The Aurora II heat pump heats on the basis of a weather compensation heating curve. Heating curves are curves that determine the temperature of the water that enters the house based on the outside temperature. This is the water that flows through the radiators or the underfloor heating. The warmer this water is, the warmer it becomes in the house.

In general, most houses can do with a low temperature heating curve. If you have good insulation and efficient underfloor heating, you will quickly get warm with HL8 ~ HL4. If you have radiators with radiator fans, you will quickly manage with HL4. If you have old radiators without fans, HL1 or a heating curve in the high temperature range (HH8-HH6) is generally recommended.

The horizontal axis (x-axis) indicates the ambient temperature (outside temperature), the vertical axis (y-axis) indicates the water temperature that the heat pump produces and enters the house.

The different coloured lines are the different heating curves, in the bottom graph you see for example curve 8 (HL8) this gives a water temperature of 25°C Celsius at an outside temperature of 10°C Celsius. This means that at an outside temperature of 10°C Celsius 25°C water flows through your radiators or underfloor heating.

Depending on the type of radiators or underfloor heating and the degree of insulation, it will be warm in your home. When commissioning the heat pump, the Adlar fitter will estimate which heating curve is suitable for your home. If it turns out not to be warm enough, you can set the heating curve a little higher. Example: the fitter has set HL6, but it is not warm enough in your home, you can set it to HL5. If it still doesn't get warm, you can set it to HL4, etc.

If it is too warm in the house, you can set the heating line a little lower. Example: the heating line is set to HL6, but it is getting too warm in the house. Then you can set the heating line to HL7. If it is still too warm, you can set it to HL8, etc.

Please note that the heat pump is a slow system, so let the heat pump run for at least 4 hours on a heating line before you decide whether the heating line should be higher or lower..

ECO / NIGHT MODE

This function limits the noise that the heat pump makes. It limits the maximum frequency of the compressor and fan, so that less noise is produced. Only use this function if you are bothered by the noise at night.

SWITCH ON:

1. Press and hold ∨ and ∧ at the same time to switch ECO / NIGHT mode **ON**.
(The symbol will apear in the display)

SWITCH OFF:

2. Press and hold ∨ and ∧ at the same time to switch ECO / NIGHT mode **OFF** again.
(The symbol will no longer be visible in the display)

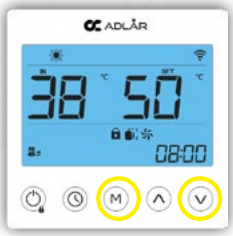
IMPORTANT: Reducing the maximum frequency also limits the maximum power. This may result in the desired temperature not being reached or maintained during cold periods. In that case, it is advisable to switch off the ECO / SILENT / NIGHT mode.

DEFROST MODE

This function puts the heat pump into defrost mode. You should activate this if your heat pump is turned on in very cold weather and ice has built up on the heat pump. To avoid this your should have your heat pump ON in cold weather, even if only at a very low output.

SWITCH ON:

1. Press and hold M and ∨ at the same time to switch defrost mode **ON**.
(The symbol will apear in the display)



BOOST MODE

This function is only possible with buffer tank or secondary heater installations. Ask your service team about this if in doubt.

SWITCH ON:

1. Press and hold (M) and (^) at the same time to switch defrost mode **ON**.

(The symbol will apear in the display)

IMPORTANT: Flow rate is a critical component in heat pump installations. Adlår when commissioning your system will ensure the flow rate in your system is above 10 l/min. This is done when all zones and valves in the system are open.

If you close zones or radiators down you may influence the flow rate in the system. This is particularly the case in older properties. This can cause flow rate issues.

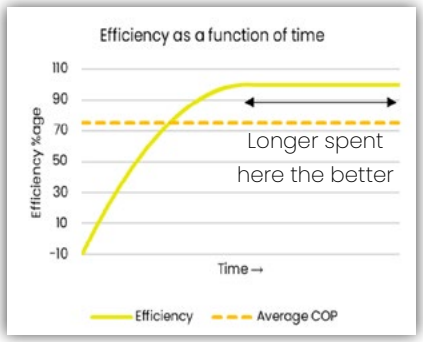
ON/OFF VERSUS CONSTANTLY ON - MOST EFFICIENT OPERATION

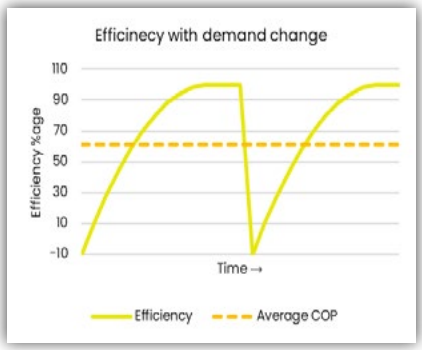
There is debate with boilers whether it is more efficient to have them on all day or on for intense periods of time. The logic behind the always on theory is that by allowing your home and system to cool down to outside temperatures your system has to work a lot harder and more intensely to heat back up and subsequently costs more to run.

In heat pumps there isn't really much debate, it just is better to run them constantly, keeping your heating system at a constant rate. See below for setting set-back temepatures in the smart app to allow you to run the system at lower temepratures at inactive times or at night to vary your comfort requirements, but it is key the heat pump remains on for the best performance and efficiency.

The same principle is applied in Eco washes for washing machines and dish washes, the ECO mode is always a longer wash, but uses less energy to achieve the result.

The following chart illustrates how heat pump efficiency works. On initial start-up a heat pump has negative efficiency (similar to a boiler), but once the compressor and system gets up to speed and temperature the efficiency is maximised. By turning the system ON and OFF your average efficiency drops.



