USER MANUAL

CTS602 HMI BY NILAN

Compact P2 / Compact P2 Polar - GEO

Gateway

Version 1.00 - 01.03.2022
B24 Compact P2 GEO GB

NILAN®
OUTSTANDING INDOOR CLIMATE

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Power supply

CAUTION
Always disconnect the power supply to the unit if an error occurs that cannot be rectified via the control panel.

CAUTION
If an error occurs on electrically conductive parts of the unit, alway contact an authorised electrician to rectify the error.

CAUTION
Always disconnect the power to supply to the unit before opening the unit doors, for instance for installation, inspection, cleaning and filter change.

Heat pump domestic hot water

CAUTION
Avoid direct contact with the heating system pipes in the heat pump as they can get very hot.

CAUTION
To protect the heat pump against damage, it is fitted with the following safety equipment.

The heat pump must undergo suitable service inspections under applicable legislation and regulations to keep it in good condition and in compliance with safety and environmental requirements.

Responsibility for maintenance of the heat pump rests with the owner/user.

Heat pump for central heating

CAUTION
To secure the heat pump against damages, it is fitted with the following safety equipment:
- Expansion systems for central heating and buffertank
- Safety valve for central heating and buffertank
- Low and high pressure switch for compressor

The heat pump must undergo suitable service inspections under applicable legislation and regulations to keep it in good condition and in compliance with safety and environmental requirements.

Responsibility for maintenance of the heat pump rests with the owner/user.

Introduction

Documentation

The following documents will be supplied with the unit:

- Installation instructions
- Software instructions
- User Manual
- Wiring diagram

The instructions can be downloaded from www.nilan.dk.

If you have questions regarding installation and operation of the unit after having read the instructions, please contact your nearest Nilan dealer. A list of Nilan dealers is available on www.nilan.dk.

ATTENTION

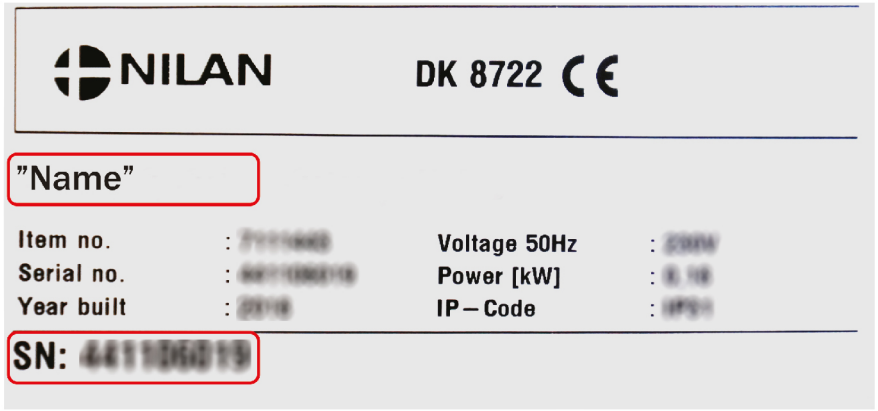
The unit must be started up immediately after installation and connection to the duct system.

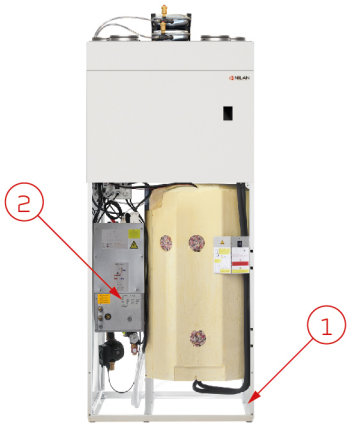
When the ventilation unit is not in operation, humidity from the rooms will enter the duct system and create condensate water that can run out of the valves and cause damage to floors and furniture. Condensation may also form in the ventilation unit, which can damage its electronics and fans.

From factory, the unit has been tested and is ready for operation.

Data plate

1. Compact P2: The data plate is situated on the inside of the ventilation unit, bottom right.
2. GEO: The data plate is situated on the metal plate to the left of the hot water tank.





ATTENTION

When contacting Nilan with questions about the product, it is important to have the unit name and serial no. (SN) ready. From this information, the service department can find all information about the unit in question and thus help with information and answer questions about what the unit consists of/contains, and what software is used.

The type of the ventilation unit can also be found in the user panel menu under "Show data".

App option

Nilan User App

Introduction

The following instructions are general and apply to all Nilan ventilation units. Some of the shown functions and settings may therefore not exist on your ventilation unit. The user settings that are applicable to exactly your ventilation unit will more or less correspond to those displayed in the Nilan User APP on your phone.

If you require a detailed description of individual functions and settings, you can download the software instructions for your ventilation unit from our website.

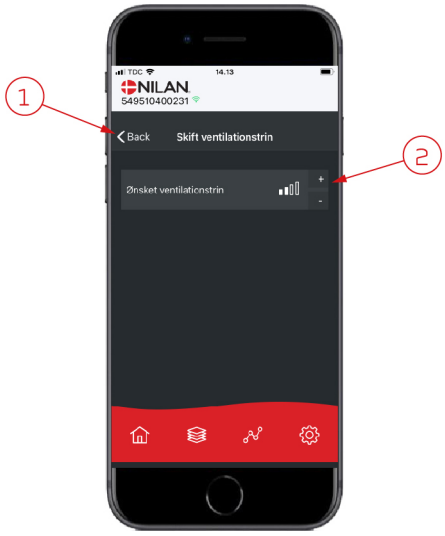
Explanation of main screen items

1. On the main screen under the Nilan logo, you will see the number of the connected Gateway.
   Under settings, you can name the ventilation unit e.g. Home or Holiday home. The name will then be displayed instead.
   If you have more than one ventilation unit connected to the APP, you will be able to see to which unit the shown data apply.
   Next to the number is a WiFi icon that is green when there is connection to the unit, and red if the connection is interrupted.
2. Here you can see the items that are relevant to your ventilation unit. If there are too many items to fit the screen simultaneously, the rest will be below the displayed items. You can access these by using your finger to scroll up.
   If you press one of the items on the screen briefly, a settings menu will appear.
3. Shortcut key to return to main screen.
4. If you press this icon, you will see a list of all current and relevant data.
5. If you press this icon, you will get to a page where you can see a trend curve for relevant data.
6. Pressing this icon will take you to settings where you will be able to add more ventilation units.
7. The alarm icon will be displayed if an alarm is triggered on the unit. By pressing the icon, you will get an outline of the most recent alarms.
   If more ventilation units are connected to the same APP, you will have to go into settings and select unit in order to see to which unit the alarm applies.

Temperature

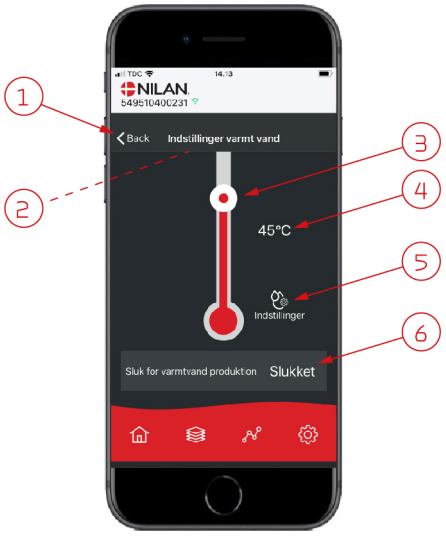
1. Press "back" to return to the previous page.
2. You can set the room temperature by scrolling up or down with your finger on the icon. When the ventilation unit is operating in heating mode, the thermometer is red. In cooling mode it is blue, and during neutral operation orange.
3. The icon for heating settings may be displayed if you have installed an after-heating element. Press this icon to access heating settings.
4. Here you can see the current room temperature.
5. Here you can see the desired room temperature.
6. The cooling icon will be displayed if the unit has active cooling via a heat pump. Press this icon to access the cooling settings.
7. If you scroll up the items with your finger, a menu appears where you can select from the options AUTO, HEAT and COOL.

Ventilation

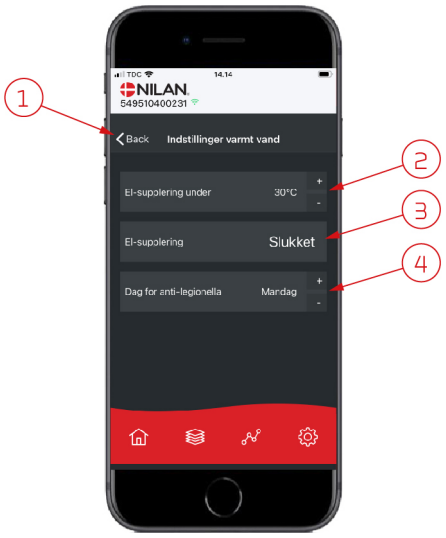


1. Press "back" to return to the previous page.
2. Here you can set the fan speed level you want. The fan speed level that you have selected may differ from the one displayed on the main screen. This is because the unit is able to override the set fan speed level, e.g. at high/low humidity.

Domestic hot water



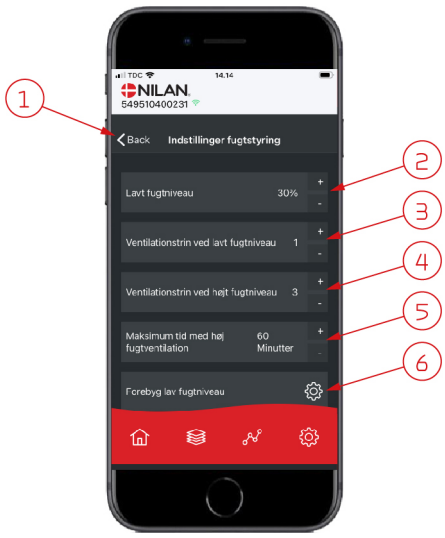
1. Press "back" to return to the previous page.
2. If you scroll down with your finger, you can read off the current temperature of the hot water.
3. You can set the domestic hot water by scrolling up or down with your finger on the icon. It is indicated under the thermometer when the unit is producing domestic hot water. The colour inside the thermometer changes in accordance with the temperature. A temperature >40°C is red, 30-40°C is orange, and <30°C is blue. Then you can see whether there is enough hot water for a bath.
4. Here you can see the current setting of the hot water temperature.
5. Press this icon to access more settings.
6. Press here to deactivate the production of hot water. You can reactivate the hot water production by using your finger to scroll up the thermometer and select the desired water temperature.



