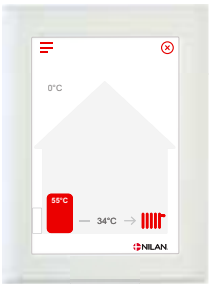
SOFTWARE INSTRUCTIONS

CTS602 HMI BY NILAN



DHW AIR

Gateway

Version 1.10 - 01.08.2023
S24 DHW AIR GB

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Installation

Central heating

How to set the central heating.

Functions		Settings
What is the desired settings	Curve / Flow temperature	
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:
Desired flow temperature is set	Yes/No	°C:
Maximum flow temperature at wooden floor	Yes/No	°C:

Domestic hot water

How to set the domestic hot water.

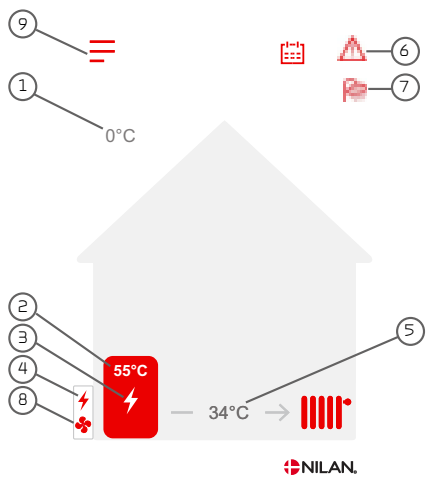
Functions		Settings
What is the desired hot water temperature		°C:
Should the electrical supplement be used and at what temperature	Yes/No	°C:
Should the unit run automatic legionella treatment	Yes/No	Day:

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 outdoor air temperature, measured in DHW AIR outdoor unit
2. Shows the domestic hot water temperature in the DHW tank
3. Shows supplementary electric heating domestic hot water is active.
4. Shows supplementary electric heating central heating is active.
5. Shows the supply flow temperature for the central heating in the buffer tank.
6. Shows active menu icons in this menubar.
7. Shows active operation icons in this menubar.
8. Shows the fan in the DHW AIR outdoor unit is active.
9. Access to the settings menu

Menu-ikoner

Stop icon
Indicates that the unit has stopped.

Week program icon
Indicates that the week program function is active.

Alarm icon
Indicates an alarm or a warning.

Compressor icon
Indicates that the compressor is active.

Drift-ikoner

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

Heating water in central heating circuit icon
Indicates that the unit is producing hot water for the central heating circuit.

Domestic hot water icon
Indicates that the unit is producing domestic hot water.

Main screen settings options

The settings options that the user needs in daily life are located on the main screen of the panel. You simply press the temperature for domestic water or central heating in order to change it.

When you press the temperature for domestic water, you will see the following
panel for the selected setpoint temperature of domestic water:

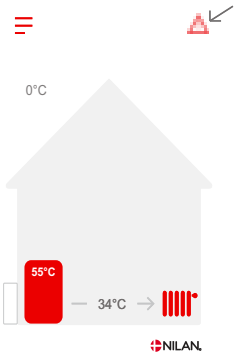
You can change the hot water temperature by using the up-and-down arrows. You then confirm by pressing the confirm icon, bottom right. The main screen of the panel will then be displayed again.
If you select the cancel icon, bottom left, the temperature will revert to the original setting. Following this, you have to press the arrow, top left. This takes you back to the main screen.

If you press the temperature for central heating, one of the two panels below will be displayed. Which one depends on whether you have selected a fixed flow temperature for central heating or to regulate via weather compensation:

You can change the setpoint temperature for central heating by using the up-and-down arrows. You then confirm by pressing the confirm icon, bottom right. The main screen of the panel will then be displayed again.
If you select the cancel icon, bottom left, the temperature will revert to the original setting. Following this, you have to press the arrow, top left. This takes you back to the main screen.

You can change the selected curve for weather compensation from this panel screen in the same way as described for the 'Central Heating' function in 'Unit Settings'.

