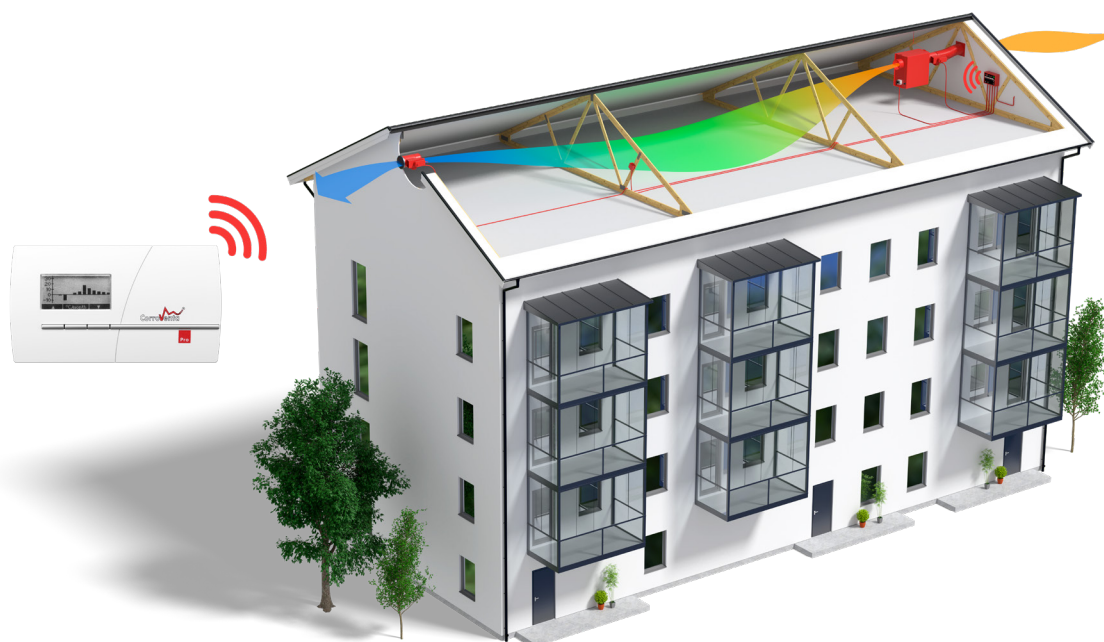


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# VENTOVIND™ PRO SPECIAL

Demand controlled ventilation for apartment buildings and larger attic spaces

## USER MANUAL



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## Area of use

VentoVind™, designed for cold attics, is a system which provides optimised ventilation thereby minimising moisture-related problems such as mould and rot. This is achieved by the system's control unit reading off the climate both outdoors and indoors using sensors, and ensures to only activate the supply air fan when the outdoor air has a drying out effect. The principle is patented and originally developed at Chalmers University in Gothenburg, where it was evaluated in practice in several reference installations that were carefully monitored. VentoVind™ is a proven technology which has been used for several years to solve moisture problems in attics in an energy-efficient way. A big advantage of VentoVind™ is that the system is suitable for both large and small cold attic spaces, and can be used in houses as well as large tenement buildings, schools etc. VentoVind™ can be installed both during and after new construction.

A condition for VentoVind™ to function optimally is that the attic space is sealed thoroughly during the installation so that uncontrolled air exchange does not take place from the surroundings, or that moisture penetrates from the residence. The aim is that air exchange only occurs through the supply fan and the ventilation openings that are part of the system, and that the supply fan creates a weak over pressure in the attic, which prevents humid air from entering the attic space. Depending on the type of fan used, the supply fan can be speed controlled to always supply the correct level of ventilation. In this way, the ventilation is optimised to the temporary ventilation requirement and as little energy as possible is consumed.

### Properties:

- Energy efficient
- Robust
- Service-friendly
- Very quiet
- Flexible

## Manufacture directive

VentoVind™ is CE-labelled.

### Disclaimer

- Incorrect installation and/or incorrect handling can cause property damage as well as injury.
- The manufacturer assumes no liability for damage arising as a result of failing to follow these instructions. Such damage is not covered by the warranty.
- Changes or modifications to the machine must not be performed without written permission from Corroventa Avfuktning AB.
- The product, technical data and/or installation and operating instructions are subject to change without notice.
- These user instructions contain information protected by copyright laws. No part of this document may be reproduced, stored in an information storage system or transmitted in any way or by any means without Corroventa AB's written consent.

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## Safety information

This device is not intended for use by persons with reduced physical, mental or sensory impairments nor other persons lacking the necessary skills or experience, unless supervised or instructed by another person with responsibility for their safety.

- Children may only use the device under the supervision of an adult to ensure that the device is not used as a toy.
- Electrical installations carried out in connection with VentoVind® installation must be done by a qualified electrician in accordance with local and national regulations.

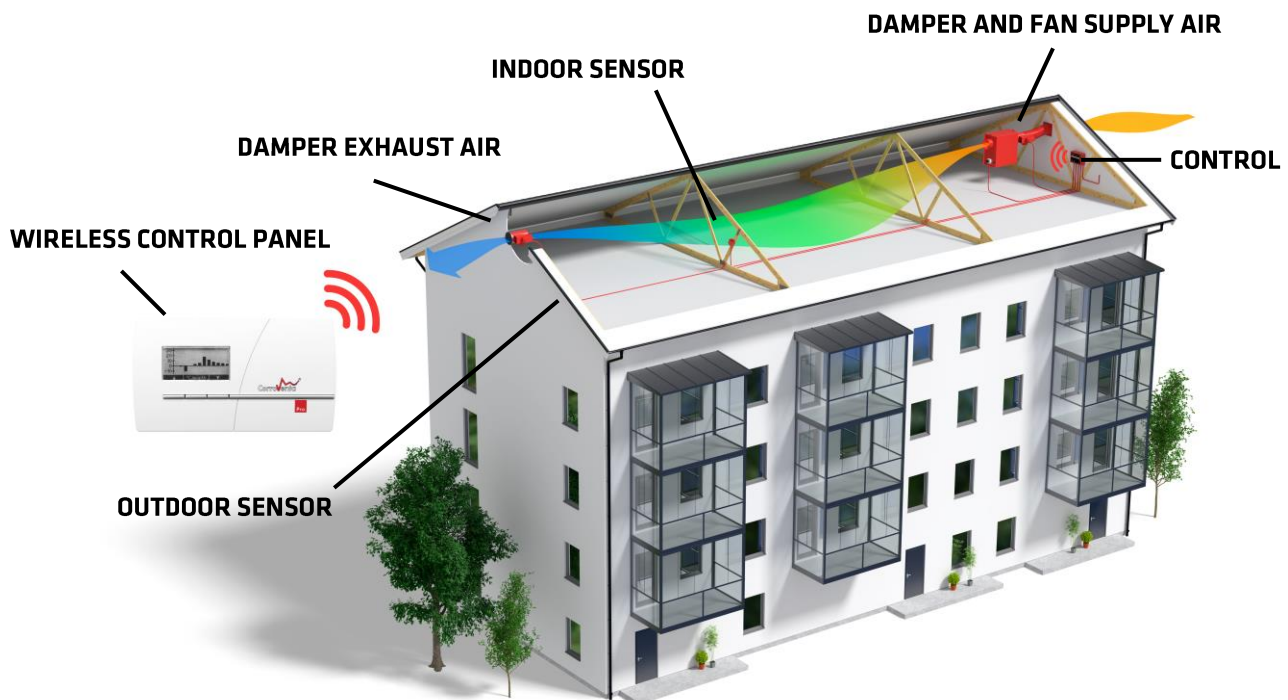
### **The following instructions must also be observed:**

1. VentoVind™ must not be powered on before installation is completed in accordance with this manual.
2. VentoVind™ and its fan(s) as well as any electromechanical dampers must not be covered as this can cause overheating and a fire hazard.
3. VentoVind™ may not be used in areas where it can produce explosive gases.
4. Do not insert objects into the fan as this could damage the apparatus and injure people.
5. Install VentoVind™ and its fan(s) and dampers in accordance with this manual so that it cannot tip over, fall or in any other way injure anybody or damage property.
6. Keep children, animals and bystanders away from the workplace.
7. Any installation work at height, on roofs or facades must be carried out in accordance with occupational safety regulations to prevent fall accidents and fall injuries.
8. Contact the supplier if VentoVind™ is damaged or if the plug or the electrical cable is damaged. Do not make any repairs yourself if you have not undergone adequate training.
9. Do not damage the electrical cable. The cable must not run through water or over sharp edges.
10. Never carry or drag VentoVind™ by its cables.
11. Using electrical equipment in very damp or wet conditions can be dangerous. Do not operate VentoVind™ if it is standing in water.
12. Use an earth-fault breaker to minimise the risk of electric shock.
13. Water must not come into contact with the system's electrical components. If it does, ensure that they are dried thoroughly before the unit is used again.
14. Never open VentoVind™ or any of its components without first ensuring that it is disconnected from power.
15. The control panel is only intended for indoor use. Temperature: -0 – +40° C. Humidity: 20 – 70 % relative humidity, non-condensing.
16. The control unit is only intended for indoor use. Temperature: -20 – +40° C. Humidity: 20 – 100 % relative humidity, non-condensing. Max. height above sea level: 0 to 2000m
17. Sensors can be installed outdoors well-protected from rain and sun. Temperature: -20 – +40° C. Humidity: 20 – 100 % relative humidity, non-condensing. Max. height above sea level: 0 to 2000m
18. VentoVind™ must not be used with accessories other than those described in this manual or approved by Corroventa Avfuktning AB.
19. Installation work in attic spaces can involve: Uncomfortable working positions, dusty air, mould spores, poor lighting etc. Use the relevant protective equipment and protective clothing in accordance with the employer's regulations/ applicable local work environment plan.
20. When handling fans weighing more than 25 kg, a two-man lift according to AFS2012:02 is recommended
21. Installation of the product can involve work at height/work on roofs.. Work in accordance with AFS 1981:14, Protect against injury by falls.

Contact the supplier of this unit for further advice on the safety and use of the product.

## Quick-start guide for VentoVind™ PRO Special

This guide contains a bulleted list of the steps required for a functioning installation of VentoVind PRO Special. Read more in detail how each step should be performed in the user instructions: VentoVind PRO Special and HomeVision control and monitoring system. The latest version of the user instructions can be obtained from [www.corroventa.com/documentation/](http://www.corroventa.com/documentation/). See section Living Environment and Control systems.



## VentoVind PRO function

VentoVind PRO, designed for cold attics, is a system which provides optimised ventilation thereby minimising moisture-related problems such as mould and rot. This is achieved by the system's control unit reading off the climate both outdoors and indoors using sensors, and ensures to only activate the supply air fan when the outdoor air has a drying out effect.

## Installation

Perforation and positioning of inlets and outlets of VentoVind PRO Special is unique depending on each project, for more information consult drawings or instructions corresponding to the project.