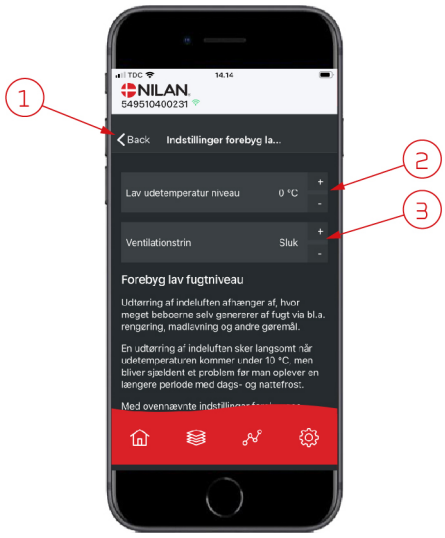
The settings icon (5) gives you access to settings related to supplementary electric heating and anti-legionella measures.

1. Press "back" to return to the previous page.
2. Here you can choose at what temperature the supplementary electric heating should be activated in order to help heat the domestic hot water.
3. Here you can deactivate the supplementary electric heating.
4. Here you can turn off the anti-legionella treatment. You can also set a particular day during the week for anti-legionella treatment.

Air humidity

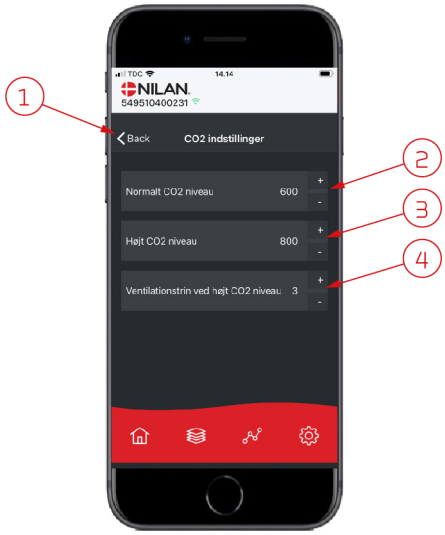


1. Press "back" to return to the previous page.
2. Here you can set the value for low level of humidity between 15- 45%.
3. Here you can set the fan speed level for low humidity between level 1 - 3. You can also deactivate the function.
4. Here you can set the fan speed level for high humidity between level 2 - 4. You can also deactivate the function.
5. Here you can set the maximum time at high humidity.
6. Press this icon to access more settings.



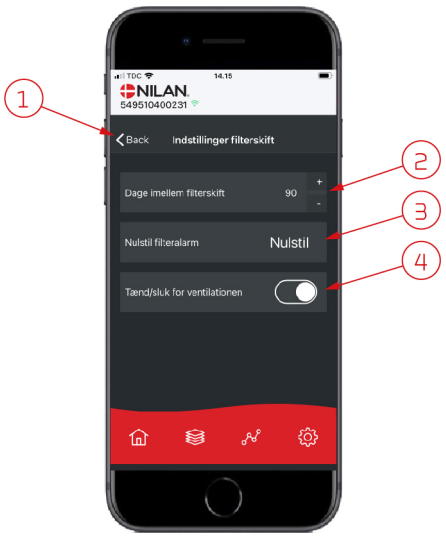
1. Press "back" to return to the previous page.
2. Here you can set the temperature to prevent low outdoor temperature between -20 - +10°.
3. Here you can set the fan speed level to prevent low humidity between level 1-3. You can also deactivate the function.

CO_2 settings



1. Press "back" to return to the previous page.
2. Here you can set the value for normal CO_2level between 400 - 700.
3. Here you can set the value for high CO_2level between 650 - 2500.
4. Here you can set the fan speed level between level 2 - 4. You can also deactivate the function.

Filter replacement



1. Press "back" to return to the previous page.
2. Here you can set the amount of days between filter replacements.
3. Here you can reset the alarm for filter replacement.
4. Here you can turn off the ventilation unit before filter replacement and turn the unit on again afterwards.

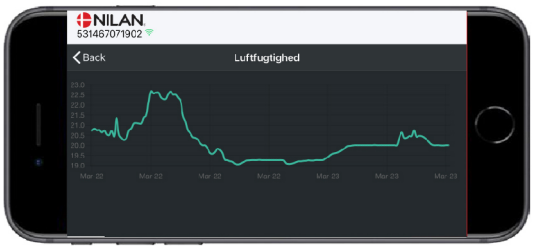
ATTENTION

Remember never to leave the unit off for a long period of time as condensate water may form in the unit and duct system and subsequently cause damage.

Show data

You can read off current operational data for the ventilation unit. This will allow you to check that the unit operates satisfactorily and to identify the cause of potential alarms.

Trend curve



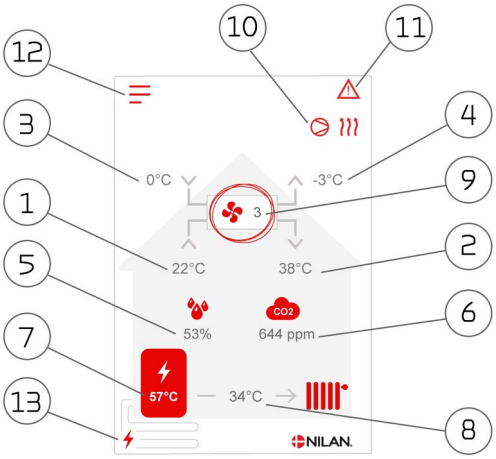
It is possible to see a Trend curve on various parameters - depending on which ventilation unit you have.

Control panel

Functions in the control panel

Main screen items

The main screen of the HMI panel shows the information and the settings options that a user mostly requires.



1. Shows the current room temperature in the dwelling, measured via the extract air
2. Shows the current supply air temperature
3. Shows the current outdoor air temperature, measured via the outdoor air intake
4. Shows the current discharge air temperature
5. Shows the current humidity level in the extract air
6. Shows the current CO_2 level (only if installed)
7. Shows the hot water temperature
8. Shows the supply flow temperature in the central heating
9. Shows the current fan speed level
10. Shows the operation icons listed below
11. Shows the menu icons listed below
12. Access to the settings menu
13. Shows whether supplementary electric heating has been activated

Menu icons

Stop icon
Indicates that the unit has stopped.

User selection icon
Indicates that the user selection function is active.

Week program icon
Indicates that the week program function has been activated.

Alarm icon
Indicates an alarm or a warning.

Operation icons

Compressor icon
Indicates that the compressor is active.

Heating icon
Indicates that the unit is heating the supply air via compressor or after-heating element.

Cooling icon
Indicates that the unit is cooling the supply air via compressor or bypass.

Domestic hot water icon
Indicates that the unit is producing domestic hot water. The flash indicates that supplementary electric heating is active.

De-icing icon
Indicates that the heat pump is de-icing.

Compressor icon GEO
Indicates that the compressor is active in the GEO section.

Main screen settings options

The settings options which the user needs in daily life can all be controlled from the main screen of the panel.

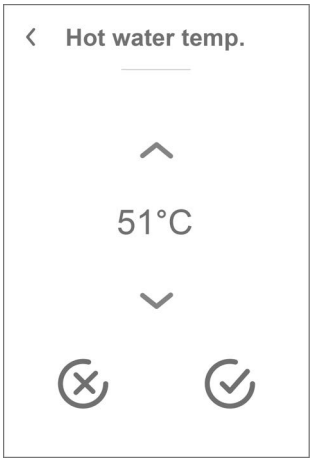
If you press current fan speed level, the set fan speed level will be displayed.

You can change the fan speed level by using the up-and-down arrows followed by the confirm icon (bottom right) or the cancel icon (bottom left).

There may be a difference between set fan speed level and the actual fan speed level as the control system will override the set level, for instance, at high/low air humidity or during cooker hood operation.

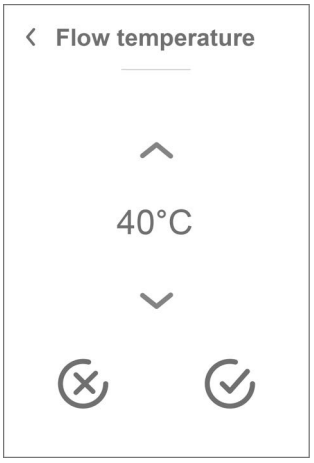
If you press current room temperature, the set room temperature will be displayed.

You can change the room temperature by using the up-and-down arrows followed by the confirm icon (bottom right) or the cancel icon (bottom left).



If you press the current hot water temperature, the set hot water temperature will be displayed.

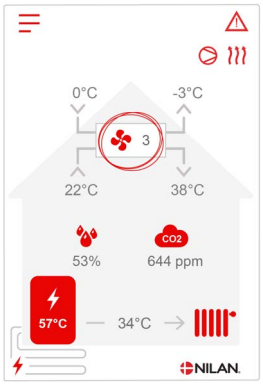
You can change the hot water temperature by using the up-and-down arrows followed by the confirm icon (bottom right) or the cancel icon (bottom left).



If you press the current supply flow temperature, the set supply flow temperature will be displayed.

You can change the supply flow temperature by using the up-and-down arrows followed by the confirm icon (bottom right) or the cancel icon (bottom left).

Warning and alarms



If the ventilation unit is faulty or an error occurs, there will be either a warning or an alarm. The icon will appear in the top right hand corner in the menu bar.

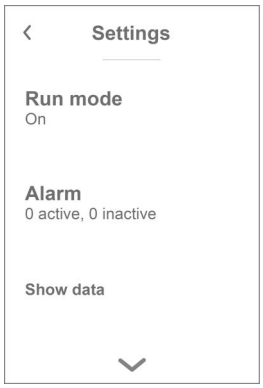
If you press the symbol, a brief description of the warning or the alarm will be displayed.

You will find more detailed descriptions in the "Alarm List" section of this document.

When the problem has been solved, you can reset the warning or alarm by pressing "Clear Alarm".

Settings menu overview

The settings menu is constructed to make it easy to navigate through.



You navigate through the settings menu by pressing the arrow below or above.

If you want to access a menu, tap the text for that menu and it will open.

Service and maintenance

Generally

A ventilation unit from Nilan can last for many years if it is properly serviced and maintained. Ventilation units are often hidden away, and they are therefore rarely given attention in everyday life. But just as you maintain your car, your ventilation unit will need servicing regularly to keep it functioning properly.

If appropriate service and maintenance are not carried out, the ventilation unit may get damaged. It can also result in increased energy consumption and a poorer indoor climate. Less air will run through the unit even if the fans are running faster. But the ventilation unit does not operate well with dirty filters, a clogged up heat exchanger and dusty fans.

You can set an alarm in your calendar on your phone that will notify you when your ventilation unit is due a service. Alternatively, you can make a service appointment with your local Nilan dealer or service company.

