INSTALLATION INSTRUCTIONS

CTS602 HMI BY NILAN

Compact P / Compact P Polar

Stainless steel

Gateway

Version 5.00 - 01.09.2024
M24 Compact P RFB GB

NILAN®
OUTSTANDING INDOOR CLIMATE

Table of contents

General information

Set-up

Electrical installation

Plumbing installation

Ventilation installation

Troubleshooting

General information

Important information

CAUTION
Do not turn on the power supply for the unit until the hot-water tank and central heating circuit is filled with water.

Safety

Power supply

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

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

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

Heat pump domestic hot water

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

CAUTION
To protect the heat pump against damage, it is equipped with electronic temperature monitoring.

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

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

Water quality requirements

Requirements to quality of water

In order for at hot water tank in stainless steel to last for many years, it is required that the water quality must comply with the following cirteria:

- Electrical conductivity: < 125 mS/m (millisiemens per. m) @ 25 °C
- Saturation index (LSI): > -1,0 / < 0,8 @ 80 °C
- pH level: > 6,0 / < 8,5
- Chloride: < 250 mg/L @ 65 °C

If the above criteria are not met, the tank wil be corroded.

Introduction

Documentation

The following documents will be supplied with the unit:

- Quick guide
- Wiring diagram

In the Quick guide you will find important information regarding installation and start-up of the unit. If you require further information regarding, for instance, installation of accessories or additional settings in the software, or if you need an extended user manual, the following documents can be downloaded from the Nilan website:

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

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

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

ATTENTION

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

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

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

Unit type

Product description

Compact P2 is a ventilation unit with heat recovery, that has a built-in heat pump, which is used for the production of domestic hot water, but which is able to heat and cool the home via the ventilation air.

Compact P2 is designed for air flows of up to 425 m^3/h at 75 Pa external counter-pressure.

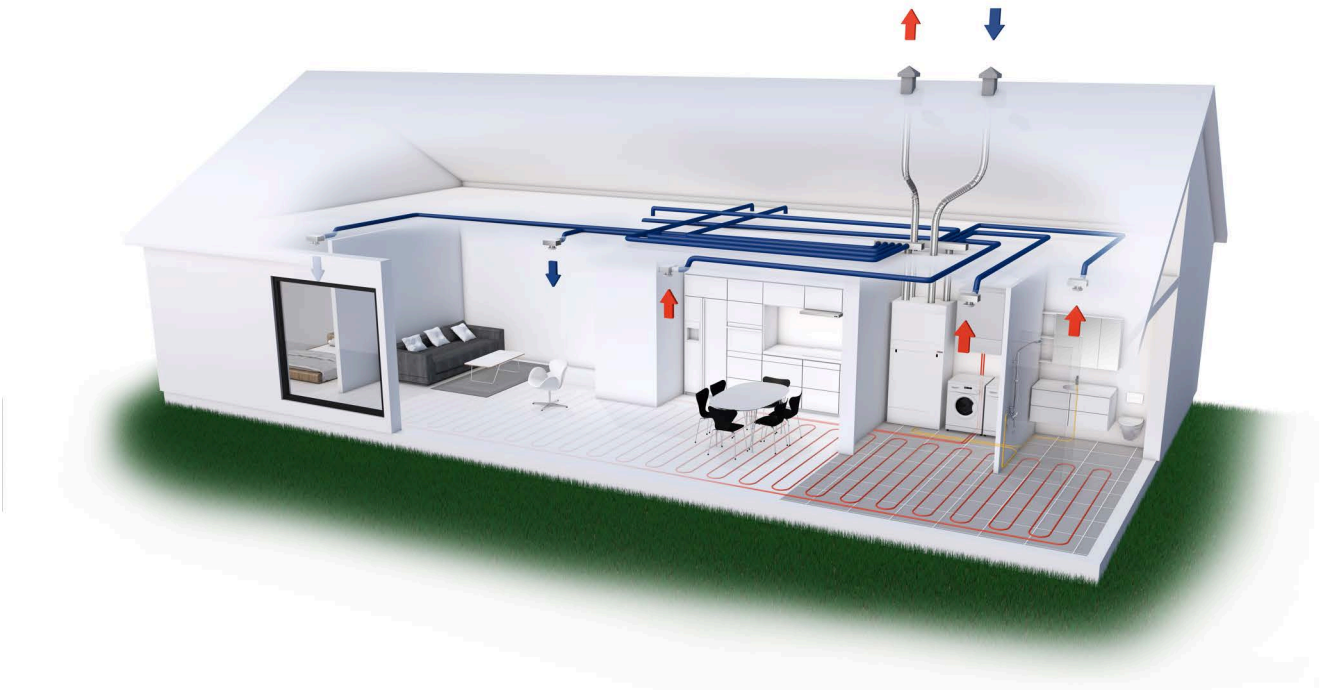
The unit is primarily used in residential construction such as single-family houses and apartments. It ventilates the home by drawing out the moist and bad air via valves in e.g. bathrooms, toilet, kitchen and utility room, and introduces fresh outdoor air in via valves in living rooms such as. living room, bedrooms and family room.

The cold outdoor air is heated via the high-efficiency counterflow heat exchanger by the hot exhaust air. The heat loss that occurs via heat recovery, the built-in heat pump use to produce domestic hot water. All the energy in the exhaust air is utilized, and you have not really seen any heat loss that you experience with an ordinary ventilation unit.

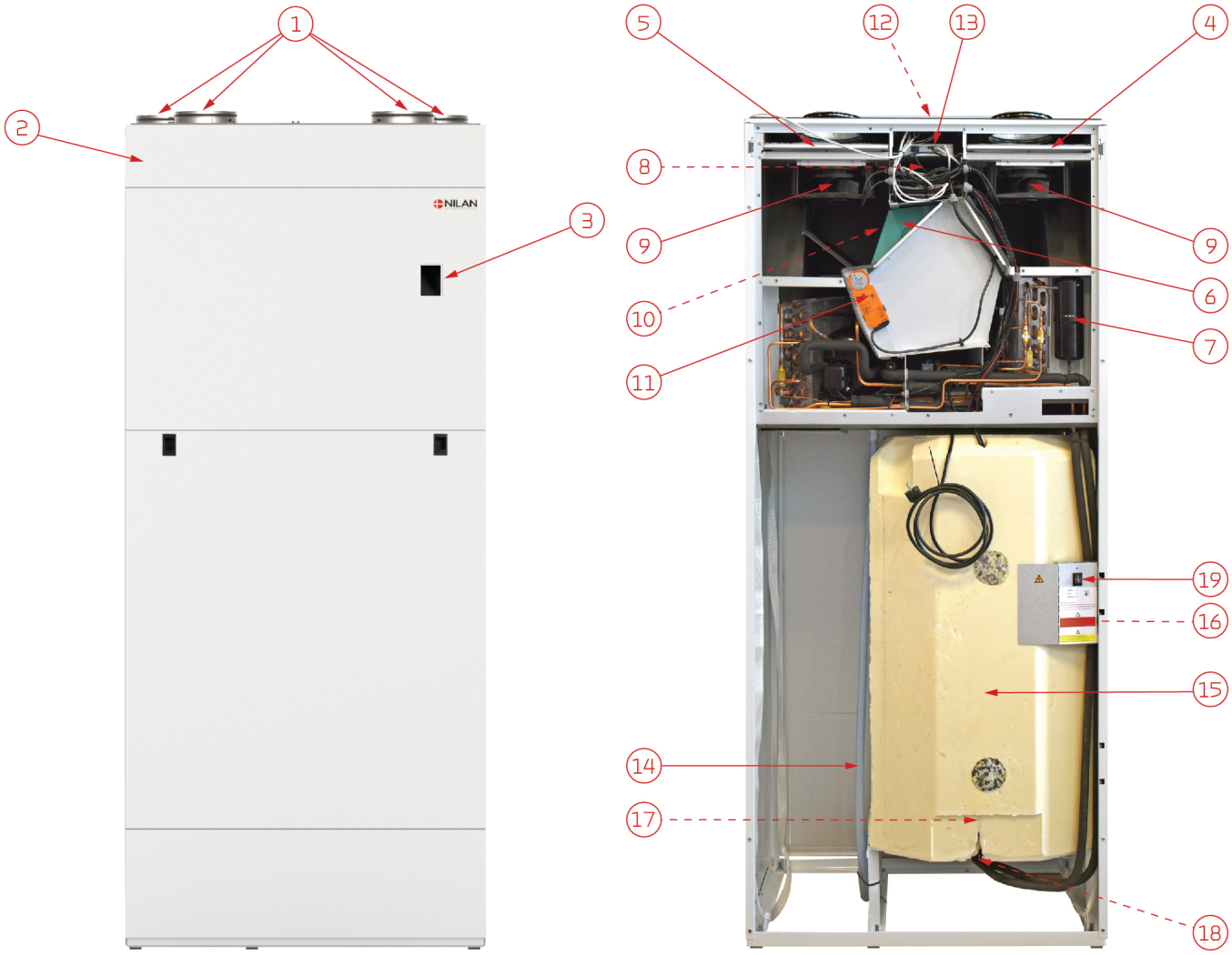
In the winter, the built-in heat pump can heat the supply air up to 34 ° C, and thus contribute to heating the home. When the supply air is heated, at the same time a little heat is deposited in the hot water tank and ensures a constant high hot water temperature.