Warnings and alarms



If the 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.

As soon as the problem is solved the big C- or W-letter will change to a small c- or w-letter.

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.

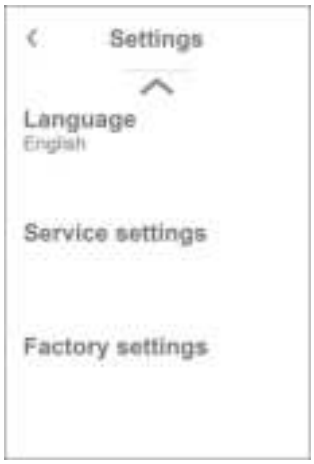
You navigate through the settings menu by pressing the arrow below or above.

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 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.

Unit settings

Turn on unit

When you turn on theheat pump 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 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
When the unit is off in the HMI-panel the frost protection function of the unit is still active.

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

> Unit On / Off

> Unit On / Off		
> Off	Settings: Standard setting: Description:	Off / On Off The DHW AIR unit is switched off when it is delivered in order to prevent errors from occurring during connection. This is also where you turn off unit when service inspection is to be carried out.

Operation mode

You can set the unit to operate in "Auto", "Winter" or "Summer" mode.

ATTENTION
The Winter and Summer functions override the week program. If a week program has been activated, the mode will automatically change to "Auto" at the next shift in the week program.

> Operation mode

> Operation mode		
> Auto	Settings: Default setting: Description:	Auto / Winter / Summer Auto **Auto:** The unit is operating according to preset values. At outdoor temperatures above 17°C for 24 hours, operation will switch to summer mode. At outdoor temperatures below 13°C for 24 hours, operation will switch to winter mode. Winter: The unit produces hot water for central heating as well as for domestic hot water. Summer: The unit is set to produce only domestic hot water.

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.)

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 unit. This will help you ensure that the unit is operating satisfactorily. It can also help you identify the cause of potential alarms.

> Show data

> Status	Description:	Shows the operating setting in which the unit is running: Off: Heat pump stopped. HP stop: The heat pump has stopped due to an alarm. Wait: Compressor is still prevented from starting up. The stopping-time has not passed. Ready: The stopping-time has passed and the compressor is ready for start-up. Start-up: Start-up heat pump. Hot water: Heating of domestic hot water by either a heat pump or supplemental electric heating. Heating: Central heating heated by either a heat pump or supplemental electric heating.
> Operation mode	Description:	Shows whether the user has selected 'Winter' or 'Summer' mode manually in Operation mode, or which type of operation AUTO has selected automatically.
> Anode	Description:	Shows whether the anode is in working order. Display: Off, OK, Error or Service. In the case of Error or Service, please contact a technician.
> T16 Return heating	Description:	Shows the current temperature of the return flow from the indoor unit to the outdoor unit.
> T17 Supply heating	Description:	Shows the current temperature of the supply flow from the outdoor unit to the indoor unit.
> T18 Buffer tank	Description:	Shows the current temperature of the supply flow to the buffer tank.
> T20 Outdoor temperature	Description:	Shows the outdoor temperature measured in the outdoor unit.
> T21 Top temperature	Description:	Shows the current temperature at the top of the DHW tank. Controls the supplemental electric heating.
> T22 Bottom temperature	Description:	Shows the current temperature at the bottom of the DHW tank. 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 setpoint	Description:	Currently used setpoint for domestic water. The setpoint you select can be staggered by a week program or Smart Grid.
> Heating setpoint	Description:	Currently used setpoint for central heating. You can select the setpoint manually or it can be selected automatically by the weather compensation. It may be staggered by a week program or Smart Grid.
> Actual capacity	Description:	Shows the capacity of the compressor in %
> Inverter	Description:	Shows the current control voltage to the inverter/compressor
> Fan power	Description:	Shows the current control voltage to the fan by the evaporator
> Unit information	Description:	Shows information about the unit in the submenus
> AIR SW. version	Description:	Current AIR controller software version
> Panel software	Description:	Current panel/HMI350T software version

Week program

You can program the heat pump unit to run in accordance with specific settings at fixed times during the week via a week program. For both domestic hot water and central heating, the set point can be moved up or down during selected periods. In this way, the weekly program can work well together with the weather compensation. It is also possible to completely block domestic hot water or central heating in periods.