Regular maintenance

Filters

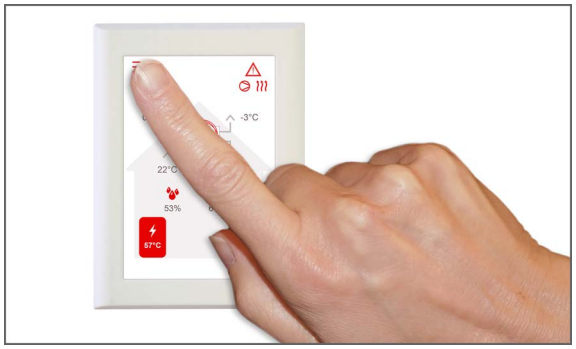
The primary purpose of the filters is to protect the ventilation unit and especially the heat exchanger and the fans that could otherwise become damaged by dust and dirt.

Dirty filters result in a poorer indoor climate and a higher energy consumption. Dirty filters must therefore be replaced. Dirty filters can also affect the humidity control system in the ventilation unit so it no longer works as intended.

The factory setting of the control system is set to 90 days, which will suit most installations. But if you live in a city close to a heavily congested road, you may need to replace the filters more often. Conversely, if you live in a rural setting, you may not need to replace filters quite as often.

The standard filters in the ventilation unit are ISO Coarse > 65% (G4). If you install a pollen filter ISO ePM1 50-65% (F7), you will not need to replace the pollen filter as often, as its filter area is larger. It may then only be necessary to replace the pollen filter every second or third time, depending on its condition.

Illustration of filter replacement



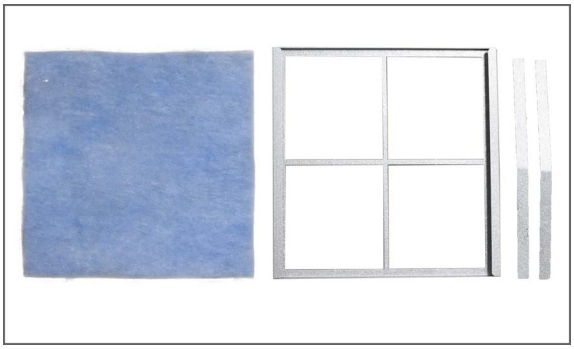
1. Before opening the door, turn off the ventilation unit on the control panel under "Operation" in the settings menu.

2. Tilt the upper door outwards, pull it up and put it to one side.

3. Loosen the thumb screws in the next door and put the door to one side.

4. Remove the two filters from the ventilation unit. It is advisable to vacuum/clean the filter chambers for potential dirt, spiderwebs and leaves.

5. Remove the two metal tracks and the filter sheet from the filter frame.



6. Keeping the smooth side facing downwards, place the new filter sheet in the filter frame.

7. Press the filter sheet firmly in place in the filter frame and push it carefully towards the sides of the frame. Return the metal tracks and the filter to the unit with the filter sheet facing upwards.

8. Turn on the ventilation unit. Press the alarm icon to reset the filter alarm.

Annual maintenance

General cleaning

The ventilation unit should be cleaned on the inside once a year. Dust may escape through the filters and potentially mix with moisture from the extract air.

WARNING

Stop the ventilation unit on the control panel and switch off the power supply for the ventilation unit before you open the front door to the unit.

You may want to vacuum the ventilation unit before you clean it on the inside using a slightly damp cloth. Be careful around potentially sharp edges. Be careful not to get water into the electrical control system.

The ventilation unit should also be cleaned on the outside using a slightly damp cloth and a mild detergent.

Valves in the ceiling

Over time a ring may develop around the inlet valves. This is a natural occurrence caused by dust in the air in the room. It is not due to defective filters or filters not being replaced.

Since painted ceilings are only rarely washable, we recommend that you vacuum the area around the valves before wiping them with a slightly damp cloth.

It is a good idea to detach the valves and then clean them when necessary. The valves have been set by the installer at a specific air volume, so it is important that you do not turn them, as this will change the setting and unbalance the ventilation system.

Water trap

During cold periods when the ventilation unit operates with a high level of heat recovery, the extract air creates condensation. It is important that this water can drain freely from the condensate tray. If it cannot drain properly, it will eventually leak out of the unit door and, potentially, cause water damage.

ATTENTION

If the cooling function is deactivated, you must check the condensate drain every autumn before the cold season starts (condensation typically occurs at an outdoor temperature <10°C)

Procedure:

1. Pour water into the condensate tray
2. Close the door to the ventilation unit
3. Turn on the ventilation unit and let it run for 10 min.
4. Open the door to the ventilation unit and check that the water has drained away and that it has not run back into the condensate tray
5. If the water has drained away, everything is in order
6. If the water has not drained away, you must check the water trap (the bend/loop of tubing) and the drain to locate any blockages.

Heat exchanger

The counterflow heat exchanger is a central part of the ventilation unit. It heats up the cold outdoor air with energy from the warm extract air. To maintain a high level of heat recovery, it is important that the heat exchanger is not clogged with dirt.

Experience indicates that it should not be necessary to lift out and clean the heat exchanger every year. However, if it appears to be dirty, you should lift it out and clean it.

The easiest way to clean the counterflow heat exchanger is in the shower. Use lukewarm water and rinse it well from both sides. Allow it to drip off before remounting it in the ventilation unit.

Checking sacrificial anode

A sacrificial anode is mounted in the hot water tank (not in stainless steel tanks) to protect the tank from corrosion. The sacrificial anode is electrically monitored and it is important to replace it immediately after an alarm is detected in the control panel.

It depends on the water quality, installation and consumption how long it will take between replacements. From experience, it can take between 1/2 to 10 years before it needs to be replaced. The sacrificial anode is a wear part that must be replaced by a professional craftsman.

The warranty for the hot water tank only applies if the sacrificial anode is replaced when needed.

Checking safety valve

The safety valve for the domestic hot water should have an annual function check to ensure it is functional at all times.

The function check must be carried out by a trained plumber.

Check air intake and discharge

It is important for operation of the unit that air can freely move through the air intake and discharge.

If roof stacks have been fitted to the air intake and discharge, check that they are not blocked with birds' nests, leaves or other dirt which can hamper air passage.

If, instead of roof stacks, grilles have been mounted in facades or eaves, check that they are not clogged with leaves or dirt. Grilles are particularly likely to become clogged.

Check ventilation ducts

It is important for operation of the unit that there is free air passage through the ventilation ducts.

After some years of operation, dirt will attach itself to ventilation ducts or tubes, and accumulations may lead to higher pressure drop in the ducts, leading to higher power consumption. It is therefore important to clean out the ducts when too much dirt has collected.

After attending to the inlet and outlet valves, it will be advisable to have them adjusted again, to ensure optimum operation of the ventilation system.

However, it will not be necessary to clean ducts more than every few years.

The heat pump

The heat pump must be inspected in accordance with applicable laws and regulations, such that it is kept in good condition and meets safety and environmental requirements.

The installer is obliged to inform the owner/user about applicable laws and regulations.

Particle filter central heating

There may be a considerable amount of dirt particles in the central heating system immediately after the heat pump has been put into operation. Following installation, the particle filter should therefore be checked and cleaned several times daily until the filter remains clean.

After that, the particle filter should be checked once a year as part of a general service inspection.

User settings

Setting the ventilation unit

Turn off the ventilation unit

If you need to open the doors to the ventilation unit in connection with servicing or filter replacement, remember to turn off the ventilation unit. You do this under the menu item "Operation".

When the ventilation unit is off, this icon is displayed on the main screen of the control panel in the top righthand corner.

ATTENTION

Before touching the electrical installations, you must ensure that the power supply is disconnected.

ATTENTION

It is important that the ventilation unit is not turned off for lengthy periods of time, as this may cause problems with condensate water in the duct system.

> Unit on/off

> Unit on/off		
> Compact P2	Settings: Standard setting: Description:	Off / On Off The ventilation unit is "Off" on delivery in order to prevent errors from occurring during when connected up. This is also where you turn off the ventilation unit when filters need replacing or a service inspection is to be carried out.
> GEO	Settings: Standard setting: Description:	Off / On Off GEO is "Off" on delivery in order to prevent errors from occurring when connected up. This is also where you turn off GEO when a service inspection is to be carried out or if you do not want it to operate during the summer.

Operating function

You can set the unit to operate in "Auto", "Heating" or "Cooling" mode.

ATTENTION

The "Heating" and "Cooling" functions override the week program. If a week program has been activated, the mode will automatically shift to "Auto" when the week program next changes.

> Operating function

> Operating function		
> Compact P2	Settings: Standard setting: Description:	Auto / Cooling / Heating Auto **Auto:**The unit operates in accordance with the selected values. Cooling: The unit operates in accordance with the selected values. However, cooling is possible in winter mode if the requirements for cooling are present. Heating: The unit operates in accordance with the selected values, but the bypass damper cannot open and active cooling cannot be activated even if the requirements for cooling are present.
> GEO	Settings: Standard setting: Description:	Auto / Winter / Summer Auto Auto: The unit operates in accordance with the selected values. Winter: The unit operates in accordance with the selected values, but it cannot cool. Summer: The unit operates in accordance with the selected values, but it cannot heat.

Alarm

You can read off warnings and alarms under the "Alarm" menu item. This is also where you reset them once the problem has been solved.

If an alarm or a warning is active, the alarm icon will be displayed in the upper righthand corner of the control panel.

> Alarm

> Alarm number and name		
> Alarm	Description:	When you press the alarm, the following information will be displayed: • Alarm ID number • Type of alarm • Critical alarm or warning (The alarm list will inform you of how to proceed.)
> Alarm (HP)	Description:	When you press the alarm, the following information will be displayed: • Alarm ID number • Type of alarm • Critical alarm or warning (The alarm list will inform you of how to proceed.)

ATTENTION

Until the problem has been solved, the alarm or warning will remain active. When the problem has been solved, you will be able to reset the alarm or warning by pressing "Clear alarm".

Show data

You can read off current operational data for the ventilation unit. This will allow you to check that the unit operates satisfactorily and to identify the cause of potential alarms.