The heat pump has a reversible cooling circuit, which means that the cooling circuit can be turned and it can cool the supply air in the summer. Compact P2 can cool the supply air by up to 10 ° C in relation to the outdoor air. Due to the low air exchange, usually 1/2 time per hour, it will not act as an air conditioning system. However, when cooling, moisture in the supply air is removed, which results in a lower humidity in the home. The lower humidity means that it is easier to withstand a slightly higher temperature, which therefore provides good comfort in the home.

When Compact P2 cools the supply air, the energy is deposited in the hot water tank, and it can thus be said that "free" domestic hot water is produced during those periods.

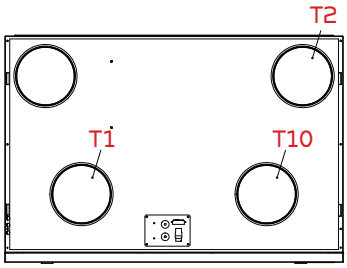


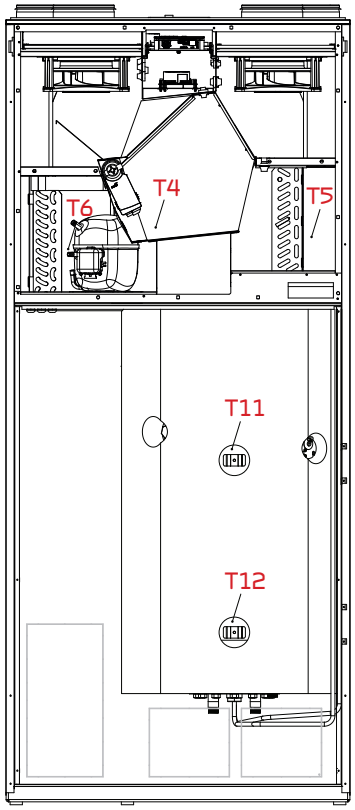
The unit



1. Duct connections
2. Filter change cover
3. Control panel (HMI touch-panel)
4. Extract air filter
5. Outdoor air filter (pollen filter is placed here if required)
6. Counterflow heat exchanger
7. Heat pump
8. Automation CTS602
9. Fans
10. Pre-heating element for frost protection (Polar version only)
11. 100% bypass damper
12. Electrical connections accessories
13. Gateway for App option
14. Condensation drain with water trap
15. 180 l hot water tank
16. 1,5 kW supplementary electric heating (with overheating protection)
17. Supplementary coil (only SOL version)
18. Plumbing connections
19. Emergency mode (domestic hot water)

Temperature sensor overview





Temperature sensors inside the unit

T1: Outdoor air
T2: Supply air
T4: Extract air after heat exchanger
T5: Condenser
T6: Evaporator
T10: Extract air

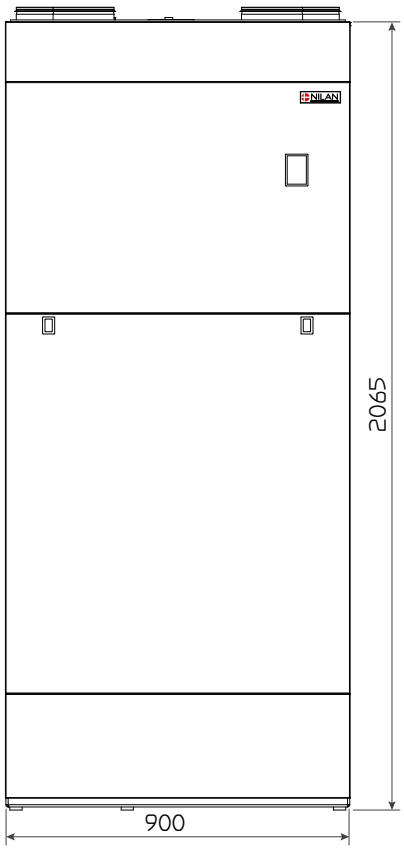
Temperature sensors outside the unit

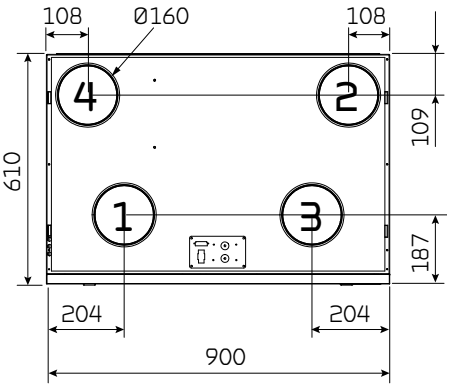
T7: Supply air after heating element (accessory)

Temperature sensors in the hot water tank

T11: Top of tank
T12: Bottom of tank

Dimensional drawing





Connections:

1. Outdoor air
2. Supply air
3. Extract air
4. Discharge air

Weight: 213 kg.

All listed measurements are in mm.

Accessories

Electrical pre-heating element for frost protection of the unit

If your ventilation unit is not a Polar version with an integral pre-heating element, we recommend that you purchase an external pre-heating element as frost protection of the ventilation unit.

During prolonged periods of frost, the high efficiency counterflow heat exchanger will ice up. To prevent ice formation, we recommend that you install an electrical pre-heating element.

The pre-heating element consumes limited energy and it ensures efficient heat recovery without periods of defrosting the counterflow heat exchanger. You thereby achieve an overall reduction in energy consumption.

Electrical after-heating element for duct installation

Installing an after-heating element allows you to control the supply air temperature in the following cases:

- You want to use the ventilation air to heat the dwelling
- You want to control the supply air temperature to avoid potential cold draughts and coldness from the ventilation

The electrical after-heating element is for installation in the supply air duct. It would be an advantage to place it within the climate screen. It comes with the necessary sensors and connectors.

CO_2 sensor

If you want to adjust the fan speed level in accordance with the level of use of the dwelling/building (amount of people), you can retrofit a CO2 sensor. Nilan's CO_2 sensors calibrate automatically.

On the control panel, you select the CO2 level you want. If this level is exceeded, ventilation will automatically increase.

EM-box

If you want to run the cooker hood via the ventilation unit, in some cases there may be insufficient air for cooker hood extraction.

If you install an EM-box, you can regulate the extracted air when the cooker hood is in operation, so that less air is drawn from, for instance, the bathroom and the utility room. This will allow enough air for the cooker hood to extract sufficiently.

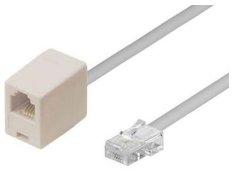
The EM-box is fitted with a metal filter that cleans the air in the cooker hood of grease particles efficiently. It thereby protects the ventilation unit.

DTBU damper

If there is insufficient space for mounting an EM-box in the installation, you can achieve the same effect by controlling the extract air with a DTBU damper.

You then have to adjust the duct system yourself with a connection to the cooker hood.

Extension cable HMI control panel



The control panel for the ventilation unit is connected up with a short wire so it can be installed close to the unit.

If you place the unit so the control panel is out of sight, for instance in a cupboard or in the loft, you can order a 15 m extension cable with plug. This allows you to place the control panel where it is visible to the user.

It is important that the control panel is visible so the user can see alarms when, for example, filters need replacing.

Cover plate HMI user panel

It is possible to move the HMI control panel away from the unit and place it in a more visible place.

A cover plate can be ordered to cover the hole where the control panel was located.

Flexible sound damper

To make it esay to service the unit in the future, we recommend that you fit a flexible connection between the unit and the duct system.

Nilan flexible sound damper absorbs sounds effectively from both the duct system and from roof stacks.

Pollen filter

The ventilation unit comes, as standard, with a plate filter to protect the unit.

If the dwelling is used by anybody with, for instance, pollen allergies, you may benefit from purchasing a pollen filter. This should be placed in the outdoor air intake, which will reduce the pollen count in the dwelling.