- **Motorised damper**  
A spring-return 230V motorised damper is installed at each inlet and outlet. Inlet dampers can alternatively be installed directly towards the fan.
- **Fan installation**  
Install fans in the supplied wire brackets at each inlet.
- **VentoVind PRO Control unit**  
Install the control unit in the attic space or in a nearby space.
- **Indoor sensor**  
Install 1 x indoor sensor according to the manual. Supplied complete with 15m cable
- **Outdoor sensor**  
Install 1 x outdoor sensor weather-protected from rain and sun. Supplied complete with 15m cable which is separable at the sensor.



**NOTE!** It is extremely important that the sensors are positioned in accordance with the manual. When reconnecting sensors, the control unit must be disconnected from power.

## Electrical installation

Wiring diagram can be found in the manual.

- **Fan connection option 1**  
1 x 230V power outlet for VentoVind control unit and up to 16A fuse. Fan(s) powered from the VentoVind control unit. Max. power outlet for fans is 2000 W
- **Fan connection option 2**  
1 x 230V 10A power outlet for VentoVind control unit and separate power supply to fan(s), fused as per specification on fan.
- **Control cable Fan**  
1 x control cable (3 wire) 1-10V installed between the control unit and fan(s). When installing multiple fans, only read off the speed of one fan with TACHO signal
- **Motorised dampers**  
230V Power supply cable from VentoVind control unit and to motorised dampers. All dampers are connected to the same power supply and open simultaneously.
- **Control panel**  
1 x 230V 10A power outlet to wireless control panel.





### Multiple available functions

- **Monitoring with Modbus RS485**  
1 x screened signal cable of class A is connected to the control unit for monitoring via the property system.
- **External alarm**  
Connection of external alarm function e.g. flashing light made via auxiliary control relay.  
Alarm signal from VentoVind control unit activates control relay.

## Starting and test operation

Connect the wireless control panel with the control unit via the menu in the control panel. The following settings are made via the control panel.

- **Time & Date**  
Set the correct time and date to obtain the correct date stamp in the log.
-  **Set the correct type of fan**  
Check that the correct fan type, AC or EC, is set. NOTE! If the incorrect fan is selected, the ventilation will not work.
-  **Test operate fan and dampers**  
Test operate fan and dampers according to the manual. It is important to check that the air is transported from the fan, through the entire area and out through the exhaust air damper.
- **Activate speed monitoring, TACHO-signal**  
Activate Tacho signal to obtain feedback of the fan speed and thus get an alarm in the event of operational interruption of the fan. **Note!** in the event of multiple fan installation, monitoring of Tacho-signal may only occur on one fan.

## Check the function

After completed installation, check the Ventovind system's function and settings as per protocol Commissioning and Warranty documentation, that can be found in the manual for VentoVind PRO special or on Corroventa's website. [www.corroventa.com/documentation/](http://www.corroventa.com/documentation/). See section Living Environment.

A condition for the machine warranty to apply is that the protocol for commissioning and Warranty documentation must be filled in and a copy sent to [mail@corroventa.se](mailto:mail@corroventa.se)

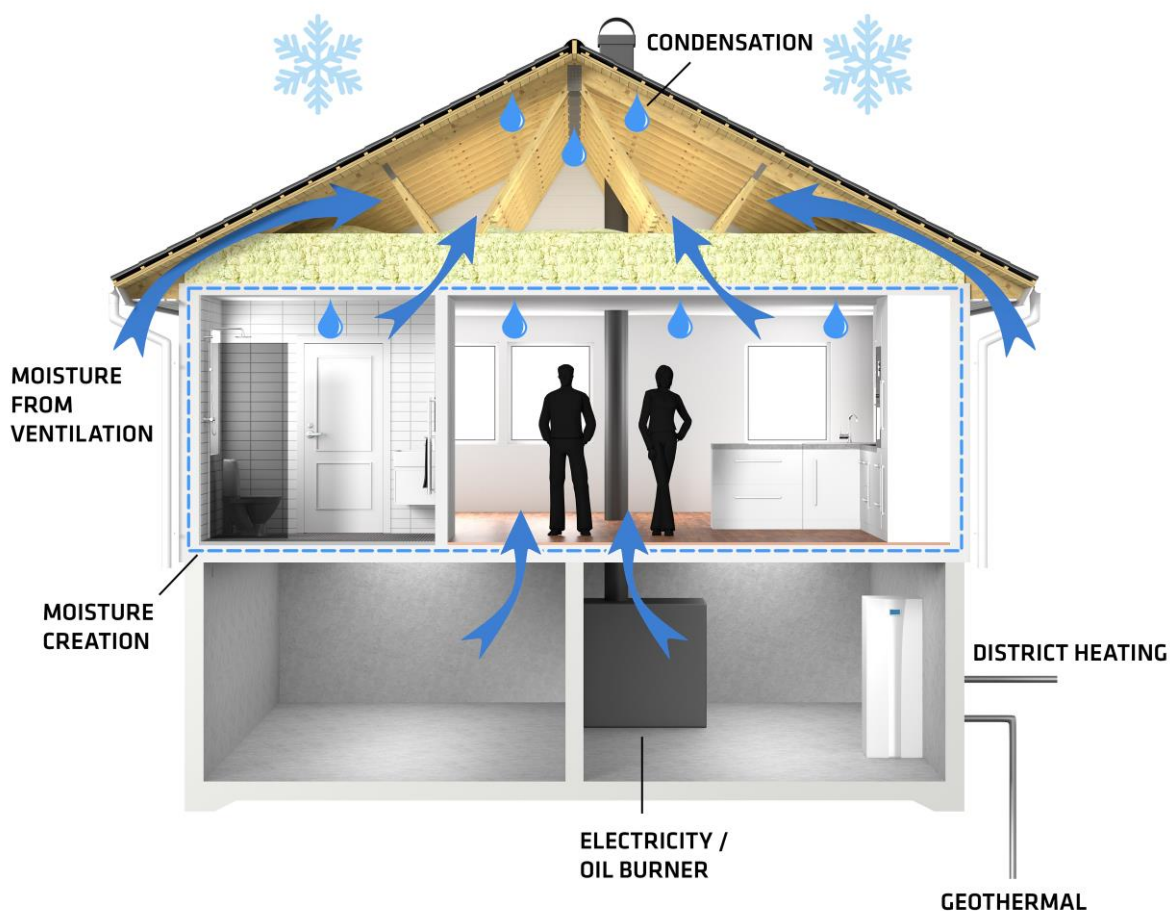
In the event of questions, contact Corroventa avfuktning AB, tel. +46 (0)36-37 12 00.

## Relative humidity and its impact on materials

All air contains a greater or lesser degree of moisture. We can't see it with the naked eye until it appears in the form of small water drops against a cold metal or glass surface for example. However, before it is visible, moisture is already causing problems by affecting materials, causing corrosion and growth of micro-organisms. It can be taken for granted that the Nordic climate is always humid. Large areas of water, in the shape of thousands of lakes and the surrounding sea, cause a lot of humidity.

Air moisture is measured and usually given in relative humidity (% RH). This is a measurement of how much moisture the air contains compared to how much it can hold in total at a given temperature and pressure. The higher the temperature, the more water the air can hold but it is the relative humidity which is calculated, and which must be controlled.

At 100% RH the air is saturated and the moisture falls in the form of small water droplets. Steel corrodes at 60% RH and at 70% RH there is a risk of mould. A rule of thumb is that 50% RH is a good climate for most materials but here in Scandinavia, it is rarely that low. The annual average value in most places is instead around 80% RH and can be equally high in both summer and winter.



## Moisture problems in cold attics

Moisture problems in cold attics can be due to one or several causes, usually a combination of several factors that determine how serious the moisture impact on the attic space is. Moisture problems usually occur in connection with additional insulation or during the transition from oil boiler to geothermal or district heating. The underlying cause, however, is the natural ventilation used in cold attics, as ventilation at the wrong time leads to humidification of the attic space. According to a 2009 investigation *Så mår våra hus (This is how our houses feel)* carried out by the Swedish National Board of Housing, about 300,000 buildings in Sweden suffer from mould, mildew odours or high moisture levels that can be directly traced to problems in the attic. 84% of these attics are cold attics with natural ventilation.

### Disadvantages of natural ventilation

Problems most often occur during the colder half of the year when the relative humidity of the outside air is highest, the solar radiation less intensive and the days shorter. The temperature of the attic spaces is then also significantly lower than during the summer and the air can bear much less moisture. During nights with a clear sky, the attic space can even become colder than the outside air, which results in condensation on the underside of the roof. Water droplets can build up and in some cases can run down the inside of the roof. This is because the outer roof of the attic is "facing" the sky and is therefore cooled by the colder layers of air higher up in the atmosphere. This is the same phenomenon we see on cars, where we often have to scrape ice off the angled windscreen, which is "facing upwards", but not off the side windows.

### Moisture movement from the residence

An adult human being evaporates approximately 40 - 50 grams of water per hour when at rest at room temperature and a family can easily produce 10 litres of water per day that evaporates into the indoor air. Other sources of moisture production in a residence are baths/showers, drying laundry and cooking. Most of the moisture is transported away by the residence's ventilation but when the hot indoor air wants to rise upwards, some of that moist air can flow into the cold attic through leaks at attic joist level and then condense. Even joists wrapped in plastic sheeting intended to seal against the residence leak somewhat.