> Show data

> Compact P2		
> Operating state	Description:	Shows in which operating setting the unit is running.
> Bypass	Description:	Shows whether the bypass damper is open or closed.
> Anode	Description:	Shows whether the anode is in working order. If faulty, it must be replaced.
> T1 Outdoor air	Description:	Shows the outdoor temperature before the pre-heating element.
> T2 Supply air	Description:	Shows the supply air temperature.
> T4 Discharge	Description:	Shows the discharge air temperature.
> T5 Condenser	Description:	Shows the condenser temperature.
> T6 Evaporator	Description:	Shows the evaporator temperature.
> T10 Extract air/Room	Description:	Shows the current room temperature measured in the extract air.
> T11 Top hot water	Description:	Shows the current temperature in the top of the hot water tank. Controls the supplementary electric heating.
> T12 Bottom hot water	Description:	Shows the current temperature at the bottom of the hot water tank.
> Humidity	Description:	Shows the current humidity level in the dwelling.
> CO_2 level	Description:	Shows the current CO_2 level in the dwelling (only if installed).
> Supply air fan	Description:	Shows the current fan speed level of the supply air fan.
> Extract air fan	Description:	Shows the current fan speed level of the extract air fan.
> Unit information	Description:	Press for further information about the ventilation unit.
> Unit type	Description:	Shows what type of ventilation unit it is.
> Software version	Description:	Shows the software version of the ventilation unit.
> Panel software	Description:	Shows the software version of the control panel.
> GEO		
> Status	Description:	Shows in which operating setting the GEO is running.
> Anode SHW tank	Description:	Shows whether the anode is in working order, if an SHW tank has been installed. If faulty, the anode must be replaced.
> T13 Return flow brine	Description:	Shows the current temperature of the return flow from the ground.
> T14 Supply flow brine	Description:	Shows the current temperature of the supply flow to the ground.
> T16 Return flow heating	Description:	Shows the current temperature of the return flow from the central heating.
> T17 Supply flow heating	Description:	Shows the current temperature of the supply flow to the central heating.
> T18 Buffer tank temperature	Description:	Shows the current temperature of the supply flow to the buffer tank (only if installed).
> T20 Outdoor temperature	Description:	Shows the outdoor temperature measured in the outdoor air duct in the ventilation system
> T21 SHW top temperature	Description:	Shows the current temperature in the top of the SHW tank (only if installed).

> T22 SHW bottom temperature	Description:	Shows the current temperature at the bottom of the SHW tank (only if installed).
> T35 Pressure pipe temperature	Description:	Shows the temperature in the pressure pipe.
> Current capacity	Description:	Shows the capacity of the compressor in %.
> HP pressure	Description:	Shows high pressure (if pressure transmitter has been installed).
> LP pressure	Description:	Shows low pressure (if pressure transmitter has been installed).
> Brine pressure	Description:	Shows the pressure in the brine (if a pressure switch has been installed).
> Inverter	Description:	Shows inverter alarm.

Date/time

It is important to set date and time correctly. It makes it easier to trace potential faults when an error is being reported. When logging data, it is important to be able to follow the history. You set the time in the settings menu.

> Date/time

> Year	Description:	Press "Year" on the panel and select the current year.
> Month	Description:	Press "Month" on the panel and select the current month.
> Day	Description:	Press "Day" on the panel and select the current day of the week.
> Hour	Description:	Press "Hour" on the panel and select the current hour of the day.
> Minute	Description:	Press "Minute" on the panel and select the current minute.

Week programs

You can program the ventilation unit to run in accordance with specific settings at fixed times during the day and week via a week program.

On the main screen of the control panel, in the top right corner, the Week program icon will be displayed when active.

> Week program

> Select Week program	Settings: Standard setting: Description:	Off / 1 / 2 / 3 Off The control allows you to set 3 programs for different situations e.g.: • Normal operation • Holliday operation
> Edit program	Description:	The selected Week program is now active and can be edited.
> Monday	Settings:	Here weekday is selected.
>Function 1	Settings:	Here you select the function you want to edit.
> Start time	Settings: Standard setting: Description:	Hours and minutes 6:00 Set the time for the program to start. The program will run with the set values until the next change in the Week program.
> Ventilation	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / Off Level 3 Select the desired fan speed level here.
> Temperature	Settings: Standard setting: Description:	5 – 40 °C 22 °C Set the desired room temperature here.
> Copy for next day	Description:	Once the values for the Monday program have been set, it is possible to copy these to the next day.
The same settings are made for all functions.		
> Reset program	Settings:	You can reset the program by selecting the "Approve" icon.

Domestic hot water

Settings for hot water production have been set at the factory, but it may be necessary to adjust them to meet the exact requirements of the user.

> Domestic hot water

> Compact P2		
> Supplementary electric heating for hot water	Settings: Standard setting: Description:	Off / 5 – 85 °C 30 °C Off: The supplementary electric heating is deactivated by the user. 5 - 85 °C: Indicates the temperature (T11) below which supplementary electric heating is to help heat domestic hot water.
> Day of legionella treatment	Settings: Standard setting: Description:	None / Mon / Tue / Wed / Thu / Fri / Sat / Sun None Here you indicate whether or not the unit is to run a weekly legionella treatment *.
> Legionella temperature	Settings: Standard setting: Description:	50 – 70 °C 65 °C The temperature of the legionella treatment.
> GEO		Is only shown if activated in Service settings.
> Domestic water setpoint	Settings: Standard setting: Description:	5 – 70 °C 40 °C Here you indicate the desired temperature of the domestic water. Is only shown if SHW has been selected.
> Day of legionella treatment	Settings: Standard setting: Description:	1– 21 day(s) / Off Off Here you set the amount of days between each legionella treatment. Is only shown if SHW has been selected.
> Domestic water min. temp.	Settings: Standard setting: Description:	5 – 55 °C 35 °C If the domestic water falls below this temperature, supplementary electric heating will start up if it has been activated. Is only shown if SHW has been selected.

*When selecting a day of the week, the legionella function will start at 1 a.m. and heat the domestic hot water to 65 °C. The function will only work if supplementary electric heating has been activated.

Cooling settings

The unit can cool the dwelling by means of bypass cooling and/or active cooling via the heat pump. The unit will only switch to cooling mode if it is operating in summer mode, or if you have activated Cooling in "Operating function".

Bypass cooling:
If the room temperature, measured in the extract air, is higher than the cooling setpoint -2 °C, and the outdoor temperature is below the room temperature, bypass will open and commence bypass cooling.

Bypass will close again once the room temperature reaches the desired level + 1 °C.

If the outdoor temperature is higher than the room temperature and cooling is required, bypass will not open. However, the unit will start cooling recovery via the heat exchanger where the outdoor air is cooled by the extract air.

Active cooling:
If the room temperature, measured in the extract air, is higher than the desired room temperature + the cooling setpoint, the compressor will start up and begin active cooling of the supply air. The compressor will stop when the room temperature falls below the cooling setpoint -1 °C.

> Cooling settings

> Compact P2		
> Cooling setpoint	Settings: Standard setting: Description:	Off / +1 / +2 / +3 / +4 / +5 / +7 / +10 °C Off Off: Active cooling is deactivated. Setpoint + X °C: Indicates when active cooling is to start. The setpoint is the desired room temperature which you set on the main screen of the panel.
> Ventilation during cooling	Settings: Standard setting: Description:	Off / 2 / 3 / 4 Off Off: The unit does not change fan speed level when it switches to cooling mode. Level 2-4: Here you select the fan speed level that you want the unit to switch to when in cooling mode. This happens already with bypass cooling.
> Priority	Settings: Standard setting: Description:	Water / Supply air Water Here you specify whether the cooling function is to have higher priority than production of domestic hot water*
> GEO		Is only shown if activated in Service settings.
> Heating /cooling mode	Settings: Standard setting: Description:	Off / Passive Off Here you can select or deselect active cooling via the heat pump.
> Min. cooling setpoint	Settings: Standard setting: Description:	5 – 50 °C 16 °C Here you set the minimum temperature at which the cooling function is to operate.

*When domestic hot water is required, the heat pump will prioritise production of domestic hot water and it will not perform active cooling. However, it will open the bypass damper if cooling is required.

If cooling (Supply air) is given higher priority than production of domestic hot water, the unit will cool the supply air and store the heat in the hot water tank during that period. The domestic hot water will be heated up, but not as quickly as with normal hot water production.

Humidity control

The primary purpose of ventilation is to extract humidity from the house so it does not damage the building, and to achieve a good indoor climate. During long periods with sub-zero temperatures, air humidity in the house may fall to a level that is critical for the building and for the indoor climate. Wooden floors, furniture and walls can be damaged by very dry air, which also whirls up dust, resulting in a poor indoor climate.

This is rectified by an integrated humidity control system that maintains good, relative air humidity. When the average air humidity in the house falls below a set level (default set at 30%), ventilation may be reduced. It will typically only be for a short period of time. This will help avoid further reduction of the air humidity in the house.

The humidity control system also has a function that allows increased ventilation, should the air humidity increase, for instance when having a bath. The risk of mould growth in the bathroom is reduced, and the bathroom mirror will rarely steam up.

The humidity control system follows the average air humidity level measured over the previous 24 hours. In this way the system automatically adapts to summer and winter conditions.

> Humidity control

> Vent.low humidity	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Off Level 1 When the current humidity drops below the low humidity level, the ventilation unit switches to the set ventilation level. Off means that the ventation at low humidity is de-activated.
> Low humidity level	Settings: Standard setting: Description:	15 – 45% 30% When current humidity below this value falls, the ventilation level set above is activated.
> Vent.high humidity	Settings: Standard setting: Description:	Level 2 / Level 3 / Level 4 / Off Level 3 At high humidity levels, for instance when having a bath, the unit changes to the set fan speed level. Off means that the function Ventilation at high humidity is de-activaded.
> Max time high humidity	Settings: Standard setting: Description:	1 – 180 min. / Off 60 min. The function "High humidity" stops when actual humidity falls below 3% above the average air humidity. However, this time limit will stop operation if it fails within the set time period. Off means that the function Max. time at high humidity is de-activated.

CO_2 Control

This menu is only displayed if a CO_2-sensor has been installed, and the function has been chosen under Service settings.

ATTENTION

A CO_2 sensor is not a standard part of all ventilation units, but may be purchased as an accessory.

If the number of people using a building varies considerably, controlling ventilation through the CO_2 level in the extract air may be a good solution. This function is often used in offices and schools where use varies greatly during the day and during the week.

> CO2 control

> Vent.high CO2	Settings: Standard setting: Description:	Level 2 / Level 3 / Level 4 / Off Level 3 Here you set the fan speed level at which the unit is to operate at high CO_2 level. Off means the this function is de-activated.
> High CO2 level	Settings: Standard setting: Description:	650 – 2500 ppm 800 ppm Here you set the CO_2 level at which the unit is to switch to high fan speed level.
> Normal CO2 level	Settings: Standard setting: Description:	400 – 700 ppm 600 ppm Here you set the CO_2 level at which the unit is to switch to normal fan speed level.

