

# AlphaFreshbox 25

Basic / Humidity Sensor / Radon Sensor /  
Humidity and Radon Sensor

## Manual

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## 1 Introduction

In the meantime, attention is being paid to a tight building envelope, both in new buildings and in energy-related renovation measures. The elimination of draughts through cracks and gaps not only leads to corresponding energy savings, but also increases comfort.

Especially in the renovation sector, it is easily overlooked that tight windows and doors go hand in hand with special requirements for ventilation behaviour. Insufficient air exchange leads to an enrichment of the room air with pollutants (sick building syndrome) and, above all, moisture. The latter forms the basis for damp walls and mould growth. Even if one can keep the flat mould-free by frequent window ventilation, this only means in return that the warm air originally hoped to be saved is ventilated out through the window again. The cold fresh air that is let in has to be heated up again by the heating system, which is only reflected in the heating bill.

The remedy is to ventilate by means of controlled living space ventilation with integrated heat recovery. Both the incoming and outgoing air flows through the heat exchanger contained therein, while being separated from each other by fine louvres. The heat is transferred from the warm to the cold air mass with a heat recovery rate of up to 90%.

In a concrete practical example, fresh air with an outside temperature of 0°C flows into the unit. This is heated with the energy of the extracted, 20°C warm room air and flows into the room preheated to, for

example, 15°C (up to 18°C is possible). The difference between 0°C (window ventilation) and the 15°C (with WRG) represents an immediately visible saving.

As the dew point is also undershot when the warm room air cools down in winter, air humidity can condense in the heat exchanger and be discharged to the outside. This represents a decisive step towards freedom from mould. In addition, the infinitely variable output regulation allows individual adjustment to the room humidity emissions.

Heat recovery also works in summer! Since the heat exchanger acts like a kind of "temperature barrier", even the great summer heat stays outside when you ventilate. In future, leave your roller shutters closed during the day (no solar radiation) - from now on, your new ventilation unit will take over ventilation and ensure that not so much heat enters the room during ventilation.

Allergy sufferers benefit from the optionally available pollen filters and it is even possible to fit activated carbon filters (e.g. for odour and exhaust gas pollution). Visit our RadonShop.

With the humidity sensor, you enable the unit to operate fully automatically, intelligently adapting the ventilation output to the ambient conditions.

With the radon sensor, you leave the fully automatic ventilation to the unit as soon as the limit value is exceeded.

## 2 Safety instructions



For safe handling, read this user manual carefully and completely before installing and operating the unit.

Keep this manual in a safe place.

### 2.1 Risk of electric shock

The plug-in power supply unit included in the standard scope of delivery of all variants may only be plugged into a suitable socket, provided it is undamaged and dry.



A flush-mounted power supply unit available as an accessory may only be connected to the mains voltage by a qualified electrician.



Never expose the power supply unit to moisture or mechanical stress.



**Never operate the unit without a power supply unit! Connecting the unit directly to a mains socket will inevitably destroy the unit! No liability is accepted for damage caused by incorrect connection or improper handling.**



## 2.2 Danger of falling icicles

This unit is often used to combat mould and damp walls. Please note that especially in the first winter (when the walls are still damp) there may be an increased formation of icicles on the outer drip lip. Since the formation of icicles can never be ruled out in future operation, we recommend installing the unit in a place where there is no risk of icicles falling down (e.g. never in the area above entrance doors). Otherwise, the icicles must be removed in good time.

## 2.3 Danger of flue gases

In rooms with a fireplace, it must be ensured that it operates independently of the room air.

In case of doubt, your chimney sweep will help you to assess this and may require the use of a safety device. You can find a suitable flue gas thermostat for this purpose in our RadonShop. Even though this unit is pressure-neutral in normal operation, this is still required by law in the event of a malfunction.

## 2.4 Risk of injury

Ensure that the working area is properly secured before installing the unit. Do not carry out any work that could cause injury to persons or objects, e.g. by falling tools or working on wobbly ladders.

## 2.5 Regional law

Different countries have different legal requirements. Please comply with the regulations valid for your country, even if they are not explicitly mentioned in these instructions.

