

# SOFTWARE INSTRUCTIONS

CTS602 HMI BY NILAN



Combi S 302 Polar Top (English)

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# 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.

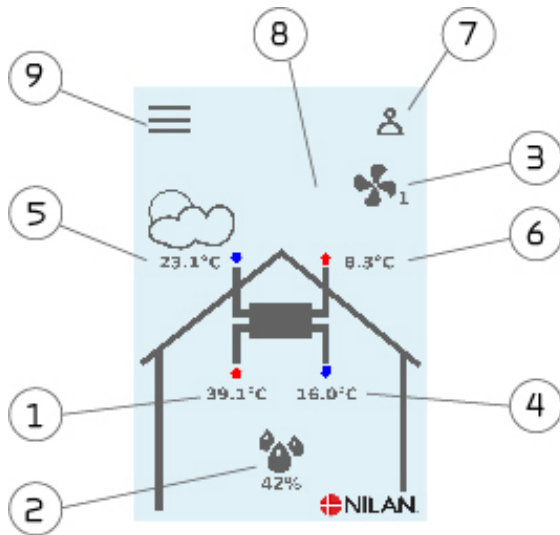
Function		Settings
Setting of frequency of filter change		Days:
What level constitutes basic ventilation		Level:
Do you want low flow ventilation at low outdoor temperatures	yes/no	Level: At °C:
Do you want low flow ventilation at low air humidity	yes/no	Level:
Level - low air humidity		%
Do you want high flow ventilation at high air humidity	yes/no	Level:
Set maximum time for high air humidity		Min:
What is the desired room temperature		°C:
Should ventilation cease at low room temperatures	yes/no	°C:
Is a cooker hood connected to the ventilation system	yes/no	Level:

# Software

## Functions on control panel

### Main screen elements

The main screen of the HMI panel contains the settings options and the information that an operator mostly uses.



1. Shows the current room temperature in the house, measured via the extract air.
2. Shows the current air humidity. If a CO2 meter has been installed, it will be shown next to air humidity.
3. Shows the current fan speed level.
4. Shows the current supply air temperature
5. Shows the current outdoor temperature measured via the outdoor air intake
6. Shows the current discharge air temperature
7. Shows the menu icons listed below
8. Shows the mode icons listed below
9. Access to the settings menu which contains more settings options

### 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 is active



#### Alarm icon

Is displayed during alarms or warnings

### Mode icons



#### Compressor icon

Indicates that the compressor is active



#### Heating icon

Indicates that the unit is heating up the supply air via the compressor or the after-heating element

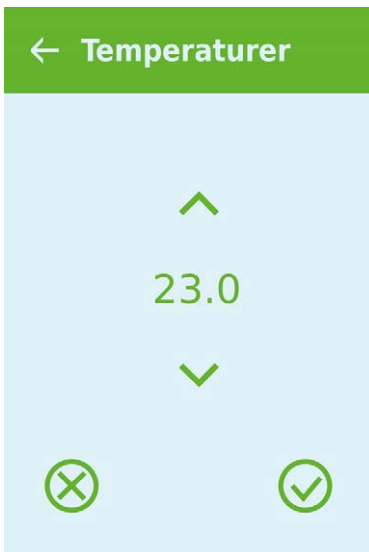


#### Cooling icon

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

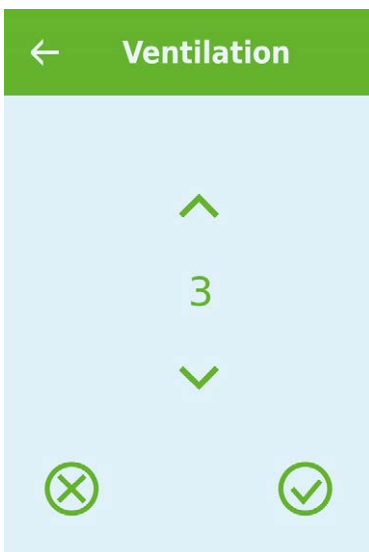
## Settings options on the main screen

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



If you select the option of current room temperature, the desired room temperature will be displayed.

The desired room temperature can be adjusted by pressing the up-or-down arrows followed by the cancel icon (bottom left) or the accept icon (bottom right).

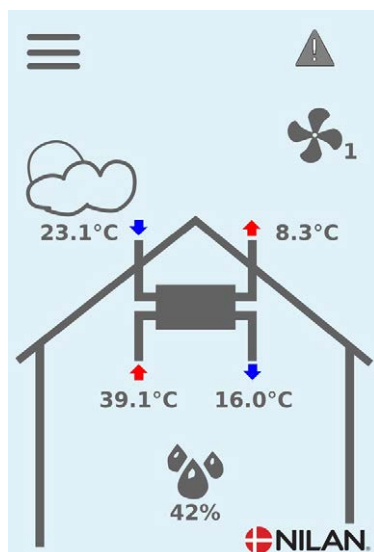


If you select the option of current fan speed level, the desired fan speed level will be displayed.

The desired fan speed level can be adjusted by pressing the up-or-down arrows followed by the cancel icon (bottom left) or the accept icon (bottom right).