Trolley

A Nilan trolley makes it easy to transport the heavy units into the home, without having to carry out heavy lifting yourself with the risk of injury.

A set consists of two lifting carts that are fastened on each side of the unit while it is standing on the pallet. Using the two handles, lift the unit off the pallet and drive it to where it is to be used.

Set-up

Mounting

Transport into the building

The ventilation unit is delivered fully assembled and wrapped on a pallet.

You can lift the unit from the pallet and transport it into the building by using a Nilan lifting dolly. You thereby avoid heavy lifting.

The unit is delivered from the factory fitted with 4 lifting straps, one in each corner.

This gives you the option of lifting the unit inside using a crane, which can be a considerable advantage, if the ground is not suitable for a lifting dolly.

When lifting the unit using the attached straps, these must be at an angle of 45° from vertical.

Positioning the unit

Set up the unit so it is level on a firm surface free of vibrations. You need to have easy access to the unit for servicing and filter replacement.

ATTENTION

When positioning the unit, you should take into account future services and maintenance. We therefore recommend a minimum of 60 cm of free space in front of the unit.

ATTENTION

The unit must be level to ensure proper drainage from the condensate tray.

ATTENTION

If flashings are fitted above the unit, these must be easily removable.

Near the bottom on the sides and at the back of the unit, the metal has been punched out so you do not have to cut any holes yourself.

If you detach the metal angle from the base frame at the rear side of the unit, you will be able to push the unit closer to the wall and thereby hide connections for water.

Electrical installation

Safety

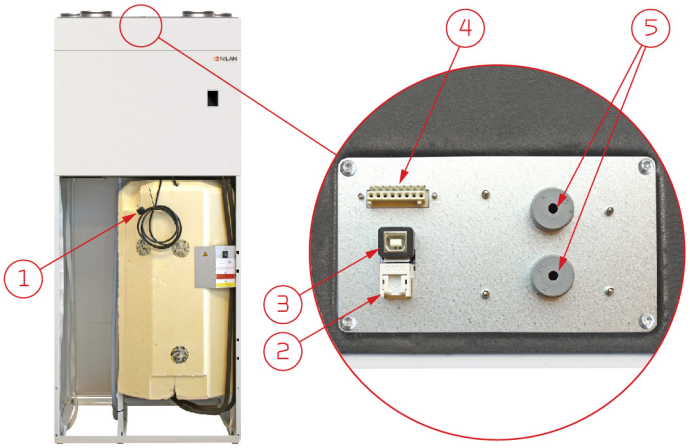
ATTENTION
All work must be carried out by qualified persons and in compliance with existing legislation and regulations.

ATTENTION
It is important that the power is off, if you do work to the electrical components of the unit.

It is important to check that wires are not damaged or squeezed during connection and use.

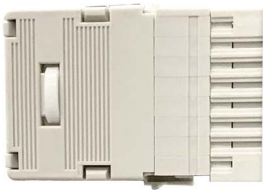
Connections overview

A 230V connection is situated behind the large front door of the unit. At the top of the unit there is a connection for the control system via a USB cable, a connection for a LAN cable and an 8 pin plug. At the back of the metal plate you will find two terminal blocks for installation of external connections. Unscrew the four screws in the metal plate; then carefully pull up the plate.



1. Connection of 230V via Schuko plug (remember electrical grounding)
2. Connection to the user's internet router via LAN cable
3. Connection of PC via USB cable
4. 8 pin plug for connection of any accessories
5. Cable glands for external electrical connections that have been installed in the terminal blocks at the back of the metal plate.

NB! The 8 pin plug has been packed with the instructions



Electrical connection unit

Power supply

CAUTION
The power supply is plugged into a 230V socket with a safety switch. It is important that the unit has earth connection.

The ventilation unit is supplied with an EU Schuko plug for 230V power supply.

This means that if you have not installed a shoko socket with side earth or pin earth, an Adapter schuko plug with pin earth must be used.

This Schuko adapter can be plugged into the ventilation unit's Shuko plug and then into a socket with earthing.

Schuko socket with side earth

Schuko socket with pin earth

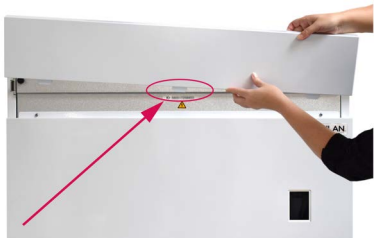
Example of Adapter Schuko plug with pin earth

Connecting a gateway

Connecting to the internet

Using an RJ45 LAN cable, you connect the gateway to a router with an internet connection (the cable is not supplied by Nilan). The connection from the gateway is located at the top of the ventilation unit.

Location on the unit



Once a connection to the router has been established, you will have a secure cloud connection. You can now communicate with the gateway via the Nilan User App. Additional information can be found in the user manual.

On Compact P2 (AIR/GEO) units, the gateway is installed in the unit. The ID number of the gateway is situated under the upper door at the front. You pull this outwards and lift it up.

The gateway arrives from the factory connected to power and to the Modbus connection of the unit.

HMI Control panel

Moving the control panel

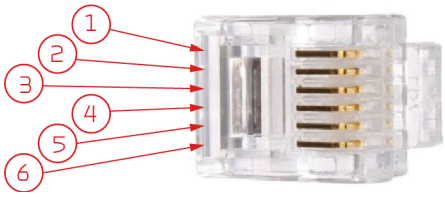
The control panel is from the factory mounted in the front of the unit. It is important that the control panel is located in a visible place so that the user can follow the unit operation and become aware of any alarms. Therefore, it may be necessary to move the control panel to another location. It is also possible to follow the operation via the Nilan User App.

A cover plate can be purchased for mounting in the hole in the front of the unit where the control panel is located from the factory.

The panel is moved out of the unit and the wires are routed through the wire bushing and connected to the terminal block, as shown below.

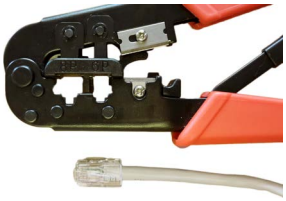
Nilan offers a connection cable with RJ12 plugs of 15 m. It is also possible to customize a cable up to 50 m in length. A standard LAN cable is used for this.

Mounting the RJ12 plug

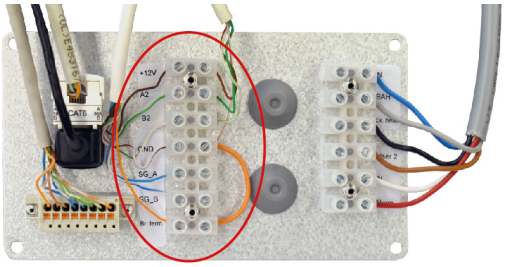


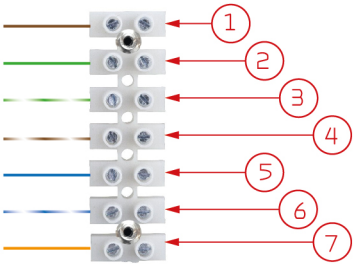
Pin 3: Green (A2)
Pin 4: Green/white(B2)
Pin 5: Brown (12V)
Pin 6: Brown/white (GND)

Use a RJ12 crimping tool



Connection in the 7-pole terminal block





Terminal 1: Brown (12V)
Terminal 2: Green (A2)
Terminal 3: Green/white (B2)
Terminal 4: Brown/white (GND)

Wall bracket

Mount the HMI panel on the wall using the integrated wall bracket.
The panel should be placed in a visible spot so it is possible to change settings and to monitor warnings or alarms regarding operation of the unit.

The wall bracket is located at the back of the panel. You can detach it by loosening the bracket at the bottom of the panel. You can then remove it.

Mount the wall bracket on the wall using 2 screws.

Click the RJ12 plug into place at the bottom of the HMI panel. The wire can run down along the wall, into the wall or through the groove at the back of the panel.

Electrical connection accessories

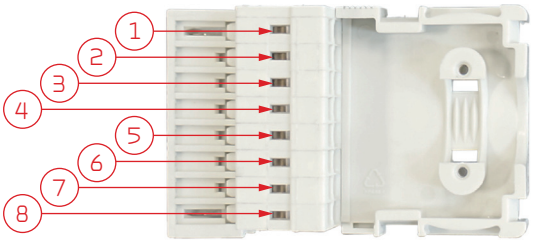
User selection 1

User selection 1 is connected via the 8-pin plug mounted on top of the unit.