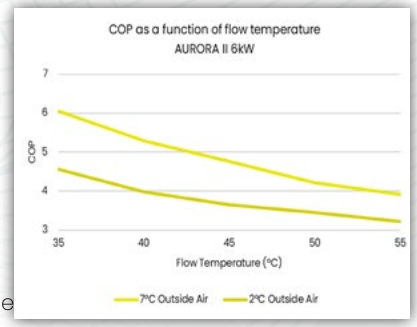


CLOSING TRV VAVLES AND ZONING - MOST EFFICIENT OPERATION

Closing off rooms does not also result in lower energy costs. A few factors influence this.

1. **Heat Loss Internally:** Your homes heat loss calculation is based on external heat loss, but there is also heat loss internally. Generally the heat transfer between internal rooms is much higher than it is externally. In most UK homes internal walls aren't insulated, and of course internal doors often get left open.

2. **Increased demand:** By having a cold room next to, above, or below another room you wish to heat will increase the heat loss on the desired heated room.



3. **Volume and Flow Rate:** Heat pump efficiency works better with increased water volume and flow. By restricting the flow and volume of the system the heat loss around the house will be higher and therefore create a higher deltaT between outlet temperatures and inlet temperatures. By optimising flow and volume the heat pump can work at a much lower output.

4. **Lower running temperature:** If some rooms are getting too hot and you find you are isolating multiple rooms your heat pump is likely heating the water to a higher temperature than neccissary. It is much more efficient to optimise the temperature to a lower setting across the whole house and achieving a higher SCOP at the heat pump.

Based on this, we don't recommend closing down zones or radiators, but rather operating a whole house measure with as low a flow temperature as possible. If you wish to experiment however, you can use your APP or smart meter to track consumption and flow rates in your system, and review closing radiators down one by one to see the impact.

UNLOCK & LOCK DISPLAY

Press the to light up the screen. You current temperature should appear and the screen light up.

SWITCHING THE HEAT PUMP ON/OFF

SWITCHING ON:

1. Hold for 2 seconds to turn the heat pump **ON**

(Active mode symbol lights up in the display)

SWITCHING OFF*:

2. Hold for 2 seconds to turn the heat pump **OFF**.

(Active mode symbol will no longer light up in the display

***IMPORTANT:** It is not necessary to turn off the heat pump. The dynamic control ensures that the heat pump never switches on when the temperature is met, or timer functions used.

As soon as there is a need for hot water again, the heat pump switches on automatically.

SYMBOLS:

Symbols will appear during different operating modes. Generally you can ignore the symbols and focus on the temperatures.

SYMBOOL	MEANING
	Hot water available
	Fan active
	Boost
	Heating
	Lock / Wifi

IMPORTANT: If the fan is active without the heating symbol, you may have activated the ventilation mode. This should only be used with properties with air conditioning features enabled.

SWITCHING VENTILATION ON/OFF:

SWITCHING ON:

1. Hold for 5 seconds to turn the ventilation function **ON**

(The fan symbol will appear even when the heating symbol is no longer present)

SWITCHING OFF*:

1. Hold for 5 seconds to turn the ventilation function **OFF**

(The fan symbol will only appear when the heating symbol appears)

TEMPERATURE SETTING

Activate the screen first by pressing any button.

1. Press ∨ or ∧ to increae or descrease the temperature

The right side "Set" temperature will change (e.g. "45")?

1

SETTING TIMERS

Note: only works when the heat pump is turned ON

1. Press and hold 🕐 for 5 seconds.

The timer icon and hour icon "88" will flash together

1

2. Press the ∨ or ∧ to set the exact hour for the heat pump to turn ON.
3. Press 🕐 to confirm the hour and move to the minute timer.
4. Press the ∨ or ∧ to set the exact minute for the heat pump to turn ON.
5. Press 🕐 to confirm the minute and move to the OFF time.
6. Repeat process for the OFF time.

2

3

7. To cancel the timer, press the ☼ button during the ON or OFF timer programming.

7

BOOST FUNCTION

Note: only works when the heat pump is turned ON

1. Press the button once to turn on the boost function

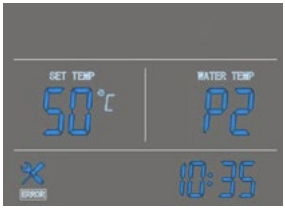
The boost icon will appear on the screen if properly selected

1

ERROR CODES

During standby or running status.

If there is an issue with the heat pump the heat pump will automatically stop working and display an error code on the left hand side of the controller.



LEGIONELLA CYLCES

Legionella settings are set up during installation. The default settings for legionella are as follows:

PAREMETER	DESCRIPTION	DEAFULT SETTING
4	Temperature	60 degrees
5	Holding Time	30 minutes
13	Start time	23:00

Legionella settings can be changed to match personal preferences and home requirements. Homes that don't use hot water frequently or have dead-ends could consider increasing the frequency of these cycles.

Please consult your installers or Adlår service team to guide you through making changes to these settings.

OPERATIONG VIA ADLÅR ÅPP

The Aurora II has the possibility to easily operate it via a specially developed Adlår Åpp. With the Adlår Åpp you can adjust the water temperature (not the room temperature), select different modes, settings and manage the ECO/NIGHT/SILENT mode.

In order to stay up-to-date with the latest functions and operating instructions, we would like to refer you to an online instruction video. You can watch this video by scanning the QR code "Adlår Åpp - Instruction".

ADLÅR ÅPP - INSTRUCTIONS

ADLÅR ÅPP - APPLE IOS

ADLÅR ÅPP - ANDROID

WIFI LINK AURORA II

Activate the screen first by unlocking it.