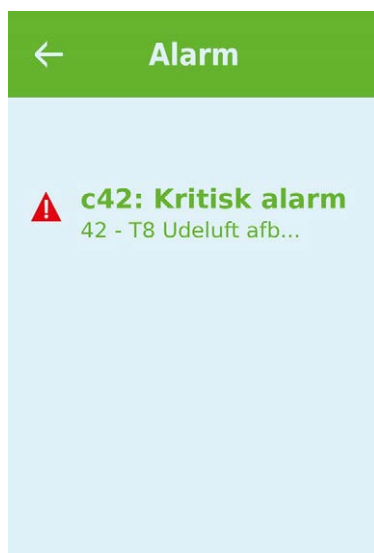
## Warnings and alarms

Should an error occur in the operation of the unit, a warning or an alarm will be displayed. A warning will appear in the top righthand corner in the menu bar.



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

The warning or the alarm can be reset by pressing "Clear Alarm".



A warning indicates that something requires attention, for instance that filters need changing.  
The unit operates normally.



An alarm indicates a serious fault with the unit that is likely to require investigation by an expert.  
The unit has stopped.

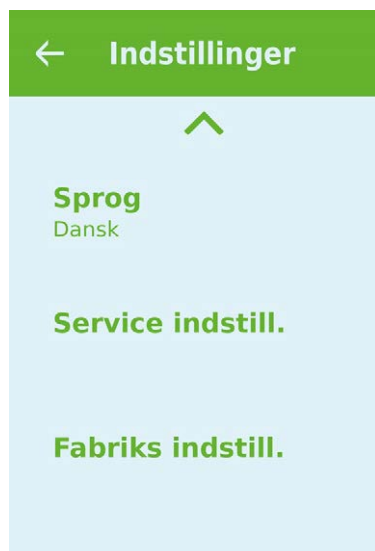
## Settings menu overview

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



## Installer rights

Service and factory settings are displayed in the settings menu.



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).



The service settings require a password because certain knowledge is necessary in order to change these settings. An incorrect setting may result in the unit not working properly.



# Start-up settings

## Language

The unit is factory-set to Danish language. You can change the texts to other languages.



↳ Danish	Description:	Select the desired language on the panel.
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## Date/Time

It is important to set date and time correctly. It makes it easier to localise errors indicated in an error report. When logging data, it is important to be able to follow the history. The time is shown under "Date / Time" in the display.



↳ Year	Description:	Select "Year" in the panel and then select the correct year.
↳ Month	Description:	Select "Month" in the panel and then select the correct month.
↳ Day	Description:	Select "Day" in the panel and then select the correct day.
↳ Hour	Description:	Select "Hour" in the panel and then select the correct hour.
↳ Minute	Description:	Select "Minute" in the panel and then select the correct amount of minutes.

# Ventilation settings

## Turn on the unit

When the unit is powered, light will appear in the control panel, but all functions are off. This is to prevent errors.

The different functions of the unit can be activated in "Settings" under "Operation".

If the unit is off, an icon appears on the main screen. 



### ATTENTION

Before touching the electrical installations, the power supply must be switched off.



### ATTENTION

It is important that the ventilation section is not turned off for prolonged periods, as this could cause condensation problems in the duct system.



↳ Operation	Settings: Standard setting: Description:	Off / On Off The unit has been turned off at the factory in order to avoid errors once powered. The unit must be started by the installer. The installer is also able to turn off the entire unit, for instance during a service check.
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## Operating function

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



### ATTENTION

The "Heating" and "Cooling" functions overrule the week program. If a week program has been set up, the mode will automatically change to "Auto" at the next change in the week program.



↳ Auto	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, but cooling is possible in winter mode if the preconditions for cooling are present. Heating: The unit operates in accordance with the selected values, but the bypass damper cannot be opened and active cooling not be activated even if the preconditions are present.
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## Alarm

You can read warnings and alarms in the "Alarm" menu. It is likewise possible to reset warnings and alarms in this menu.

When a warning or an alarm has been triggered, an icon appears on the main screen



↓ Alarm number and name	Description:	When selecting this, a list will appear showing the alarm ID number, information about the type of alarm, and whether it is critical or not. (See the alarm list for more information) You can approve the alarm by selecting "Clear Alarm"
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### ATTENTION

When an alarm is active, it cannot be reset in the panel. When the alarm has been resolved, it will figure as inactive and it can be reset by selecting "Clear Alarm".

## Show data

It is possible to read off current data for Comfort units.