On the main screen in the top righthand corner of the control panel the icon for the week program is displayed when this function is active.

> Week program

> Select program	Settings: Default setting: Description:	De-activated / Program 1 / Program 2 / Program 3 De-activated The control system allows you to set 3 programs to meet the daily operational needs of the user.
> Edit program	Settings: Description:	Program 1 / Program 2 / Program 3 Under the individual program, you can set the operation of the heat pump unit with regards to days of the week and functions
> Program 1-3	Settings: Description:	Monday / Tuesday / Wednesday / Thursday / Friday / Saturday / Sunday Monday For each day of the week, you select which function you want the heat pump unit to operate in accordance with on the individual weekday.
> Monday - Sunday	Settings: Description:	Function 1 / Function 2 / Function 3 / Function 4 / Function 5 / Function 6 / Copy next day Here the functions are built with regards to the desired operation of the unit. Functions 1-4 are factory-built, but they can be changed as explained below. Function 6 is deactivated as default, but this can also be changed as instructed below. 'Copy next day' is used when you want to use the same settings the following day. Select 'Copy next day' and .....++++
> Function 1 - Function 6	Settings: Description:	Start time / Domestic hot water / Central heating Function 1: 00:00 / Setpoint +5°C / Setpoint +5°C Function 2: 11:00 / Setpoint +0°C / Setpoint +0°C Function 3: 17:00 / Setpoint -5°C / Setpoint -5°C Function 4: 21:00 / Setpoint +0°C / Setpoint +0°C Function 5: Deactivated Function 6: Deactivated
> Start time	Settings: Description:	De-activated / 00:00 - 23:45 Set the time for the program to start. The program then runs in accordance with the selected values until the next change in the week program.
> Domestic hot water	Settings: Description:	Off / Setpoint -5°C - Setpoint +5°C This is where you select at which temperature the production of domestic hot water is activated in relation to the selected setpoint for domestic water.
> Central heating	Settings: Description:	Off / Setpoint -5°C - Setpoint +5°C This is where you select at which temperature the production of central heating is activated in relation to the selected setpoint for central heating.
> Copy next day	Description:	When you have entered some values for the program for a particular day, you will have the option to copy and use the same values the following day.
> Reset program	Settings:	This is where you reset the selected program by pressing the "Approve" icon.

Hot tapwater

Settings for domestic 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

> Setpoint	Settings: Standard setting: Description:	5 – 55 °C 40 °C 5 - 55 °C: Indicates the temperature (T22) below which the heat pump is working for production of domestic hot water.
> El. supl. heater	Settings: Standard setting: Description:	5 – 55 °C 35 °C 5 - 55 °C: Indicates the temperature (T21) below which the supplementary electric heating will supply the production of domestic hot water. Is only shown if the supplementary electric heating has been selected as heat source in Service settings.
> Legionella day	Settings: Standard setting: Description:	De-activated / Monday / Tuesday / Wednesday / Thursday / Friday / Saturday / Sunday 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 – 65°C 62 °C Here you set the required temperature of the legionella treatment.