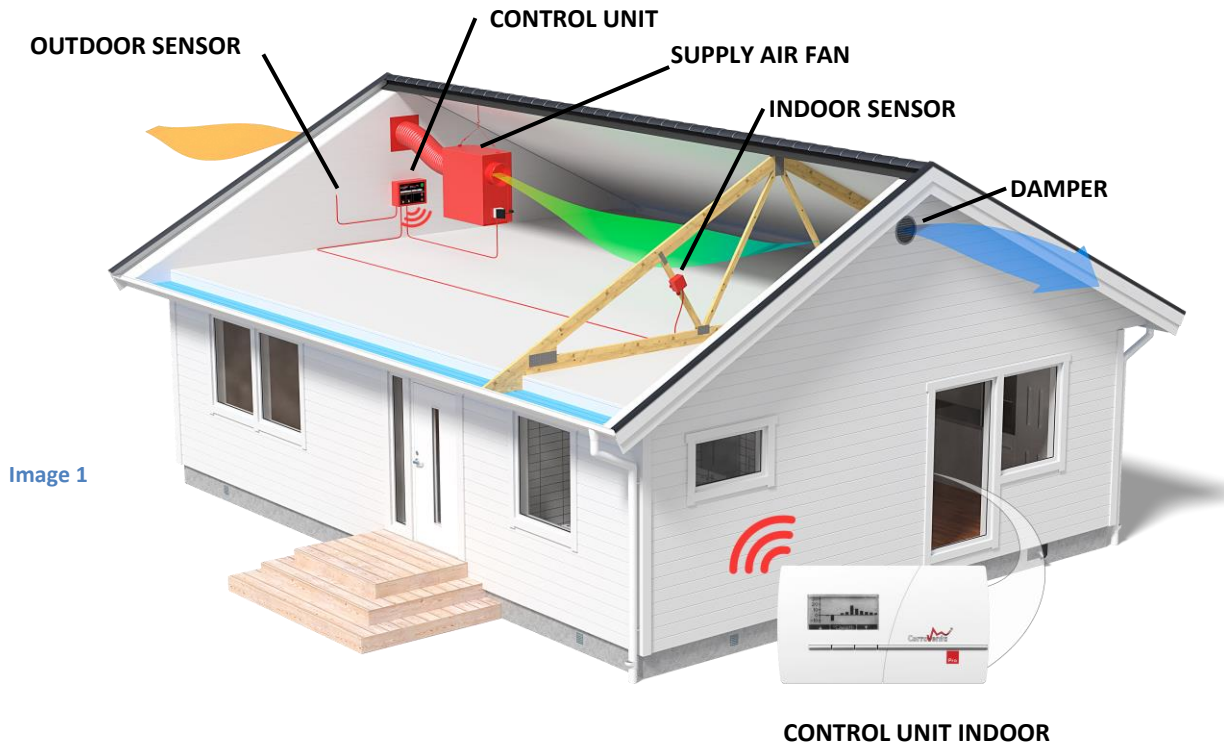
### Changing heat source and additional insulation

The residential ventilation, which mostly consists of natural draft or a mechanical exhaust air system, helps to reduce moisture leakage up to the attic by creating a negative pressure in the residence. Today, however, it is quite common to change heating systems from firing with heated chimneys to, for example, geothermal heat pumps or district heating. In such a situation it is important to check that there is still sufficient ventilation, since the driving force of the natural draft has been removed. There is otherwise a great risk, among other things, of increased transport of moist air up to the attic. In the event of additional insulation, the cold attic's temperature and the air's capacity to carry moisture are reduced. If it gets too cold in the attic, there is a large risk of the moisture precipitating as condensation.

### Building moisture

Building moisture that comes from materials that are naturally moist during the construction period but also leaking water have a negative effect on cold attics. Concrete and aerated concrete are examples of materials that contain a lot of building moisture and that need a long time to dry out. If large amounts of building moisture leak into the attic during the construction period, there is a risk that the humidity will be so high that there may be problems with mould and rot on the outer roof structure during, or soon after the construction is completed.

## How VentoVind™ works



Ventovind™ is a method for adaptive controlled ventilation that guarantees that the ventilation only takes place when it benefits the attic space. The supply air system ensures ventilation at the right times while establishing a positive pressure scenario of the attic that prevents the travel of moisture up from the accommodation. The system works best if the attic is sealed as tightly as possible where the aim is that all ventilation occurs via intended dampers and vents.

The VentoVind™ system basically consists of a controlled supply air fan and a mechanical or motorised exhaust air damper. The supply fan is powered and speed controlled via a control unit placed inside the attic. Sensors that measure the outdoor climate as well as the climate in the attic are connected to the control unit. The control unit reads off the sensors and determines, via an algorithm, whether the ventilation should be open or closed, and also controls the fan speed accordingly. In this way, the ventilation is optimised to the temporary ventilation requirement and as little energy as possible is consumed. The ventilation system is only operational when the moisture conditions are beneficial for ventilation using outdoor air.

### Auxiliary dehumidifier

To ensure satisfactory drying even in very unfavourable conditions, VentoVind™ is prepared to be supplemented with a backup dehumidifier. The VentoVind™ system is set so that the dehumidifier is

put into operation as required, i.e. only when drying with adaptive ventilation is not able to lower the humidity below the set level. Only Corroventa dehumidifiers intended for fixed installations in cold attics are recommended for this type of installation.

## Delivery check

VentoVind™ special control unit is supplied with the following parts:

Control unit VentoVind™	1 x
Outdoor sensor, with separable 15m cable	1 x
Indoor sensor, with 15m cable	1 x
Control panel HomeVision	1 x
Current adapter control panel	1 x
Mounting screws for control unit and sensor	8 x
User instructions	1 x
Operation & maintenance instructions	1 x
Plastic pouch + operation & maintenance instructions	1 x

Other component parts such as fan, dampers and other installation parts adapted according to each installation and number as well as dimensions are stated on the delivery note that accompanies the delivery.

## Installation



**Note that any electrical installations carried out in connection with this work must be done by a qualified electrician in accordance with local and national regulations.**

**VentoVind™ must be connected to an earthed, single phase 230 VAC/50 Hz socket.**

**The socket must be fused with a protection fuse up to 16A and an earth-fault breaker is recommended. Relevant protective equipment and protective clothing must be used in accordance with the employer's regulations/applicable local work environment plan AFS2012:02 AFS1981:14.**

VentoVind™ is installed and assembled in the following steps.

Step 1: Plan thoroughly so that an adequate air exchange can occur in the cold attic.

Step 2: Connections to outdoor air and connection of electricity.

Step 3: Thorough sealing of the attic.

Step 4: Assemble the equipment.

Step 5: Starting and test operating the installation.

## Planning the installation

Thorough planning of the installation is a condition for a good result. Each installation is unique and a universal installation principle cannot be specified. Depending on how much attic space is to be

ventilated and the building's construction, different types of solutions are required in terms of fans, dampers, and their placement. It is also important how the sensors are positioned so that the system works correctly. Consult an expert to jointly decided what the installation should look like for optimum function. Here, we only describe general installations.

Image 3

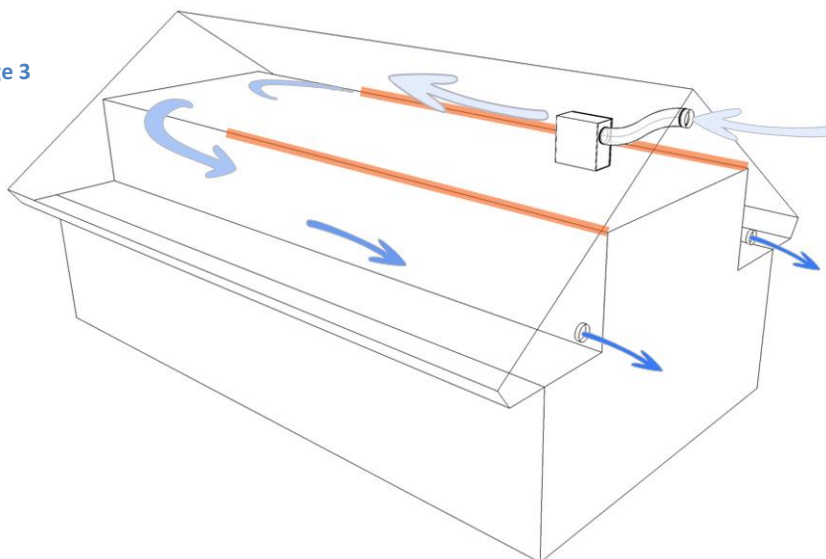
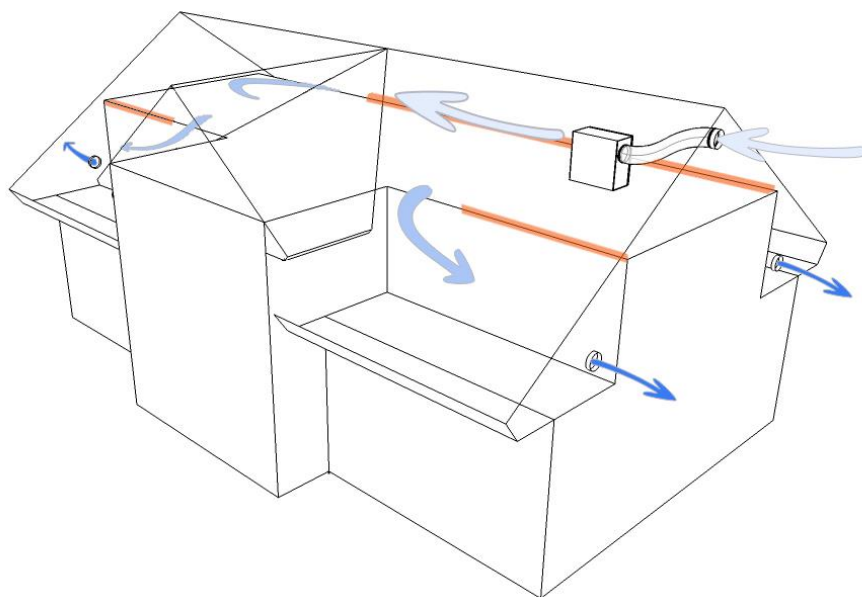


Image 2



### Air flow and location of vents

VentoVind PRO works according to the principle that outdoor air that is drier than the air in the attic space is blown into the attic via fan. Regardless of whether it is one continuous cold attic or several divided attic spaces, the installation must be designed so that the drier outdoor air flows through the entire attic before it is evacuated to the surroundings again via the dampers that have been installed.

## Vents and Dampers

Inlet and outlet vents must have satisfactory capacity in order to achieve the correct air flows and pressure ratio. The recommended size of the inlet vent is a diameter that is at least as large as the supply air fan's duct. In simpler attics, that consist of a single space, the air is most easily taken in at one end and evacuated at the other. The inlet vent is then equal in size to the outlet vent. For larger attics, you should use several outlet vents to distribute the air flow throughout the attic space. The size of the inlet vent is then not the same as the outlet vent because you want to distribute incoming air to two or more outlet vents by creating a small overpressure in the attic space. The size of the vents is determined by the air volume that is to pass through the attic space.

For more complex attics that are divided up into multiple areas, you must ensure that the air can pass freely between the areas. It is important to control the air streams without creating counterpressure in the flow, this is to achieve optimum through-flow and drying out in the entire cold attic space. See images 1–3.

- Inlets and outlets can also occur through roof hoods. Roof hoods, which are purchased separately from alternative suppliers and installed in accordance with their instructions.
- Avoid using insufficiently large vents with gills or insect net equipped vents as these are very likely to cause whistling sounds when the fan operates at full power.

When installing in large attic spaces, the location of the inlet and outlet vents are projected on the building drawing in consultation with a specialist.