↳ Operating state	Description:	Shows the operating setting in which the unit is running.
↳ Bypass	Description:	Shows whether the bypass damper is open or closed.
↳ T1 Outdoor air	Description:	Shows the outdoor temperature before reaching the pre-heating element.
↳ T2 Supply air	Description:	Shows the supply air temperature. If an after-heating element has been installed, T7 will be shown instead.
↳ T4 Discharge	Description:	Shows the discharge air temperature.
↳ T5 Condenser	Description:	Shows the condenser temperature.
↳ T6 Evaporator	Description:	Shows the evaporator temperature.
↳ T7 Supply air	Description:	Shows the supply air temperature if an after-heating element has been installed. Otherwise T2 will be shown.
↳ T10 Extract air/Room	Description:	Shows the current room temperature as measured in the extract air.
↳ Air humidity	Description:	Shows the current air humidity in the dwelling.
↳ CO2	Description:	Shows the current CO <sub>2</sub> level in the dwelling (only if installed).
↳ Supply air fan	Description:	Shows the level at which the supply air fan is operating.
↳ Extract air fan	Description:	Shows the level at which the extract air fan is operating.
↳ Unit information	Description:	Press "Unit information" for more information.
↳ Unit type	Description:	Shows the name of the product the software has been set to work with.
↳ Software version	Description:	Shows the installed software version.
↳ Panel software	Description:	Shows the installed software version on the panel.

## Date/Time

It is important to set date and time correctly. It makes it easier to localise errors indicated in an error report. When logging data, it is important to be able to follow the history. The time is shown under "Date / Time" in the display.

← Date / Time

↳ Year	Description:	Select "Year" in the panel and then select the correct year.
↳ Month	Description:	Select "Month" in the panel and then select the correct month.
↳ Day	Description:	Select "Day" in the panel and then select the correct day.
↳ Hour	Description:	Select "Hour" in the panel and then select the correct hour.
↳ Minute	Description:	Select "Minute" in the panel and then select the correct amount of minutes.

## Week program

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

On the main screen an icon will be displayed when the week program is active



↳ Select program	Description:	You can select from the Programs 1, 2, 3 or off.
↳ Edit program	Description:	The selected week program is now active and can be edited.
↳ Monday	Description:	You can select either Monday, Tuesday, Wednesday, Thursday, Friday, Saturday or Sunday.
↳ Function 1	Description:	Under each function, you can set time, temperature and fan speed level.
↳ Start time	Settings: Standard setting: Description:	Hours and minutes 6:00 Set the time for the program to start. The program will run until the next change in the week program.
↳ Ventilation	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / Off Level 3 Select the desired fan speed level here.
↳ Temperatures	Settings: Standard setting: Description:	5 - 40 °C 22 °C Set the desired room temperature here.
↳ Function 2		Under each function, you can set time, temperature and fan speed level.
↳ Start time	Settings: Standard setting: Description:	Hours and minutes 8:00 Set the time for the program to start. The program will run until the next change in the week program.
↳ Ventilation	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / Off Level 1 Select the desired fan speed level here.
↳ Temperatures	Settings: Standard setting: Description:	5 - 40 °C 22 °C Set the desired room temperature here.
↳ Function 3	Description:	Under each function, you can set time, temperature and fan speed level.
↳ Start time	Settings: Standard setting: Description:	Hours and minutes 15:00 Set the time for the program to start. The program will run until the next change in the week program.
↳ Ventilation	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / Off Level 3 Select the desired fan speed level here.
↳ Temperatures	Settings: Standard setting: Description:	5 - 40 °C 22 °C Set the desired room temperature here.
↳ Function 4	Description:	Under each function, you can set time, temperature and fan speed level.

↳ Start time	Settings: Standard setting: Description:	Hours and minutes 22:00 Set the time for the program to start. The program will run until the next change in the week program.
↳ Ventilation	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / Off Level 1 Select the desired fan speed level here.
↳ Temperatures	Settings: Standard setting: Description:	5 - 40 °C 22 °C Set the desired room temperature here.
↳ Functions 5 and 6	Settings:  Standard setting: Description:	Under each function, you can set time, temperature and fan speed level. Off The program will run until the next change in the week program.
↳ Reset program	Description:	You can reset the program by selecting the approve icon.

## Heating of supply air

If an after-heating element has been installed (accessory), you set the supply air to be heated here.

When the room temperature (measured in the extract air) falls below the desired room temperature set on the display, the heat pump and the after-heating element start heating the supply air.