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

Central heating

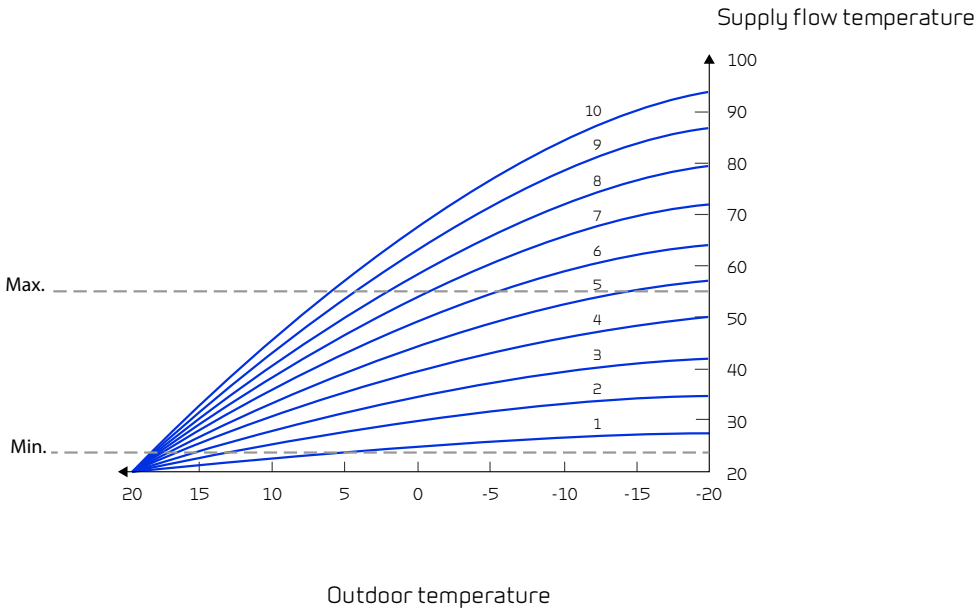
Here, weather compensation is used to regulate the supply flow temperature of the central heating in order to optimize operation of the unit.

> Weather compensation / Curve for outdoor temperature

> Curve for outdoor temperature	Settings: Default setting: Description:	De-activated / Manual / Curve 1 / Curve 2 / Curve 3 / Curve 4 / Curve 5 / Curve 6 / Curve 7 / Curve 8 / Curve 9 / Curve 10 Deactivated De-activated: The unit is regulated in accordance with a fixed supply flow temperature. Manual: Here you can define the curve yourself. When switching from a fixed curve to a manual curve, the basis will initially be the last fixed curve that was used.
> Manual		
> Min. setpoint	Settings: Default setting: Description:	10 – 55 °C 20 °C This is where you set the minimum supply flow temperature.
>Offset	Settings: Default setting: Description:	-10 – 10 °C 0 °C Offset in relation to the selected curve
>Setpoint at act.amb.temp.	Description:	The temperature here is a readout of the setpoint of the weather compensation at current outdoor temperatures and settings for curve selection, offset, min. and max. settings.
> Curve point -20°C	Settings: Default setting:	10 - 100 °C 50°C
> Curve point -10°C	Settings: Default setting:	10 - 90 °C 47°C
> Curve point 0°C	Settings: Default setting:	10 - 70 °C 40°C
> Curve point 10°C	Settings: Default setting:	10 - 55 °C 31°C
> Curve point 20°C	Settings: Default setting:	10 - 55 °C 20°C
> Curve point 30°C	Settings: Default setting:	10 - 55 °C 20°C
> Curve point 40°C	Settings: Default setting:	10 - 55 °C 20°C
> Curve 1-10		
> Min. setpoint	Settings: Default setting: Description:	10 – 55 °C 20 °C This is where you set the minimum supply flow temperature.
>Offset	Settings: Default setting: Description:	-10 – 10 °C 0 °C Offset in relation to the selected curve
>Setpoint at act.amb.temp.	Description:	The temperature here is a readout of the setpoint of the weather compensation at current outdoor temperatures and settings for curve selection, offset, min. and max. settings.

Curve control

The supply flow temperature is automatically regulated in accordance with a curve.



Silent mode

In order to meet increased regulation regarding noise near property lines in the evening and during the night , as well as on hot summer days, you can limit the compressor capacity for specified time periods. Limitation can be regulated in accordance with outdoor temperatures and time intervals.