1. Hold ⏻ and ∧ to active Wifi connection

(A WIFI symbol will start flashing in the top right of the display)

WIFI LINK FJORD I

Activate the screen first by pressing any button.

1. Hold 🔒 and ∧ to active Wifi connection

(A WIFI (lock) symbol will start flashing in the top right of the display)

ADDING A DEVICE ON THE ÅPP

Open the APP on your phone first and sign in. Prepare your WIFI password in advance.

1. Select "Add Device" or the blue "+" button

If the device automatically appears

--> Go to step 6

If the device doesn't automatically appears

--> Go to step 2

2. Go to "Large Home Appliances", select:
3. "Water Heater (wifi)" for the Fjord I
4. "Heat Pump (wifi)" for the AURORA II
5. Select "Confirm indicator rapidly blink" when you have done the pairing button press and the pairing icon appears on the display.
6. Input your WIFI password and confirm
7. Phone will connect with the device.

WIFI TROUBLESHOOTING

If your device isn;t connecting to your WIFI the following may solve the problem,

1. Relocate your WIFI router closer to the devices

Getting a wired extension cable for your internet connection which will temporarily allow you to lcoate the router closer to the units may solve the problem and not require you to fully move your router.

Once the connection has been established try moving your router back to its original location.

2. Turn off 5 GHz Frequency

If you are having trouble connecting to the WIFI please check your internet connection is set to 2.4 GHz and not 5 GHz. 5 GHz can be disabled in your administrator settings on your home internet admin page. After the heat pump is connected you can re-enable 5 GHz frequency.

ADDING FAMILY MEMBERS

You are able to add family members to the app so that everyone can have control of the heat pump via their smart phones. Additionally, Adlar team members can be connected to the APP to check on the status of your heat pump, adjust settings, and troubleshoot remotely.

1. On the Main Homepage of the APP, select “ME” in the bottom panel
2. Go to “Home Management”
3. Select your Home you have created
4. Select “Add Member”
5. There are multiple options to share the access code. Copy in a message to your family.
6. Your family membercan then open the APP themselves, select “ME”, select “Home Management” and then “Join a Home”
7. By entering the code shared they should be able to acess your home and devices.

SMART CONTROL

1. Timers

Timers can be easily set from the APP in the settings sections of each device.

IMPORTANT: Timers should only be set up on the hot water cylinder (Fjord I). Setting timers on the heating and cooling heat pump will have negative impact on the heat pump efficiency. It should also be noted having the heat pump OFF during cold periods risks outdoor pipes freezing.

2. Creating "Scenes"

Scenes allow you to create custom environments and settings. The key scene that can be created is a "set back" condition for the heating.

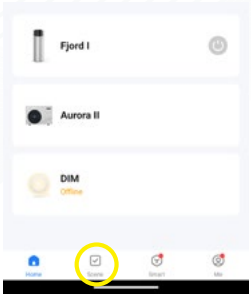
As heat pumps work more efficintly in a slow and steady state having timers which turn the heating ON and OFF completely, like a boiler system, are inefficient and end up costing more to run. By creating a set back "scene" at night or in periods you aren't in the house you maximse the benefits of heat pumps.*

IMPORTANT: In well insulated homes, it still may be less efficient to do set-back temperatures, and it can be still more efficient to run your heat pump constantly in a comfortable temperature. It is worth monitoring your consumption under different scenarios to maximise your savings and comfort.

1. On the Main Homepage of the APP, select "SCENE" in the bottom panel
2. Select "Create Scene" or the "+" button to create a scene
3. Select the condition for your scene.

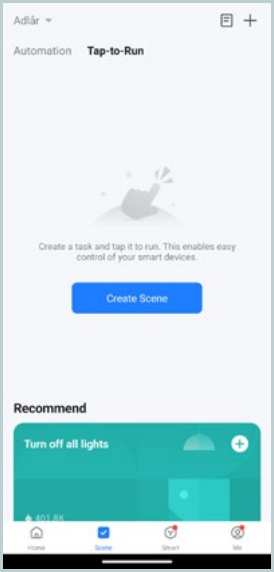
(e.g. Schedule to repeat daily at XX:XX time)

4. Add "Then Condition" (e.g. "Control Single Device") and select the AURORA II heat pump
5. Select "Curve Setting"

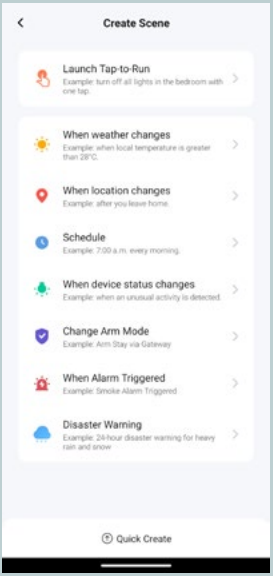


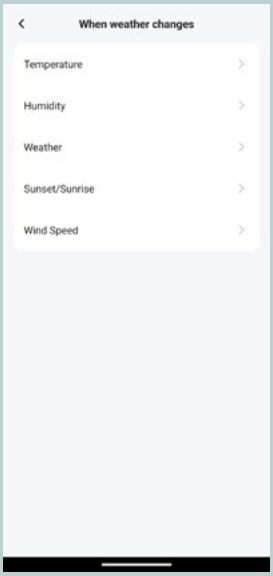
It is advisable to select a weather compensation curve 2-3 settings lower than your standard setting for the set-back curve.

