SOFTWARE INSTRUCTIONS

CTS602 HMI BY NILAN



Compact P2 / Compact P2 Polar - AIR

Gateway

Version 1.20 - 01.11.2023
S24 Compact P2 AIR GB

NILAN®
OUTSTANDING INDOOR CLIMATE

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App option

Product description

Nilan User App

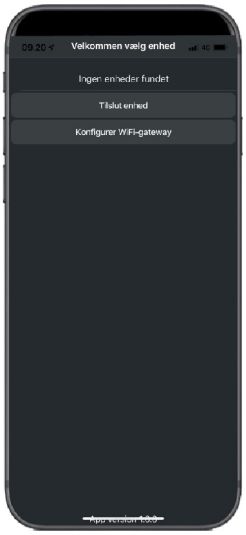
This App can control those of Nilan's ventilation units and heat pumps that have a CTS400 or a CTS602 control system. If the unit does not include a Gateway, you will have to purchase one as an accessory. You connect the Gateway to the Modbus input of the unit. When you enter settings from the App, it may take a few seconds before the changes are registered by the unit.

The communication from the App to the Gateway takes place via a secure cloud connection. This allows you to access the Nilan unit from anywhere in the world as long as you have internet connection.

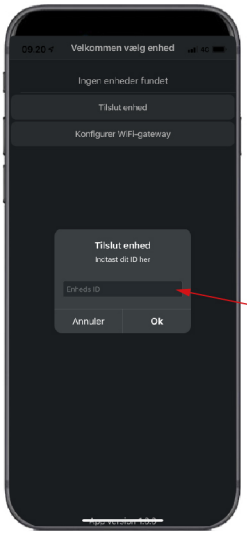
Configuration

Download Nilan User App

You can download Nilan User App from Google Play or App Store. **Before you can use the app, you will need a Nilan Gateway. You also need to have it connected up as indicated in the present instructions under Installation instructions.**



Find the app and open it. Press "Attach unit".



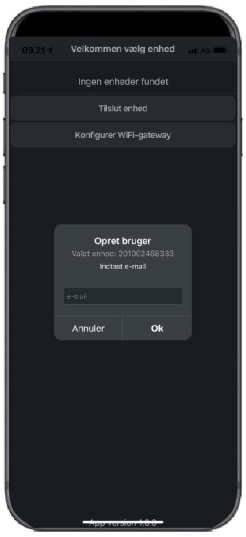


Then, key in the ID number printed on top of the Gateway.

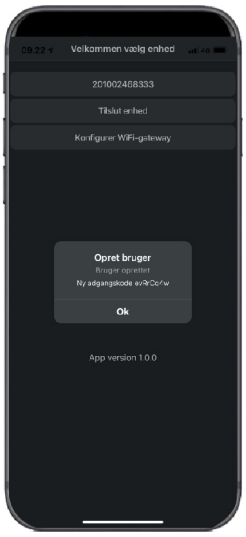
ATTENTION

The Nilan Gateway must be connected up to the ventilation unit before you can use the app.

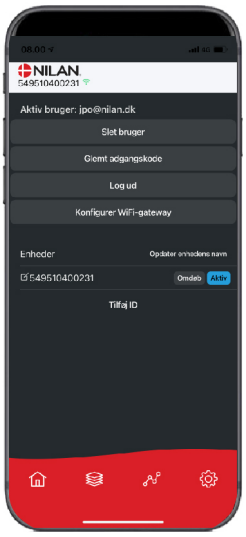
Create user on the App



Create user by keying in the email address that you want to attach to the gateway/unit.



Press "OK". You have now been set up as a user.

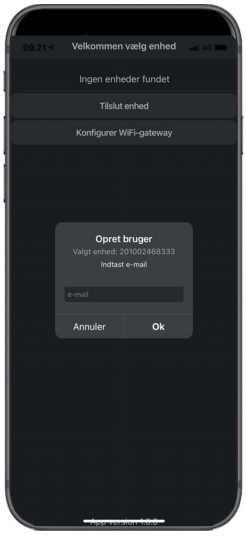


It is now possible to delete the user, to get a new access code via email, or to log out.

ATTENTION

If you move out of the dwelling, remember to delete the profile so that a new user can be created for the unit.

Set up multiple users for the App

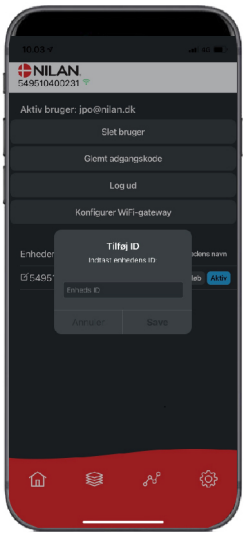


You can attach multiple users to the App.

Set up multiple user for the same Gateway/unit, e.g. access for husband and wife.

You do this by attaching Gateway ID, and key in email address and password connected to the Gateway.

Add more units/Gateways to the App



You can attach several units/Gateways to the App.

Before connecting more units to the App, you must log out and log in again with the existing username and password.

Under settings, press add ID, and key in the Gateway number and the email address of the user.

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



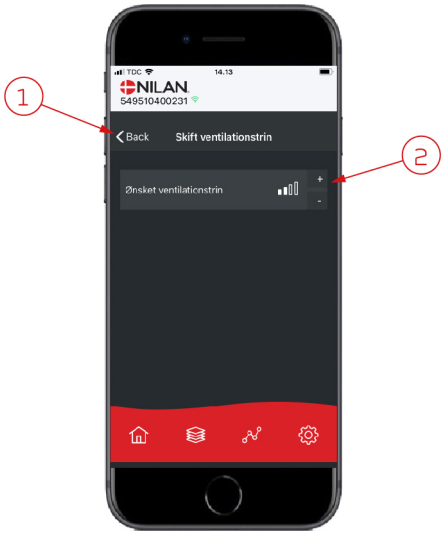
1. On the main screen under the Nilan logo, you will see the number of the connected Gateway.
   Under settings, you can name the ventilation unit e.g. Home or Holiday home. The name will then be displayed instead.
   If you have more than one ventilation unit connected to the APP, you will be able to 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

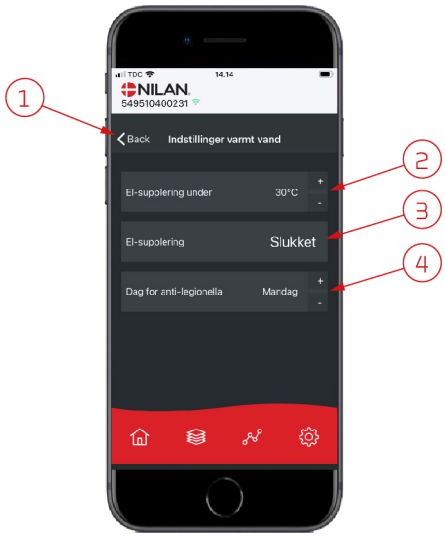


1. Press "back" to return to the previous page.
2. Here you can set the fan speed level you want. The fan speed level that you have selected may differ from the one displayed on the main screen. This is because the unit is able to override the set fan speed level, e.g. at high/low humidity.

Domestic hot water



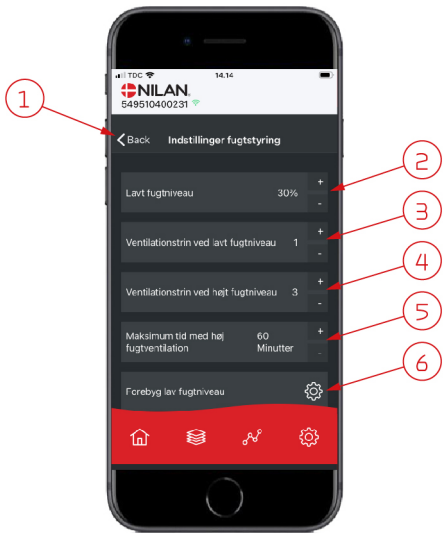
1. Press "back" to return to the previous page.
2. If you scroll down with your finger, you can read off the current temperature of the hot water.
3. You can set the domestic hot water by scrolling up or down with your finger on the icon. It is indicated under the thermometer when the unit is producing 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.