> Silent mode

> Seasonal limitation		
> Outdoor temp. limitation	Settings: Default setting: Description:	0 - 30°C 7°C Based on the selected outdoor temperature limit, you select the maximum compressor capacity limitation above and below this temperature limit. This function is active when producing central heating and domestic hot water.
> Limit above	Settings: Default setting: Description:	25 – 100% 60% This is where you set the maximum compressor capacity to be used at an outdoor temperature above the "Outdoor temperature limit"
> Limit below	Settings: Default setting: Description:	25 – 100% 100% This is where you set the maximum compressor capacity to be used at an outdoor temperature below the "Outdoor temperature limit"
> Night limitation		
> Activation	Settings: Default setting: Description:	Activated / Deactivated Deactivated When activating time-limited capacity limitation, you can regulate time intervals and the compressor capacity for night limitation.
>Start	Settings: Default setting: Description:	00:00 - 23:30 22:00 This is where you set the start time for limitation of the compressor capacity.
> End	Settings: Default setting: Description:	00:00 - 23:30 07:00 This is where you set the finishing time for limitation of the compressor capacity.
> Limit	Settings: Default setting: Description:	30 - 100% 40% Here you select the capacity limit of the compressor

Service settings

Password for access to service settings: 2

WARNING

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

If a user alters these settings, the heat pump 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 unit.

Factory settings

Password factory settings: Only access for qualified Nilan installers.

Service settings

Hot tapwater

The settings for domestic 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

> Hot water source	Settings: Default setting: Description:	None / HP / EL / HP+EL HP+EL This is where you select which heat source you want to use to heat domestic hot water.
> HP		
> Neutral zone	Settings: Default setting: Description:	0 – 15 °C 4°C Select the control band for electric heating of domestic water.
> Hot water capacity	Settings: Default setting: Description:	10 - 100% 70% Select maximum compressor capacity when heating domestic hot water.
> EL		
> Neutral zone	Settings: Default setting: Description:	0 – 15 °C 4°C Select the control band for electric heating of domestic water.
> HP+EL		
> Neutral zone	Settings: Default setting: Description:	0 – 15 °C 4°C Select the control band for electric heating of domestic water.
> Electric heating delay	Settings: Default setting: Description:	0 – 120 min. 30 min. If during operation the heat pump is unable to reach the desired set point, this setting indicates the period of time that must pass before supplemental electric heating starts up.
> Hot water capacity	Settings: Default setting: Description:	10 - 100% 70% Select maximum compressor capacity when heating domestic hot water.

Central heating

Settings for the air to water heat pump.

> Central heating

> Heating source	Settings: Default setting: Description:	None / HP / EL / HP+EL HP + EL Select the heat source for heating of water in the central heating system
> HP		
> Min setpoint	Settings: Default setting: Description:	10 - 55 °C 20 °C If you have selected a constant supply flow temperature, this is the setpoint. If you have selected weather compensation, this is the lowest supply flow temperature for the central heating.
> Max setpoint	Settings: Default setting: Description:	20 - 55 °C 55 °C The highest supply flow temperature of the central heating.
> Min. Compr. Stop time	Settings: Default setting: Description:	1 – 45 min 5 min Min. length of time the compressor must have stopped before it can start up again.
> EL		
> Min setpoint	Settings: Default setting: Description:	10 - 55 °C 20 °C If you have selected a constant supply flow temperature, this is the setpoint. If you have selected weather compensation, this is the lowest supply flow temperature for the central heating.
> Max setpoint	Settings: Default setting: Description:	20 - 55 °C 55 °C The highest supply flow temperature of the central heating.
> HP + EL		
> Min setpoint	Settings: Default setting: Description:	10 - 55 °C 20 °C If you have selected a constant supply flow temperature, this is the setpoint. If you have selected weather compensation, this is the lowest supply flow temperature for the central heating.
> Max setpoint	Settings: Default setting: Description:	20 - 55 °C 55 °C The highest supply flow temperature of the central heating.
> Electrical neutral zone	Settings: Default setting: Description:	0 - 15 °C 4 °C Select the control band for electric heating of the central heating.
> Electric heat delay	Settings: Default setting: Description:	0 - 60 min 30 min If during operation the heat pump is unable to reach the desired setpoint, this setting indicates the period of time that must pass before supplemental electric heating can start up.
> Min. Compr. Stop time	Settings: Default setting: Description:	1 – 45 min 5 min Min. length of time the compressor must have stopped before it can start up again.