The user selection functions are used to override normal operation. The input signal must come from a potential-free switch. When closed, the function is activated with the settings selected in the control panel under Service / User selection.
Some examples of the situations in which the user selection functions are used:

Cooker hood	If you choose to run the cooker hood over the ventilation unit, the cooker hood sends a potential-free signal to the ventilation unit when it is switched on. When this happens, the ventilation unit increases the air volume to the set level, so that enough air is extracted through the hood.
Fireplace/wood burning stove	Normally, the ventilation is balanced with a small negative pressure in the home, so that no moisture is forced into the building's construction. It is a disadvantage if you light up your fireplace / wood stove, as the smoke will then enter the home instead of out of the chimney. When you switch on the fireplace/burning stove, you can activate the user function with a potential-free switch, which ensures that there is an overpressure in the home, so that the smoke smokes out of the chimney as it should.
Extended operation	If the ventilation unit is used in an office or school where the ventilation is reduced outside the opening hours, it may be necessary to turn it up briefly if, for example when a meeting is held in the evening. There you can then have a switch that is activated and the ventilation is increased e.g. for an hour before it then goes back into operation.

Connection via the 8-pin plug:



Pin 4: GND
Pin 5: User selection 1

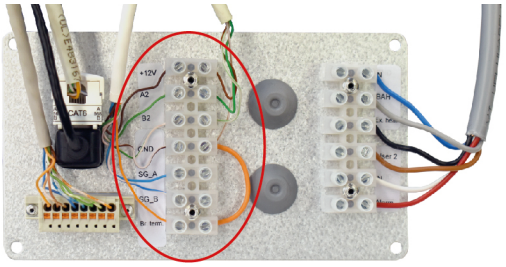
Smart Grid

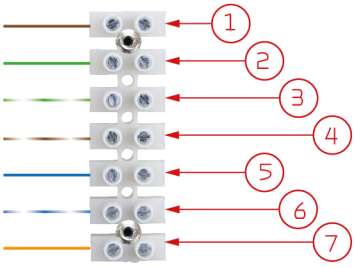
If you want to run Smart Grid, you must connect the Smart Grid modem to the ventilation unit as shown in the picture. The Smart Grid signal is connected to the circuit board in Compact P2, which also controls AIR and GEO if these have been connected up.

Smart Grid can be economically advantageous because it regulates the power consumption of the heat pump in line with the price of electricity as it fluctuates throughout the day. Smart Grid receives an external signal from the power supply company. This determines in which operating setting the unit is to run.

The connection is established via a terminal block that is located at the top of the unit. The connection to the terminal block is carried out at the back of the cover plate. You then run the wires through one of the cable glands. Connect the signal directly without resistors as these are already installed in the wire.
You program Smart Grid in the unit software under 'General settings'. See the options in the Software Instructions.

Connection in 7-pin terminal block





Terminal 4: N (Blue)
Terminal 5: SG-A (Black)
Terminal 6: SG-B (Red)

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.

External electrical pre-heating element

It is possible to purchase an external electrical pre-heating element for frost protection of the ventilation unit.

The electrical pre-heating element is mounted in the outdoor air duct before the unit with the necessary temperature sensor.

If it is desired to see the actual outdoor air temperature on the control panel, the temperature sensor T1 / T8 must be led out into the duct before the pre-heating element.

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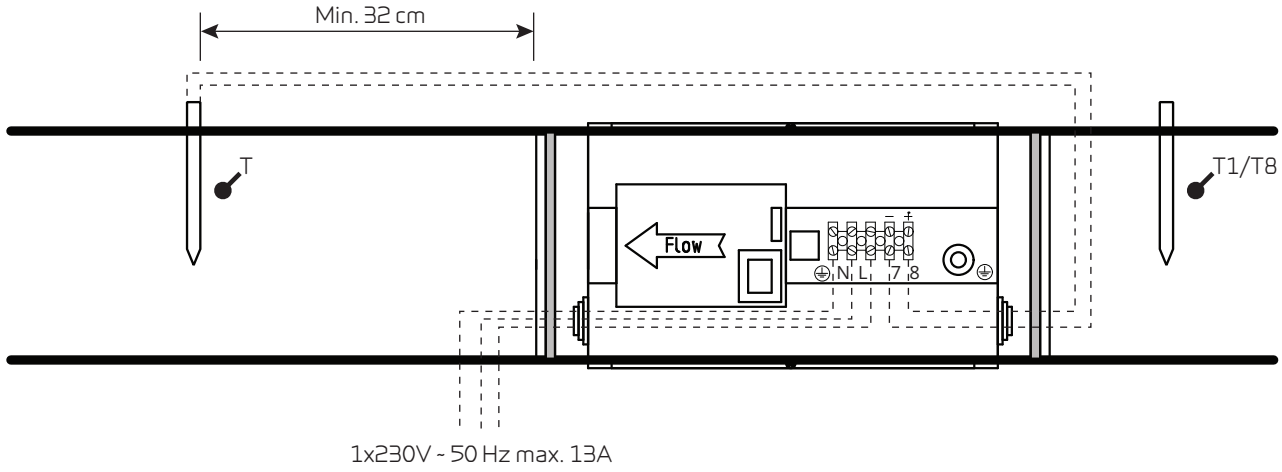


It is important that the sensor is placed at least 32 cm from the pre-heating element to achieve correct regulation.

The pre-heating element has a three-step safety system that prevents overheating.

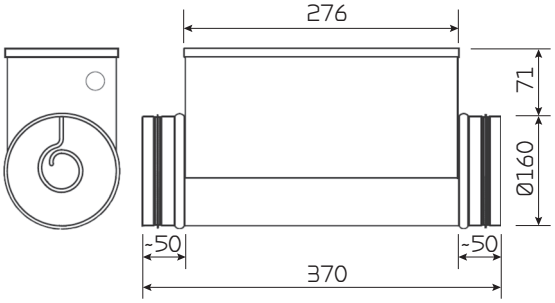
1. An operating thermostat regulates the heating and ensures that the supply air temperature does not fall below -1 °C
2. Should the temperature exceed 50 °C, a max. thermostat switches off the pre-heating element. (If installed vertically with downward airflow, the pre-heating element switches off at 70 °C)
3. A safety thermostat switches off the pre-heating element if the temperature exceeds 100 °C. Then, you must reset it manually.

Minimum airflow at Ø160: 110m^3/h.

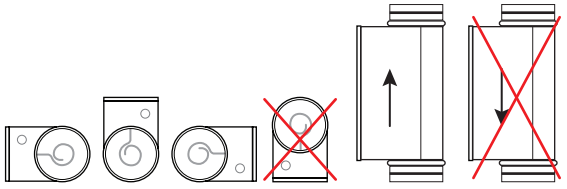
ATTENTION

The heating element must be insulated with a fire retardant insulation material. The cover of the Connection Box, however, must not be insulated.

Dimensional drawing:



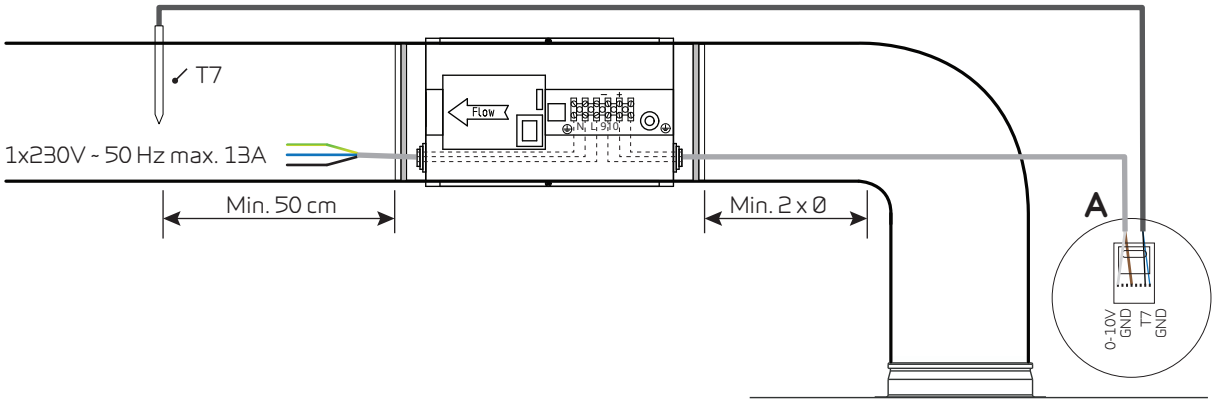
Positioning options:



Electrical after-heating element

If you want to control the supply air temperature, you will need an after-heating element.