Air exchange

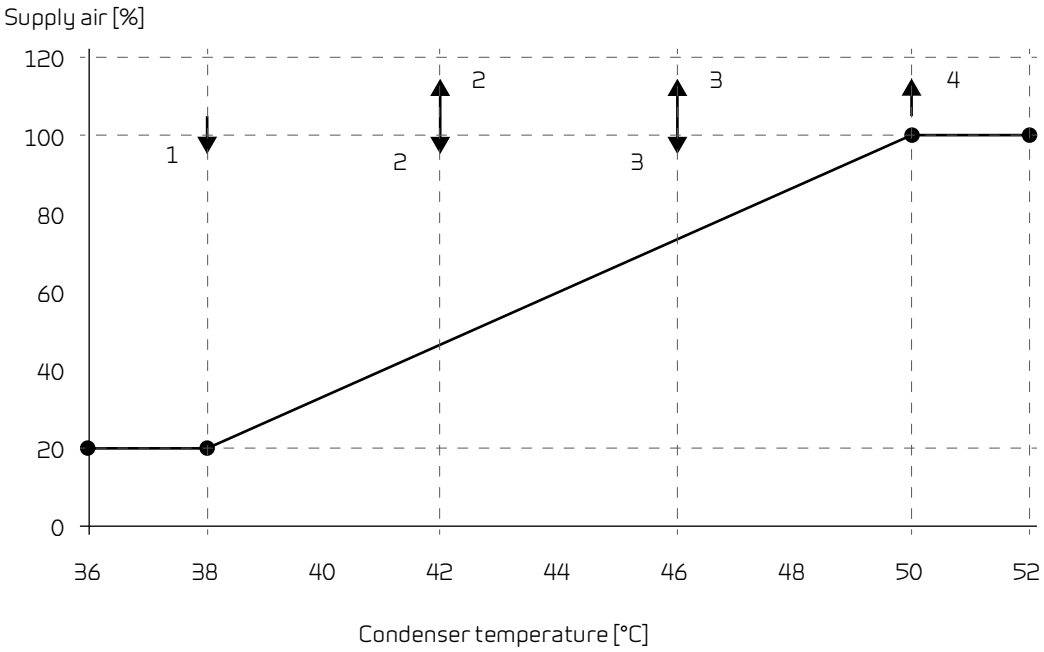
You can prevent low humidity in the dwelling by reducing ventilation at low outdoor temperatures. This function is useful for instance in countries with regular frost or at high altitudes in the mountains where the outdoor air is very dry.

> Air exchange

> Type of ventilation	Settings: Standard setting: Description:	Water / Comfort / Energy Comfort Water: Here, the supply air fan stops operating as long as domestic water heating is required. Energy: Here, operation is energy-optimised. Comfort: Here, the air exchange is always balanced.
> Comfort	Description:	You have selected comfort where the fan speed level for supply air and extract air is always the same.
> Low temp. compr. start	Settings: Standard setting: Description:	0 – -15 °C / Off / 0 – 15 °C Off Here you indicate whether the heat pump is to start up at low outdoor temperatures, even if heating is not required. Off means that the function is deactivated.
> Level winter low	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Off Off Here you specify at what fan speed level you want the ventilation unit to operate at low outdoor temperatures. Off means that the function is deactivated.
> Temperature winter low	Settings: Standard setting: Description:	-20 – 10 °C 0 °C Here you specify at which outdoor temperature you want the "Winter low" function to be activated.
> Water	Description:	You have selected Water, which means that the supply air fan stops operating as long as domestic water heating is required. If the unit is in cooling mode, the supply air will not stop.
> Low temp. compr. start	Settings: Standard setting: Description:	0 – -15 °C / Off / 0 – 15 °C Off Here you indicate whether the heat pump is to start up at low outdoor temperatures, even if heating is not required. Off means that the function is deactivated.
> Level winter low	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Off Off Here you specify at what fan speed level you want the ventilation unit to operate at low outdoor temperatures. Off means that the function is deactivated.
> Temperature winter low	Settings: Standard setting: Description:	-20 – 10 °C 0 °C Here you specify at which outdoor temperature you want the "Winter low" function to be activated.
> Energy	Description:	You have selected Energy, which ensures energy-optimised operation through regulation of the supply air volume against the set temperature curve.
> Low temperature curve	Settings: Standard setting: Description:	15 – 46 °C 38 °C With curve control, the supply air will always be consistent as it is regulated with a fan speed level up or down. Min. curve is level 1.
> High temperature curve	Settings: Standard setting: Description:	39 – 60 °C 50 °C With curve control, the supply air will always be consistent as it is regulated with a fan speed level up or down. Max. curve is level 4.

> Low temp. compr. start	Settings: Standard setting: Description:	0 – -15 °C / Off / 0 – 15 °C Off Here you indicate whether the heat pump is to start up at low outdoor temperatures, even if heating is not required. Off means that the function is deactivated.
> Level winter low	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Off Off Here you specify at what fan speed level you want the ventilation unit to operate at low outdoor temperatures. Off means that the function is deactivated.
> Temperature winter low	Settings: Standard setting: Description:	-20 – 10 °C 0 °C Here you specify at which outdoor temperature you want the "Winter low" function to be activated.

Condenser curve control



Filter alarm

ATTENTION

It is important to change the filters regularly and when needed. Dirty filters reduce the efficiency of the ventilation unit and result in a poorer indoor climate and higher power consumption.

From factory, the filter alarm has been set to signal filter replacement every 90 days. You can set the timer to fit the level of pollution in the area where the ventilation unit has been installed.

If someone in the household has pollen allergies, it is recommended that you install a pollen filter in the outdoor air intake.

> Filter alarm

> Days to change	Settings: Standard setting: Description:	None /30 / 60 / 90 / 180 / 360 90 days The number of days between filter changes can be set as required.

Temperature control

If you have not installed an after-heating element, use the settings to control the bypass damper.

It is necessary to install an after-heating element if you want to control the supply air temperature and for it to contribute towards the heating of the dwelling. An after-heating element allows you to control the supply air temperature, regardless of the outdoor temperature.

You can install an external electrical or water after-heating element in the supply air duct.

ATTENTION

During periods when heating is not required in the dwelling, the supply air temperature may fall below the minimum temperature.

> Temp. regulation

> Min. supply air summer	Settings: Standard setting: Description:	5 – 16 °C 14 °C Here you set the supply air temperature that you want the ventilation unit to be able to provide, as a minimum, during summer, when the unit is in heating mode.
> Min. supply air winter	Settings: Standard setting: Description:	14 – 22°C 16 °C Here you set the supply air temperature that you want the ventilation unit to be able to provide, as a minimum, during winter, when the unit is in heating mode. NB: Only possible if an after-heating element has been installed.
> Max. supply air summer	Settings: Standard setting: Description:	5 – 50°C 35 °C Here you set the supply air temperature that you want the ventilation unit to be able to provide, as a maximum, when heating is required. NB: This option is only shown if an after-heating element has been installed and activated.
> Max. supply air winter	Settings: Standard setting: Description:	5 – 50 °C 35°C Here you set the supply air temperature that you want the unit to be able to provide, as a maximum, during winter. NB: This option is only shown if an after-heating element has been installed and activated.
> Summer/vinter shift	Settings: Standard setting: Description:	5 – 30 °C 12 °C Here you set the temperature for the shift between summer and winter operation. • If the outdoor temperature is higher, the unit will operate in summer mode • If the outdoor temperature is lower, the unit will operate in winter mode

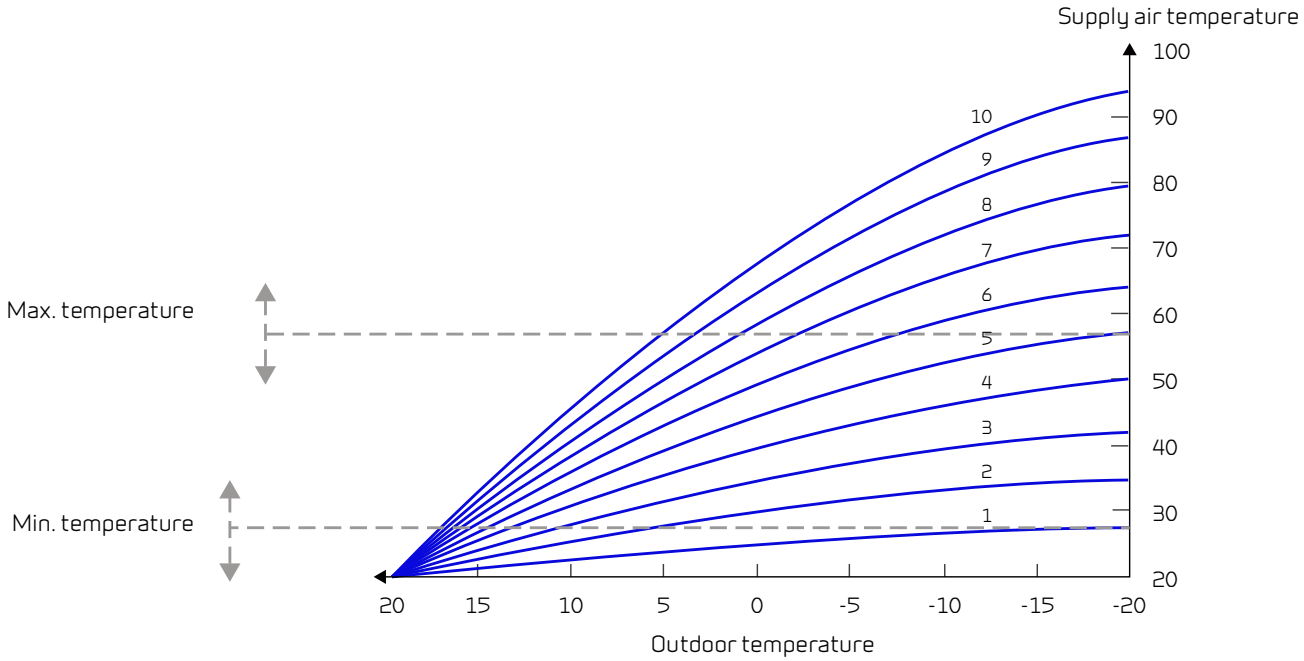
GEO module

Settings for the geothermal heat pump.

> GEO module

> Heating - cooling simultaneously	Settings: Standard setting: Description:	No / Yes No If you press "yes" here, the central heating will be on while cooling is provided by the ventilation at the same time.
> Room/outdoor temp. compensation		
> Temperature regulator	Settings: Standard setting: Description:	Compressor min. / Outdoor temperature / Room / Outdoor + Room Compressor min. You can select from min. compressor temperature, outdoor temperature, room temperature, or outdoor and room temperature.
> Outdoor temp. curve	Settings: Standard setting: Description:	Manual / Curve 1 – 10 Manual Manual: Here you can set curve control manually. Curve 1 – 10: Here you select which curve the control system is to regulate in accordance with.
> Max. room compensation	Settings: Standard setting: Description:	-45 – 100 °C 5 °C Offset in relation to the selected curve.

Heating curve



Language

The default language for the ventilation unit is Danish. You can change the texts to other languages in the settings menu.

> Language (DK - Sprog)

> Dansk	Description:	Select the language you want on the panel.

Alarm list

Compact

Alarm list

The following list applies to Compact ventilation units with the CTS602 control. The events are divided into the following categories:

Warning — Operation continues, but an incident has occurred that should be kept in mind.

Alarm — Operation is partially or completely stopped as it is a critical fault that needs immediate attention.