Heat pump

Settings for the air to water heat pump.

> Heat pump

> Min. comp run time	Settings: Default setting: Description:	0 – 600 sec 60 sec Min. period of time the compressor has to operate before it can stop.
> Pump exercise	Settings: Default setting: Description:	De-activated / 1 – 60 days De-activated 1-60 days: Exercise of the circulation pumps. If the pums for the unit have not been excercised within the selected time period, all pumps are activated for 15 seconds.
> HP stop sensor	Settings: Default setting: Description:	None / Supply / Return Return This shows at which sensor (T16 Return flow / T17 Supply flow) the compressor should stop at high temperatures.
> HP stop temperature	Settings: Default setting: Description:	30 – 65 °C 60 °C This is where you select the temperature at which the compressor should stop. The heat pump will start up again automatically.
> Total stop sensor	Settings: Default setting: Description:	None / Supply / Return Supply This shows the sensor at which all heat supply should stop at high temperatures.
> Total stop temperature	Settings: Default setting: Description:	30 – 70 °C 70 °C Here you select the temperature below which all heat supply should stop.
> HP stop outdoor temperature	Settings: Default setting: Description:	-45 – 10 °C -17 °C Select a limit for the outside temperature below which the compressor will not be activated.
> Evaporator temp. min.	Settings: Default setting: Description:	-45 - 5°C -45°C Select limit for frost protection. When the evaporator temperature drops towards this limit, the compressor speed is reduced, and below this limit the compressor stops.

Regulation

Settings for the air to water heat pump.

> Regulation

> Stop capacity	Settings: Default setting: Description:	0 – 20% 1% The capacity below which heating stops.
> Start diff. capacity	Settings: Default setting: Description:	0 – 20% 5% Capacity hysteresis before heating starts.
> Voltage at 0%	Settings: Default setting: Description:	0.0 - 10.0 V 2.0 V Voltage at 0%, which is "Stop capacity" + "Start diff. capacity".
> Voltage at 100%	Settings: Default setting: Description:	0.0 - 10.0 V 8.8 V Voltage at 100% operation, which is also 100% capacity.
> Start voltage	Settings: Default setting: Description:	0.0 - 10.0 V 6.5 V 5 seconds starting pulse voltage.
> Start skip	Settings: Default setting: Description:	0.0 - 10.0 V 0.0 V Starting voltage for a voltage range that you do not wish to use.
> Stop skip	Settings: Default setting: Description:	0.0 - 10.0 V 0.0 V Stopping voltage for a voltage range that you do not wish to use.
> Gain	Settings: Default setting: Description:	1.0 – 20.0 5.0 Reinforcement of PI controller
> Integration time	Settings: Default setting: Description:	30 – 600 sec. 240 sec. PI controller integration time.

Smart grid

In some countries Smart Grid can be economically advantageous because it regulates the power consumption of the heat pump in accordance with the price of electricity as it fluctuates in the course of 24 hours. Smart Grid receives an external signal from the power supply company. This determines in which operating setting the unit should run.