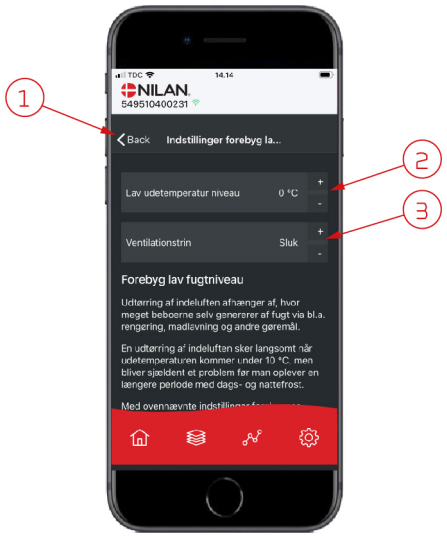
The settings icon (5) gives you access to settings related to supplementary electric heating and anti-legionella measures.

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

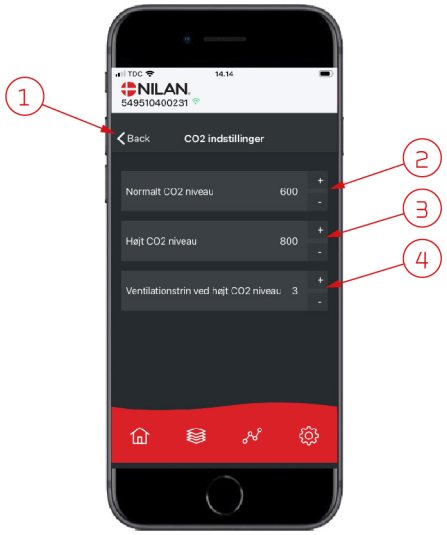


1. Press "back" to return to the previous page.
2. Here you can set the value for low level of humidity between 15- 45%.
3. Here you can set the fan speed level for low humidity between level 1 - 3. You can also deactivate the function.
4. Here you can set the fan speed level for high humidity between 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.



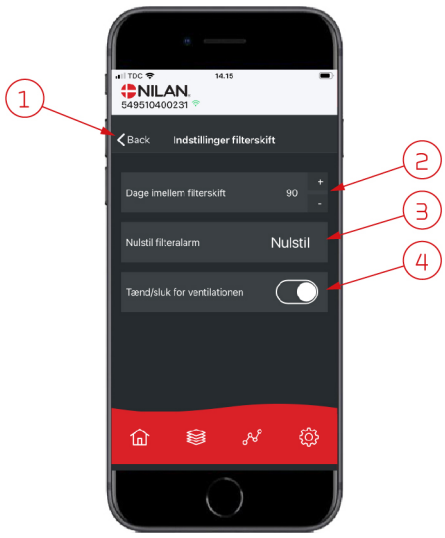
1. Press "back" to return to the previous page.
2. Here you can set the temperature to prevent low outdoor temperature between -20 - +10°.
3. Here you can set the fan speed level to prevent low humidity between level 1-3. You can also deactivate the function.

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

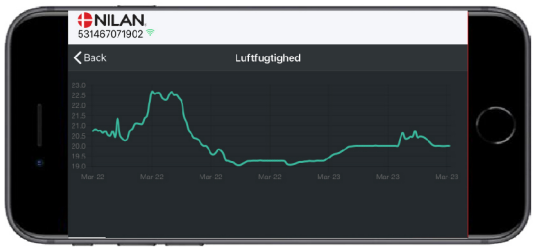
Remember never to leave the unit off for a long period of time as condensate water may form in the unit and duct system and subsequently cause damage.

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.

Installation

Settings

Ventilation

How to set the unit.
This list is intended for the installer to get an overview of what settings to use in consultation with the user or the builder.

Functions		Settings
Days between filter changes		Days:
Which ventilation level is set for basic ventilation		Level:
Is low ventilation at low outdoor temperature desired?	Yes/No	Level: At °C:
Is low ventilations at low humidity desired?	Yes/No	Level:
Level low humidity		%:
Is high ventilation at high humidity desired?	Yes/No	Level:
Maximum time with high ventilation at high humidity		Minutes:
Desired room temperature		°C:
Should active cooling be activated	Yes/No	Offset cooling °C:
Is high ventilation level at cooling desired?	Yes/No	Level:
Is a cooker hood connected to the ventilation system	Yes/No	Level:

Domestic hot water

How to set the domestic hot water.

Functions		Settings
What is the desired hot water temperature		°C:
Should the electrical supplement be used and at what temperature	Yes/No	°C:
Max. temperature for scalding protection *		°C:
Should the unit run automatic legionella treatment	Yes/No	Day:
Bypass offset activated for domestic hot water	Yes/No	°C:

* If a safety valve with scald protection is installed, the temperature can be set > 65 °C, without risk of scalding.

Central heating

How to set the central heating.

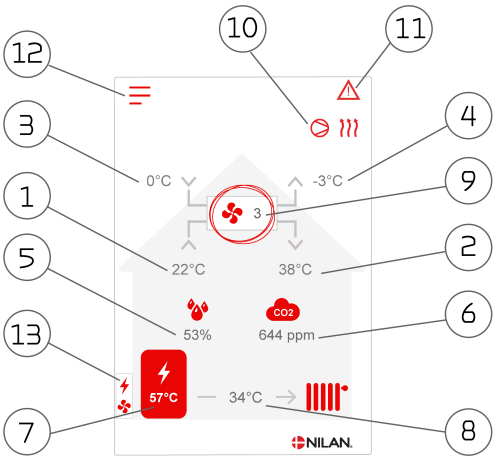
Functions		Settings
What is the desired settings	Demand / Heating	
Desired minimum supply flow temperature	Yes/No	°C:
Desired maximum supply flow temperature		°C:
By which curve the control must regulate according to		Level:
Should the curve be shifted so that it better suits the heat demand	Yes/No	°C:
What is the desired setting for the circulation pump	Continuous / Energy	

Software

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 AIR
Indicates that the compressor is active in the AIR outdoor unit.

De-icing icon AIR
Indicates that the heat pump in the AIR outdoor unit is de-icing.

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.

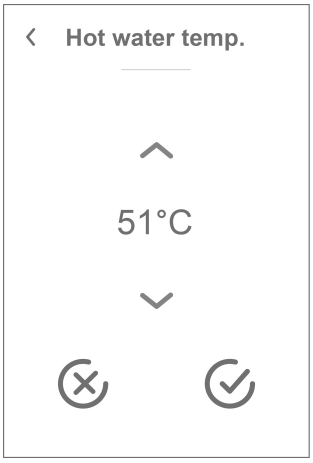
You can change the fan speed level by using the up-and-down arrows followed by the confirm icon (bottom right) or the cancel icon (bottom left).

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.



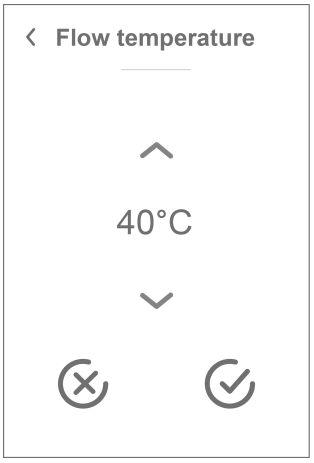
If you press current room temperature, the set room temperature will be displayed.

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.