## Sealing cold attic spaces

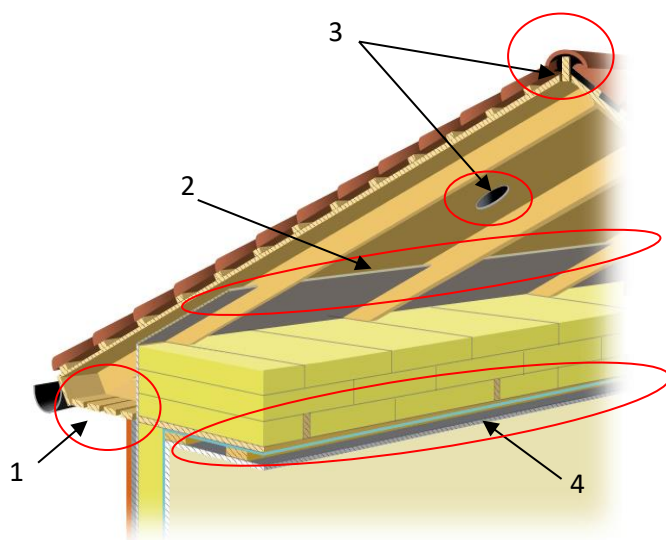
How the attic is sealed is important as the VentoVind™ function works best the better sealed the cold attic is against uncontrolled air exchange from outside or from the living space. This should of course be done in different ways for different houses and house constructions. The idea is that all air that ventilates the attic space should be controlled by the VentoVind™ system, to create the best conditions to keep the moisture levels down.

Even if the following instructions only give a general description of a smaller cold attic, the principle is the same for large constructions. It is intended to give an understanding of what has to be achieved and some of the relevant materials. If in doubt about what kind of material and which principle is best suited for a specific house construction, consult a professional.



## Gable and ridge vents

Vents that are not to be used for supply or exhaust air are most suitably sealed using insulating board, bottom strip, polyurethane foam, sealant or similar material. When vents in or adjacent to the suspended ceiling are to be sealed, be careful so that no screws or nails penetrate the suspended ceiling and penetrate roofing such as baseboard, surface board or similar.



1. Ventilation in eaves
2. Ceiling ventilation between insulation and outer roof
3. Ventilation under roof tiles and ridge
4. Vapour barrier

## Air gaps

There are several alternatives for sealing air gaps. Of course, the house design determines which of the following is most suitable and feasible. New sealing products are continuously being launched on the market and it is important to check that they meet the requirements for good weather and age resistance. Age-resistant joint foam and sealant can be used for smaller cracks and plastic or sheet material may be needed for larger openings.

1. Seal the joist openings or caulk/seal the ventilation gap to the eaves using suitable material. If the eaves are sealed, point 2 does not need to be performed. Seal the ceiling ventilation inside the attic
2. Ceiling ventilation is sealed inside the attic if the eaves cannot be sealed (point 1). Use a malleable seal which is pushed down into the ventilation gap towards the eaves.
3. Seal ventilation under roof tiles and ridge.
4. Seal the vapour barrier downwards to the living area with PE tape, polyurethane foam and age-resistant construction plastic.

## Vapour barriers in joists

All newer houses have a vapour barrier in the form an age-resistant construction plastic that prevents moisture from the residential environment from leaking out into the outer structure of the house causing moisture damage. Despite the vapour barriers, leaks may still occur which should be



sealed. Check for obvious leaks in the vapour barrier, such as at retrofitted spotlights or other grommets and holes in the vapour barrier. Larger leaks through the vapour barrier and the attic floor joists can be detected by visually inspecting the attic space as the leak can be seen as local mould infestation on the suspended ceiling. A thermal camera can be used to find weak points in the vapour barrier, however, this method works best the colder the attic space is. Depending on the type of construction and leakage, aging-resistant PE tape and construction plastic intended for the vapour barriers can be used for example. Alternatively age-resistant joint foam (polyurethane foam) can be a suitable material to use for sealing. NOTE! ensure that the vapour barrier is not damaged by the selected sealing material.

### **House construction without vapour barrier**

For installations of VentoVind in houses with no vapour barrier it is important to check the house's ventilation system and ensure that the residential environment has the supply air vents and exhaust air vents that are recommended according to building regulations. Check that the ventilation system is open and working. Add more vents as necessary. The areas that produce a lot of moisture such as bathrooms and laundry rooms can be fitted with a humidity controlled exhaust fan.

### **Electrical sockets and electrical installation**

Any electrical installations carried out in connection with this work must be done by a qualified electrician in accordance with local and national regulations.

VentoVind™ PRO special must be connected to an earthed, single phase 230 VAC/50 Hz socket. The socket must be fused with a protection fuse up to 16A and an earth-fault breaker is recommended.

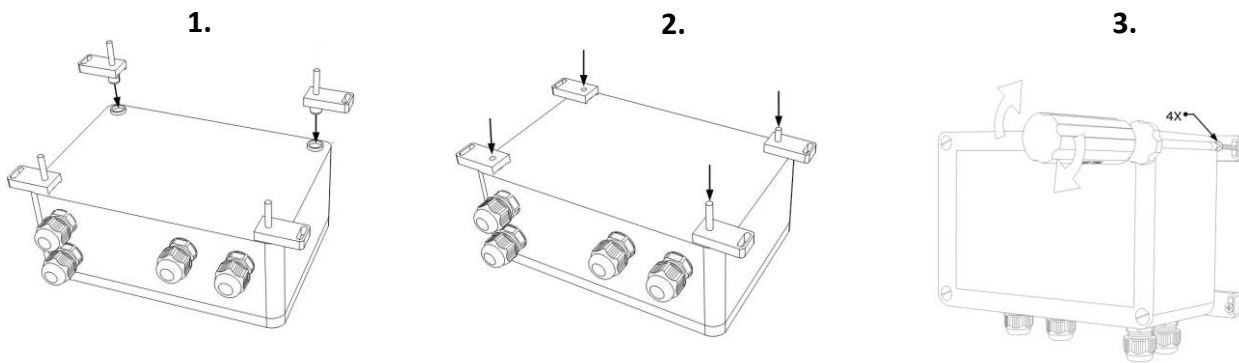
### **Control panel**

Place the control panel in an area where any alarms can be detected.

The control panel has wireless communication with the control unit. How much distance there can be between the control unit and the control panel depends on any obstructions between the devices. Pure wooden structures have high permeability of radio signals while cast concrete structures with steel reinforcement attenuate radio signals. The control panel must be powered by the supplied 230V AC adapter. The batteries that are in the control panel must be removed as they will not be used for continuous operation. Further information about the control panel can be found in the supplied manual for HomeVision control system.

### **Installing the Control unit**

Place the VentoVind™ control unit in a location that is easily accessible for servicing, e.g. in a fan room or near the attic entrance. The connection cable with plug is 5m. If the control unit is installed as a fixed electrical installation, a switch can also be installed to switch the VentoVind Control unit on and off.



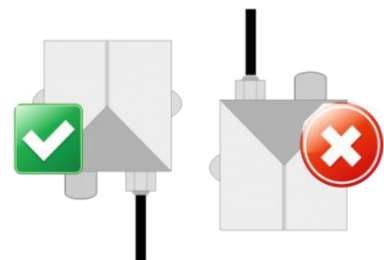
Install the supplied brackets on the control unit. Tap in the pins to secure the brackets in the holes (1 - 2). Then mount the control unit on a flat surface centrally and make sure it is easy to access (3).

## Installing Sensors

VentoVind™ PRO is supplied with one indoor sensor and one outdoor sensor. It is important to position the sensors in the designated locations at installation. An incorrectly positioned sensor can cause incorrect operation of the VentoVind system.

### Indoor sensor

The indoor sensor is connected to the control unit via a 15m cable upon delivery. The cable can be replaced as necessary and extended up to 100m



The indoor sensor must be installed so that the measured values are representative of the general climate in the attic space. When VentoVind ventilates the attic space, the indoor sensor must not be affected by the incoming air too fast. Normally, the sensor is mounted in the far part of the attic in relation to incoming air flow from the fan and approximately at half the ridge height. Sensor and cable output must be pointing down. In cramped attics, the sensor should primarily be placed at the exhaust air damper, alternatively, the sensor can be placed behind the fan. The airflow of the fan must be directed away from the sensor so that the attic space can be ventilated before the indoor sensor is affected by incoming air. See image 4.

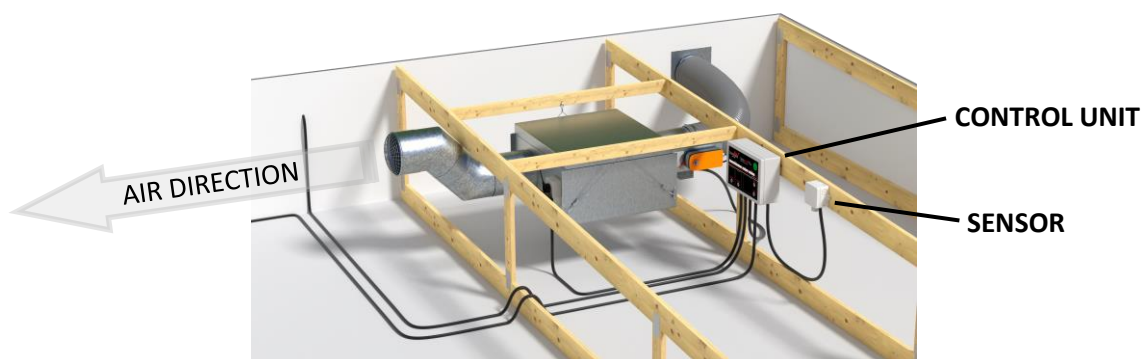


Image 4

**Important!**

- Do not place the indoor sensor so that it is affected by heat radiation or leaking air from outside or from the residential environment such as the proximity of an attic hatch or other leaks in the attic structure.
- Do not place the indoor sensor too close to incoming air from the fan.
- Do not place the indoor sensor in direct contact with the outer roof
- The indoor sensor may not be covered with insulation
- When removing the sensor cable ensure that the current to the control unit is disconnected

**Outdoor sensor**

The outdoor sensor is connected to the control unit via a 15m cable upon delivery. The cable has a connector 1.5m from the sensor that can easily be separated to facilitate routing the cable through pipes or walls. The connector is 10mm in diameter and holes for lead-through should be a diameter of at least 11mm. The connector must be weather-protected at installation.

The sensor must be installed so that the measured values are representative of the general climate in the outdoor air. It is therefore extremely important that the outdoor sensor is placed outdoors in a location that is protected from direct sunlight, rain and snow, preferably under the roof overhang or under the eaves on the house's north or west side. Sensor and cable output must be pointing down.

**Important!**

- Position the outdoor sensor so that it is not affected by heat radiation from the sun or other heat source.
- Do not install the outdoor sensor in or on any steel roof hood on the roof.
- Do not place the outdoor sensor too close to the vent for outgoing air from the attic space.
- Do not place the outdoor sensor by outgoing air from the house's ventilation system.
- the outdoor sensor must not be recessed, the sensor must be installed with a good exchange of air.
- When removing the sensor cable ensure that the current to the control unit is disconnected.

## Connecting fans and motorised dampers

Both normal AC fans and energy-saving 230V 50hz EC fans can be used with VentoVind™ PRO Special. Connection and control of each fan are different, so ensure that the correct current output in the control unit is used when connecting. See section, [Control unit - inputs and outputs](#) for more info.