> Smart grid

> Smart g rid activation	Settings: Default setting: Description:	De-activated / Activated De-activated This is where you activate Smart Grid.
> Domestic hot water	Settings: Default setting: Description:	De-activated / Activated De-activated Here you select whether supplemental electric heating should be used for the production of domestic hot water during periods of cheap electricity. Supplemental electric heating must be activated.
> Hotwater temp. add	Settings: Default setting: Description:	0 – 10 °C 0°C Here you specify how much the temperature in the hot water tank should be raised during periods of cheap electricity.
> Central heating	Settings: Default setting: Description:	De-activated / Activated De-activated Here you select whether supplemental electric heating should be used for heating the water in the central heating system during periods of cheap electricity.
> Central temp. add	Settings: Default setting: Description:	0 – 10 °C 0 °C Here you specify how much the supply flow temperature in the central heating circuit should be raised during periods with an overcapacity in electricity. Supplemental electric heating must be activated.
> Central overcap. add	Settings: Default setting: Description:	0 – 10 °C 1 °C Here you specify how much the supply flow temperature in the central heating circuit should be additionally raised during periods with an increased overcapacity in electricity.

Defrost

Only hot gas is used for defrost (active defrost)

> Defrost

> Defrost below	Settings: Default setting: Description:	-45 – 10 °C 0 °C Here you select the temperature below which the heat pump can deice.
> Defrost temperature	Settings: Default setting: Description:	2 – 15 °C 6 °C Here you specify at which ΔT between the evaporator temperature and the outdoor temperature deicing may start.
> Time before defrost	Settings: Default setting: Description:	0 – 240 min. 20 min. Here you specify how much time has to pass after the deicing temperature has been reached before deicing is to start.
> Time between defrost	Settings: Default setting: Description:	10 – 480 min. 45 min. Here you select the minimum time that has to pass between each occurrence of deicing.
> Evaporator stop temperature	Settings: Default setting: Description:	1 – 25 °C 3°C Here you specify at which temperature the hot gas deicing is to stop.
> Max. defrost time	Settings: Default setting: Description:	1 – 240 min. 10 min. Here you specify the maximum time that deicing of the evaporator element is allowed to last. If deicing has not been completed within the set time, an alarm will be displayed and the unit will stop.

Fatory reset

You can restore the factory settings.

> Factory reset

> Factory reset	Settings: Standard settings: Description:	De-activated / Activated De-activated Activated: Restores factory settings

Manual test

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

> Manual test

> Main switch	Settings: Default setting: Description:	Off / On / Manual Off Here you select the run mode of the unit. When you select manual, you will be able to check some of the functions of the unit.
> RE1 SHW heater	Description:	On / Off supplemental electric heating in the domestic water tank DHW
> RE2 EI-heater	Description:	On / Off supplemental electric heating in the buffer tank
> RE3 3-way SHW	Description:	On / Off 3-way valve on domestic water tank DHW
> RE4 P2 pump	Description:	On / Off circulation pump P2 for central heating
> RE5 P1 pump	Description:	On / Off circulation pump P1 for buffer tank
> Compressor	Description:	On / Off compressor
> Compressor heater	Description:	On / Off heating of belt for compressor (R4 outdoor unit)
> 4-way valve	Description:	On / Off 4-way valve / cooling / deicing (R3 outdoor unit)
> Drain heat	Description:	On / Off heating cable for drain (R4 outdoor unit)
> Compressor	Description:	0 - 100%: Select output capacity of the compressor (A01 outdoor unit)
> Fan power	Description:	0 - 100%: Select output capacity of the fan (A02 outdoor unit)

Modbus address

The control in NIlan DHW AIR unit has an open Modbus communication, which allows the 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 heat pump unit.

Data log interval

Data can be logged at intervals of 1-1092 minutes.

- Operating data are actual readings or outputs.
- Alarms are always logged when an alarm is activated or reset.
- An event is either a change of an important setting or a particular operation.

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 – 1092 min. 60 min. If logged with the default setting every hourthe data log can last approx. 1 year.

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.

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 settings

> Backlight (active)	Settings: Standard setting: Description:	3 – 100 % 100 % Here you set the backlight when in active function.
> Backlight (idle)	Settings: Standard setting: Description:	0 – 100 % 2 % Here you set the backlight when not in active function.
> Calibrate	Settings: Standard setting: Description:	No / Yes No If you select "Yes", 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.