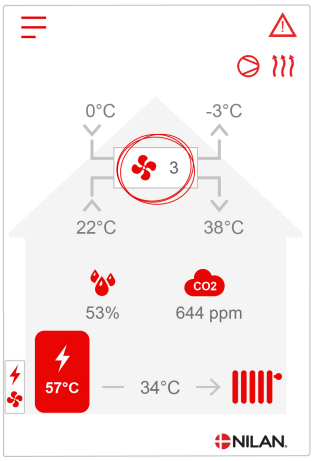
You can change the hot water temperature by using the up-and-down arrows followed by the confirm icon (bottom right) or the cancel icon (bottom left).



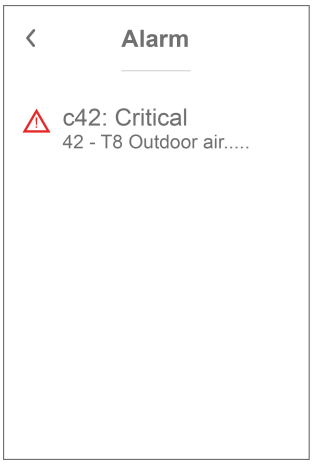
If you press the current supply flow temperature, the set supply flow temperature will be displayed.

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.

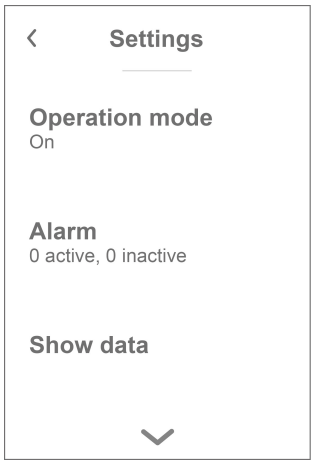
You will find more detailed descriptions in the "Alarm List" section of this document.



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.



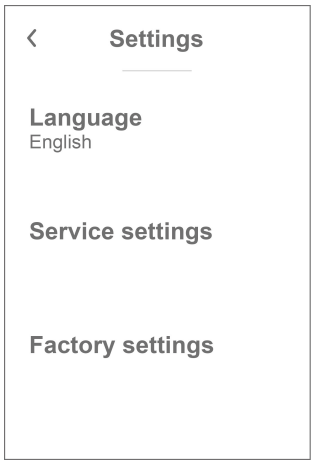
You navigate through the settings menu by pressing the arrow below or above.

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

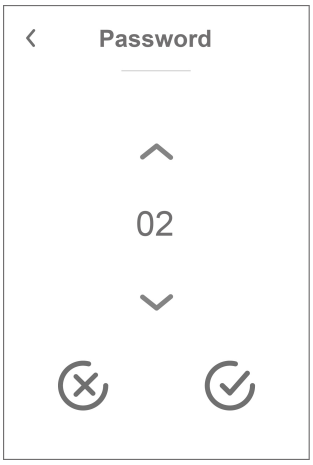
Installer access

Settings menus consist of 3 levels.

1. User level - Settings the user can access and customize.
2. Service level - Settings that the installer needs to access in order to set the ventilation unit in relation to individual installation. It requires expertise knowledge to select these settings. If the settings are not correct, the ventilation unit may not operate properly and it may consume more energy than necessary. The unit may even get damaged.
3. Factory level - Only Nilan has access.



The Service menu is located at the bottom of the User settings. Tap the down arrow several times to get there.



A password is required to access the Service menu.

You can set the password by using the up-or-down arrows followed by the confirm icon (bottom right).

Start-up settings

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.

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.

Ventilation settings

Turn on the ventilation unit

When you turn on the ventilation unit, the control panel will light up, but all functions are off. This is to prevent errors from occurring when you turn on the unit.



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



ATTENTION
Before touching the electrical installations, the power supply must be 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.

You activate the functions of the ventilation unit in the settings menu under the menu item "Operation".

> Unit on/off

> Unit on/off		
> Compact P	Settings: Standard setting: Description:	Off / On Off The ventilation unit is off when it is delivered in order to prevent errors from occurring during connection. This is also where you turn off the ventilation unit when filters need replacing or a service inspection is to be carried out.
> AIR module	Settings: Standard setting: Description:	Off / On Off AIR is off when it is delivered in order to prevent errors from occurring during connection. This is also where you turn off AIR 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 P	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.
> AIR modul	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 operating 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 P		
> Operating state	Description:	Shows in which operating setting the ventilation 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 in the exchanger.
> T5 Condenser	Description:	Shows the condenser temperature.
> T6 Evaporator	Description:	Shows the evaporator temperature/discharge air 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. Controls the heat pump.
> 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.
> HP SW version	Description:	Shows the software version of the heat pump.
> AIR module		
> Status	Description:	Shows in which operating setting the AIR is running.
> Operation mode	Description:	Shows in which operating setting the heat pump 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.
> 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.
> T20 Outdoor temperature	Description:	Shows the outdoor temperature measured in outdoor unit.
> T21 SHW top temperature	Description:	Shows the current temperature in the top of the SHW tank (only if installed). Controls the supplementary electric heating.
> T22 SHW bottom temperature	Description:	Shows the current temperature at the bottom of the SHW tank (only if installed). Controls the heat pump.

> T23 Evaporator temperature	Description:	Shows the current evaporator temperature.
> T35 Pressure pipe temperature	Description:	Shows the temperature in the pressure pipe.
> Water set point	Description:	Shows the maximum temperature of the domestic water that the heat pump must produce for the SHW tank.
> Heating set point	Description:	Shows the maximum temperature of the central heating water that the heat pump must produce.
> 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).
> Inverter	Description:	Shows inverter alarm.

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 program	Settings: Standard setting: Description:	De-activated / Program 1 / Program2 / Program 3 De-activated 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 level	Settings: Standard setting: Description:	De-activated / Level 1 / Level 2 / Level 3 / Level 4 Level 3 Select the desired fan speed level here.
> Room 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.

Hot tapwater

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.

> Hot tapwater

> Compact P		
> Setpoint	Settings: Standard setting: Description:	De-activated / 5 -60°C 45°C 5 -60 °C: Indicates the temperature (T11) below which the compressor must operate for the production of domestic hot water.
> Electrical supply heating	Settings: Standard setting: Description:	De-activated / 5 – 85 °C 30 °C The function is only available if the electrical supply heating is activated in Service settings. De-activated: 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 for legionella	Settings: Standard setting: Description:	De-activated / Monday / Tuesday / Wednesday / Thursday / Friday / Saturday / Sun day De-activated Here you indicate whether or not the unit is to run a weekly legionella treatment *.
> Legionella stop temperature	Settings: Standard setting: Description:	50 – 70 °C 65 °C The temperature of the legionella treatment.
> AIR module		Only shown if SHW or DHW is activated in Service settings.
> Water setpoint	Settings: Standard setting: Description:	5 – 70 °C 40 °C Here you indicate the desired temperature of the domestic water.
> Legionella interval	Settings: Standard setting: Description:	De-activated / 1– 21 day(s) De-activated Here you set the amount of days between each legionella treatment. Is only shown if SHW has been selected.
> Water min. temp.	Settings: Standard setting: Description:	5 – 55 °C 35 °C If the domestic water falls below this temperature, electrical supply 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 ºC, 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 ºC.

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 ºC.