ID	Type	Display text	Description / cause	Troubleshooting
1		Hardware error	Error in the hardware of the control system.	Note alarm and reset it. If the alarm does not disappear contact service.
2		Alarm timeout	A warning alarm has become a critical alarm.	Note alarm and reset it. If the alarm does not disappear contact service.
3		Fire alarm activated	The ventilation unit is stopped due to the fire thermostat being activated.	If there is no fire, check the connection to the fire thermostat. If okay, contact service.
4		Pressure switch	The high-pressure switch in the refrigeration circuit has been triggered, possibly due to: • Extremely warm outdoor air supply • Clogged filter • Broken fan	Check for faults and reset the alarm. Contact service if you cannot reset the alarm or if alarms often occur.
6		Error in de-icing the heat pump	The de-icing time has been exceeded. The exchanger or the heat pump has failed to de-ice within the maximum time. This may be due to the unit being exposed to very low outdoor temperatures.	Contact service if resetting the alarm does not help. Register the current operating temperatures from the Show data menu in order to ease the service process.
10		Overheating of electrical after-heating	The electrical heating element has overheated. Lack of airflow due to, for instance, blocked filters, blocked air intake or defect supply air fan.	Make sure that air is blown into the house. Make sure the filters are clean. Check that the outdoor air intakes is not blocked. Reset alarm. Contact service if the above does not solve the problem.
11		Low flow over the electrical heating element	Lack of airflow in supply air.	See alarm code 10.
13		High temperature electricity supplementary heating HW.	The temperature for the electricity supplement in the hot water tank has been too high.	The over-heating fuse located behind the lower door is to be re-engaged. In case of repeated alarms contact service.
15		The room temperature is too low	When the room temperature is below 10°C, the unit will stop in order to prevent further cooling of the house. This may, for instance, be during a period when the house is unoccupied and the heating system is off.	Heat up the house and reset the alarm.
16		Software error	Fault in the ventilation unit software	Contact service.

17	⚠	Watchdog warning	Fault in the ventilation unit software	Contact service.
18	⚠	Content of database changed	Parts of the program setting have been lost. This may be due to a prolonged power cut or a lightning strike. The unit will continue to operate with standard settings.	Reset alarm. Contact service if the unit does not operate to your satisfaction/ as before, as some subprogrames may have been lost. (Sub-program is only available for service).
19	⚠	Change filter	The filter monitor has been set at X amount of days for check-up/change of filter.	Clean/change filter. Reset alarm.
20	⚠	Errors in legionella treatment	Legionella treatment has not been performed within the time limit or number of trials.	In case of repeated alarms contact service.
21	⚠	Check date and time	Is displayed during power cuts.	Set the date and time. Reset alarm.
22	⚠	Error supply air temperature	The desired heating of the supply air is not possible. (applies only with after heating element)	Set a lower supply air temperature. Reset alarm.
23	⚠	Domestic hot water temperature error	Domestic hot water heating not possible.	Contact service.
27-58	⚠	Error on the temperature sensor	One of the temperature sensors has either short circuited, been disconnected or is defective.	Register which sensor, Tx, is faulty and contact service.
70	⚠	Anode Error	The hot water tank anode is either torn or not connected properly.	Contact service.
71	⚠	Error de-icing heat exchanger	Max. de-icing time exceeded for counter-flow heat exchanger. This may be due to the unit being exposed to very low temperatures.	If resetting the alarm does not help, contact service. Register the current operating temperatures from the "SHOW DATA" menu in order to ease the service process.
72	⚠	Abnormal low evaporator temperature	Abnormal evaporator temperature (T6) is due to insufficient air flow.	Change filters, check outdoor air intake is not stopped. In case of constant fault contact service.
73	⚠	High pressure alarm	The airflow over the surfaces is to low	Make sure that air is blown into the house. Make sure the filters are clean. Check that the outdoor air intakes is not blocked. Reset alarm. Contact service if the above does not solve the problem.
74	⚠	Low pressure alarm	The airflow over the surfaces in cooling mode is to low.	Make sure that air is blown into the house. Make sure the filters are clean. Check that the outdoor air intakes is not blocked. Reset alarm. Contact service if the above does not solve the problem.
91	⚠	Missing expansion PCB	Expansion PCB is missing.	Contact service.
92	⚠	Backup error	Error writing or reading installer settings	Contact service.
96	⚠	Error in damper test	Damper (open / closed) not fulfilled.	Reset alarm. If it does not help contact service.

GEO / AIR

Alarm list

The following list applies to ventilation units with the CTS602 control. The events are divided into the following categories:

 Warning — Operation continues, but an incident has occurred that should be kept in mind.

 Alarm — Operation is partially or completely stopped as it is a critical fault that needs immediate attention.

ID	Type	Display text	Description / cause	Troubleshooting
100	⚠	THeatSup Open	T17 Heating supply temperature open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
101	⚠	THeatSup Short	T17 Heating supply temperature shortcircuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
102	⚠	THeatRet Open	T16 Heating return temperature oen connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
103	⚠	THeatRet Short	T16 Heating regurn temperature shortcircuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
104	⚠	TWaterTa Open	T22 Water tank temperature open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
105	⚠	TWaterTa Short	T22 Water tank temperature short-circuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
106	⚠	Tamb Open	T20 Ambient temperature open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
107	⚠	Tamb Short	T20 Ambient temperature short-circuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
108	⚠	Troom Open	T10Room temperature open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
109	⚠	Troom Short	T10 Room temperature short-circuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
110	⚠	THeatTank Open	T18 Heating tank temperature open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
111	⚠	THeatTank Short	T18 Heating tank temperature short-circuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
112	⚠	TColdSup Open	T13 Cold supply temperature open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
113	⚠	TColdSup Short	T13 Cold supply temperature short-circuited.	Check cable and connectors. Measure the resistance in the temperature sensor.

114	TColdRet Open	T14 Cold return temperature open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
115	TColdRet Short	T14 Cold return temperature short-circuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
116	Tevap Open	T23 Evaporator sensor temperature open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
117	Tevap Short	T23 Evaporator sensor temperature short-circuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
122	Tmixing Open	Tmixing temperature sensor open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
123	Tmixing Short	Tmixing temperature sensor shortcircuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
124	SHW T-sensor Open	T21 Temperature sensor in SHW opne connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
125	SHW T-sensor Short	T21 Temperature sensor in SHW shortcircuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
126	SHW anode	SHW anode failure.	The anode must be changed.
127	TPres open	T35 Temprerature sensor Pressure open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
128	TPres short	T35 Temperature sensor Pressure short-circuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
200	LOM309 missing	Controller is not Extended version.	Functionality of Extended version is selected. Exchange controller to the Extended version or disable use of this functionality.
600	Hi Pres	High pressure switch active.	Check hot side pump/overflow valve on high temperature side. Check if there is air in the hot side water. Check if filter is blocked on the hot side. The unit restarts when the pressure drops below high pressure switch lowlimit again. After 3rd cut-out the alarm must be acknowledged to start the unit again.
601	Low pres.	Low pressure switch active.	Check refrigerant charge, expansion valve and evaporator for ice. Check fan for obstacles on an air to water evaporator. The alarm must be acknowledged to start the unit again.
602	Leakage	Low pressure in brine - Brine pressure switch active.	Leakage check of the brine system. The alarm must be acknowledged to start the unit again.
603	Hi press	High pressure switch repeatedly active.	Check hot side pump/overflow valve on high temperature side. The alarm must be acknowledged to start the unit again.
604	Frost protection	Temperature too low (state freeze protect).	Heat pump and electrical heater running full capacity. Check that setting are not turned off.

605	⚠	Heat pump over-heat	Supply temperature too high (condition total stop).	Check hot side pump/overflow valve on high temperature side. Check electric supply heater against overheating.
607	⚠	Legionella failed	Anti Legionella function has timed out twice.	Check electrical heaters and supply of heat to brine circuit.
608	⚠	FC alarm	Inverter/FC fault feedback switch is active - the FC has an alarm.	Check electrical connecton and power to the inverter. Check if the compressor is running.
609	⚠	FC alarm	FC alarm relays has been activated repeatedly.	Check electrical connection and power to the inverter. Check if the compressor is running.
610	⚠	Tevap Low	Evaporator temperature too low.	Brine circuit has low capacity. Tevap is too low. Risk of frost damage to the brine circuit.
611	⚠	Tevap Low	Evaporator temperature too low.	Compressor stopped due to too low brine temperature. Compressor stopped to prevent frost damage.
612	⚠	TMIX to High	Tmix temperature above max temperature.	Check mixing valve and Tmix temperature sensor.
613	⚠	Tmix High Rep	Tmix temperature repeatedly too high.	Check mixing valve and Tmix temperature sensor.
614	⚠	Cooling low	Temperature cooling is too low.	
615	⚠	El heater	Electric heater failure.	
904	⚠	Datalog	Error with internal log.	Reserved. Not implemented yet.
905	⚠	Database	Error with internal database.	Controller may be defect. Try update the firmware or replace the controller.
907	⚠	RTC err	Error with the internal real time clock.	Replace the controller.
908	⚠	RTC inv	Invalid data from the real time clock.	Unit powered off to long. Set time and date. Else replace the controller.
909	⚠	LUP SW version	The LUP SW does not match the LMC320.	Update LMC320 to latest SW version first.
910	⚠	Slave communication error	Error in communication with slave.	
995	⚠	SW Rejected	The software is not compatible with LMC320.	Update LMC320 to latest SW version.
998	⚠	TestVer.	The software is a test version.	Use the release version of the software.
999	⚠	Manuel mode	The unit is in manual mode.	Change mode from Manual to on.