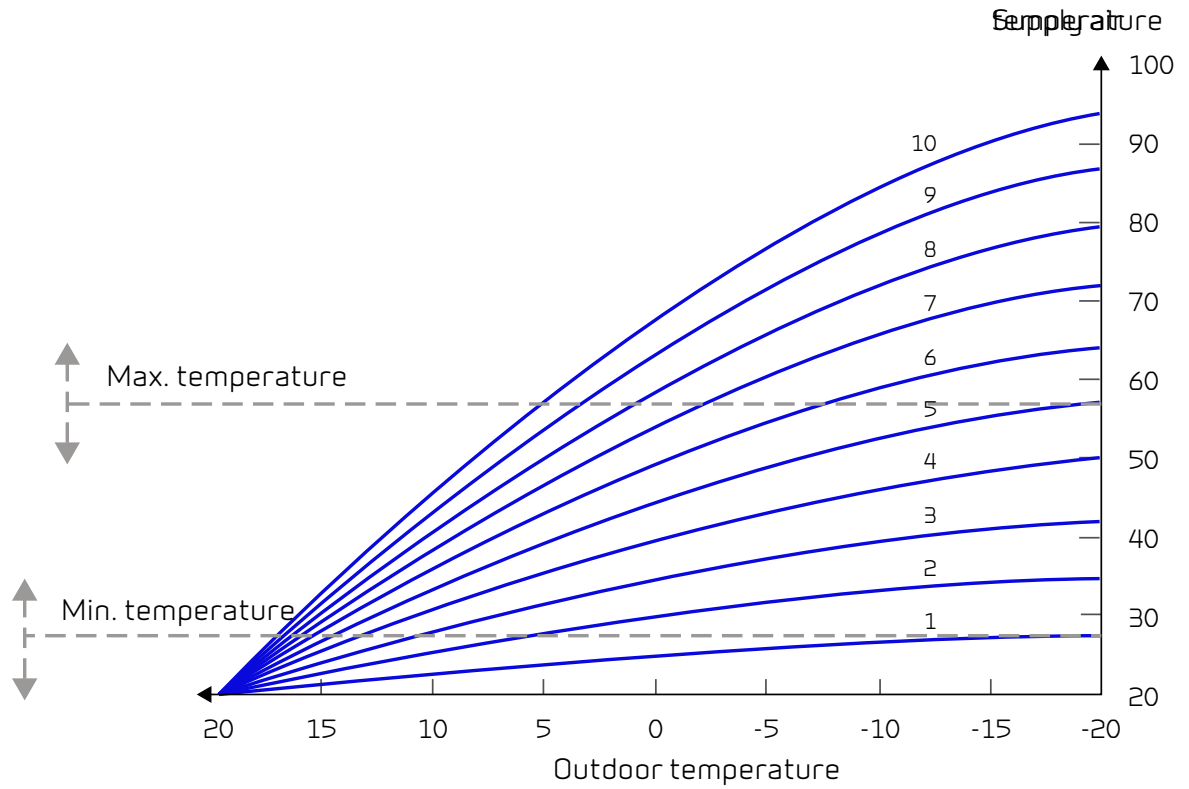
### ← Supply air heating

↳ Setting	Settings: Standard setting: Description:	Off / Heating / Requirement Requirement Off: The supply air is not heated. Heating: Constant heating in relation to min./max. Requirement: The supply air temperature is regulated automatically by the curve setting
↳ Heating	Description:	Constant heating of the supply air via PI-regulation in accordance with the room temperature
↳ Minimum supply air temperature	Settings: Standard setting: Description:	5 - 40 °C 20 °C Minimum supply air temperature
↳ Maximum supply air temperature	Settings: Standard setting: Description:	20 - 50 °C 40 °C Maximum supply air temperature
↳ Requirement:	Description:	Heating of the supply air is curve controlled. The supply air is controlled by the outdoor temperature and not by the current room temperature.
↳ Minimum supply air temperature	Settings: Standard setting: Description:	5 - 40 °C 20 °C The minimum supply air temperature overrules the curve control
↳ Maximum supply air temperature	Settings: Standard setting: Description:	20 - 50 °C 40 °C The maximum supply air temperature overrules the curve control
↳ Outdoor temperature compensation	Settings: Standard setting: Description:	0 - 10 10 Choose which curve the control system is to be regulated by
↳ Offset curve	Settings: Standard setting: Description:	-15 - 10 °C 0 °C You can shift the curve to make it fit the heating requirements of the dwelling
↳ Delay	Settings: Standard setting: Description:	0 - 30 minutes 10 minutes Set a chosen delay for when the after-heating element should start, once a need for heating has been established.



## The heating curves

The outdoor temperature controls the supply air temperature.



## Cooling

The unit can cool the dwelling via bypass-cooling and/or active cooling via the heat pump. For the unit to switch to cooling mode it must operate in summer mode, or you must activate cooling in "Operating function".

### Bypass cooling:

If the room temperature, measured in the extract air, is higher than the cooling setpoint  $-2^{\circ}\text{C}$  and the outdoor temperature is below the room temperature, the bypass will open and commence bypass cooling.

The bypass will close again once the room temperature reaches the desired level  $+1^{\circ}\text{C}$

If the outdoor temperature exceeds the room temperature and cooling becomes necessary, the 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  $-1^{\circ}\text{C}$ .

## ← Cooling

↳ Cooling setpoint	Settings: Standard setting: Description:	Off / +1 / +2 / +3 / +4 / +5 / +7 / +10 °C Setpoint + 5 °C Off: Active cooling is deactivated. Setpoint + X °C: Indicates when active cooling is to start. The setpoint is the desired room temperature as selected on the front of the panel.
↳ Ventilation in connection with cooling	Settings: Standard setting: Description:	Off / 2 / 3 / 4 Off Off: The fan speed level does not change when the unit switches to cooling mode. Level 2-4: Select the fan speed level you want the unit to switch to when in cooling mode. This happens already at bypass cooling.

## Air humidity

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.