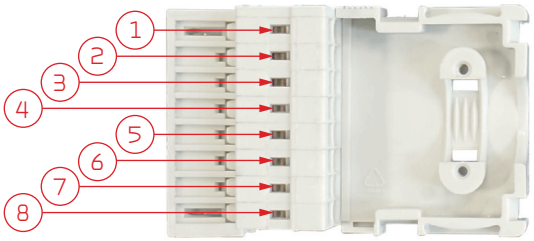
You can purchase an electrical after-heating element for installation in the supply air duct. It comes with the required sensor and connection to the ventilation unit.



A

Connection via the 8-pin plug:

Connect the electrical after-heating element in pin 1, 4, 7 and 8.



Pin 1: 0-10V (White)

Pin 4: GND (Brown)

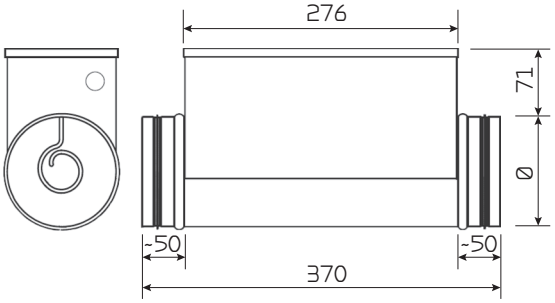
Pin 7: Temperature sensor T7
Pin 8: GND

Run the wires along the duct and connect them to the ventilation unit via the 8-pin plug, which has been mounted at the top of the unit.

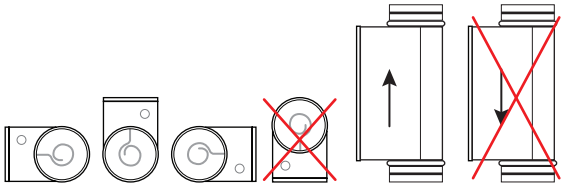
ATTENTION

The heating element must be insulated with a fire retardant insulation material. The cover of the connection box, however, must not be insulated.

Dimensional drawing: Ø125/Ø160/Ø200



Positioning options:



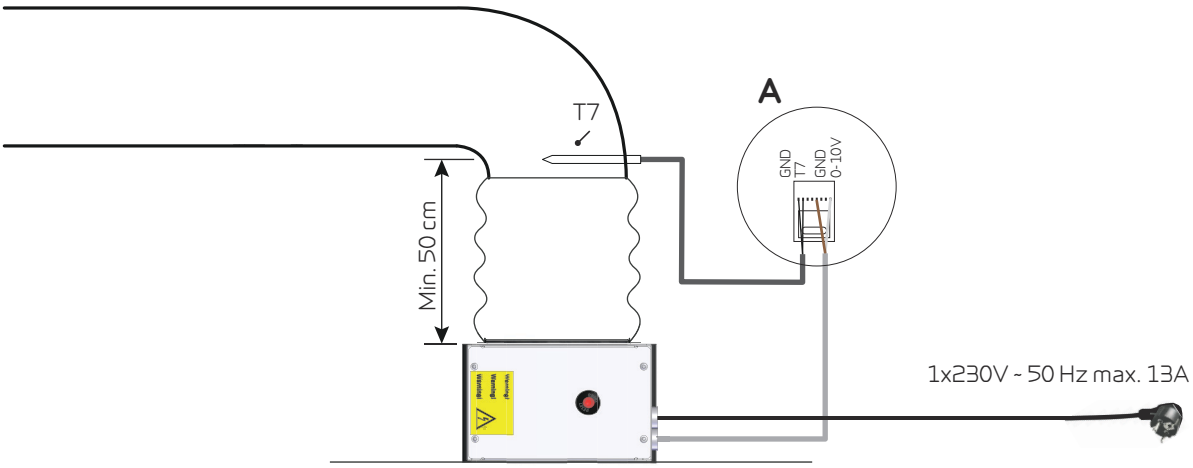
ATTENTION

The after-heating element must be activated in the Software under "Service".

Electrical after-heating element for mounting on top or on the side

If you want to control the supply air temperature, you will need an after-heating element.

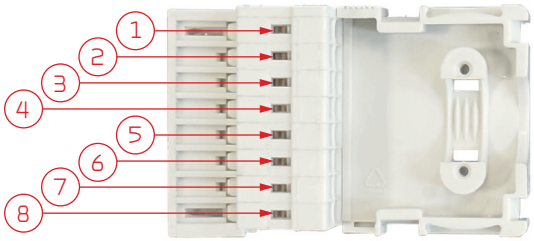
You can purchase an electrical after-heating element for installation in the supply air duct. It comes with the required sensor and connection to the ventilation unit.



A

Connection via the 8-pin plug:

Connect the electrical after-heating element in pin 1, 4, 7 and 8.



Pin 1: 0-10V (White)

Pin 4: GND (Brown)

Pin 7: Temperature sensor T7
Pin 8: GND

Run the wires along the duct and connect them to the ventilation unit via the 8-pin plug, which has been mounted at the top of the unit.

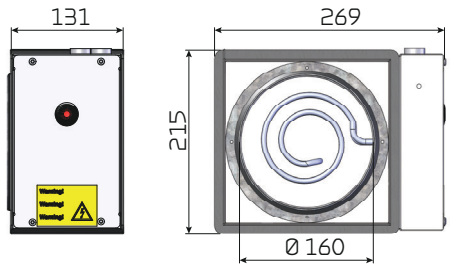
ATTENTION

The heating element must be insulated with a fire retardant insulation material. The cover of the connection box, however, must not be insulated.

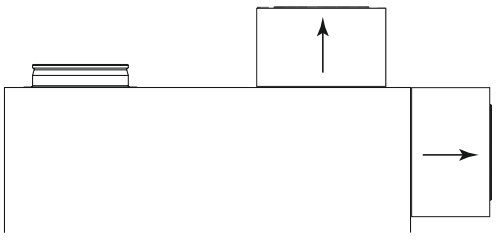
ATTENTION

When installing the after-heating element, please ensure that you turn it so you can still easily open the electrical junction box.

Dimensional drawing:



Positioning options:



ATTENTION

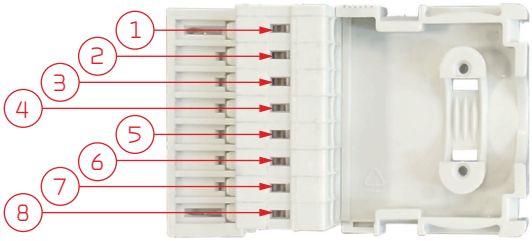
The after-heating element must be activated in the Software under "Service".

User selection 2

User selection 2 offers you the same options as User selection 1. In addition, you get the option of a relay output that can control e.g. a damper or whatever external function you may need to control.

The 8-pin plug and the terminal block are located at the top of the unit. You create the connection to the terminal block on the back of the cover plate. You then run the wires through one of the cable glands.

Connection via the 8-pin plug:

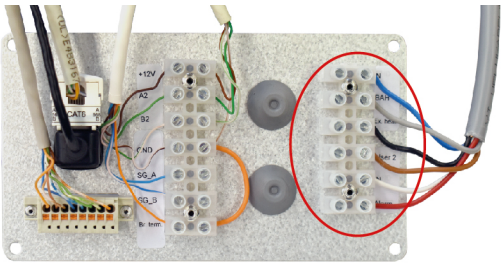


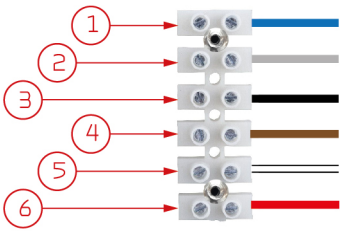
Pin 2: User selection 2

Pin 4: GND

Connection in the 6-pin terminal block

Relay output that can control e.g. a damper or whatever external function you may need to control.





Terminal 4: User selection 2 (Output)
Terminal 5: N (Output)

Connection EHD damper

Leading outdoor air through a geothermal pipe in the ground makes good sense. During winter the outdoor air is heated by the ground, and during summer the outdoor air is cooled by the ground.

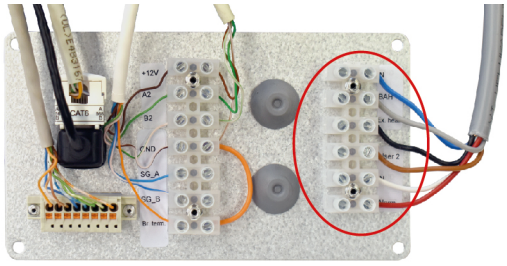
During autumn and spring, it is not always the most suitable solution to lead the outdoor air through a geothermal pipe. The outdoor air should instead be led in directly through a roof stack.