VentoVind PRO Special is delivered prepared to be connected to one or multiple EC low-energy fans, the total power output on all fans must not exceed 2000W. For larger power outputs, the fans must be supplied with a separate power supply.

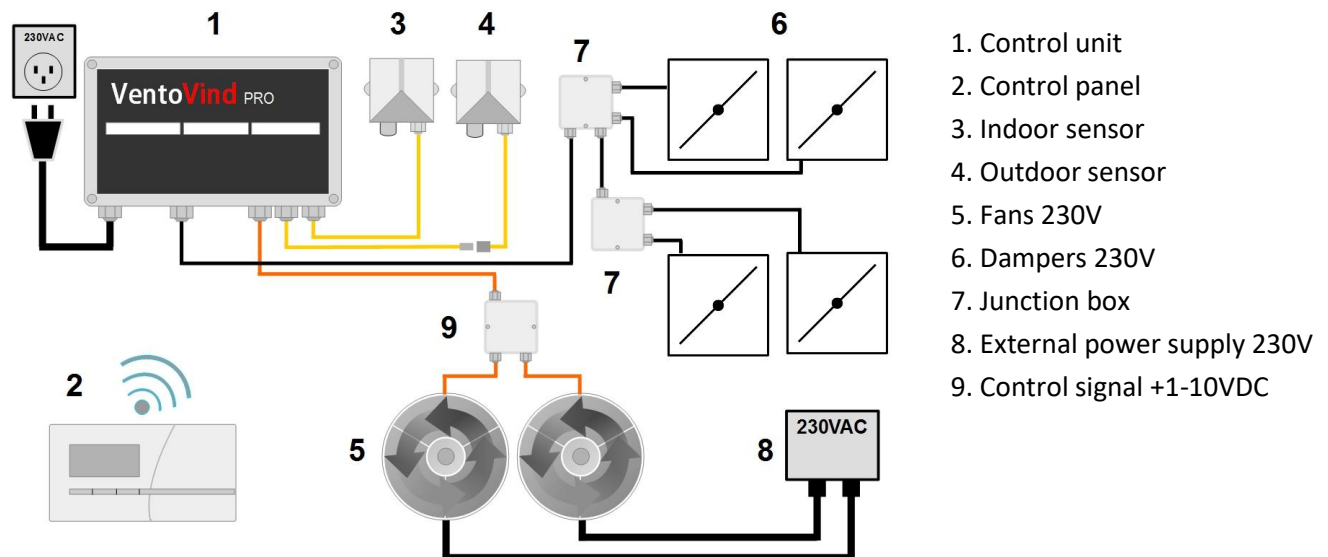
EC fans must be speed controlled by control signal 1–10 VDC via extra cable from the VentoVind control unit.

A maximum 350W AC type fan can be used. When connecting to the control unit, the power output for AC fan must be used. The AC fan speed is PWM (Pulse Width Modulation) controlled. See section, [Control unit - inputs and outputs](#) for more info.



Important!

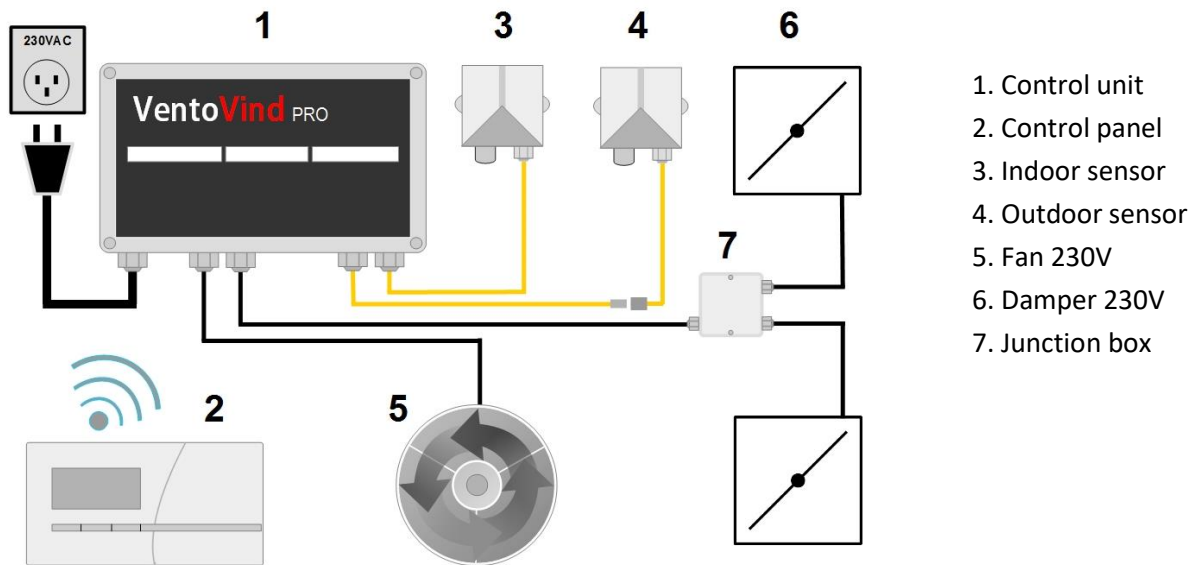
- EC and AC type fans cannot be mixed in the same installation.
- Always check that the correct type of fan is selected in the menu on VentoVind control panel, see manual for the *HomeVision control panel*.



## Installation of EC fans with 1-10V speed control

The fan output for EC fans has a maximum power output of 230VAC 50hz 2000W. When installing multiple EC fans whose combined power output exceeds 2000W, each EC fan must be connected to

an external power supply. EC type fans must always be speed controlled with control signal 1-10V from VentoVind™ control unit with separate cable. Also see section, [Control Unit - inputs and outputs](#) for more info. If the fan is equipped with an internal potentiometer for speed control, it must be removed. *See the fan manufacturer's supplied manual on how to connect speed control.* If the fan is equipped with Tacho signal (speed pulse) this can be used in VentoVind for auxiliary control of the fan's operation, and alarms can be used in the event of operational stops of the fan. The Tacho signal can only be read off on an EC fan.

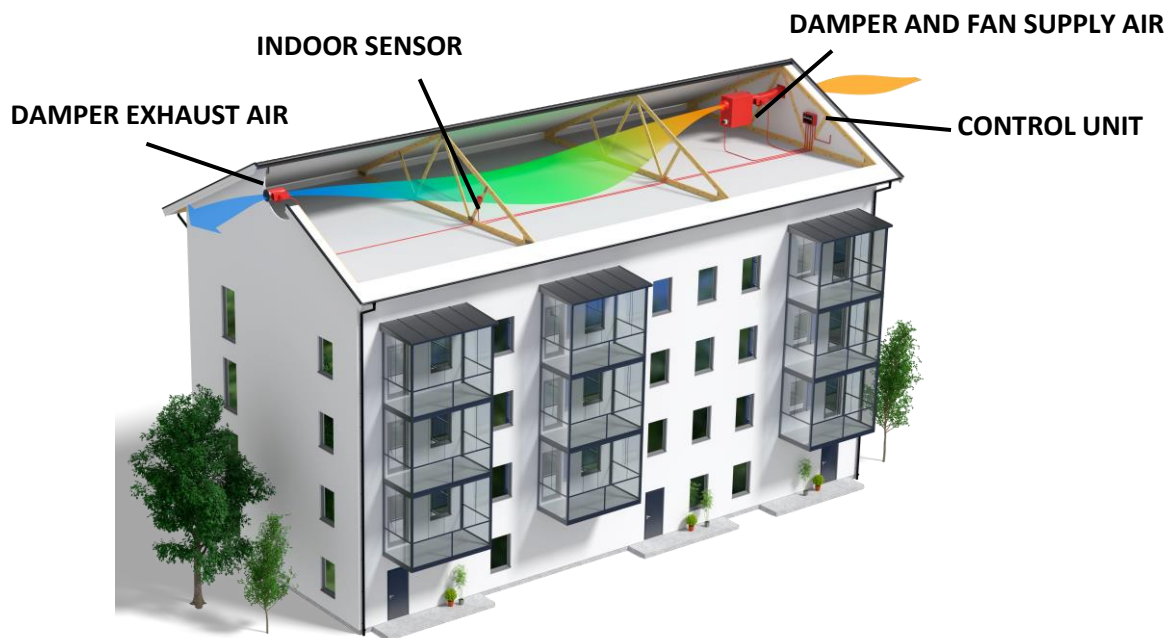


## Installing AC fans

VentoVind™ PRO special must be connected to an earthed, single phase 230 VAC/50 Hz socket. The socket must be fused with a protection fuse up to 16A and an earth-fault breaker is recommended. A fan of max. 315W can be connected to the control unit. The fan speed is PWM controlled from the VentoVind™ control unit. No other power supply is required.

## Installing fans and motorised dampers

For installations in large or complex attics, motorised spring-return 230V dampers must always be used on each supply and exhaust duct. Power is supplied from the VentoVind control unit and an external junction box branches current to the respective damper.