2

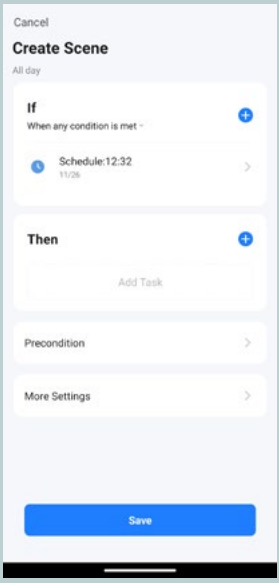

Adlår
Automation
Tap-to-Run
Create a task and tap it to run. This enables easy control of your smart devices.
Create Scene
Recommend
Turn off all lights

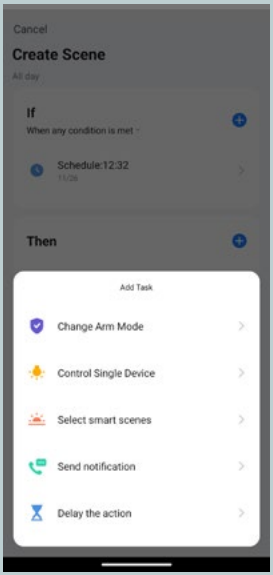
3


Create Scene
Launch Tap-to-Run
Example: turn off all lights in the bedroom with one tap
When weather changes
Example: when local temperature is greater than 28°C
When location changes
Example: after you leave home
Schedule
Example: 7:00 a.m. every morning
When device status changes
Example: when an unusual activity is detected
Change Arm Mode
Example: Arm Stay via Gateway
When Alarm Triggered
Example: Smoke Alarm Triggered
Disaster Warning
Example: 24-hour disaster warning for heavy rain and snow
Quick Create

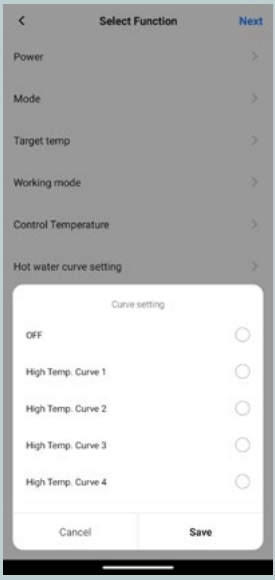

When weather changes
Temperature
Humidity
Weather
Sunset/Sunrise
Wind Speed

4


Cancel
Create Scene
All day
If
When any condition is met
Schedule:12:32
11/26
Then
Add Task
Precondition
More Settings
Save


Cancel
Create Scene
All day
If
When any condition is met
Schedule:12:32
11/26
Then
Add Task
Change Arm Mode
Control Single Device
Select smart scenes
Send notification
Delay the action

5

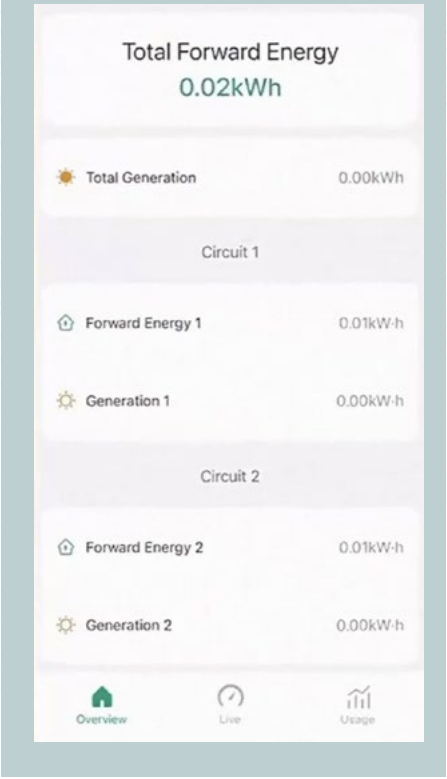

Select Function
Next
Power
Mode
Target temp
Working mode
Control Temperature
Hot water curve setting
Curve setting
OFF
High Temp. Curve 1
High Temp. Curve 2
High Temp. Curve 3
High Temp. Curve 4
Cancel
Save

3. Smart Devices

If you have solar PV, secondary hot water returns, air conditioning on the Fjord I, or want to enable other smart functions, Adlår can add smart devices into the electrical system which will allow you to further program your system smartly.

Examples of smart "Scenes" you can create are:

1. Timing your hot water to heat up during excess solar production
2. Increasing your heating temperature during solar PV production
3. Smart timers to active secondary hot water timers
4. Activate air conditioning switch at the same time as the hot water cylinder heat up schedule.



GENERAL MAINTENANCE

1. Check water pressure

   Regularly check the water supply system to ensure that the pressure is holding around 1.7 bar. Low water flow can negatively affect the performance and reliability of the heat pump.

2. Clean the filter

   Make sure your filter is cleaned regularly to prevent damage to the heat pump due to dirt build-up or blockage.

3. Remove snow around the pump

   In case of snow; Keep the heat pump free of snow by shoveling or sweeping it away if necessary, so that the air flow is not obstructed.

4. Check the air inlet/outlet

   Make sure that the air inlet and outlet of the heat pump are free of dirt and other obstacles that could obstruct the air flow.

5. Proffessional Maintenance

   Have the evaporator, casing and water pipes of the heat pump cleaned by a professional. It is recommended to clean the water inlet filter at least once a year, and depending on the circumstances more often.

6. Check valves and condensation drain

   Regularly check that the safety valves are working correctly and ensure that the condensate can drain freely with gravity.

7. Leak Checks

   At least once a year, or more often if necessary, check for leaks in the water pipe and the refrigerant circuit. In the event of a leak, contact us immediately.