> Cooling settings

> Compact P		
> Cooling setpoint	Settings: Standard setting: Description:	De-activated / Setpoint+1 / Setpoint+2 / Setpoint+3 / Setpoint+4 / Setpoint+5 / Setpoint+7 / Setpoint+10 °C De-activated De-activated : Active cooling is deactivated. Setpoint + X ºC: 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 atcooling	Settings: Standard setting: Description:	De-activated / Level 2 / Level 3 / Level 4 De-activated De-activated : 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 / Inlet Water Here you specify whether the cooling function is to have higher priority than production of domestic hot water*
> AIR module		Is only shown if activated in Service settings.
> Active cooling	Settings: Standard setting: Description:	De-activated / Actived De-activated Here you can select or deselect active cooling via the heat pump.
> Cooling min. setpoint	Settings: Standard setting: Description:	5 – 50 ºC 16 ºC 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:	De-activated / Level 1 / Level 2 / Level 3 Level 1 When the current humidity drops below the low humidity level, the ventilation unit switches to the set ventilation level.
> 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:	De-activated / Level 2 / Level 3 / Level 4 Level 3 At high humidity levels, for instance when having a bath, the unit changes to the set fan speed level.
> Max time hi.humidity	Settings: Standard setting: Description:	De-activated / 1 - 180 min. 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.

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:	De-activated / Level 2 / Level 3 / Level 4 / Level 3 Here you set the fan speed level at which the unit is to operate at high CO_2 level.
> 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 – 750 ppm 600 ppm Here you set the CO_2 level at which the unit is to switch to normal fan speed level.

Air exchange

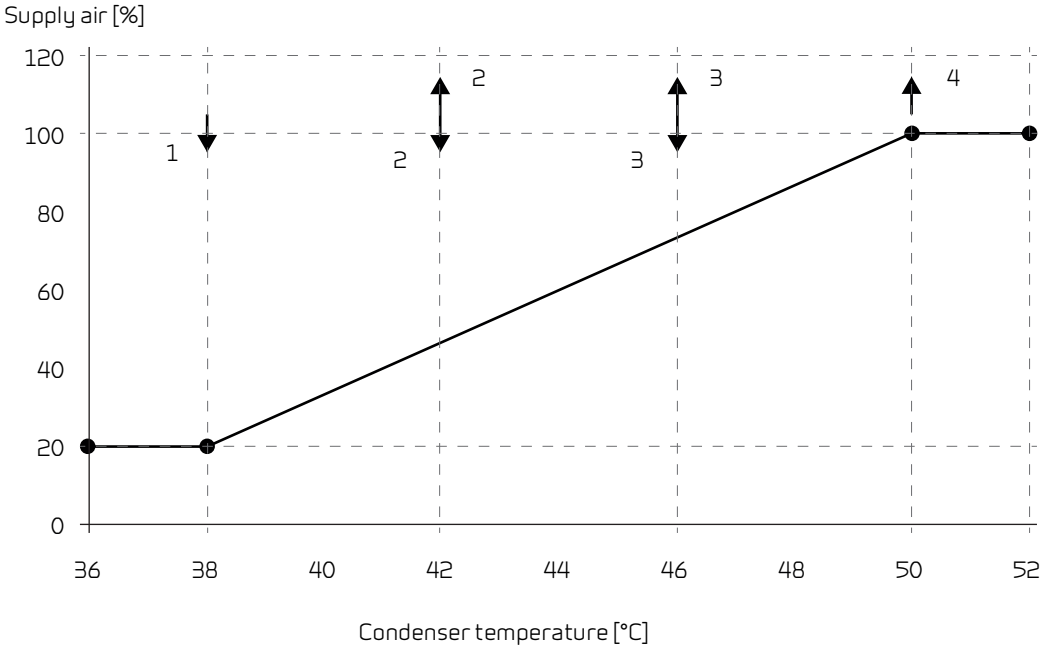
You can prevent low humidity in the dwelling by reducing ventilation at low outdoor temperatures. This function is useful for instance in countries with regular frost or at high altitudes in the mountains where the outdoor air is very dry.

> Air exchange

> Ventilation type	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. cpr. start	Settings: Standard setting: Description:	-1 – -15 °C / De-activated / 1 – 15 °C De-activated Here you indicate whether the heat pump is to start up at low outdoor temperatures, even if heating is not required.
> Winter low vent.	Settings: Standard setting: Description:	De-activated / Level 1 / Level 2 / Level 3 De-activated Here you specify at what fan speed level you want the ventilation unit to operate at low outdoor temperatures.
> Temp. winter low	Settings: Standard setting: Description:	-20 – 10 °C 0 °C Here you specify at which outdoor temperature you want the "Winter low vent." 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. cpr. start	Settings: Standard setting: Description:	-1 – -15 °C / De-activated / 1 – 15 °C De-activated 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.
> Winter low vent.	Settings: Standard setting: Description:	De-activated / Level 1 / Level 2 / Level 3 De-activated 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 vent." 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 temp. curve	Settings: Standard setting: Description:	15 – 46 °C 35°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 temp. 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. cpr. start	Settings: Standard setting: Description:	-1 – -15 °C / De-activated / 1 – 15 °C De-activated Here you indicate whether the heat pump is to start up at low outdoor temperatures, even if heating is not required.

> Winter low vent.	Settings: Standard setting: Description:	De-activated / Level 1 / Level 2 / Level 3 De-activated Here you specify at what fan speed level you want the ventilation unit to operate at low outdoor temperatures.
> Temp. winter low	Settings: Standard setting: Description:	-20 – 10 °C 0 °C Here you specify at which outdoor temperature you want the "Winter low vent." 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:	De-activated /30 / 60 / 90 / 180 / 360 90 days The number of days between filter changes can be set as required.

Temperature regulation

In the temperature regulation you set the supply temperature as requested for the summer and winter operation. Furthermore the outdoor temperature has to be set for the shift between summer and winter operation.



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 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 winter	Settings: Standard setting: Description:	14 – 35°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.
> 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

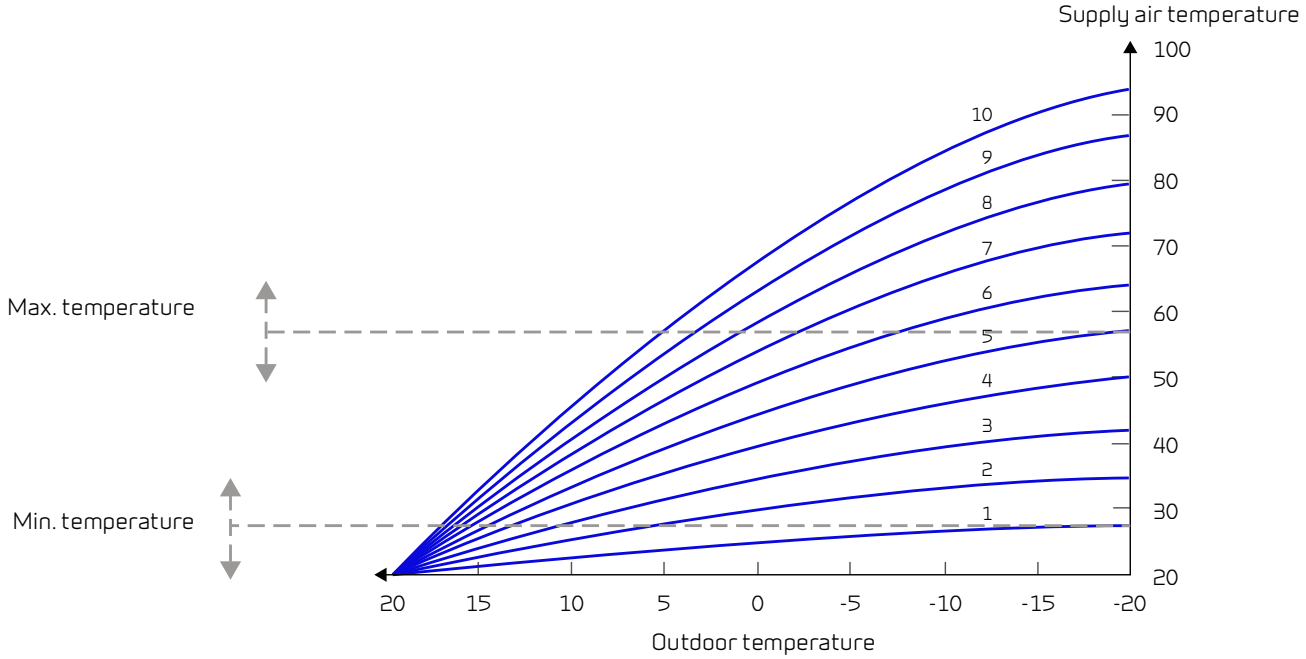
AIR module

Settings for the air to water heat pump.