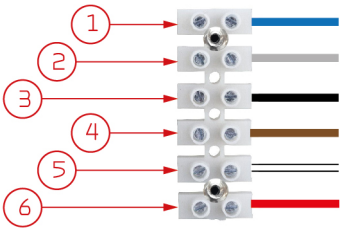
An integral function in the CTS602 control system measures whether it is best to lead the outdoor air through the geothermal pipe or in via the roof stack.

The control system measures the outdoor air temperature during a stabilization period in both the geothermal pipe and the roof stack. The measurements show which of the two options is most appropriate for leading in outdoor air. The CTS602 control system sets the EHD damper to use the best option and it continues operation for a fixed period of time. In the software this is called the retention time.

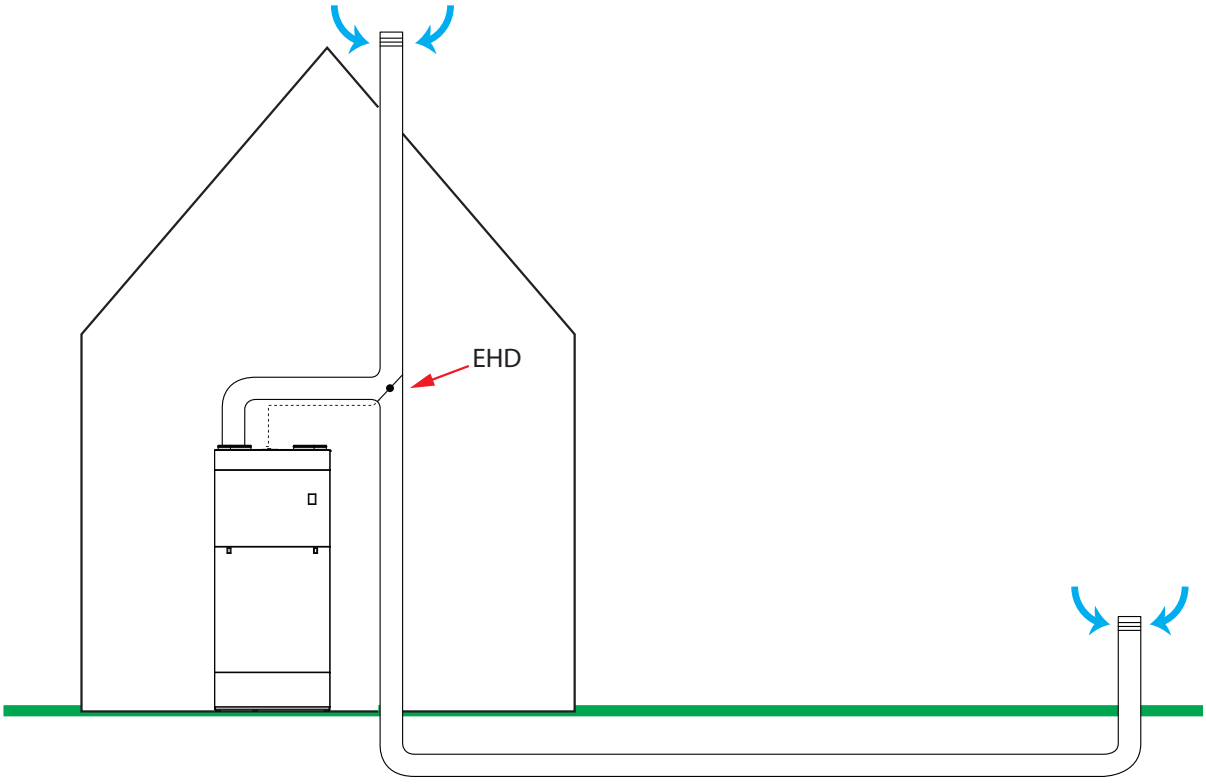
Connect the EHD damper in the 6-pin terminal block. Set it in the display.

Connection in the 6-pin terminal block





Terminal 2: EHD damper 230V



ATTENTION

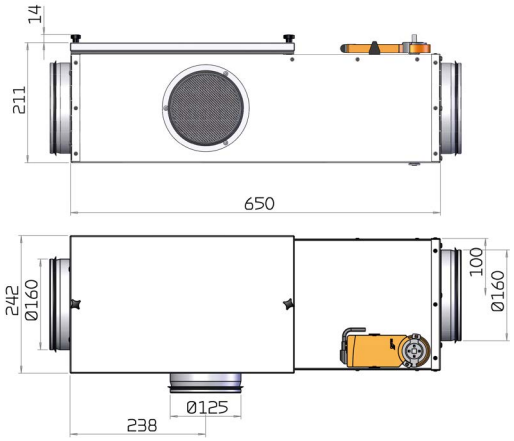
Dampers, geothermal pipes and roof stacks are not supplied by Nilan.

ATTENTION

Please refer to the Software Instructions for activation and description of the EHD function.

EM-box (damper option)

Dimensional drawing:



If it is desired to run the cooker hood over the ventilation system, it may in some cases be difficult to get enough air for the cooker hood.

With an EM box installed and when the cooker hood is in operation, you can regulate the extraction so that less air is extracted out of the other rooms, e.g. bathroom and utility room so that there is enough air for the cooker hood to extract sufficiently.

The EM box is equipped with a metal filter that effectively cleans the cooker hood air of grease particles, as extra protection for the ventilation unit.

The system works as follows:
When the cooker hood is switched on, User selection 2 is activated. The ventilation unit increases the ventilation and at the same time sends an output signal to the EM box that it must close the damper for extract air from the other rooms. However, the damper does not close completely in, there will still be extraction from the other rooms, just reduced.

When balancing, the small stop blocks on the damper must be set so that the basic ventilation is maintained from the other rooms.

The EM box is connected to the 8-pin plug. Pin 2: User Selection 2 and Pin 4: GND. The relay output is connected in the 6-pin terminal block. Terminal 4: User selection 2 (Output) and Terminal 5: N (Output) as shown in User selection 2.

DTBU (damper option)

If it is desired to run the cooker hood over the ventilation system, it may in some cases be difficult to get enough air for the cooker hood.

To solve that challenge, an EM-box solution can be used. However, if there is not enough space in the installation for an EM box, you can alternatively connect a DTBU damper in the duct system, which has the same function, except that it does not have a built-in dirt filter. However, a filter box with a steel filter can be purchased, which can be mounted in the duct system in a suitable place.

The DTBU damper regulates the extract air so that less air is extracted out of the other rooms, e.g. bathroom and utility room so that there is enough air for the cooker hood to extract sufficiently.

The system works as follows:
When the cooker hood is switched on, User selection 2 is activated. The ventilation unit increases the ventilation and at the same time sends an output signal to the DTBU damper that it must close the damper for extract air from the other rooms. However, the damper does not close completely in, there will still be extraction from the other rooms, just reduced.

When balancing, the small stop blocks on the damper must be set so that the basic ventilation is maintained from the other rooms.

The DTBU damper is connected to the 8-pin plug. Pin 2: User Selection 2 and Pin 4: GND. The relay output is connected in the 6-pin terminal block. Terminal 4: User selection 2 (Output) and Terminal 5: N (Output) as shown in User selection 2.

Fire thermostat / external fire automation system

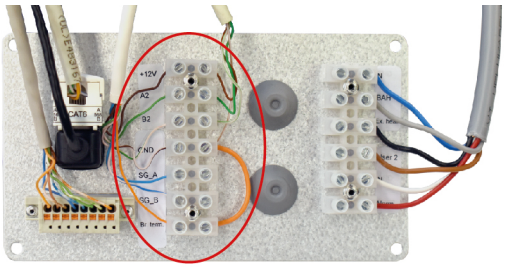
The ventilation unit can be connected up to an external fire thermostat that will stop the ventilation unit in the event of fire. The same input port can be used for connecting an external fire automation system.

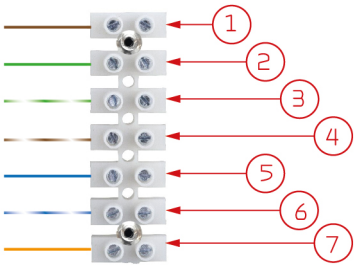
The control system registers any disruption of the input signal as fire, and stops. It will only restart once connection to the fire thermostat has been reestablished or the external fire automation system starts signalling again. This must be done manually via the control panel.

When you connect up an external fire automation system, you will need the ventilation unit to restart automatically. You can set for this to happen on the control panel. Please consult the software instructions for further information.