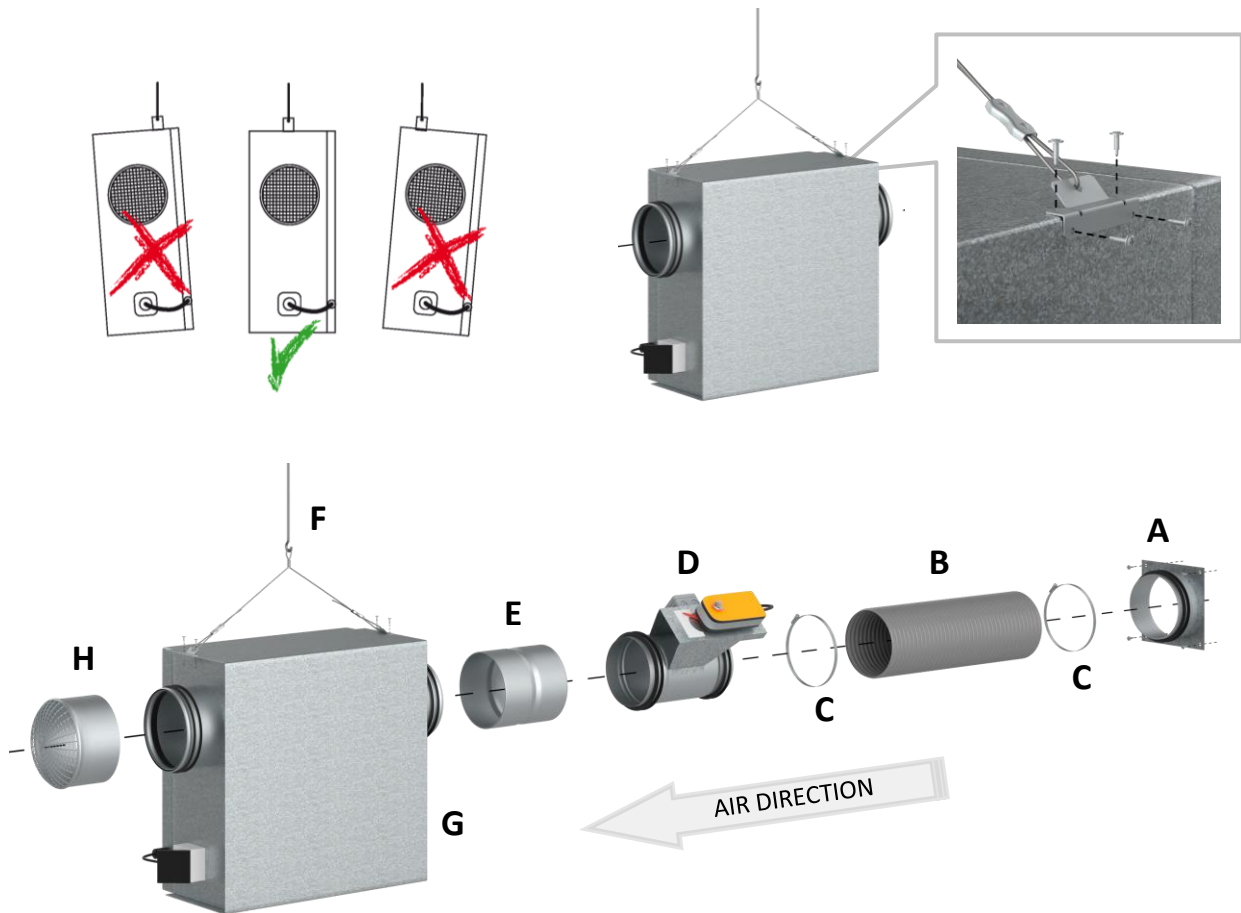


## Installing suspended fans



Fans that weigh more than 25 kg. Use of a two-man lift is recommended according to AFS2012:02. If the fan is installed in a public area lock the guard on the fan using a screw or pop rivet.

Install the suspension wire with mounting brackets on the ends of the fan. Use the self-tapping screws supplied. The fan can be suspended from the first truss a max. 1.3 m from the outer wall. The fan must be freely suspended from the roof structure to avoid any structure-borne sound. Ensure that the suspension points in the roof structure can take the weight of the fan.

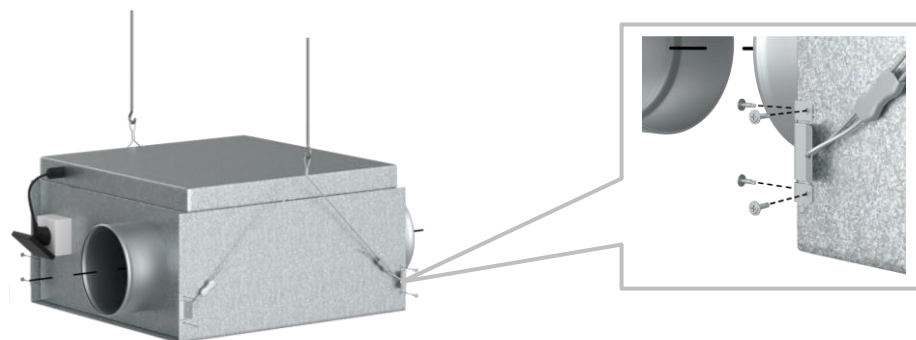


### Installing Damper and fan for supply air

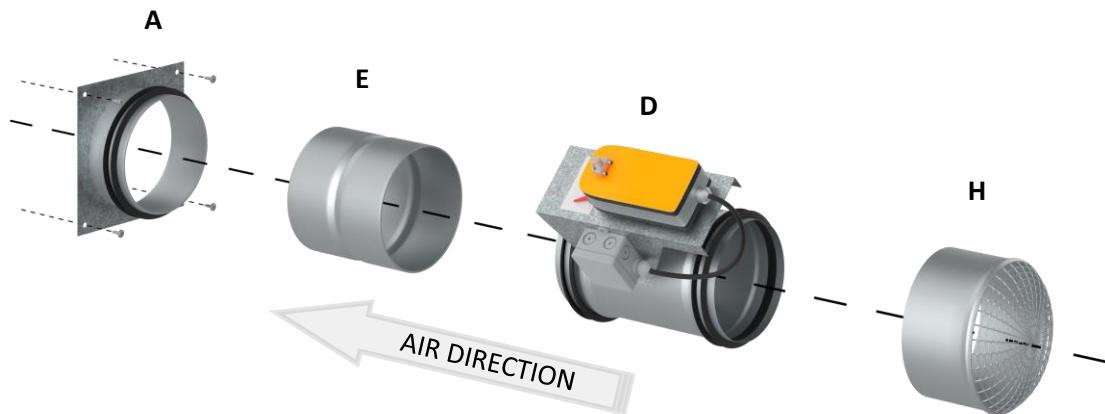
Install wall plate (A) in the upper opening for supply air. Install nipple (E) and damper (D) towards the fan (F). Install hose (B) between damper (D) and wall plate (A) with hose clamps (C). Install the wire mesh grille (H) on the exhaust side of the fan. **If the fan is installed in a public area lock the guard on the fan using a screw or pop rivet.**

### Installing horizontal fan

Install 2 suspension wires with mounting brackets on the ends of the fan. Use the self-tapping screws supplied. Ensure that the suspension points in the roof structure can take the weight of the fan.



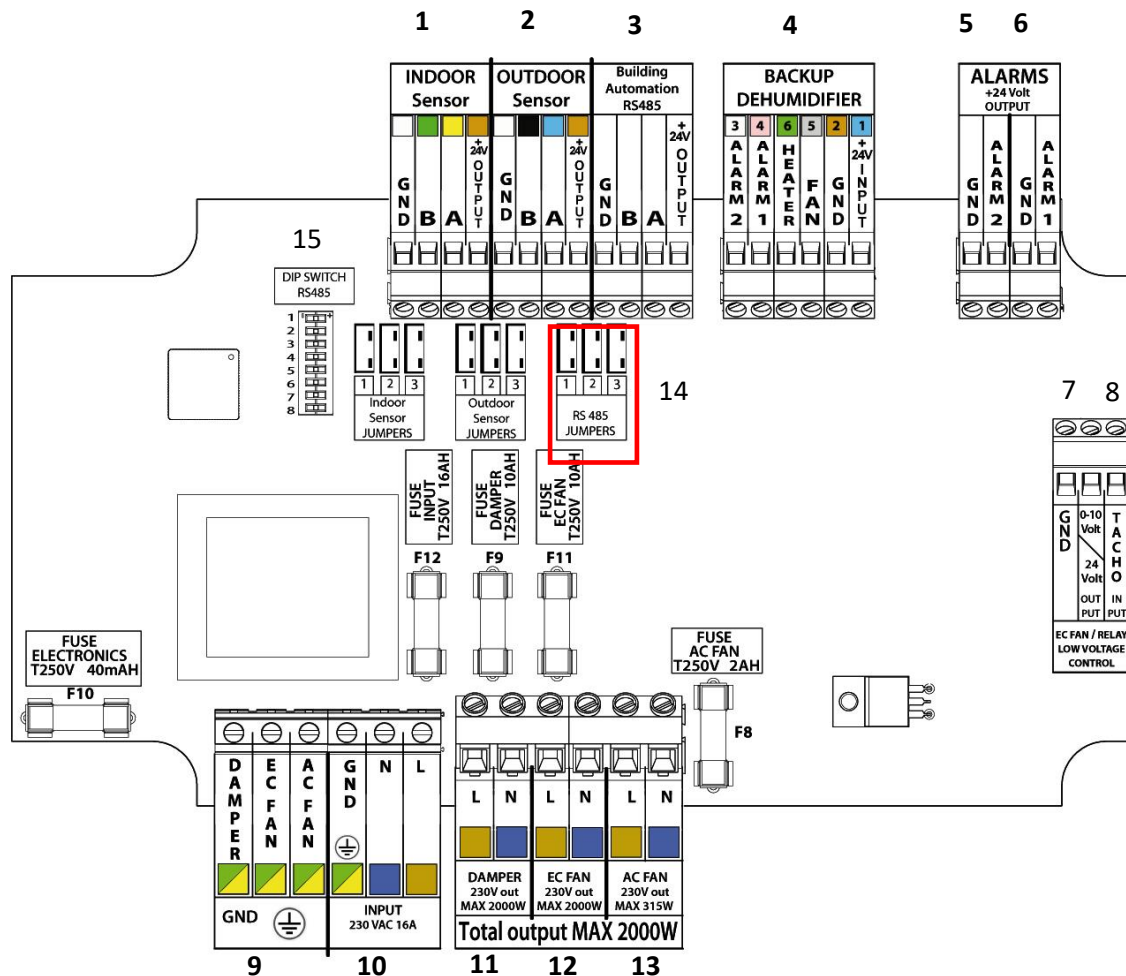




### Mounting Damper for exhaust air

Install wall plate (A) in the upper opening for exhaust air. Install nipple (E), motorised damper (D) and wire mesh grille (H). In order to ensure the opening and closing function of the motorised damper, test operate the damper once the entire installation is complete, see section [Starting and settings](#).

### Control unit - inputs and outputs





1.	Input: Indoor Sensor. <ul style="list-style-type: none"> <li>• GND: ground</li> <li>• B: MODBUS</li> <li>• A: MODBUS</li> <li>• Max. power +24 VDC</li> </ul>
2.	Input: Outdoor Sensor. <ul style="list-style-type: none"> <li>• GND: ground</li> <li>• B: MODBUS</li> <li>• A: MODBUS C</li> <li>• Max. power +24 VDC</li> </ul>
3.	Input: M-bus RS-485 <ul style="list-style-type: none"> <li>• GND: ground</li> <li>• B: MODBUS</li> <li>• A: MODBUS DC</li> <li>• Max. power +24 VDC</li> </ul>
4.	Auxiliary dehumidifier: Only for connecting Corroventa dehumidifiers.
5.	Output: Alarm 2: <b>Max. load 20mA</b> <ul style="list-style-type: none"> <li>• GND: Ground</li> <li>• Max. power +24 VDC 20mA. Output shut-off when VentoVind™ is in normal operation. Opens (on) on all types of alarm.</li> </ul>
6.	Output: Alarm 1: <b>Max. load 20mA</b> <ul style="list-style-type: none"> <li>• GND: Ground</li> <li>• Max. power +24 VDC 20mA. Output open (on) when VentoVind™ is in normal operation. Closes (off) on all types of alarm.</li> </ul>
7.	Output 1-10V / 24V <ul style="list-style-type: none"> <li>• GND: Ground</li> <li>• Max. power +1-10 VDC. For speed control EC fan.</li> <li>• Alternatively Max. power + 24 VDC 20mA. For external relay control of fan. Only for adaptive ventilation.</li> </ul>
8.	Input Tachometer: <ul style="list-style-type: none"> <li>• Max. power +1-10 VDC. For pulse read off of speed on EC fan.</li> </ul>
9.	Output Earthing points: for Damper, EC fan and AC fan.
10.	Input 230 VAC 16A 50Hz. For powering Control unit.
11. *	Output. 230VAC 10A 50Hz. For Motorised Damper. Max. power socket 2000W
12. *	Output. 230VAC 10A 50Hz. For EC fans. Max. power socket 2000W
13. *	Output. 230VAC 2A 50Hz. For AC fans and PWM speed control. Max. power socket 315W
14.	RS485 Jumpers. Only used when terminating the loop.
15.	DIP switch for setting the unit's ID.
*	<b>Common power outlet on all high current outlets may be maximum 2000W combined</b>