> AIR module

> Heat - cool same time	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.
> Weather compensation		
> Temperature regulation	Settings: Standard setting: Description:	Compressor min. / Outdoor temperature Compressor min. You can select from min. compressor temperature and outdoor temperature.
> Outdoor temp. curve	Description:	Regulation according to the outside temperature has been chosen.
> Outdoor temp. curve	Settings: Standard setting: Description:	Manual (0) / 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.
Manuel		Default settings are based on the last selected curve
> Curve point -20°C	Settings: Standard setting:	10 - 100 °C 28 °C
> Curve point -10°C	Settings: Standard setting:	10 - 100 °C 27 °C
> Curve point 0°C	Settings: Standard setting:	10 - 100 °C 25 °C
> Curve point 10°C	Settings: Standard setting:	10 - 100 °C 23 °C
> Curve point 20°C	Settings: Standard setting:	10 - 100 °C 20 °C
> Curve point 30°C	Settings: Standard setting:	10 - 100 °C 20 °C
> Curve point 40°C	Settings: Standard setting:	10 - 100 °C 20 °C
1-10		
> Outdoor temp curve	Description:	Select at which outside temperature curve 1-10 the Air modul should be regulated

Heating curve



Service settings

Password

Password for access to service settings: 2

WARNING

Service settings are intended for qualified installers with knowledge of the workings of the ventilation unit. They can identify the appropriate settings for the ventilation unit.

If a user alters these settings, the ventilation unit will no longer operate to its full potential. It may result in higher energy consumption, and errors may occur and cause damage to the ventilation unit.

User selection program

The controller provides access to 2 user selection programs:

- User selection 1
- User selection 2 (Appears only when PCB board is installed)

NB! User selection 2 has higher priority than user selection 1.

A user selection program enables you to use special settings that override the standard operating settings in the main menu.
The user selection program is activated via an external signal.

The following are examples of situations when user selection functions are used..

Cooker hood	If you choose to run the cooker hood via the ventilation unit, the cooker hood will release a potential-free signal to the ventilation unit when you switch it on. When this happens, the ventilation unit increases the air volume to the set level so that enough air is drawn through the cooker hood.
Fireplace	Normally, ventilation is balanced with slightly negative pressure in the dwelling so that dampness is not pressed into the building components. This, however, is a disadvantage if you light a fire in your fireplace/ wood-burning stove as the smoke will then enter the dwelling instead of being drawn out through the chimney. When lighting a fire in the fireplace/wood-burning stove, you can activate the user function with a potential-free contact that ensures positive pressure in the dwelling. Smoke is then drawn out of the chimney as intended.
Extended operation	If the ventilation unit is used in an office or a school where ventilation is reduced outside opening hours, it may be necessary to increase ventilation temporarily if the building is used in the evening for, for instance, meetings. In that case you can have a potential-free contact that is activated, causing ventilation to increase, for example for an hour, before operation ceases again.

On the front of the control panel in the upper right corner, the user selection icon appears when this function is active.

User selection 1

> User selection 1

> Select program	Settings: Standard setting: Description:	None / Extended / Supply air / Extract air / Ext. offset / Ventilate Extended Here you select the program you wish to run.
> Extended	Description:	Settings if Expanded is chosen.
> Duration	Settings: Standard setting: Description:	De-activated/ 15 – 480 min. De-activated Time is set with 15 minute intervals. Select for how long the program is to continue after the external signal has ceased.
> Fan speed level	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / De-activated Level 4 Select the desired fan speed level.
> Room temperature	Settings: Standard setting: Description:	5 – 30 °C 23 °C Set the desired room temperature.
> Supply air	Description:	Settings if Supply air is chosen.
> Duration	Settings: Standard setting: Description:	De-activated/ 15 – 480 min. De-activated Time is set with 15 minute intervals. Select for how long the program is to continue after the external signal has ceased.
> Fan speed level	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / De-activated Level 4 Select the desired fan speed level.
> Extract air	Description:	Settings if Extract air is chosen.
> Duration	Settings: Standard setting: Description:	De-activated/ 15 – 480 min. De-activated Time is set with 15 minute intervals. Select for how long the program is to continue after the external signal has ceased.
> Fan speed level	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / De-activated Level 4 Select the desired fan speed level.
> Ext. offset	Description:	Settings if you select Ext. offset. An expanding time is chosen and an offset for external space heating.
> Duration	Settings: Standard setting: Description:	De-activated / 15 – 480 min. De-activated Time is set with 15 minute intervals. Select for how long the program is to continue after the external signal has ceased.
> Offset temp. control	Settings: Standard setting: Description:	-10 – 10 °C 0 °C With this setting, the setpoint for the space heating changed.
> Ventilate	Description:	Settings if Ventilate is chosen.
> Duration	Settings: Standard setting: Description:	De-activated/ 15 – 480 min. De-activated Time is set with 15 minute intervals. Select for how long the program is to continue after the external signal has ceased.
> Fan speed level	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / De-activated Level 4 Select the desired fan speed level.

User selection 2

> User selection 2

> Select program	Settings: Standard setting: Description:	None / Extended / Supply air / Extract air / Ext. offset / Ventilate / Cookerhood Extended Here you select the program you wish to run.
> Extended	Description:	Settings if Extended is chosen.
> Duration	Settings: Standard setting: Description:	De-activated / 15 – 480 min. De-activated Time is set with 15 minute intervals. Select for how long the program is to continue after the external signal has ceased.
> Fan speed level	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / De-activated Level 4 Select the desired fan speed level.
> Room temperature	Settings: Standard setting: Description:	5 – 30 °C 23 °C Set the desired room temperature.
> Supply air	Description:	Settings if Supply air is chosen.
> Duration	Settings: Standard setting: Description:	De-activated / 15 – 480 min. De-activated Time is set with 15 minute intervals. Select for how long the program is to continue after the external signal has ceased.
> Fan speed level	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / De-activated Level 4 Select the desired fan speed level.
> Extract air	Description:	Settings if Extract air is chosen.
> Duration	Settings: Standard setting: Description:	De-activated/ 15 – 480 min. De-activated Time is set with 15 minute intervals. Select for how long the program is to continue after the external signal has ceased.
> Fan speed level	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / De-activated Level 4 Select the desired fan speed level.
> Ext. offset	Description:	Settings if you select Ext. offset. An expanding time is chosen and an offset for external space heating.
> Duration	Settings: Standard setting: Description:	De-activated / 15 – 480 min. De-activated Time is set with 15 minute intervals. Select for how long the program is to continue after the external signal has ceased.
> Offset temp. reg.	Settings: Standard setting: Description:	-10 – 10 °C 0 °C With this setting, the setpoint for the space heating changed.
> Ventilate	Description:	Settings if Ventilate is chosen.
> Duration	Settings: Standard setting: Description:	De-activated / 15 – 480 min. De-activated Time is set with 15 minute intervals. Select for how long the program is to continue after the external signal has ceased.
> Fan speed level	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / De-activated Level 4 Select the desired fan speed level.
> Cooker hood	Description:	Settings if cooker hood is chosen.

> Duration	Settings: Standard setting: Description:	De-activated / 15 – 480 min. De-activated Time is set with 15 minute intervals. Select for how long the program is to continue after the external signal has ceased.
> Fan speed level	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / De-activated Level 4 Select the desired fan speed level.