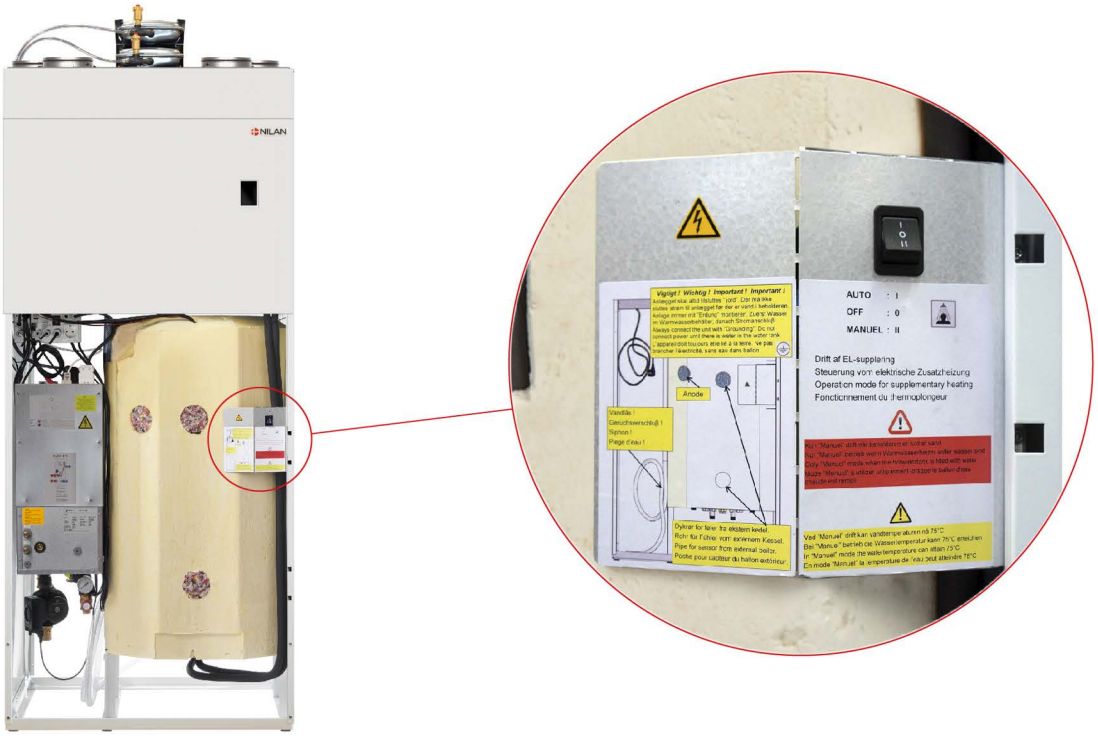
Troubleshooting

Emergency mode

Emergency mode domestic hot water

If an error occurs in the control system or components in the Compact P2, and the unit therefore stops, it will not be able to produce domestic hot water.

If the installer is not able to come right away or the error happens outside the opening hours, and you therefore cannot contact the installer, there is a possibility to get hot water by setting the unit into emergency mode.



The button for emergency mode is located behind the large door.

The emergency mode has three settings:

I - Auto:
The supplemental electric heating is controlled by the unit control system (standard setting).

0 - Off:
The supplemental electric heating is turned off, and cannot be turned on via the unit control system.

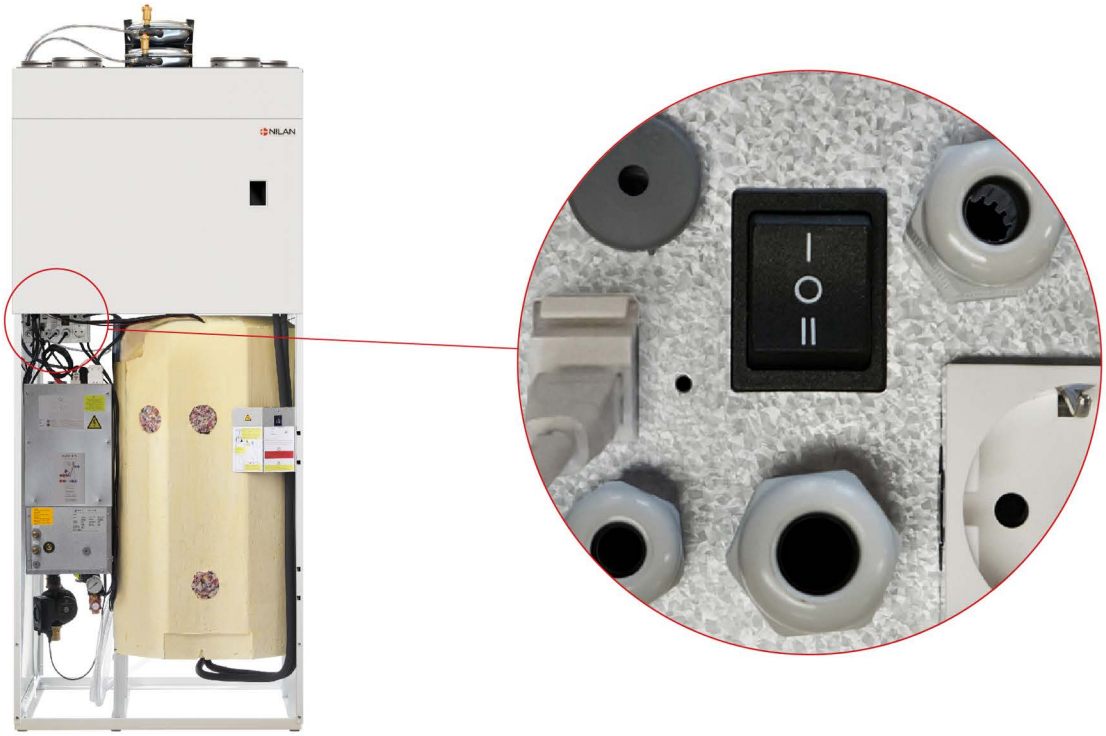
II - Manuel:
The supplemental electric heating is turned on, and cannot be turned off via the unit control system (do not turn it on if there is no water in the tank)

CAUTION
In manual emergency mode, the water temperature can reach 75 °C, which can cause scalding, if you are not careful when switching on the hot water.

Emergency mode central heating

If an error occurs in the control system or components in the GEO heat pump, and the heat pump therefore stops, it will not be able to heat up the house by the central heating.

If the installer is not able to come right away or the error happens outside the opening hours, and you therefore cannot contact the installer, there is a possibility to heat up the house by setting the GEO heat pump into emergency mode.



The button for emergency mode is located behind the large door.

The emergency mode has three settings:

I - Auto:
The supplemental electric heating and circulation pump are controlled by the unit control system (standard setting).

0 - Off:
The supplemental electric heating is turned off and cannot by turned on via the unit control system.

II - Manuel:
The supplemental electric heating and circulation pump are turned on and cannot be turned off via the unit control system.

ATTENTION
In manual mode the supply flow temperature can reach 40 °C.

Domestic hot water

Fejl og løsninger varmt brugsvand

Problem	Mulig årsag	Løsning
Aggregatet producerer ikke nok varmt brugsvand	Filtrene kan være tilstoppet, så der ikke kommer luft nok igennem til aggregatet. Det kan ske, hvis filtrene ikke skiftes hyppigt nok. Det kan ske, hvis aggregatet har stået og kørt under byggeriet, og filtrene derfor er fyldt med støv og skidt.	Skift filtrene og indstil evt. filterskift til kortere interval.

Central heating

Errors and solutions central heating

Problem	Possible cause	Solution
The telestates call for heat, but the heat pump does not start	During the spring and autumn transition periods, some space telestates may call for heat, but the heat pump does not start. This may be because the temperature in the extract air is warm enough compared to the temperature set in the control panel. That is, the exhaust air is an average of the room's room temperatures, as some rooms are hot and others are cold. Since the ventilation section considers the average temperature of the house to be high enough, it blocks the heat pump from running. This does it to save energy and to prevent the ventilation part and the heat pump part from counteracting each other.	If you still want to heat in some rooms, despite the average temperature of the house being warm enough, you can activate this function below: Settings / Central heating in the Menu item: Cooling and heating at the same time. This means that the cooperation between the ventilation part and the heat pump part ends, and if there is a need for heat in some rooms, the heat pump will start even if the ventilation part detects that the house is warm enough.

Product data

EU/EC Declaration of Conformity

EU/EC Declaration of Conformity

For the CE-marking inside the European Union

Nilan A/S

We declare that the Ventilation and Air to Air/Water Heat Pump

VP18 - Compact P2 – Compact P2 Polar – Combi SH
+ EK3/6/9 – GEO3/6/9 – AIR6/9

Confirm to the following EU/EC Directives, providing the products are used in accordance with the ordinary use.

EU-Directives:

- Directive on harmonization of the laws of the Member States concerning pressure equipment (pressure equipment directive)
  2014/68/EU
- Directive on harmonization of the laws of the Member States relating to electrical equipment to be used within certain voltage limits (the low voltage directive)
  2014/35/EU
- Household and similar electrical appliances - Safety - Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers.
  IEC 60335-2-40:2013
- Directive on harmonization of the laws of the Member States relating to electromagnetic compatibility (EMC directive)
  2014/30/EU
- Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS directive)
  2011/65/EU
- Directive of Energy Related Products in a framework which primarily focuses on environmental care of requirements for energy-related products (ECODESIGN)
  2009/125/EU

Harmonized standards applied and EU regulations, in particular:

EN 60335-1	EN 60730-1	EN 5136
EN 60335-2-80	EN 50581	EN 16147
EN 13141-7	EN 14511	(EU) 813 / 2013
EN 14825	EN 9614-2	(EU) 814 / 2013

Hedensted: 2022-01-11

Søren Skou Nørby
Head of R&D

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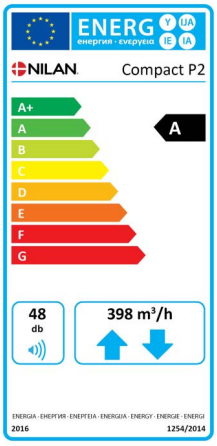
Ecodesign data - Ventilation

SEC* average climate	-40,6 kWh/(m^2.a)
SEC* cold climate	-79,5 kWh/(m^2.a)
SEC* warm climate	-15,7 kWh/(m^2.a)
SEC-Class	A
Type	Two-way ventilation unit for residential
Type of drive	Variable speed drive
Type of heat recovery system	Recuperative (counter-flow heat exchanger)
Thermal efficiency of heat recovery	90%
Maximum flow rate	398 m^3/h (100 Pa)
Electric power input of fan drive, including any motor control equipment, at maximum flow rate	175,1W
Sound power level (LWA)	48 dB(A)
Reference flow rate	0,077 m^3/s (278,6 m^3/h)
Reference pressure difference	50 Pa
SPI	0,23 W/(m^3/h)
Central demand control	2,04
Maximum internal leakage	1,82%
Maximum external leakage	1,12%
Visual filter warning	An alarm on the user panel appears when filters need changing. To maintain the performance and energy efficiency of the unit it is very important to change filters regularly
Disassembly instructions	www.nilan.dk



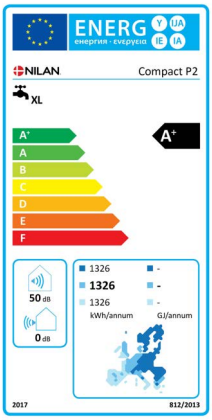
* Specific energy consumption

AEC - annual electricity consumption	253 kWh/år (100 m^2)
AHS** average climate	4630 kWh (100 m^2)
AHS** cold climate	9057 kWh (100 m^2)
AHS** warm climate	2093 kWh (100 m^2)