## Checking and monitoring via ModBus RS485

### RS485 (Building Automation)

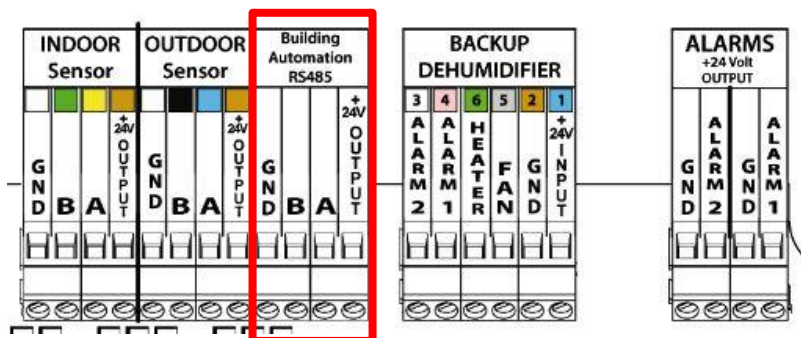
VentoVind™ is prepared with RS485 output for connection to central monitoring and control system (Building Automation). RS485 is a common Mod Bus technology for serial data transfer that is both simple and economical, but also very robust. At connection the VentoVind™ control unit acts as a SLAVE unit to the Modbus Master unit that acts as a central connection point in the house. Current operating status can be read off and settings can be adjusted as necessary.

### Recommended cable

To prevent the signal being interrupted by magnetic, electrical or electromagnetic interference a shielded twisted pair cable of class A should be used. Only one cable per signal may be used for A and B signals.

### Connection to RS485

The signal cable is connected directly in the screw terminal marked Building Automation RS485 in the VentoVind™ control unit. For a complete installation of the signal cable through the chassis on the VentoVind control unit, use a model M20 type sealed fitting



Connection	Signal type
GND	Ground
B	RS485 B signal
A	RS485 A signal
+ 24 Volt DC	Output +24volt DC
1200 - 115,200	Signal speed (Baud rate)
8	Data bits
1	Stop bit
	No parity
1 - 254	ID address (ID=3 is default)

## Terminating resistance

If the VentoVind™ control unit is connected in a loop with several other RS485 units, take into account whether the device is placed last in the loop or not. If the VentoVind™ unit is not placed last in the loop, remove jumpers 1,2,3 for RS485, as these jumpers act as terminating resistors. See Wiring diagram under chapter "[Control Unit - inputs and outputs](#)".

## Setting ID address.

To set the VentoVind™ unit ID number, adjust the Dip-switch's rocker on the circuit board in the Control unit. The Dip-switch's rocker is marked with numbers 1–8, where 1 represents the lowest value zero or one, the 2nd represents zero or two, the 3rd zero or four, etc.

If all switches are positioned to zero (OFF) or one (ON) this gives = ID 3. VentoVind™ is usually delivered with all switches in the OFF (ID=3) position. ID addressing is possible between 1–254.

The control unit's address on the 485 loop is set to binary using the DIP-switch as follows:

	1	2	4	8	16	32	64	128	ON
Switch No.	1	2	3	4	5	6	7	8	OFF



ID address example

ID 10 = Switches 2 + 4 in ON position.

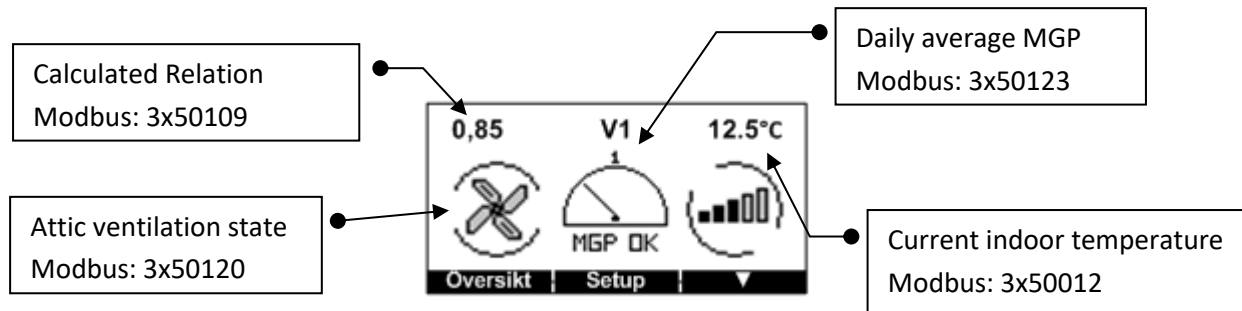
ID 100 = Switches 3 + 6 + 7 in ON position.

## Setting signal speed (Baud rate)

VentoVind™ is set to Baud rate 19200 at delivery. Speed options: 1200, 2400, 4800, 9600, 14400, 19200, 38400, 56000, 57600, 115200. The Baud rate speed is set via the control panel's Setup menu.

## Holding Register

When setting and reading off the register items the values can always be reconnected to the control panel. As an additional aid, keep the control panel or control panel's manual to hand.



### Holding register 16 bit integer register

All register addresses are 0-based. When using software with 1-based register number, add +1 to the addresses.

Modbus	Register Name	Min.	Max.	Unit	Read Write	Description	Note
3x00042	Command for resetting maintenance counter	0	1		W	0=Normal state, 1=Reset maintenance counter	Maintenance counter is set to alarm every 365 days
3x50012	Current indoor temperature Modbus:	-40	125	°C	R	Current indoor temperature. Scaling: 10	
3x50109	Calculated Relation			0.01	R	Current Relation as shown on the Control Panel. Scaling: 100 = 1, 0.01	Relation higher than 1 the fan activates. Below 1 the fan is turned off.
3x50020	Days left until service	0	365	days	R		
3x50120	Attic ventilation state (AC/EC/CR fan ON, damper OPEN)				R	0=OFF, 1=ON	Shows whether the system is currently ventilating the attic space or not.
3x50123	Daily average MGP Modbus:			0.01	R	Current MGP as displayed on the Meter of the control panel. Scaling: 100 = 1	Shows if the climate in the attic space is OK or not. <=1 is OK.

							>1 for more than 5 days Alarm7 is activated.
3x50124	Alarm6, NC i.e. 1 when OK, 0 when alarm is triggered.				RW	Detected fan speed too low - fan error (Available for EC fans only)	Write 1 to this address to acknowledge the alarm
3x50125	Alarm7, i.e. 1 when OK, 0 when alarm is triggered.				RW	MGP has exceeded alarm level	Write 1 to this address to acknowledge the alarm
3x50126	Alarm8, i.e. 1 when OK, 0 when alarm is triggered.				RW	Indoor sensor(s) lost though system still has at least one indoor sensor	Write 1 to this address to acknowledge the alarm
3x50127	Alarm9, i.e. 1 when OK, 0 when alarm is triggered.				RW	Outdoor sensor(s) lost though system still has at least one outdoor sensor	Write 1 to this address to acknowledge the alarm
3x50128	Alarm10, i.e. 1 when OK, 0 when alarm is triggered.				RW	All indoor and/or outdoor sensor(s) lost, system cannot operate	Write 1 to this address to acknowledge the alarm
3x50130	System operation status	0	1		R	0= System down, 1=System up	
3x50131	Global alarm status	0	1		R	0=No alarm(s) ON, 1=Alarm(s) ON	Activates on all Alarms.

## Service check and resetting via Modbus

The control panel displays a service reminder and a service alarm that is triggered every 365 days. If a service reminder is required via Modbus connection, address 50020 must be monitored, and trigger created for value 0, which means that there are zero days left until service. The counter is reset using address 00042. Enter one (1) to reset. The service alarm that appears on the control panel does not register Global alarm status, 50131. Zero, 0, is displayed even if the control panel shows a service alarm at the time.

## Starting and settings

Make sure that the installation is completely finished before the current is connected to the control unit. The control panel is used for settings and test operation so connect it temporarily to an AC adapter close to the installation in the attic. More information about menu selections and settings can be found in the manual: *HomeVision PRO control panel*.

Once the settings have been made, the system automatically shifts to normal operating mode and the fan is then controlled by the current climate.

### Connect the control panel to the control unit

The control unit is open for connection for 2 minutes after the control unit is powered. After 2 minutes, connection to the control panel is no longer possible, and the control unit must be restarted by disconnecting the current for a short period.

### Setting date and time

Set the correct date and time via the control panel. In order for the timeline in the log that is stored on the USB memory to be easy to read, the date and time should always be checked and set as necessary. If the control unit is unpowered for longer than 24h the date and time must be reset.

### Select correct type of fan

VentoVind PRO Special has an AC type fan installed upon delivery. Always check which fan type is selected in the menu on the control panel. If the incorrect fan type is selected, the VentoVind system will not work.

### Activating Tacho signal (Any point)

To obtain feedback about the EC fan speed and receive an alarm in the event of an operational stop, activate Tacho in the menu on the control panel. Set the lowest possible speed 100rpm/min as alarm limit.

## Checks at start-up

To ensure the system's operation and function it is very important that the following points are checked.

### Test operation of fan

The fan can be controlled manually via the control panel. Upon delivery VentoVind is set with a start-delay of 1 minute so that motorised dampers have time to open.

- Check that the motorised dampers open before the fan starts.
- Test operate the fan gradually at speeds between 30–100%.
- During test operation, check that air goes out from the attic space via the exhaust air damper, note at which lowest fan speed this occurs.
- Check that no strange noises are heard from the fan or that whistling sounds occur at in and outlet vents at maximum speed.
- Check that the guard on the fan is installed. If the fan is installed in a public area lock the guard on the fan using a screw or pop rivet.

### Motorised dampers.

The dampers can be test operated manually via the control panel. Check that the damper function works satisfactorily and that the dampers open and close without any problems. Upon delivery VentoVind is set so that motorised dampers open 1 minute before fan start. The time between damper opening and fan start can be adjusted via the control panel. When dampers are of the spring return type, these close when the ventilation is switched off. NOTE! An installation always has two or more motorised dampers installed.