AIR module

Settings for the Air-to-water heat pump.

> AIR module

> Unit type	Settings: Standard setting: Description:	AIR6 / AIR9 Here you select the outdoor unit AIR6 or AIR9.
> Heat pump settings		
> Compressor operation	Settings: Standard setting: Description:	On / Off / Modulating / Off Modulating The type of compressor that has been installed.
> Buffer tank	Settings: Standard setting: Description:	No / Yes Yes Here you can activate the buffer tank if one has been installed.
> Regulation settings	Settings: Standard setting: Description:	Return On/Off / Supply flow variable / Tank On/Off / Tank variable Return On /Off Regulation of the heating element in the heat pump.
> Min. Compr. Time stopped	Settings: Standard setting: Description:	1 – 45 min. 6 min. Min. time the compressor has to have stopped before it can start up again.
> Min. Compr. Running time	Settings: Standard setting: Description:	0 – 600 sec. 6+0 sec. Min. time the compressor has to run before it can stop.
> Test of pump	Settings: Standard setting: Description:	1– 60 days / Off Off Working the circulation pump if it has lain idle for a while.
> HP stop sensor	Settings: Standard setting: Description:	Return flow / Supply flow / None Supply flow This shows at which sensor the heat pump is to stop.
> HP stop temperature	Settings: Standard setting: Description:	30 – 70 °C 55 °C This shows the temperature at which the heat pump is to stop. The heat pump will start up again automatically.
> HP total stop sensor	Settings: Standard setting: Description:	Return flow / Supply flow / None Supply flow This shows at which sensor the heat pump will stop.
> HP total stop temperature	Settings: Standard setting: Description:	30 – 90 °C 60 °C This shows the temperature at which the heat pump will stop. The alarm will subsequently have to be reset manually.
> HP stop outdoor temperature	Settings: Standard setting: Description:	-45 – 10 °C -17 °C Here you select the temperature below which the heat pump is to stop. It will then run on supplementary electric heating.
> Setting of room heating		
> Heat source	Settings: Standard setting: Description:	HP+EL / EL / HP / None HP Here you select the heat source you want to use for heating.
> Min. setpoint	Settings: Standard setting: Description:	0 – 70 °C 55 °C Here you specify what supply flow temperature you want as a minimum for the central heating.

> Max. setpoint	Settings: Standard setting: Description:	0 – 70 °C 55 °C Here you specify the supply flow temperature you want as a maximum. NB: If the dwelling has wooden floors and the supplier recommends, for instance, that the underfloor heating does not exceed 35 °C, this is where you set the temperature. This prevents the user from accidentally turning up the heating too high.
> Heating neutral zone	Settings: Standard setting: Description:	0 – 15 °C 4 °C Here you set the regulatory deadband for the regulation of the central heating.
> Electric heating delay	Settings: Standard setting: Description:	0 – 60 min. 30 min. If during operation the heat pump cannot achieve the desired set point, this setting determines how much time must elapse before the supplementary heating is to start up.
> Active cooling	Settings: Standard setting: Description:	Yes / No No Depends on whether an external cooling signal has been established.
> Heating regulation		
> Stop capacity	Settings: Standard setting:	0 – 100% 1%
> Start diff. capacity	Settings: Standard setting:	0 – 100% 0%
> Reinforcement	Settings: Standard setting:	1.0 – 20.0 5.0
> Integration time	Settings: Standard setting:	30 – 600 sec. 240 sec.
> Evaporator min. temp.	Settings: Standard setting: Description:	-45 – 5 °C -45 °C Min. time (in minutes) that the compressor has to have stopped before it restarts.
> Outdoor temp. limit	Settings: Standard setting: Description:	0 – 30 °C 7 °C Above which temperature the operation of the heat pump is to be limited.
> Cap. limit above	Settings: Standard setting: Description:	25 – 100% 60% Maximum capacity above outdoor temperature limit.
> Cap. limit below	Settings: Standard setting: Description:	25 – 100% 100% Maximum capacity below outdoor temperature limit.
> Max. cooling capacity	Settings: Standard setting: Description:	25 – 100% 60% Maximum compressor capacity in cooling mode.

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 P		
> Supplementary electric heating	Settings: Standard setting: Description:	Off / On On Here you can activate or deactivate the supplementary electric heating.
> Scald protection	Settings: Standard setting: Description:	60 – 80 °C 65 °C When the unit is in heating or cooling mode, heat will be transferred to the hot water tank. To prevent the domestic hot water from potentially scalding the user, a limit of 65 °C has been set. When the temperature in the hot water tank reaches 65 °C, cooling or heating of the supply air will stop. NB: If a scald protection valve has been installed at the bottom of the hot water tank, you will be able to change the settingto as much as 80 °C. This increases the capacity of cooling and heating of the supply air.
> Bypass offset	Settings: Standard setting: Description:	Off / 1 – 30 °C Off Off: The compressor produces domestic hot water in accordance with the selected setpoint. 1 – 30 °C: If cooling or heating is required, the compressor will stop producing domestic hot water in line with the value set under desired domestic water temperature*.
> AIR		
> Hot water tank	Settings: Standard setting: Description:	None / SHW / DHW None Here you select which hot water tank is to be heated up.
> SHW		
> Neutral zone	Settings: Standard setting: Description:	0 – 15 °C 4 °C Here you set the regulatory deadband for operation of the heat pump.
> Hot water source	Settings: Standard setting: Description:	HP / HP+EL / EL / None HP Here you indicate whether the supplementary electric heating is to be active.
> Hot water capacity	Settings: Standard setting: Description:	10 – 100 % 80 % Here you specify at what capacity you want the compressor to run during production of domestic hot water.
> Compressor standby	Settings: Standard setting: Description:	No / Yes No Here you activate standby of domestic hot water production.
> HP Total stop sensor	Settings: Standard setting: Description:	Return flow/ Supply flow / None Supply flow This shows at which sensor the heat pump will stop.
> HP Total stop temperature	Settings: Standard setting: Description:	30 – 90 °C 70 °C This shows the temperature at which the heat pump will stop. The alarm will subsequently have to be reset manually.
> DHW		

> Neutral zone	Settings: Standard setting: Description:	0 – 15 °C 4 °C Is shown if SHW / DHW has been selected.
> Domestic water capacity	Settings: Standard setting: Description:	10 – 100 % 40 % Here you specify at what capacity you want the compressor to run during production of domestic hot water.
> Compressor standby	Settings: Standard setting: Description:	No / Yes No Here you activate standby of domestic hot water production.
> HP Total stop sensor	Settings: Standard setting: Description:	Return flow / Supply flow / None Supply flow This shows at which sensor the heat pump will stop.
> HP Total stop temperature	Settings: Standard setting: Description:	30 – 90 °C 70 °C This shows the temperature at which the heat pump will stop. The alarm will subsequently have to be reset manually.

* You may find it beneficial to use the bypass offset function if the unit is to heat or cool the dwelling via the supply air.

Example:
- Set the desired hot water temperature at 51 °C (to avoid legionella)
- Set the Bypass offset at 6 °C

When the domestic hot water, measured at T12, exceeds 45 °C (51-6), the unit will switch from domestic hot water production to heating or cooling of the supply air. In heating and cooling mode the compressor will transfer heat to the hot water tank. This will cause the temperature of the hot water to increase. In heating mode the temperature in the hot water tank will be able to reach approx. 62 °C. In cooling mode it can reach up to 80 °C. However, it will take longer to reach these temperatures than it would at full production of hot water.

If the supply air does not require heating or cooling, the unit will heat the domestic hot water to the desired hot water temperature, in this case 51 °C.

Smart Grid

Smart Grid can be economically advantageous because it regulates the power consumption of the heat pump in line with the electricity price, which alters throughout the day. Smart Grid receives an external signal from the electricity provider and this determines in which operating setting the system will run.