The connection is created via a terminal block that is located at the top of the unit. The connection to the terminal block is carried out at the back of the cover plate. You then run the wires through one of the cable glands.

Connection in the 7-pin terminal block





Terminal 4: GND

Terminal 7: Fire thermostat / external fire automation system

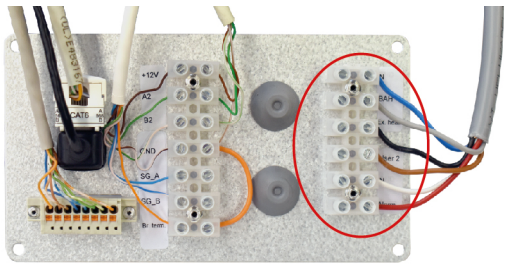
Joint alarm

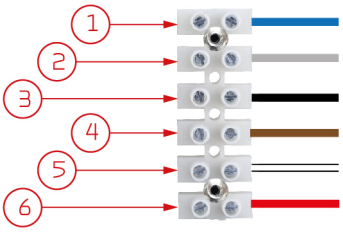
It may be difficult to notice alarms if the unit is located in a place where access is difficult or infrequent, and if the control panel is located in the same place.

An external alarm indicator in the form of an electric bulb or an acoustic signal can be connected to the ventilation unit and announce when an alarm occurs. This could, for example, be when filters need replacing.

The connection is created via a terminal block that is located at the top of the unit. The connection to the terminal block is carried out at the back of the cover plate. You then run the wires through one of the cable glands.

Connection in the 6-pin terminal block





Terminal 5: N
Terminal 6: Joint alarm

External heat supply

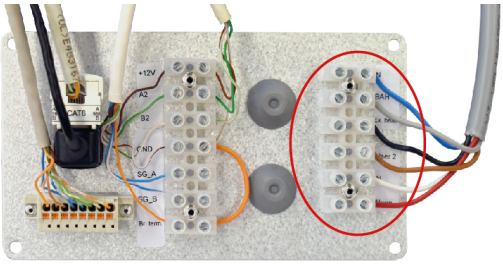
The unit can control an external heat supply such as electric radiators or an underfloor heating system. This function is used when the unit helps heat the dwelling via a heat pump and/or an after-heating element.

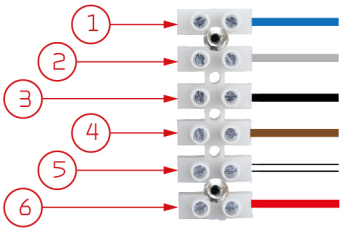
The room temperature is monitored by the control system of the unit. It will only release the external heat supply if the required room temperature in the dwelling/building cannot be reached by means of the unit alone.

The connection is created via a terminal block that is located at the top of the unit. You create the connection to the terminal block on the back of the cover plate. You then run the wires through one of the cable glands.

Select your settings in the control panel. Read the software manual to learn which settings you need to set.

Connection in 6-pin terminal block





Terminal 3: External heat supply

Terminal 5: N

Plumbing installation

Condensate drain

Important information

Compact P2 is supplied with a reinforced 20 mm condensate drain tube with an integral water trap.

ATTENTION

Run the condensate drain tube to the nearest drain, allowing an even fall of at least 1 cm per m.

The overflow from the safety valve for domestic cold water must likewise be led to a clearly visible drain.

ATTENTION

If the unit is set up outside the climate screen, it is important to protect the condensate drain from frost.

Frost protection of the unit is the installer's responsibility.

Once installed, check the function of the water trap in the following way (the unit must be connected up to the duct system):

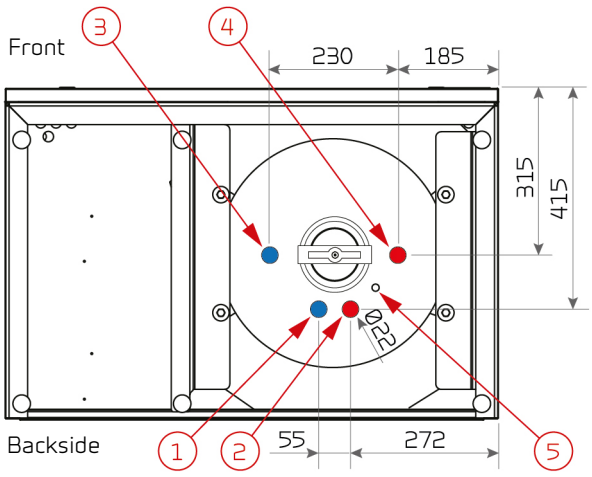
Fill the condensate tray with water, close the unit door and start the ventilation unit at the highest fan speed level. Allow it to run for several minutes. Open the door and check that the water has drained from the condensate tray.

The loop on the tube from the condensate drain functions as a water trap. It has been fastened with tie strips that must not be cut or removed under any circumstances.

Hot water tank

Connections overview

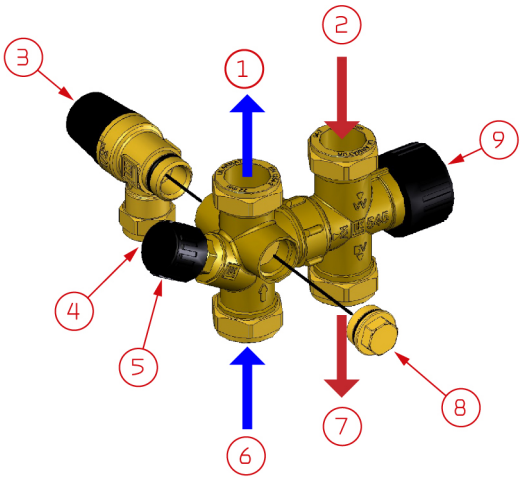
Unit bottom view



Connections:

1. Cold water
2. Hot water
3. Supplementary coil return flow
4. Supplementary coil supply flow
5. Thermowell T12

The scald protection is delivered together with the unit and must be installed by a plumber.



1. Cold water for water heater
2. Hot water from water heater
3. Safety valve 9 Bar
4. Overflow from safety valve
5. Shut-off valve
6. Cold water in
7. Mixed hot water out
8. Half inch flanged blanking plug
9. Thermostatic mixing valve 38°C to 65°C

If there is a desire to install an expansion vessel to prevent the safety valve from draining water from the tank during heating, install it on the cold water side - remove the flanged blanking plug (8) and connect.
This expansion vessel must have a pre-pressure of 5 bar and must be suited for domestic water.
NB. An expansion vessel can also be installed on the hot side.

Plumbing connection

ATTENTION
All work must be carried out by qualified personnel and in compliance with existing legislation and regulations.

The efficient foam insulation protects against unnecessary heat loss.
All connection nozzles for water are Ø 22 mm plain ends and are located in the bottom of the tank.
The hot water tank is equipped with a 1.5 kW supplemental electric heating which is deactivated by default and must be activated via the control panel if required.

ATTENTION
The supplemental electric heating must not be activated before the water tank is filled with water.

Requirements to quality of water

In order for at hot water tank in stainless steel to last for many years, it is required that the water quality must comply with the following cirteria:

- Electrical conductivity: < 125 mS/m (millisiemens per. m) @ 25 °C
- Saturation index (LSI): > -1,0 / < 0,8 @ 80 °C
- pH level: > 6,0 / < 8,5
- Chloride: < 250 mg/L @ 65 °C

If the above criteria are not met, the tank wil be corroded.

Supplementary coil

All units ordered as a SOL models have integral supplementary coil, see connections list.

The supplemental coil is intended for solar heating systems, though it can also be connected to other heat sources, e.g. a heat pump.

ATTENTION

If a solar collector or other heat source is connected to the supplementary coil, it is recommended to install a scald protection on the hot water outlet.

Ventilation installation

Duct system

Legislation

ATTENTION
All work must be carried out by qualified persons and in compliance with existing legislation and regulations.

Ducts

There are two systems you can use to lead air through the dwelling.

Spiral ducts
Spiral ducts are made from metal and are cut to size using an angle grinder. They are then connected using ducting bends and manifolds and are fitted in accordance with the blueprint. The ducts are typically placed on the tie beams where they are fixed with perforated band, or they are suspended using suspension band. Avoid unnecessary bending of the ducts.

To prevent sound transmission from room to room, you should install a silencer for each room.

The ducts must be insulated to prevent heat loss and condensation. In some cases this can be avoided if the ducts are run through the standard insulation or inside the climate screen.

NilAIR tubes
NilAIR tubes constitute a flexible system that is easy to install. You can easily cut the tubes to size with a Stanley knife and then situate them in accordance with the blueprint without having to use bends and manifolds. You install a manifold box after the unit and run the tubes from the box out to the individual rooms.