### ← Air humidity

↳ Vent.low humidity	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Level 4 / Off Level 1 At low humidity, the unit changes to the set fan speed level.
↳ Low humidity level	Settings: Standard setting: Description:	15 ↔ 45 % 30 % The control system calculates an average air humidity level measured over the previous 24 hours. If the average air humidity in the extract air falls below this level, the "Low humidity" function will be activated. Note! The function is only active in winter mode.
↳ Vent.high humidity	Settings: Standard setting: Description:	Level 2 / Level 3 / Level 4 / Off Level 3 At high humidity levels, for instance when having a bath, the unit changes to the set fan speed level.
↳ Max time high humidity	Settings: Standard setting: Description:	1 ↔ 180 minutes / Off 60 minutes The function "High humidity" stops when actual humidity falls below 3% above the average air humidity. The run of this function has been time limited.

## CO<sub>2</sub>

This menu is only displayed if a CO<sub>2</sub> sensor has been installed.



### ATTENTION

A CO<sub>2</sub> sensor is not a standard part of all units, but may be purchased as an accessory.

If the number of people using a building varies considerably, controlling ventilation through the CO<sub>2</sub> 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.

← CO<sub>2</sub>

↳ Vent.high CO <sub>2</sub> level	Settings: Standard setting: Description:	Level 2 / Level 3 / Level 4 / Off Level 3 Here you indicate the fan speed level at which the unit is to operate at high CO <sub>2</sub> levels.
↳ High CO <sub>2</sub> level	Settings: Standard setting: Description:	650 ↔ 2500 ppm 800 ppm Here you indicate the CO <sub>2</sub> level at which the unit is to switch to high fan speed level.
↳ Normal CO <sub>2</sub> level	Settings: Standard setting: Description:	400 ↔ 750 ppm 600 ppm Here you indicate the CO <sub>2</sub> level at which the unit is to switch to normal control.

## Air exchange

Low humidity in the dwelling can be prevented by reducing ventilation at low outdoor temperatures. This function can be used in countries with regular sub-zero temperatures and at high altitudes where the outdoor air is very dry.

This function can also be used at cold outdoor temperatures if no after-heating element has been installed, and the supply air feels too cold.

### ← Air exchange

↳ Low temperature compressor start	Settings: Standard setting: Description:	Off / 0-15 °C Off Here you indicate whether, at low outdoor temperatures, the heat pump is to start up even if heating is not required.
↳ Winter low vent.	Settings: Standard setting: Description:	Level 1 / Level 2 / Level 3 / Off Off Here you select the fan speed level at which the unit is to operate at low outdoor temperatures.
↳ Level winter low	Settings: Standard setting: Description:	-20 - 40 °C 0 °C Here you indicate the outdoor temperature at which operation is to change to "Winter low".

## Air filter

The filter alarm has a timer. Its factory setting is 90 days between each filter change. If you want to add pressure-controlled filter change, pressure sensors can be connected via digital input and adjustment in the filter menu.

### ← Air filter

↳ Filter alarm	Settings: Standard setting: Description:	Filter monitor / 30 / 60 / 90 / 180 / 360 / monitor + 70 days 90 days The number of days between filter changes can be set as required. For optimal operation, it is important that filters are clean. A blocked exchanger will increase power consumption.
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## Temperature control

The settings are used to control the bypass damper if an after-heating element has not been installed.

If you wish to control the supply air temperature, an after-heating element must be installed. An after-heating element allows you to control the supply air temperature, regardless of the outdoor temperature.

An external electrical after-heating element can be fitted in the supply air duct.



### ATTENTION

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

## ← Temp. control

↳ Min. supply air summer	Settings: Standard setting: Description:	5 ↔ 16 °C 14 °C Here you set the minimum supply air temperature that the unit should provide in the summer. If the outdoor temperature is lower than indicated, the bypass damper will close and the unit will run on heat recovery.
↳ Min. supply air winter	Settings: Standard setting: Description:	14 ↔ 22 °C 16 °C Here you set the minimum supply air temperature that the unit should provide in the winter. Only effective with an after-heating element.
↳ Summer change	Settings: Standard setting: Description:	5 ↔ 30 °C 12 °C Here you set the minimum outdoor temperature for the unit to operate in summer mode. If the outdoor air temperature is lower, the unit will operate in winter mode.

## Language

The unit is factory-set to Danish language. You can change the texts to other languages.

## ← Language

↳ Danish	Description:	Select the desired language on the panel.
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# Service settings

## Password

Password for service settings: 2

## User selection 1

You can set the user selection program using special settings that override the operating mode in the main menu. The user selection program is activated via an external signal.

The user selection program can be used, for instance, to create imbalance in supply air and extract air ventilation.



When user selection 1 is active, an icon is displayed on the main screen

← Service / User selection

↳ Select program	Settings: Standard setting: Description:	No / Expanded / Supply air / Extract air / Ventilate Expanded Here you select the program you wish to run.
↳ Expanded	Description:	If you select expanded.
↳ Duration	Settings: Standard setting: Description:	Off / 15 ↔ 480 minutes Off Time runs 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 / Off 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:	If you select supply air.
↳ Duration	Settings: Standard setting: Description:	Off / 15 ↔ 480 minutes Off Time runs 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 / Off Level 4 Select the desired fan speed level.
↳ Extract air	Description:	If you select extract air.
↳ Duration	Settings: Standard setting: Description:	Off / 15 ↔ 480 minutes Off Time runs 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 / Off Level 4 Select the desired fan speed level.
↳ Ventilate	Description:	If you select ventilate.