8. Maintenance by professionals

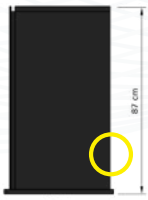
   The heat pump should only be serviced by a qualified professional. Disconnect the power supply and ensure a safe working environment (LOTO procedure) before working on the wiring.

9. Long periods of inactivity

   If the heat pump is not used for a long period of time, it is recommended to drain the system water, close the valves and disconnect the power supply.

RISK OF FREEZING

In the unlikely situation where the outside temperature drops below freezing point and there is no electricity for a long time, the heat pump must be shut off by closing the ball



valves in both the supply and return pipes (both mounted indoors) and the heat pump

must be drained using the drain at the bottom of the heat pump, in order to prevent any risk of the central heating water freezing.

FILLING & BLEEDING THE SYTEM

To ensure that your heating system functions optimally, it is important that it is filled and bled correctly. Follow the steps below carefully:

Required materials:

- Filling Loop (on the expansion)
- Bleeding key
- Pressure guage (on the expansion)

FILLING STEPS:

1. Filling Loop
   Open up the filling loop allowing water to enter the system until it reaches 1.7 bar.
2. Close the filling tap
   Once the pressure reaches between 1.5 and 2 bar you can close the filling loop to prevent overpressure.

BLEEDING STEPS:

Start with the lowest radiator in the system. Use a bleed key to open the bleed valve until water comes out without air bubbles. Then close the valve.

1. Bleed the radiators
   After bleeding, the pressure in the system may drop. Check the pressure gauge and top up if necessary to restore the correct pressure.
2. Repeat
   Work from the lowest to the highest radiator in the system. Make sure that all radiators are properly bled.
3. Switch System ON
   Switch the heating system back on and check that it starts up without any problems. Check the pressure again when the system is fully heated.

TRAPPED AIR:

If you experience trapped air in the system you may need to purge the system to release the air. To do this you need two people, one to fill the system and one to empty the system.

1. Empty the system - valve
   In your system there will be points you can release water out of the system. By attaching a hose to this point you can drain water.
2. Empty the system - heat pump
   By opening the side panel on your heat pump you will be able to see a red pressure release valve (bottom right). Turning this will release water out of the back of the heat pump.
3. Fill the system - filling loop
   As one person drains the system at the heat pump the other person should fill the system.

EXTRA TIP:

It is advisable to bleed your radiators regularly during the first few weeks after your install to ensure maximum performance.

MAINTENANCE AGREEMENT

To ensure that your heat pump performs optimally throughout its lifespan, regular maintenance is essential. Our maintenance agreement not only provides peace of mind, but also a guarantee that your heat pump system will continue to operate efficiently, save energy and maximise its lifespan. Adlår Castra has developed a service programme specifically designed for our heat pumps for this purpose. By choosing our Gold or Platinum maintenance programme, you will benefit from:

Preventative Maintenance:
Regular inspections and maintenance to detect and fix potential problems before they become bigger.

Performance Optimisation:
Adjusting your heat pump system to ensure maximum efficiency and comfort, regardless of the weather conditions.

Energy Savings:
A well-maintained heat pump uses less energy, resulting in lower energy bills and a reduced environmental impact.

Longer Lifespan:
Regular maintenance minimises wear and tear and other problems, extending the lifespan of your heat pump and saving you money on expensive replacements.

Priority Service:
As part of our maintenance program, you will receive priority scheduling of service visits and repairs, so you can get back to enjoying comfort quickly.

Our dedicated technicians are highly trained and experienced in servicing heat pump systems. With their expertise, you can rest assured that your system is in good hands.

ERRORCODE	DESCRIPTION	CAUSE
E01	Protection against incorrectly connected phases.	Phase power sequence error
E02	Power supply missing a phase	Power supply is missing a phase
E03	External water flow fault	1. Circulation pump has failed or water system is blocked; 2. Water flow switch defective or mounted in the opposite direction 3. Insufficient circulation pump lift capacity 4. Circulation pump rotates in the opposite direction 5. Excessive air in the system
E04	Abnormal communication between the main control board and the external module	Check communication link
E05	High pressure switch 1 fault	1. High voltage switch defective or system blocked; 2. Excessive refrigerant 3. Fan not working properly, or water circulation is abnormal; 4. Air or other objects are mixed in the cooling system 5. Improper balance in the water heat exchanger
E06	Low pressure switch 1 fault	1. Low voltage switch error 2. Lack of refrigerant 3. Fan not working properly 4. Blockage in cooling system
E07	High pressure switch 2 fault	See E05
E08	Low pressure switch 2 fault	See E06
E10	Internal water flow fault	See E03
E11	Limited time protection	Enter the boot password
E12	Exhaust gas temperature 1 too high	Lack of coolant in the fluorine circuit system or sensor damage
E13	Exhaust gas temperature 2 too high	Lack of coolant in the fluorine circuit system or sensor damage
E14	Hot water tank temperature fault	Disconnected or damaged sensor/motherboard
E15	Inlet water temperature sensor fault	Disconnected or damaged sensor/motherboard
E16	Spiral sensor 1 fault	Disconnected or damaged sensor/motherboard
E17	Spiral sensor 2 fault	Disconnected or damaged sensor/motherboard
E18	Exhaust gas sensor 1 fault	Disconnected or damaged sensor/motherboard
E19	Exhaust gas sensor 2 fault	Disconnected or damaged sensor/motherboard
E20	Internal temperature sensor fault	Disconnected or damaged sensor/motherboard
E21	Defecte omgevingssensor	Disconnected or damaged sensor/motherboard