Smart Grid Compact P2
The Smart Grid function regulates the heat pump in Compact P2, which is used for the production of domestic hot water. It uses electricity for producing hot water via the heat pump in Compact P2 when the price on electricity is low. When the price is high, it reduces the heating.

Smart Grid Compact P2 AIR / GEO
The Smart Grid function regulates the heat pump in AIR / GEO, which is used for heating the dwelling through central heating. It uses electricity for producing heat for the central heating via the heat pump in AIR / GEO when the price of electricity is low. It will stop heating when the price is high.

Smart Grid has four operating settings:

Operating setting	Status	Description
1. The heat pump is turned off	A: Closed B: Open	The power supply for the heat pump is disconnected, as many people are using electricity, which results in the price being high.
2. Normal operation	A: Open B: Open	The heat pump produces domestic hot water in accordance with the values that have been selected in the settings.
3. Low electricity price	A: Open B: Closed	During these periods when the price of electricity is low, it is possible to increase the production of domestic hot water.
4. Overcapacity of electricity	A: Closed B: Closed	There is an overcapacity of electricity, the price of electricity is low, and you therefore have to produce domestic hot water.

> Smart Grid

> Smart Grid	Settings: Standard setting: Description:	On / Off Off This is where you activate Smart Grid.
> Compact P2		
> Increase temp. of domestic water	Settings: Standard setting: Description:	0 – 10 °C 5 °C Here you specify by how much the temperature in the hot water tank is to increase during periods of cheap electricity.
> Supplementary electric heating	Settings: Standard setting: Description:	On / Off On Here you indicate whether supplementary electric heating is to be used for production of domestic hot water during periods of cheap electricity.
> AIR / GEO		
> Low electricity price	Settings: Standard setting: Description:	0 – 10 °C 9 °C Here you specify by how much the supply flow temperature in the central heating circuit is to increase during periods of cheap electricity.
> Extra temp. at overcapacity	Settings: Standard setting: Description:	0 – 10 °C 1 °C Here you specify by how much the supply flow temperature in the central heating circuit is to increase during periods of overcapacity in electricity. Supplementary electric heating is activated.

Air quality

All Nilan domestic ventilation units come as standard with a humidity sensor installed. It is possible to purchase a CO_2 sensor which is activated in this menu.

> Air quality

> Function	Settings: Standard setting: Description:	Hum+CO2 / Humidity / De-activated Hum+CO2 Here you can choose from off / humidity sensor and / or CO_2 sensors.

Air exchange

It is easy and quick to balance the airflows with Nilan CTS602 control. All fan speed levels can be set infinitely between 20 and 100%, different for extract air and supply air.

> Air exchange

> Min. level sup. air	Settings: Standard setting: Description:	De-activated / Level 1 / Level 2 / Level 3 / Level 4 De-activated You can set a minimum fan speed level for supply air.
> Min. level exh. air	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 1 You can set a minimum fan speed level for extract air.
> Max. level exh. air	Settings: Standard setting: Description:	Level 3 / Level 4 Level 4 You can set a maximum fan speed level for extract air.
> Level 1 - Sup. air	Settings: Standard setting: Description:	20 – 100% 23% Here the fan speed level is set for step 1 - supply air.
> Level 2 - Sup. air	Settings: Standard setting: Description:	20 – 100% 40% Here the fan speed level is set for step 2 - supply air.
> Level 3 - Sup. air	Settings: Standard setting: Description:	20 – 100% 65% Here the fan speed level is set for step 3 - supply air.
> Level 4 - Sup. air	Settings: Standard setting: Description:	20 – 100% 100% Here the fan speed level is set for step 4 - supply air..
> Level 1 - Exh. air	Settings: Standard setting: Description:	20 – 100% 25% Here the fan speed level is set for step 1 - extract air.
> Level 2 - Exh. air	Settings: Standard setting: Description:	20 – 100% 45% Here the fan speed level is set for step 2 - extract air.
> Level 3 - Exh. air	Settings: Standard setting: Description:	20 – 100% 70% Here the fan speed level is set for step 3 - extract air.
> Level 4 - Exh. air	Settings: Standard setting: Description:	20 – 100% 100% Here the fan speed level is set for step 4 - extract air.

Nilan recommends the following settings for each fan speed level:
Level 1: "Holiday ventilation" - is used when you are away on holiday, but also for "Humidity low" and "Ventilation at low outdoor temperature"
Level 2: "Basic ventilation" - is used as standard operation
Level 3: "Guest ventilation" - is used when you have guests, but also for "High humidity level"
Level 4: "Party ventilation" - is used when many people are gathered in the dwelling, but also for "Cooker hood function"

De-icing

All ventilation units that have a heat exchanger with a high heat recovery will, during periods of high frost, be able to experience the formation of ice in the heat exchanger. The defrost function will try to de-frost the ice that forms in the heat exchanger so that normal operation can continue.

It is possible to prevent ice formation in the heat exchanger with a frost protecting pre-heating element. In this way continuous operation is achieved without cold supply air.

It is recommended to install a frost protection pre-heating element in areas with a lot of frost during winter time.

Compact P2 Polar
Compact P2 Polar has a built-in antifreeze preheating element installed at the factory. The built-in pre-heating element is controlled by Nilan´s unique CCDI System (Condition Controlled De-ice System)*, which ensures a very low energy consumption at frost protection.
If the unit is delivered as a Polar version the function "T4 start de-icing" has been De-activated from factory.

> De-icing

> Time between de-icing	Settings: Standard setting: Description:	15 - 720 minutes 30 minutes Indicates the minimum time between each de-icing process.
> T4 start de-icing	Settings: Standard setting: Description:	De-activated/ 1 - 5 °C 3 °C Here, the temperature in the counter-flow heat exchanger (T4) indicates that the unit must defrost the exchanger. De-activated has to be selected if a pre-heating element is installed.
>T6 start de-icing	Settings: Standard setting: Description:	-10 – 0 °C -2 °C Indicates at which evaporator temperature (T6) the heat pump is to de-ice.
> T4/T6 stop de-icing	Settings: Standard setting: Description:	2 – 12 °C 6 °C Indicates at which evaporator temperature (T6) de-icing of the heat pump is to cease.
> T6 min. de-icing	Settings: Standard setting: Description:	10 – 120 sec. 60 sec. Indicates at which minimum time (T6) de-icing should run. Recommended 60 sec.
> Comp. max de-icing	Settings: Standard setting: Description:	2 – 60 minutes 10 minutes Indicates the maximum time for de-icing the evaporator. If de-icing has not been completed within the set time, an alarm will be displayed and the unit will stop.
> T4 max. time de-icing	Settings: Standard setting: Description:	5 – 60 minutes 25 minutes Indicates the maximum time allowed for de-icing the counter-flow heat exchanger. If de-icing has not been completed within the set time, an alarm will be displayed and the unit will stop.

*** CCDI-System**
Ordinary antifreeze pre-heating elements are controlled by the outside temperature, and ensure that no outdoor air below 0 °C enters the unit. That means, the pre-heating element heats the outdoor air for many hours without it actually being necessary.

Nilan CCDI-System measures the temperature in the part of the heat exchanger where ice forms, and only starts the pre-heating element when the temperature in the heat exchanger falls below 2 °C, and regulates stepless.

Ice formation in the heat exchanger is not only conditioned by the outside air temperature, but to a large extent also by the temperature and humidity in the exhaust air. With the Nilan CCDI-System the pre-heating element will typically only be activated at an outdoor temperature below -2 °C and i many cases at an even lower temperature. In this way, the pre-heating element will run for a very limited number of hours per year, compared to a normal pre-heating element.