↳ Duration	Settings: Standard setting: Description:	Off / 15 ↔ 480 minutes Off Time runs 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 / Off Level 4 Select the desired fan speed level.



## User selection 2

You can set the user selection program using special settings that override the operating mode in the main menu. The user selection program is activated via an external signal.

The user selection program is used, for instance, for connecting a cooker hood. Ventilation runs at a high level during cooker hood operation. The program can also be used for other functions such as to create imbalance in supply air and extract air ventilation. (User selection 2 will only be displayed if an expansion PCB has been installed).

When user selection 2 is active, an icon is displayed on the main screen



← Service / User selection

↳ Select program	Settings: Standard setting: Description:	No / Expanded / Supply air / Extract air / Ext. offset / Ventilate / Cooker hood No Select the program you wish to run.
↳ Expanded	Description:	If you select expanded.
↳ Duration	Settings: Standard setting: Description:	Off / 15 ↔ 480 minutes Off Time runs 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 / Off 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:	If you select supply air.
↳ Duration	Settings: Standard setting: Description:	Off / 15 ↔ 480 minutes Off Time runs 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 / Off Level 4 Select the desired fan speed level.
↳ Extract air	Description:	If you select extract air.
↳ Duration	Settings: Standard setting: Description:	Off / 15 ↔ 480 minutes Off Time runs 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 / Off Level 4 Select the desired fan speed level.
↳ Ext. offset	Description:	If you select Ext. offset.
↳ Duration	Settings: Standard setting: Description:	Off / 15 ↔ 480 minutes Off Time runs 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 The temperature is added to or subtracted from the setpoint. Select the after-running time and the shift of the setpoint for external room heating.
↳ Ventilate	Description:	If you select ventilate.
↳ Duration	Settings: Standard setting: Description:	Off / 15 ↔ 480 minutes Off Time runs 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 / Off Level 4 Select the desired fan speed level.
↳ Cooker hood	Description:	If you select cooker hood.
↳ Duration	Settings: Standard setting: Description:	Off / 15 ↔ 480 minutes Off Time runs 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 / Off Level 4 Select the desired fan speed level.

## Supply air heating

Set the operation of the after-heating element.



### ATTENTION

An after-heating element is not standard, but it can be purchased as an accessory.

If you wish to control the supply air temperature, an after-heating element must be installed. An after-heating element allows you to control the supply air temperature, regardless of the outdoor temperature.

An external electrical after-heating element can be fitted in the supply air duct.

← Service / Supply air heating

↳ Setting central heating	Settings: Standard setting: Description:	No / Electrical No Indicate here whether or not an electrical after-heating element has been installed.
↳ PID integration time	Settings: Standard setting: Description:	0 ↔ 25 seconds 10 seconds Indicates the integration time for the heating regulation.

## Air quality

← Service / Air quality

↳ Function	Settings: Standard setting: Description:	Humidity+CO2 / Humidity / Off Humidity Here you can choose from off / humidity sensor and / or CO2 sensors. 2-følere.
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## Air exchange

Stepless settings between 20 and 100% are possible for the four fan speed levels. You can likewise set supply air and extract air separately, which is of considerable advantage when balancing the ventilation system.



↳ Min. vent. supply air	Settings: Standard setting: Description:	0 / Level 1 / Level 2 / Level 3 / Level 4 0 You can set a minimum fan speed level for supply air.
↳ Min. vent. extract 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. vent. extract air	Settings: Standard setting: Description:	Level 3 / Level 4 4 You can set a maximum fan speed level for extract air.
↳ Level 1 - Supply air	Settings: Standard setting: Description:	20 ↔ 100 % 23 % Fan speed level 1 is typically used for the "Humidity low" and "Low outdoor temperature" functions.
↳ Level 2 - Supply air	Settings: Standard setting: Description:	20 ↔ 100 % 40 % Fan speed level 2 is typically used for basic ventilation.
↳ Level 3 - Supply air	Settings: Standard setting: Description:	20 ↔ 100 % 65 % Fan speed level 3 is typically used for the "Humidity high" function and "Guest-level".
↳ Level 4 - Supply air	Settings: Standard setting: Description:	20 ↔ 100 % 100 % Fan speed level 4 is typically used for "Cooker hood operation" and "Party-level".
↳ Level 1 - Extract air	Settings: Standard setting: Description:	20 ↔ 100 % 25 % Fan speed level 1 is typically used for the "Humidity low" and "Low outdoor temperature" functions.
↳ Level 2 - Extract air	Settings: Standard setting: Description:	20 ↔ 100 % 45 % Fan speed level 2 is typically used for basic ventilation.
↳ Level 3 - Extract air	Settings: Standard setting: Description:	20 ↔ 100 % 70 % Fan speed level 3 is typically used for the "Humidity high" function and "Guest-level".
↳ Level 4 - Extract air	Settings: Standard setting: Description:	20 ↔ 100 % 100 % Fan speed level 4 is typically used for "Cooker hood operation" and "Party-level".