ERRORCODE	DESCRIPTION	CAUSE
E22	Return water sensor fault	Disconnected or damaged sensor/motherboard
E23	Cooling / subcooling protection	Normal anti-freeze protection
E24	Board switching temperature error	Damaged sensor or motherboard
E25	Water level switch failure	Damage to water level sensor or motherboard
E26	Antifreeze sensor failure	Disconnected or damaged sensor/motherboard
E27	Water outlet sensor failure	Disconnected or damaged sensor/motherboard
E28	Reserve	Reserve
E29	Return air sensor 1 error	Disconnected or damaged sensor/motherboard
E30	Return air sensor 2 error	Disconnected or damaged sensor/motherboard
E31	Water pressure switch fault	Storing van de waterdrukschakelaar
E32	Protection against too high water temperature	Insufficient water flow or a damaged sensor
E33	High pressure sensor 1 error	Disconnected or damaged sensor/motherboard
E34	Low pressure sensor 2 error	Disconnected or damaged sensor/motherboard
E35	Reserve	Reserve
E36	Reserve	Reserve
E37	Abnormal temperature difference protection between inlet and outlet water	Insufficient water flow
E38	DC fan 1 error	Fan Drive or Motor Damage
E39	DC fan 2 error	Fan Drive or Motor Damage
E40	DC fan 3 error	Fan Drive or Motor Damage
E41	DC fan 4 error	Fan Drive or Motor Damage
E42	Cooling coil sensor 1 error	Disconnected or damaged sensor/motherboard
E43	Cooling coil sensor 2 error	Disconnected or damaged sensor/motherboard
E44	Protection against low ambient temperature	Standaard bescherming
E45	High pressure 2 sensor error	Disconnected or damaged sensor/motherboard
E46	Low pressure 2 sensor error	Disconnected or damaged sensor/motherboard

ERRORCODE	DESCRIPTION	CAUSE
E47	Economizer Inlet sensor 1 error	Disconnected or damaged sensor/motherboard
E48	Economizer Inlet sensor 2 error	Disconnected or damaged sensor/motherboard
E49	Economizer Outlet sensor 1 error	Disconnected or damaged sensor/motherboard
E50	Economizer Outet sensor 2 error	Disconnected or damaged sensor/motherboard
E51	High pressure 1 overvoltage protection	See E05
E52	Low pressure 1 undervoltage protection	See E06
E53	High pressure 2 overvoltage protection	See E05
E54	Low pressure 2 undervoltage protection	See E06
E55	PCB Board Communication Failure	Bad or broken signal line contact
E80	Supply fault	Single-phase power supply detects a three-phase electrical signal.
E88	Inverter Module 1 Protection	Compressor or compressor driver damaged
E89	Inverter Module 2 Protection	Compressor or compressor driver damaged
E94	Water Pump Feedback Error	Damaged DC pump or bad signal line contact
E96	Abnormal Communication Between Compressor 1 Driver and Main Control Board	Bad or broken signal line contact
E97	Abnormal Communication Between Compressor 2 Driver and Main Control Board	Bad or broken signal line contact
E98	Abnormal Communication Between Fan Motor 1 Driver and Main Control Board	Bad or broken signal line contact
E99	Abnormal Communication Between Fan Motor 2 Driver and Main Control Board	Bad or broken signal line contact

IMPORTANT: Always check your radiators and zone valves as an initial check. Closed valves and TRVs are the most likely cause of errors. As a first step in resolving errors you should first open all your radiators and valves fully to ensure good water flow through the system.

If some radiators aren't getting hot, please refer to online radiator bleeding instructions and follow the filling steps. See "General Maintenance".

COMMON ERRORS

Below is a list of the most common error codes with an explanation of what they mean and how to solve them:

E37 - DIFFERENCE BETWEEN SUPPLY AND RETURN TOO HIGH

The delta T is too high between the water coming into the heat pump and water coming out of the heat pump.

1. Check your live data. Press (v) for 5 seconds to see the “Live Data” or view “Query” on your APP .

Use the up button to move through the parameters

2. Move to number “25” or check “Water flow rate” in your APP. The number in the bottom right should read >9.

Common reasons for the flow rate dropping:

1. Not enough water in the system (fill up the system at the filling loop)
2. Air in the system (see removing air from system section)
3. Radiator or zone valves closing (reopen valves to see if flow rate increases)

IMPORTANT: Closing TRV valves on radiators and/or completely shutting down all your valves without a buffer tank installed will cause this error. It is important to ensure you are in the right heat curve in this scenario, rather than opening and closing zones, as previously on boiler based systems.

Closing down zones or valves one by one and then monitoring the flow rate is advisable first step in understanding how your home is plummed and the impact on flow individual zones have on the whole system.

Parameters to change:
Parameters should only be changed after consultation with the Adlår service team.

PAREMETER	DESCRIPTION	DEAFULT SETTING
P260	Maximum circulation pump speed	+20
P116	Regulation based on inlet/outlet	Inlet (0)
P23	Maximum DeltaT	15°C
P99	DeltaT in modulation	5
P100	Minimum circulation speed	+20
P146	Circulation flow setting	+20
P260	Maximum circulation pump speed	99
P261	Circulation when set point reached	+20

Adjustments should only be made step-by-step to reduce pump speeds and improve efficiency.

E51 - HEAT PUMP CANNOT GET RID OF HEAT

With error E51, there is insufficient flow through the heat exchanger (condenser), which means the heat pump cannot get rid of its heat.