** Annual heating saved

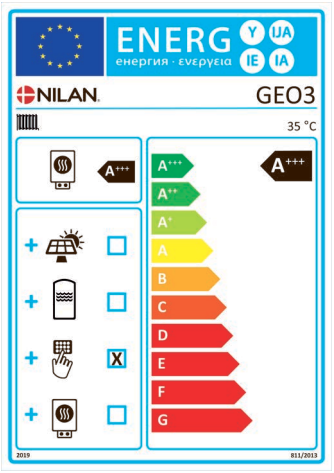
Ecodesign data - Hot water production

Consumer profile, water heater	XL (X-large)
Energy efficiency class	A+
Energy efficiency for water heating - average climate	126%
Annual electricity consumption - average climate	1326 kWh/annum
Temperature settings on the thermostat	10 - 65 °C
Sound power level LWA	50 dB(A)
The water heater can function outside peak load periods (Smart-grid)	Yes
Guidelines for assembly, installation and maintenance	See installation instructions
Energy efficiency for water heating - cold climate	126 %
Energy efficiency for water heating - warm climate	126 %
Annual electricity production - cold climate	1326 kWh/annum
Annual electricity production - cold climate	1326 kWh/annum



Ecodesign data GEO 3 - Heating pump system for space heating

Model	GEO 3
Air-to-water heat pump	No
Water-to-water heat pump	No
Brine-to-water heat pump	Yes
Low-temperature heat pump	Yes
Equipped with a supplementary heater	Yes
Heat pump combination heater	No
Temperature control:	
Model	CTS602
Class	2
Contribution to seasonal space heating energy efficiency	2%

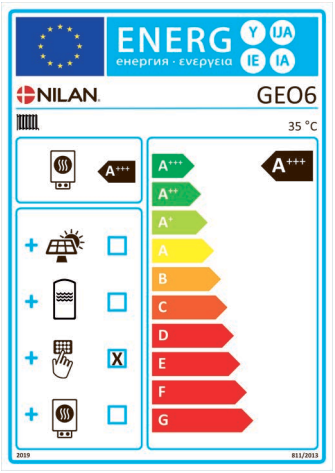


Item	Symbol	Value	Unit
Rated heat output (*)	*Prated*	3,44	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature of T_j			
T_j = -7 °C	*Pdh*	3,04	kW
T_j = +2 °C	*Pdh*	1,88	kW
T_j = +7 °C	*Pdh*	1,26	kW
T_j = +12 °C	*Pdh*	1,02	kW
T_j = bivalent temperature	*Pdh*	3,03	kW
T_j = operation limit temperature	*Pdh*	0	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < -20 °C)	*Pdh*		kW
Bivalent temperature	T_{biv}	-7	°C
Cycling interval capacity for heating	*Pcych*		kW
Degradation co-efficient	*Cdh*	0,97	
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0,003	kW
Thermostat off-mode	P_{TO}	0,010	kW
Standby mode	P_{SB}	0,010	kW
Crankcase heater mode	P_{CK}	0,000	kW
Other items			
Capacity control:	Variable compressor Variable indoor temperature adjustment		
	Fixed indoor water flow Fixed outdoor water flow		
Sound power level, indoors	L_{WA}	47	dB
Annual energy consumption	Q_{HE}	931	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	208	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	*COPd*	4,66	
T_j = +2 °C	*COPd*	5,29	
T_j = +7 °C	*COPd*	5,63	
T_j = +12 °C	*COPd*	5,82	
T_j = bivalent temperature	*COPd*	4,61	
T_j = operation limit temperature	*COPd*	0	
For air-to-water heat pumps: T_j = -15 °C (if TOL < -20 °C)	*COPd*		
For air-to-water heat pumps: Operation limit temperature	*TOL*		°C
Cycling interval efficiency	*COPcyc*		
Heating water operating limit temperature	*WTOL*	52	°C
Supplementary heater			
Rated heat output	*Psup*	2	kW
Type of energy input	*Electrical*		
For air-to-water heat pumps: Rated air flow rate, outdoors			m^3/h
For water-or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger		0,518	m^3/h

Ecodesign data GEO 6 - Heating pump system for space heating

Model	GEO 6
Air-to-water heat pump	No
Water-to-water heat pump	No
Brine-to-water heat pump	Yes
Low-temperature heat pump	Yes
Equipped with a supplementary heater	Yes
Heat pump combination heater	No
Temperature control:	
Model	CTS602
Class	2
Contribution to seasonal space heating energy efficiency	2%

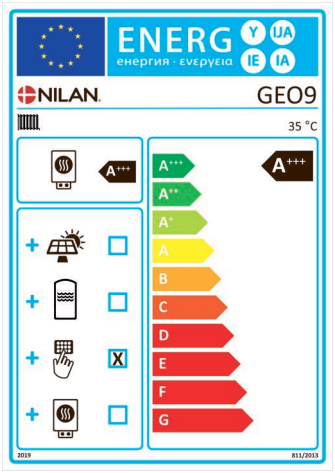


Item	Symbol	Value	Unit
Rated heat output (*)	*Prated*	6,01	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature of T_j			
T_j = -7 °C	*Pdh*	5,29	kW
T_j = +2 °C	*Pdh*	3,32	kW
T_j = +7 °C	*Pdh*	2,09	kW
T_j = +12 °C	*Pdh*	1,30	kW
T_j = bivalent temperature	*Pdh*	6,01	kW
T_j = operation limit temperature	*Pdh*	0	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < -20 °C)	*Pdh*		kW
Bivalent temperature	T_{biv}	-10	°C
Cycling interval capacity for heating	*Pcych*		kW
Degradation co-efficient	*Cdh*	0,99-1	
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0,002	kW
Thermostat off-mode	P_{TO}	0,024	kW
Standby mode	P_{SB}	0,002	kW
Crankcase heater mode	P_{CK}	0,000	kW
Other items			
Capacity control:	Variable compressor Variable indoor temperature adjustment		
	Fixed indoor water flow Fixed outdoor water flow		
Sound power level, indoors	L_{WA}	51	dB
Annual energy consumption	Q_{HE}	2386	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	208	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	*COPd*	4,48	
T_j = +2 °C	*COPd*	5,22	
T_j = +7 °C	*COPd*	5,69	
T_j = +12 °C	*COPd*	5,30	
T_j = bivalent temperature	*COPd*	4,27	
T_j = operation limit temperature	*COPd*	0	
For air-to-water heat pumps: T_j = -15 °C (if TOL < -20 °C)	*COPd*		
For air-to-water heat pumps: Operation limit temperature	*TOL*		°C
Cycling interval efficiency	*COPcyc*		
Heating water operating limit temperature	*WTOL*		°C
Supplementary heater			
Rated heat output	*Psup*	2	kW
Type of energy input	*Electrical*		
For air-to-water heat pumps: Rated air flow rate, outdoors			m^3/h
For water-or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger		1,041	m^3/h

Ecodesign data GEO 9 - Heating pump system for space heating

Model	GEO 9
Air-to-water heat pump	No
Water-to-water heat pump	No
Brine-to-water heat pump	Yes
Low-temperature heat pump	Yes
Equipped with a supplementary heater	Yes
Heat pump combination heater	No
Temperature control:	
Model	CTS602
Class	2
Contribution to seasonal space heating energy efficiency	2%



Item	Symbol	Value	Unit
Rated heat output (*)	*Prated*	9,05	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature of T_j			
T_j = -7 °C	*Pdh*	8,01	kW
T_j = +2 °C	*Pdh*	4,87	kW
T_j = +7 °C	*Pdh*	3,13	kW
T_j = +12 °C	*Pdh*	1,39	kW
T_j = bivalent temperature	*Pdh*	9,05	kW
T_j = operation limit temperature	*Pdh*		kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < -20 °C)	*Pdh*		kW
Bivalent temperature	T_{biv}	-10	°C
Cycling interval capacity for heating	*Pcych*		kW
Degradation co-efficient	*Cdh*	0,94-0,99	
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0,010	kW
Thermostat off-mode	P_{TO}	0,015	kW
Standby mode	P_{SB}	0,010	kW
Crankcase heater mode	P_{CK}	0,010	kW
Other items			
Capacity control:	Variable compressor Variable indoor temperature adjustment		
	Fixed indoor water flow Fixed outdoor water flow		
Sound power level, indoors	L_{WA}		dB
Annual energy consumption	Q_{HE}		kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	232	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	*COPd*	4,42	
T_j = +2 °C	*COPd*	5,33	
T_j = +7 °C	*COPd*	5,96	
T_j = +12 °C	*COPd*	5,96	
T_j = bivalent temperature	*COPd*	4,16	
T_j = operation limit temperature	*COPd*		
For air-to-water heat pumps: T_j = -15 °C (if TOL < -20 °C)	*COPd*		
For air-to-water heat pumps: Operation limit temperature	*TOL*		°C
Cycling interval efficiency	*COPcyc*		
Heating water operating limit temperature	*WTOL*		°C
Supplementary heater			
Rated heat output	*Psup*	0	kW
Type of energy input	*Electrical*		
For air-to-water heat pumps: Rated air flow rate, outdoors			m^3/h
For water-or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger		1,53	m^3/h

Disposal

The environment - part of the solution

At Nilan A/S we recognize our responsibility in minimizing the environmental impact of our products. We consider the impact on the environment in all aspects of production, operation and subsequent disposal. We recognize our responsibility in minimizing consumption of resources. We work continuously to improve our products and the production process in order to limit our impact on the environment.

Ventilation unit

Nilan units consist mainly of recyclable materials. They must, therefore, not be mixed with household waste, but must be delivered to your local recycling center for disposal.

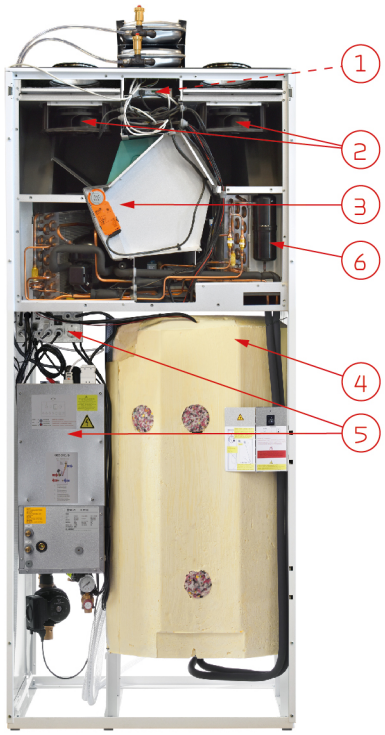
The only tools you will need is a Torx 25 screwdriver and, perhaps, a pair of diagonal pliers for cutting wires.

1. Circuit board and electronics are pulled out and handed in by electronic waste
2. Fans are dismantled and handed in by electronic waste
3. The orange bypass motor is removed and handed in by electronic waste
4. The hot water tank is handed over for metal waste
5. Demount the electrical connection panel and the electrics from the supplemental electric heating system, and dispose of them as electronic waste
6. The heat pump:

ATTENTION

When disposing of units with heat pumps, it is important to contact the local authorities for information about the correct disposal procedure.

The heat pump contains the refigerant R134a/R410a, which is harmful to the environment if not handled correctly.



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