Run time

In this menu it is possible to see the total number of operating hours for the total unit and the operating hours for individual power-using components

> Run time

> Heat pump	Hours	Operating hours power connection DHW AIR unit.
> Compressor	Hours	Operating hours compressor.
> Heater	Hours	Operating hours electrical supply heating central heating.
> Domestic hot water	Hours	Operating hours electrical supply heating domestic hot water.
> P1 pumpe	Hours	Operating hours for circulation pump P1.
> P2 pumpe	Hours	Operating hours circulation pump P2 central heating.
> Defrosting	Hours	Operating hours for de-icing evaporator.

Alarm list

DHW 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		THeatSupply Open	T17 Heating supply temperature open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
101		THeatSupply Short	T17 Heating supply temperature shortcircuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
102		THeatReturn Open	T16 Heating return temperature open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
103		THeatReturn Short	T16 Heating regurn temperature shortcircuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
104		TSHWBottom Open	T22 Water tank temperature open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
105		TSHWBottom 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.
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.
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.
124		TSHWTop Open	T21 Temperature sensor in SHW opne connection.	Check cable and connectors. Measure the resistance in the temperature sensor.

125	TSHWTop Short	T21 Temperature sensor in SHW shortcircuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
126	TSHWAnode	After the anode signal has been within the approved range, the signal is now outside the expected range.	This may be due to an open or short-circuited connection or due to a change in the resistance value in the anode as a result of corrosion. If the database parameter HotWater.AnodeState has a value of 2, the anode may need to be replaced due to corrosion
127	TPresTube Open	T35 Temprerature sensor Pressure open connection.	Check cable and connectors. Measure the resistance in the temperature sensor.
128	TPresTube Short	T35 Temperature sensor Pressure shortcircuited.	Check cable and connectors. Measure the resistance in the temperature sensor.
600	HighPres	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	LowPres	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.
603	HighPresRep	High pressure switch repeatedly active more than 3 times	Check hot side pump/overflow valve on high temperature side. The alarm must be acknowledged to start the unit again.
604	FrostProt	Frost protection has been activated	Heat pump and electrical heater running full capacity. Check that setting are not turned off.
607	LegioFail	The anti-legionella function failed. The desired temperature could not be reached within the set time limit.	Check the electric heating element and the heat supply from the heat pump.
608	FCalarm	FC alarm relays has been activated	Check electrical connecton and power to the inverter. Check if the compressor is running.
609	FCalarmRep	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. Risk of frost damage to the brine circuit.
611	TevapLowRep	Evaporator temperature too low.	Compressor stopped due to too low brine temperature. Compressor stopped to prevent frost damage.
615	ElHeater	8 hours (or more) with electric heating element.	Electric heating has been active, without interruption, for 8 hours or more. Check the connection of the electric element. Check also that heating is otherwise possible and that it is not lessened by other / unnecessary cooling.
630	HPstopAmb	The compressor has stopped due to a high outdoor temperature.	The alarm is automatically reset and the system resumes normal mode when the temperature falls below the set temperature limit again.

631		HPstop	The compressor has stopped because too high a temperature has been detected by the selected stop sensor.	The alarm is automatically reset and the system resumes normal mode when the temperature falls below the set temperature limit again.
632		HPstopTotal	The compressor and supplemental electric heating have stopped because too high a temperature has been detected by the selected stop sensor.	The alarm is automatically reset and the system resumes normal mode when the temperature falls below the set temperature limit again.
908		RTCinv	Invalid data from the real time clock.	Unit powered off to long. Set time and date. Else replace the controller.
910		SlaveSession	Error in communication with the outdoor unit	Check the cable and the cable connections if this error occurs several times and not only after the system has been restarted.
995		SW_UPGRADE	The software has prevented an update with unsupported firmware in which an old type of ATMEL FLASH was used.	The warning can only be removed by restarting the system
999		Manual	The unit is in manual mode.	The warning is only active when the unit is in Manual mode.

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