Common reasons for the flow rate dropping:

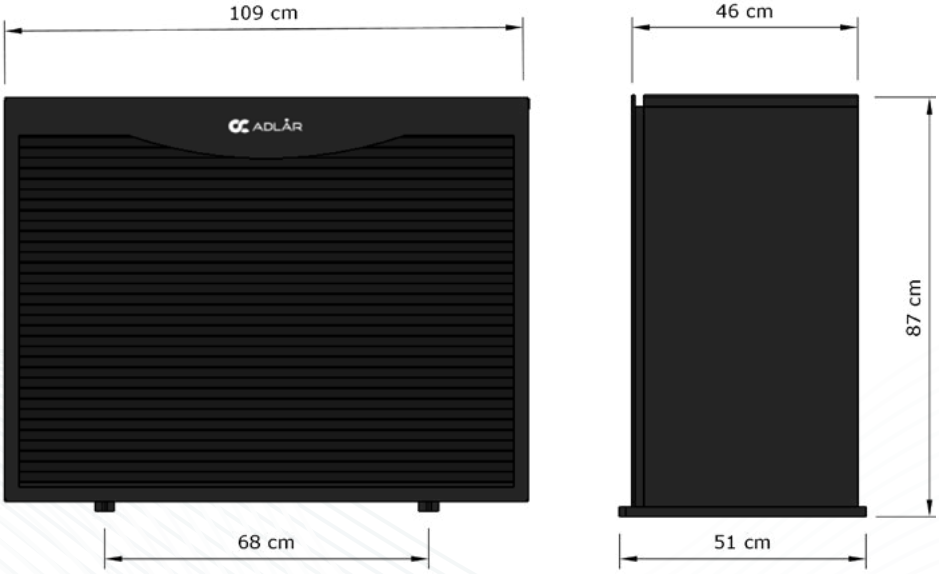
1. Not enough water in the system (fill up the system at the filling loop)
2. Air in the system (see removing air from system section)
3. Radiator or zone valves closing (reopen valves to see if flow rate increases)
4. Pump speed too low
5. Blockage in the system
6. Circulation pump blockage

It is possible that the circulation pump is stuck under this error code, you can fix this by first switching off the heat pump (isolator switch down). Use a cross screwdriver in the front of the circulation pump to manually rotate the blades and unblock the pump.

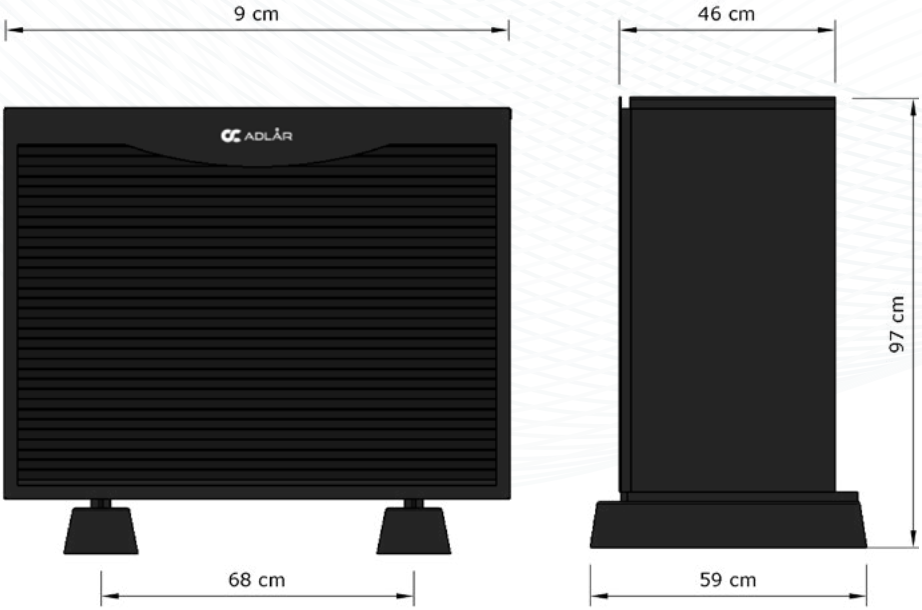
This video can be used as a reference.

DRAWING AURORA II - 6, 10 & 14 KW

6&10 kW



14 kW



SPECIFICATIONS - AURORA II

	AURORA II		
MODEL	6 kW	10 kW	14 (1) kW
Voltage	220-240/50 Hz	220-240 50 Hz	380-415 50 Hz
Phases	1	1	1
HEATING: PERFORMANCE CONDITION 7 °C / 6 °C, INLET / OUTLET WATER 30 °C / 35 °C			
Heating Capcity (kW)	6.46(2.50-8.30)	10.58(4.20-12.20)	14.45(5.30-16.50)
Nominal Power Input (kW)	0.57-1.92	0.86-2.88	1.15-4.15
Nominal Input Current (A)	2.53-8.52	3.82-12.77	1.63-5.90
ERP Level (Outlet water temperature 35 °C)/SCOP	A+++/4.92	A+++/4.55	A+++/4.58
HEATING: PERFORMANCE CONDITION 7 °C / 6 °C, INLET / OUTLET WATER 47°C / 55°C			
Heating Capcity (kW)	2.30-7.62	3.85-11.20	4.90-15.10
Nominal Power Input (kW)	0.75-2.61	1.13-3.75	1.65-5.25
Nominal Input Current (A)	3.32-11.58	5.01-16.6	2.35-7.47
ERP Level (Outlet water temperature 55 °C)/SCOP	A++/3.37	A++/3.41	A++/3.39
COOLING: PERFORMANCE CONDITION 35°C / 24°C, INLET / OUTLET WATER 12°C / 7°C			
Cooling Capcity (kW)	1.80-7.10	2.60-10.30	4.50-13.50
Nominal Power Input (kW)	0.61-2.43	0.91-3.65	1.45-4.85
Nominal Input Current (A)	2.71-10.78	4.03-16.19	2.06-6.89
EER Level (Outlet water temperature 7 °C)/SCOP	3,25	3,14	3,21
GENERAL DATA			
Maximum Power Input (kW)	2.71	3.83	5.97
Maximum Input Current (A)	12.00	17	10.50
Refriderant/Weight	R32/1.25kg	R32/1.8kg	R32/2.8kg
Nominal Water Flow (m^3/h)	1.1	1.75	2.52
Fan Motor Type	DC inverter		
Compressor	Panasonic/DC Inverter/Rotary/EVI		
Circulation Pump	Grundfos/Inverter Type/Built-in		
IP Class	IPX4		
Noise Level (dB(A)) – 1m	50	51	52
Max. Outlet Water Temperature (°C)	60	60	60
Water Pipe Connections	DN 25 (1")	DN 25 (1")	DN 32 (1-1/4")
Pressure Drop at Nominal Water Flow (kPa)	25	27	30
Operating Temperarture Range (Heating Mode) (°C)	-30~45		
Operating Temperarture Range (Cooling Mode) (°C)	16~45		
Net Dimensions (L*D*H) (mm)	1100*445*850	1100*445*850	1110*480*850
Net weight (kg)	102	109	124