### Mechanical dampers.

The mechanical damper's flaps open when an overpressure of approx. 3-5pa is achieved in the attic space. At what fan speed an overpressure of 3-5Pa can be achieved and the damper opens, depends entirely on how well sealed the installation is. The mechanical damper should open at the latest when the fan is operating at 80 - 100%. If the damper does not open, the leak in the attic space is too large and additional sealing is required for proper function. Check that the damper flaps open without any problems when touched lightly and spring back to the closed position.

## Maintenance and service

VentoVind™ requires minimal maintenance.

The attic space should be inspected visually one to two times per year to check the function of the system. Fans should be checked and cleaned as necessary, however, at least 1 time/year. This is to prevent imbalance that can result in unnecessary bearing damage. Servicing is performed according



to the following instructions:



**Note that the fan must be disconnected from power before it is opened.**

1. Disconnect the fan from power (all-pole break) and wait until the fan wheel has stopped.
2. Open the cover.
3. Clean the inside of the fan but be careful not to deform the fan wheel or upset its balance weights. Do not spray water inside the fan wheel.
4. Check that the fan wheel is not obstructed and can rotate freely without making any strange noises.
5. Close the cover and reconnect the connector.
6. Test operate the entire system and perform checks according to section: *Checks at start-up*
7. Check date, time and reset the service counter via the control panel.



## Troubleshooting



**Note that fans and the VentoVind™ system must be disconnected from power prior to servicing.**

Fault symptom	Probable cause	Actions
The fan does not blow any air or is stationary.	<p>The supply air side of the fan may be choked, obstructed.</p> <p>The fan has run hot and its overheating protection has tripped.</p> <p>The fan may be defective.</p>	<p>First try disconnecting the current to the fan for approx.: 10-60 min to allow the fan to cool. Then check the fan according to the points under maintenance and service. Then reconnect the current and see if the fan restarts. The fan can be test operated manually via the control panel.</p>
The fan does not start when the connector is connected and Homevision® control panel does not connect to the control unit.	Power connection and/or control unit connection	<p>- Check that there is voltage in the electrical socket in which the Control unit is connected, and that the fuse has not blown.</p>
The mechanical damper does not open at 80–100% fan operation.	<p>The installation is not well sealed and the required overpressure of 3–5 Pa is not achieved.</p> <p>The damper flaps have jammed.</p>	<p>Ensure that the damper opens when touched lightly, and springs back and closes without problem.</p> <p>-check that the installation is sealed and improve if necessary.</p>
Noise from the fan.	Dirt/dust on the fan wheel causes imbalance and vibration noise.	-clean the fan according to the service instructions.
		If the measures described above did not remedy the error, contact your dealer for necessary service and support.

### Actions in the event of power failure

After a power failure, VentoVind™ restarts the system automatically and no settings need to be adjusted. If the control unit is unpowered for longer than 24h the date and time must be reset.

## Technical data

### Control panel

Height x Width x Depth, mm	85 x 150 x 30
Weight, g	20
Voltage AC adapter	+5 VDC / 800 mA

### Control unit VentoVind™

Height x Width x Depth, mm	180 x 255 x 95
Cable length, m	5
Weight, g	xx
Fuse Type Max.	T16A 250VAC
Connection	230 VAC/50 Hz

### Sensor unit VentoVind™

Height x Width x Depth, mm	110 x 100 x 50
Cable length, m	15
Weight, g	150

## Fans: Technical specification.

VentoVind™ PRO is usually supplied together with fan(s). The fans are made of galvanised sheet steel. They are sound and fire insulated with 50mm rock wool insulation. For large attics, use larger EC fans. Contact Corroventa Avfuktning AB for further information.

### VentoVind™ PRO Villa. Fan, KVKE 160 (AC)

For attic spaces up to 100m<sup>3</sup>

Voltage, V	230
Frequency, Hz	50
Phase	1
Power, W	97.6
Current, A	0.422
Maximum air flow m <sup>3</sup> /h	533
Speed, r.p.m.	2680
Max. temperature of transported air, °C	70
Max. temperature of transported air during voltage control, °C	70
Sound pressure level, 3m, db(A)	35.9
Weight, kg	17.2
Insulation class, motor	B
Enclosure class, motor	IP44
Capacitor, µF	3

### VentoVind™ PRO Villa Large. Fan KVKE 200 (AC)

For attic spaces up to 100–150 m<sup>3</sup>

Voltage, V	230
Frequency, Hz	50
Phase	1
Power, W	152
Current, A	0.67
Maximum air flow m <sup>3</sup> /h	785
Speed, r.p.m.	2661
Max. temperature of transported air, °C	70
Max. temperature of transported air during voltage control, °C	70
Sound pressure level, 3m, dB(A)	43.7
Weight, kg	18.8
Insulation class, motor	B
Enclosure class, motor	IP44
Capacitor, µF	4

**VentoVind™ PRO Special. Fan KVK 160 (EC)**

Voltage, V	230
Frequency, Hz	50/60
Phase	1
Power, W	66.2
Current, A	0.541
Maximum air flow m <sup>3</sup> /h	540
Speed, r.p.m.	2617
Max. temperature of transported air, °C	60
Max. temperature of transported air during voltage control, °C	60
Sound pressure level, 3m, dB(A)	42.4
Weight, kg	16.8
Insulation class, motor	B
Enclosure class, motor	IP54
Prepared for ErP requirements	ErP 2018

**VentoVind™ PRO Special. Fan KVK 200 (EC)**

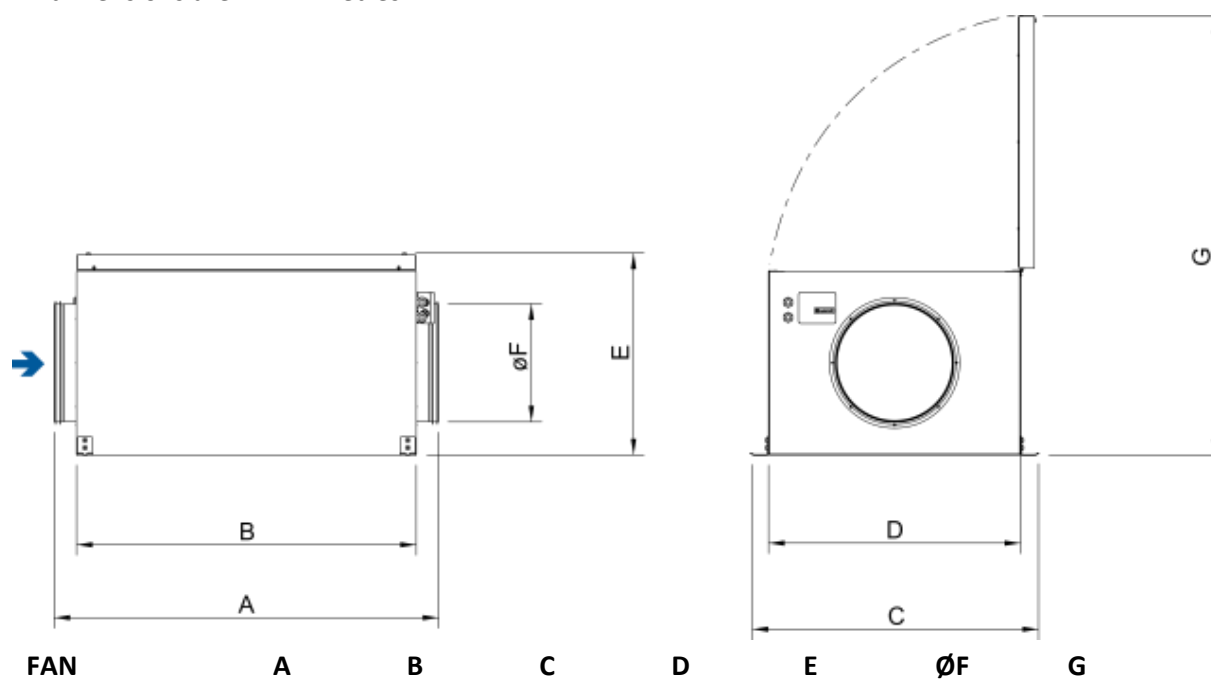
Voltage, V	230
Frequency, Hz	50/60
Phase	1
Power, W	120
Current, A	0.929
Maximum air flow m <sup>3</sup> /h	920
Speed, r.p.m.	2479
Max. temperature of transported air, °C	60
Max. temperature of transported air during voltage control, °C	60
Sound pressure level, 3m, dB(A)	49.9
Weight, kg	21
Insulation class, motor	B
Enclosure class, motor	IP54
Prepared for ErP requirements	ErP 2018

**VentoVind™ PRO Special. Fan KVK 250 (EC)**

Voltage, V	230
Frequency, Hz	50/60
Phase	1
Power, W	168
Current, A	1.17
Maximum air flow m <sup>3</sup> /h	1620
Speed, r.p.m.	1832
Max. temperature of transported air, °C	60
Max. temperature of transported air during voltage control, °C	60
Sound pressure level, 3m, db(A)	43.3
Weight, kg	27.5
Insulation class, motor	F
Enclosure class, motor	IP44
Prepared for ErP requirements	ErP 2018

## Fan size

All dimensions are in millimetres



FAN	A	B	C	D	E	ØF	G
160 AC/EC	528	482	532	505	266	160	798
200 AC/EC	682	604	596	500	352	200	810
250 AC/EC	836	720	630	533	382	250	872

## Accessories

The following parts are available as accessories for VentoVind™. For further information please contact Corroventa Avfuktning AB.

Article number	Designation
6000498	Motorised damper 160mm
6000347	Motorised damper 200mm
6000279	Motorised damper 315mm
1002686	Sensor Outdoor
1002687	Sensor Indoor
-	Junction box 230v to Damper
-	Relay box for AC fans
6000162	Collar 160mm
6000224	Collar 200mm
6000284	Collar 315mm
6000192	Hose 160mm
6000225	Hose 200mm
6000280	Hose 315mm
6000193	Hose clamp 60-235mm
-	Sensor cable for sensor indoor
6000194	Guard 160mm
6000221	Guard 200mm
6000285	Guard 315mm
6000191	Wall plate 160mm
6000222	Wall plate 200mm
6000283	Wall plate 315mm
9910326	Panel HomeVision Pro
6000211	AC adapter white
1004110	Suspension wire



## DO YOU HAVE QUESTIONS OR NEED HELP?

*Visit [www.corroventa.com](http://www.corroventa.com) or call us to speak with an expert.  
We have the knowledge and the equipment to find a solution as efficiently as possible.*

*Corroventa develops, manufactures, sells and rents high quality products for dealing with water damage, moisture, odours and radon. We are one of the market leaders and specialists in innovation within the industry. Our products are compact, effective, ergonomic and energy efficient. In emergency situations and during flooding, Corroventa's customers have access to one of the largest rental parks in Europe. All our products are manufactured in Bankeryd, Sweden.*



**[www.corroventa.com](http://www.corroventa.com)**



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