## De-icing

The Combi 302 Polar has an integral frost protection pre-heating element. This ensures minimal formation of ice in the unit, and faster de-icing if ice does form.

← Service / De-icing

← De-icing		
↳ Time between de-icing processes	Settings: Standard setting: Description:	15 ↔ 720 minutes 30 minutes Indicates the minimum time between each de-icing process.
↳ T4 de-icing starts	Settings: Standard setting: Description:	Off / 1 - 5 °C Off Indicates at which temperature (T4) the counterflow heat exchanger is to de-ice. As this Polar version is equipped with a pre-heating element, the outdoor temperatures must be extremely low before this function needs activating.
↳ 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 maximum de-icing time	Settings: Standard setting: Description:	2 ↔ 60 minutes 10 minutes Indicates the maximum time allowed 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 maximum de-icing time	Settings: Standard setting: Description:	5 ↔ 60 minutes 25 minutes Indicates the maximum time allowed for de-icing the counterflow heat exchanger. 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 temperature for when the unit is to stop (Room low temperature).

This function is useful, for instance if you are not in and the heating is cut off. The dwelling is then no longer 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.

## Offset ext. heating

If an expansion PCB has been installed, the ventilation unit can control an external heat supply by blocking or releasing external heating (Offset ext. Heating).

In this way the heat supply and the ventilation unit are able to work together. When no heating is required in the house or when the ventilation unit is in cooling mode, the external heat supply can be blocked.



↳ Select heat source	Settings: Standard setting: Description:	Off / HP / HP + after-heating HP (heat pump) You can disconnect the heat pump here if you do not want to use it.
↳ Room low temperature	Settings: Standard setting: Description:	Off / 1 ↔ 20 °C 10 °C Indicate whether you want to stop ventilation at low room temperatures.
↳ Offset external heat supply	Settings: Standard setting: Description:	-5 ↔ 5 °C -1 °C Extra heating of the rooms is possible if an expansion PCB has been installed. The temperature is added to or subtracted from the setpoint.

# Supply air control

The menu "Supply air control" allows you to select the duration for which the compressor has to be off before it restarts.



### ATTENTION

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



↳ Restart time	Settings: Standard setting: Description:	0 ↔ 60 minutes 6 minutes Minimum duration (in minutes) for which the compressor has to be off before it restarts.
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## Room temperature control

The menu "Room temp. control" makes it possible to set the regulator for controlling the room temperature.



### ATTENTION

The parameters in the menu "Room temp. control" should only be adjusted by persons with knowledge of control technology.

← Service / Room temp. control

↳ Neutral zone	Settings: Standard setting: Description:	0.0 ↔ 10 °C 2.0 °C Set the offset temperature at which the shift between bypass and after-heating should be activated.
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## Restart

FIRE ALARM acknowledgement

Fire alarm (code 3) can be acknowledged automatically via **SERVICE - RESTART FIRE ALARM** menu: [OFF, FIRE].

Fire alarms can be acknowledged automatically during fire drills and tests. This requires that the fire thermostat input has returned to normal (closed contact).

← Service / Restart

↳ Restart	Settings: Standard setting: Description:	Off / HP/LP / Fire Off HP/LP: High pressure alarm/ Low pressure alarm. Restarts automatically. Fire: Automatic acknowledgement when fire input is back to normal.
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## Restore settings

It is possible to restore factory and Back-up settings.

← Service / Restore settings

↳ Restore settings	Settings: Standard setting: Description:	Off / Factory / Back-up / Restore Off Factory: Restores factory settings. Back-up: Here you can Back-up. When you have Backed-up, the Restore menu appears allowing you to restore the Back-up of the selected settings.
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## Manual operation

It is possible to test the functions of the unit manually.

← Service / Manual operation

↳ Manual operation	Settings: Standard setting: Description:	Off / De-icing / Supply air / Extract air / Vent.+ compressor / Vent. + heating Off The functions of the unit can be read off manually.
↳ Off	Description:	Manual test deactivated (normal operating mode).
↳ De-icing	Description:	Test of de-icing function.
↳ Supply air	Description:	Test of supply air.
↳ Extract air	Description:	Test of extract air.
↳ Vent.+comp.	Description:	Test of ventilation and compressor.
↳ Vent.+heating	Description:	Test of ventilation and heating operation. During the test the heating element receives a 50% signal.

## Modbus address

Nilan's ventilation units have open Modbus communication, and you set the desired Modbus address here.

The Modbus protocol with all registers can be downloaded from our website.

← Service / Modbus address

↳ Modbus address	Settings: Standard setting: Description:	1 ↔ 247 30 The Modbus address for the local network is entered here.
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## 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.