When using NilAIR tubes, you do not have to install silencers for each room. The sound-damping effect of the tubes ensures that sounds and noise will not be transmitted from room to room.

If you install the tubes outside the climate screen, you must insulate them to avoid heat loss and condensation. This is simpler than using spiral ducts as NilAIR tubes are easily led through the standard insulation.

NilAIR tubes are more flexible than spiral ducts and you can therefore run the tubes in places that are unsuitable for ordinary spiral ducts.

ATTENTION
If the unit's cooling function is activated, it is recommended to condensate-insulate the supply air ducts and NilAIR boxes.

Ventilation unit

Nilan recommends installation of flexible connections between the ventilation unit and the duct system.

This is to avoid vibrations from the unit being transmitted to the duct system. It will also make it easier to move the unit, which may be necessary during future services of the unit.

Nilan can supply Soundflex tubes that you can use as flexible connections between the ventilation unit and the duct system. They will also reduce sounds from the system considerably.

The Soundflex tubes are insulated against condensation. It may, however, be necessary with further insulation in order to comply with local requirements with regards to insulation of duct systems.

Extract air

Install the extract air valves in high-humidity rooms and place them strategically where they can extract humid and vitiated air from the dwelling/building most efficiently.

High-humidity rooms are, for example:

- Bathroom
- Lavatory
- Kitchen
- Utility room

Supply air

Install supply air valves in living areas. Place them strategically so they cause minimum discomfort. It is, for instance, not recommended that you install supply air valves in areas where people are inactive, as the supply air may be experienced as draughty.

Living areas may be, for example:

- Living room
- Family room
- Bedroom
- Study

Roof terminals

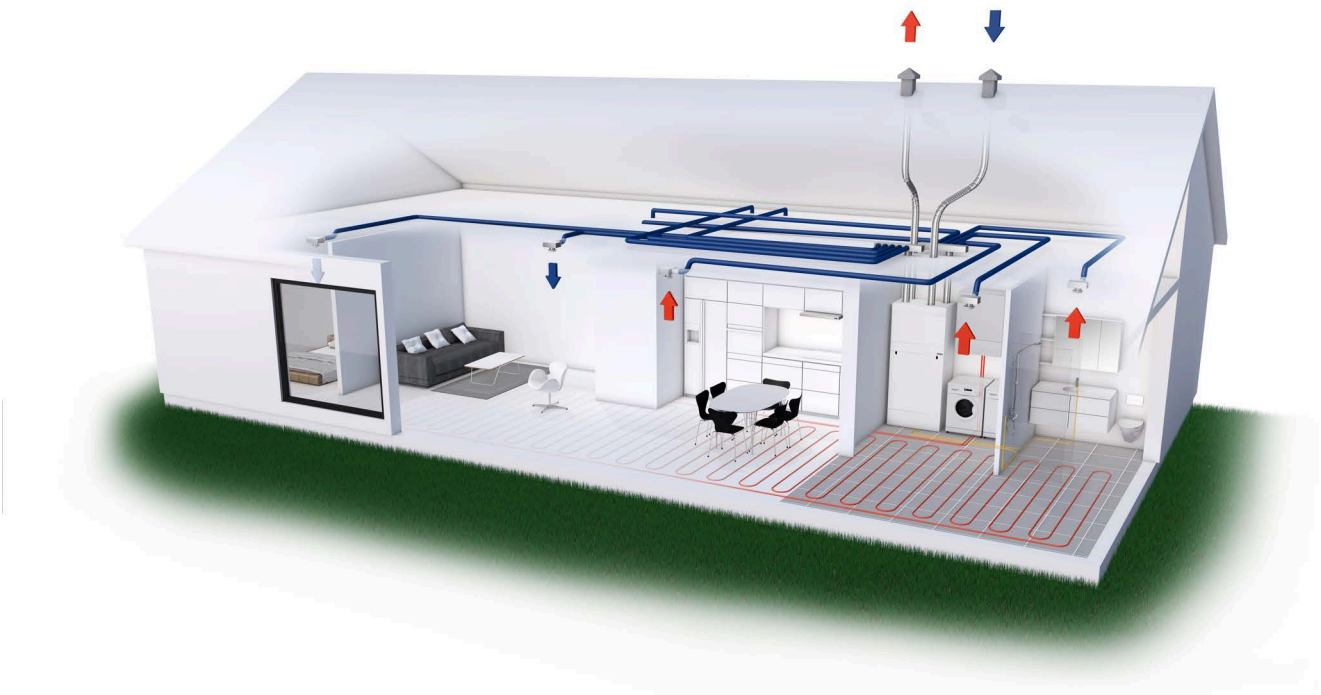
The position and design of air intake and air discharge should limit pressure oscillations in the ventilation unit caused by wind. Their position should also prevent birds and other animals from getting in. Finally, the position and design should ensure that air intake and the connected duct system are kept free of plants and foreign objects.

You must place the air intake so that the risk of a short-circuit from the discharge air is minimised, and with attention to the prevailing wind direction.

The air intake should be placed at least 50 cm above the roof surface. On black, flat roofs the distance from the roof to the underside of the intake should be at least 1 m. This will ensure that warm air is not drawn into the building during summer. Air intakes should be placed on the northern or eastern sides of pitched roofs.

You should also install a silencer between the unit and the roof stacks to prevent noise disturbance to your surroundings.

Installation example



Balancing

Important information

ATTENTION

To ensure the ventilation system operates optimally, it is important that it is balanced correctly. We recommend that experts do this.

It is important to measure the total supply air and the total extract air. The system must have a minimum vacuum, which means it draw out more air than it blows in. This will prevent dampness from being forced into the constructions of the building.

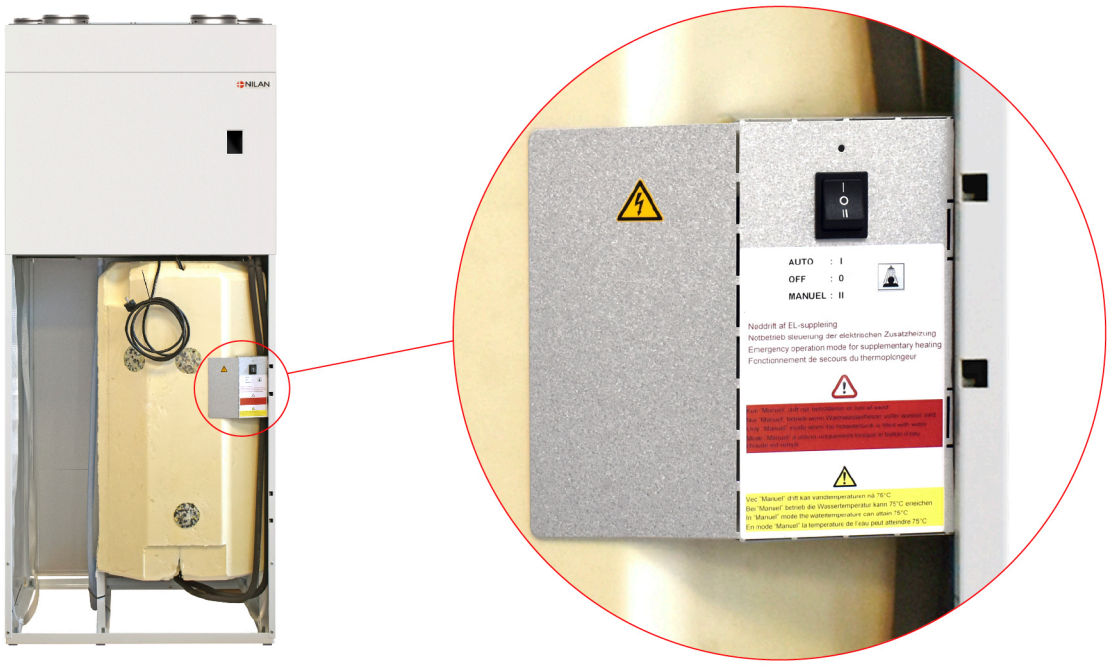
Troubleshooting

Emergency mode

Emergency mode domestic hot water

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

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



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

The emergency mode has three settings:

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

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

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

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

Domestic hot water

Errors and solutions domestic hot water

Problem	Possible cause	Solution
The unit produces insufficient domestic hot water.	The filters may be blocked so that insufficient air is reaching the unit. This can occur if the filters are not changed frequently. This can occur if the unit has been operated during the building process and the filters are filled with dust and dirt.	Change the filters and, if necessary, change the filter change period to a shorter Interval.

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