SPECIFICATIONS - FJORD I

	FJORD I		
MODEL	**120L**	**200L**	**300L**
Voltage (V/Hz)	220-240/50 Hz	220-240 50 Hz	380~415 50 Hz
Capacity (kW)	1.1* (+1.55**)	1.6* (+1.5**)	1.6* (+1.5**)
Duct Air Flow (nom.)	250	350	350
Rated Power Input (W)	416 (+1550**)	600 (+1500**)	600 (+1500**)
ELE. Heating Rated Input (W)	1550	1500	1500
Current (nom.) (A)	1.30* (+6.8**)	1.88* (+6.8**)	1.88* (+6.8**)
Current (Rated.) (A)	1.81 (+6.8**)	2.61 (+6.8**)	2.61 (+6.8**)
Max outlet water temperature (without using E-heater) (°C)	60	60	60
Refrigerant type/charge (../g)	R290/150	R290/150	R290/150
COP (W/W)	2.626***	2.915***	3.113***
Storage Tank Volume (L)	120	200	300
Sound Prower Level (dB(A))	55.0****	55.3****	55.7****
DRY BULB / WET BULB CONDITION 20 °C / 15 °C			
COP (DHW)	3.135	3.605	3.802
Inlet Cold Temperature (°C)	10	10	10
Set Point Temperature (°C)	53	53	53
Daily Electric Energy Consumption (kWh)	1.864	3.2333	5.0151
Water Heating Energy Efficiency (%)	133.3%	150.1%	156.2%
Energy Efficiency Class	A++	A++	A++
Annual Energy Consumption (kWh/a)	385	682	1072
DRY BULB / WET BULB CONDITION 7 °C / 6 °C			
COP (DHW)	2.626	2.915	3.113
Inlet Cold Temperature (°C)	10	10	10
Set Point Temperature (°C)	53	53	53
Daily Electric Energy Consumption (kWh)	2.225	3.9992	6.1251
Water Heating Energy Efficiency (%)	111.6%	121.1%	127.9%
Energy Efficiency Class	A+	A+	A+
Annual Energy Consumption (kWh/a)	460	845	1310

* Capacity and power under following conditions: Ambient Temperature 20°C, Water Temperature 15°C to 55°C

** Related to the supplementary heater

*** COP based on ERP.M cylce, Ambient Temperature 20°C, Heat sourve temperature 7°C/6°C, Water 10° to 53°C

**** Noise is tested according to EN12102

Noise Pressure Standards

We declare that the Adlår Castra Aurora II 6-, 10- and 14-kW heat pumps comply with the (EU) No 813/2013 standard regarding outdoor sound power, measured directly next to the heat pump. The legal standards apply as follows:

Noise pressure:

During the day (07:00 to 19:00) maximum 45 db(A).

During the night (19:00 to 07:00) maximum 40 db(A).

The maximum sound pressure of the AURORA II (open field test) is:

HEAT PUMP	1 METER	2 METERS	Nightmode (at source)
6kW	42 dB (A)	36 dB(A)	38 ~ 27 dB(A)
10kW	43 dB(A)	37 dB(A)	38 ~ 28 dB(A)
14kW	47 dB(A)	41 dB(A)	38 ~ 30 dB(A)

For further details on conformity, please refer to the Noise Standard itself (EU) No 813/2013.

Other legal standards

Adlår Castra also declares that it complies with the following legal standards:

EN 14825:2018	EU 2016/2282:2016-11-30
EN 12102-1:2017	EN60335-1:2012/A15:2021
EN14511-4:2018	EN60335-2-40:2003/A13:2012
(EU) No 813/2013	EN62233:2008

Registration: 14758039
VAT: 439 8758 30
MCS: IAA10054

HEAT PUMP	6kW	10kW	14kW
MCS	MCS HP0347/01	MCS HP0347/02	MCS HP0347/03

PLI: Allied World Assurance Company. GCAR1246.(£5,000,000/claim)

Adlår is regulated by the MCS, RECC, and IAA.

With warmest regards,

Team Adlår

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www.adlar.co.uk

Product Information:
This document contains information about the operation of the Aurora II and Fjord I heat pump.

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Version
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Date: 25-1-2024

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