← Service / Data log interval

↳ Data log interval	Settings: Standard setting: Description:	1 ↔ 120 Min. / Off 10 Min. If "Off" is selected, logging will not occur periodically, but only at events and alarms.
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### 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

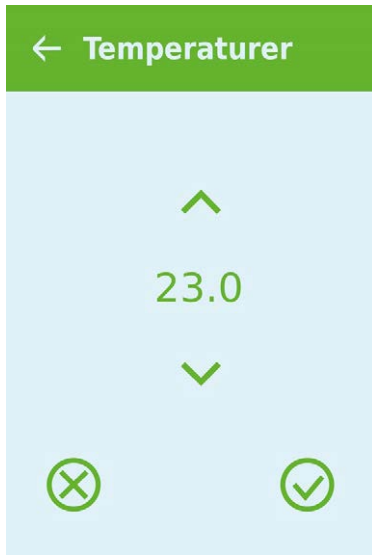
Alarms are still logged if "Data logging" is off.

# Theme

You can choose between a red and a green theme for the screen.



Theme	Settings: Standard setting: Description:	Green / Red Green If you select red, text and borders will be red.
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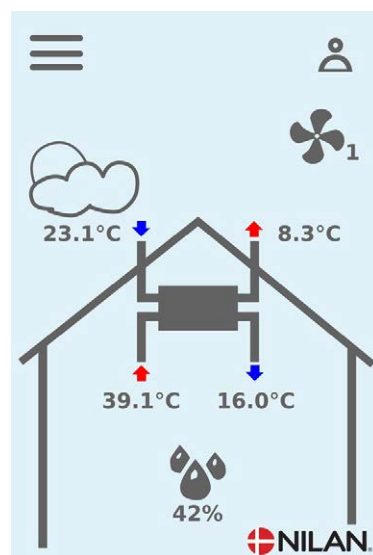
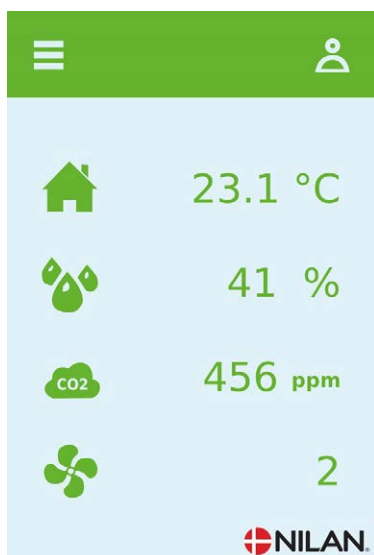


## Main screen

You can choose from 2 different images for the main screen.

← Service / Main screen

↳ Main screen	Settings: Standard setting: Description:	Normal / House House If you select "Normal", data will be displayed on a list, but the settings options available on the main screen are the same.
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## Panel settings

It is possible to adjust the back-light and to calibrate the display on the panel.

← Service / Screen set.



↳ Backlight (active)	Settings: Standard setting: Description:	3 ↔ 100 % 90 % You can set the backlight in active function.
↳ Backlight (off)	Settings: Standard setting: Description:	0 ↔ 100 % 5 % You can set the backlight in "not" active function.
↳ Calibrate (off)	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.











# Alarm list








## Combi unit

### Alarm list

The list below relates to Comfort units, and the events are divided into the following categories:

-  Warning      Operation continues, but something no longer functions optimally.
-  Critical      Operation has stopped partially or completely as a serious error requires immediate attention.

ID	Type	Display text	Description / cause	Rectification of error
01		Hardware error	Error in the hardware of the control system.	If resetting does not help, contact service.
02		Alarm timeout	A warning alarm has become a critical alarm.	Register alarm and reset. If the alarm persists, contact service.
03		Fire alarm activated	The unit has stopped because the fire thermostat has been activated.	If there has been no fire, contact service.
04		Pressure switch	The high-pressure switch in the refrigeration circuit has been triggered, possibly due to: <ul style="list-style-type: none"><li>• Extremely warm outdoor air supply</li><li>• Clogged filter</li><li>• Defective fan</li></ul>	Check for faults and reset the alarm Contact service if you cannot reset the alarm or if alarms often occur.
06		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		Over temperature Electrical after-heating	The electrical heating element has overheated. A lack of airflow may be due to clogged filters, a blocked air intake or a defective supply air fan.	Check that air flows into the dwelling. Check filters and the air intake. Reset alarm. If the above does not resolve the issue, contact service.
11		Low flow over the electrical heating element	Lack of airflow in the supply air. See alarm code 10.	See alarm code 10.
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	Error in the control system program.	Contact Service.
17		Watchdog warning	Error in the control system program.	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. Set the desired week program. Contact service if the unit does not operate to your satisfaction/ as before, as some subprograms may have been lost. (Subprogram 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 (30, 90, 180, 360 days). The standard setting is 90 days.	Clean/change filter. Reset alarm.
21		Check date and time	Is displayed during power cuts.	The settings of the weekly clock must be checked and adjusted if necessary. Reset alarm.
22		Error in air temperature	It is impossible to heat the supply air as desired (only applicable if you have an after-heating element). The after-heating element and the unit cannot increase the temperature to the desired level.	Set a lower supply air temperature. Reset alarm.
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.
71		Error de-icing heat exchanger	Max. de-icing time exceeded for counterflow 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.
92		Backup error	Error when writing or entering the installer's settings.	Contact service.





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