> De-icing AIR

> De-icing below	Settings: Standard setting: Description:	-70 – 10 °C -0.5 °C Here you select the temperature below which the heat pump can de-ice.
> De-icing temp.	Settings: Standard setting: Description:	2 – 15 °C 6 °C Here you specify at which ΔT between the evaporator temperature and the outdoor temperature that de-icing may start.
> Time before de-icing	Settings: Standard setting: Description:	1 – 240 min. 20 min. Here you specify how much time has to pass after the de-icing temperature has been reached before de-icing is to begin.
> Time between de-icing	Settings: Standard setting: Description:	10 – 480 min. 60 min . Her you set the minimum time that has to pass between individual de-icing processes.
> Evaporator stop temp.	Settings: Standard setting: Description:	1 – 25 °C 7 °C Here you specify at which temperature de-icing is to stop.
> Max. de-icing time	Settings: Standard setting: Description:	1 – 240 min. 10 min. Here you specify the maximum time that it is allowed to take for the evaporator to de-ice. If de-icing has not been completed within the set time, an alarm will be displayed and the unit will stop.

Temperature control

Room low temperature

You can set a minimum room temperature at which the ventilation unit is to stop (Room low temperature).

This is a safety function that can be useful, for instance, if you are not at home and the heat supply is disconnected. In such event, the dwelling will no longer be heated and the room temperature will fall. To prevent the ventilation unit from cooling the dwelling even further, you can set it to stop at a minimum room temperature.

> Temp. control

> Select heat source	Settings: Standard setting: Description:	Off / HP HP (heat pump) Here you can disconnect the heat pump if you do not want to use it for heating.
> Room low temperature	Settings: Standard setting: Description:	Off / 1 – 20 °C Off Here you specify whether the ventilation unit is to stop at low room temperature and at what temperature.
> Offset external heating	Settings: Standard setting: Description:	-5 – 5 °C -1 °C Here you set the offset temperature at which the external heat supply is to be released or blocked. The temperature setting is deducted from or added to the regulatory deadband for the setpoint.

Supply air control



ATTENTION
The parameters in Supply air control should only be adjusted by persons with knowledge of control technology.

> Supply air control

> Restart time	Settings: Standard setting: Description:	0 – 60 min. 6 min. Here you set the minimum time (in minutes) that the compressor has to have stopped before it restarts.

Room temperature control

This menu item allows you to set the regulatory deadband for heating regulation.



ATTENTION
The parameters in Room temperature control should only be adjusted by persons with knowledge of control technology.

> Room temp. control

> Neutral zone	Settings: Standard setting: Description:	0,2 – 10,0 °C 2 °C Here you set the offset temperature for the heating regulation.

Restart function

Here you set how the ventilation unit should act in case of fire detection and when testing via external fire control.

> Restart

> Restart function	Settings: Standard setting: Description:	De-activated / HP/LP / Fire De-activated Here you set what the ventilation unit should do when fire input is activated. De-activated: Used when connecting to a fire thermostat. For fire detection, the user must acknowledge the alarm before restarting the ventilation unit. HP / LP: High pressure alarm /Low pressure alarm. Restarts automatically. Fire: Used when connecting to external fire control. In case of fire detection, the unit is stopped. When the external fire alarm system is connected again, the alarm is self-acknowledged and the ventilation unit starts up again automatically.

Save/ restore settings

You can restore the factory settings. The function also allows you to save current settings and restore them at a later date.



ATTENTION

Before restoring factory settings or previously saved settings, we recommend that you note down the fan settings to save you balancing the ventilation unit again.

> Save / restore settings

> Save / restore settings	Settings: Standard settings: Description:	De-activated / Factory / Backup / Restore De-activated Factory: Restores factory settings Backup: Saves current settings Restore: Restore saves current settings

Manual test

In this menu you can manually test a range of functions of the ventilation unit.

> Manual test

> Cpmpact P		
> Manual test	Settings: Standard setting: Description:	Off / De-icing / Supply air / Extract air / Vent.+compr. / Vent.+heating / Water heating Off It is possible to check a number of functions of the ventilation unit.
> Off	Description:	Manual test is deactivated (normal operating mode).
> De-icing	Description:	The De-icing function starts.
> Supply air	Description:	Only the supply air fan is running.
> Extract air	Description:	Only the extract air fan is running.
> Vent.+ compr.	Description:	Test of ventilation and compressor.
> Vent.+heating	Description:	Test of after-heating element, if one has been installed. During the test a 50% signal is sent to the heating element.
> Water heating	Description:	Manual test of the supplementary electric heating in the hot water tank.
> AIR		NB: To access this menu, AIR must be turned off.
> Main switch	Description:	Must be set to manual for "Manual test".
> Compressor	Description:	Turn on / turn off compressor.
> Electric heating	Description:	Turn on / turn off electric heating.
> Domestic hot water	Description:	Turn on / turn off domestic hot water.
> Hot side pump	Description:	Turn on / turn off hot side pump.
> De-icing valve	Description:	Turn on / turn off de-icing valve.
> Circ. pump	Description:	Turn on / turn off circulation pump.
> Compr. heating	Description:	Turn on / turn off compressor heating.
> Drain heating	Description:	Turn on / turn off drain heating.
> Belt heating	Description:	Turn on / turn off belt heating.
>SHW heating	Description:	Turn on / turn off SHW.
> Compr. pct.	Description:	Set capacity of compressor 0 - 100%.
> Fan voltage	Description:	Set fan 0 - 10 V.

Modbus address

The control in NIlan ventilation units has an open Modbus communication, which allows the ventilation unit to be controlled with e.g. an external CTS controller.

The CTS602 control communicates Modbus RS485, and the complete Modbus protocol can be downloaded from the Nilan website.

> Modbus adress

> Modbus address	Settings: Standard setting: Description:	1 – 247 30 The Modbus address for the ventilation unit is entered here.

Data log interval

Data can be logged at intervals of 1-120 minutes.

- A choice has been made to log temperatures in whole degrees Celsius in order to minimize logfile sizes.
- The status of digital inputs and outputs have been combined in two joint log variables, "Din" and "Dout".
- Alarms are always logged at the time they are viewed.

Note! Only installers can download the log file, as an LMT program is required, which can be downloaded on NilanNet.

> Data log interval

> Data log interval	Settings: Standard setting: Description:	1 – 120 min. / De-activated 10 min. If "De-activated" is selected, logging will only contain events and alarms.

Data logging

In order to data log you need the XML file "Devicelog.xml", which is a decoding specification required by the LMT PC program. The file can be downloaded from NilanNet under the menu item "After Sales/Software".

- Enter the file in the "..\Database" directory under the current LMT project.
- You can then retrieve the log from the control system via the menu "Device - Devicelog download".
- The log is shown in LMT in both tabular and graphic form.
- You can export the log file to Microsoft Excel format.



ATTENTION

Alarms are still logged if "Data logging" is off.

Screen settings

It is possible to set the backlight in the control panel as well as calibrate it in case it comes out of focus.

> Screen set

> Backlight (active)	Settings: Standard setting: Description:	3 – 100 % 100 % Here you set the backlight when in active function.
> Backlight (off)	Settings: Standard setting: Description:	0 – 100 % 2 % Here you set the backlight when not in active function.
> Calibrate	Settings: Standard setting: Description:	Off / On Off If you select "On", it is possible to calibrate the screen by pressing the point as it gradually moves. A dot appears that you must press each time it moves.

RH sensor

> RH sensor

> RH sensor	Settings: Standard setting: Description:	Lodam (square) / SHT3x (round) Lodam (square) Here you choose the type of humidity sensor which is mounted.

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 too low	Make sure that air is blown into the house. Make sure the filters are clean. Check that the outdoor air intake 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 too low.	Make sure that air is blown into the house. Make sure the filters are clean. Check that the outdoor air intake 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.

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