## 3 Type approval

DIBt approval for this new unit is still in preparation. Please note that the KfW, for example, usually requires an approval number in order to release subsidies. However, in times of empty state coffers, the subsidies available are often small (e.g. low-interest loans for financing), so it is often not advisable to insist on a subsidy in view of the effective energy savings achieved by the unit. However, if in doubt, please enquire whether this approval is required for your building project.

## 4 Intended use

This decentralised ventilation unit with heat recovery is used for ventilation, radon reduction and moisture protection of indoor spaces. It changes up to 20 m<sup>3</sup> room volume per hour. In a small room with e.g. 16 m<sup>2</sup> living space and 2.5 m room height, the room volume of 40 m<sup>3</sup> (16 m<sup>2</sup> x 2.5 m) would thus be changed about every 2 hours (40 m<sup>3</sup> / 20 m<sup>3</sup>). Since hardly anyone in the past would have ventilated every 2 hours (day and night), it quickly becomes apparent what a benefit this KWL represents and why many customers,

even with significantly larger rooms, do not operate the unit constantly at the highest level.

For pure moisture protection (air exchange rate 0.2 h<sup>-1</sup> according to DIN 1946-6), 100 m<sup>3</sup> room volume could be ventilated, which would be sufficient for 2.50 m room height up to approx. 40 m<sup>2</sup> living space. We recommend monitoring the room values with suitable measuring devices.

For particularly large rooms or high emissions, several units can be distributed in the room.

## **5 Scope of delivery**

Please check the completeness of the scope of delivery using the following parts list:

1 x ventilation unit in the selected variant (sensors are already installed in the ventilation unit)

1 x 12 volt power supply unit

2 x plastic pipes  $\varnothing$  50 mm x 500 mm

4 x foam rings (with core)

2 x outer panels (with / without drip lip)

4 x dowels + screws

2 x dust filter G3 (standard)

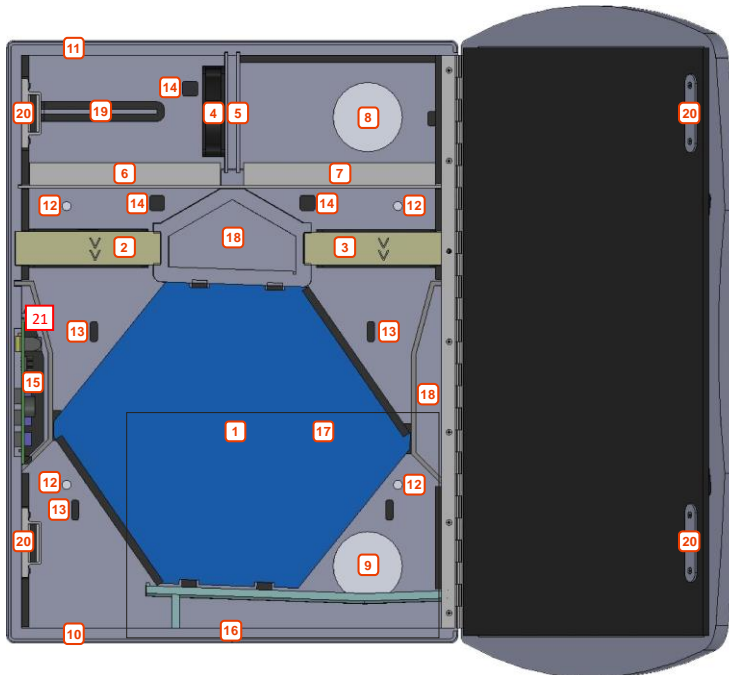
1 x USB cable

1 x drilling template

1 x frost protection slider with window + fleece

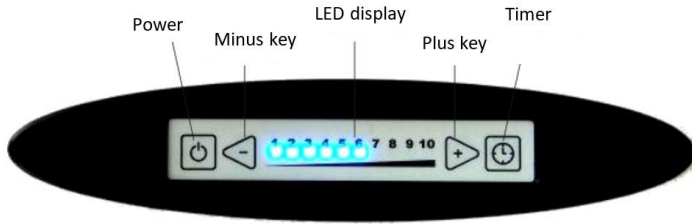
1 x frost protection slider closed

## 6 Name of the party

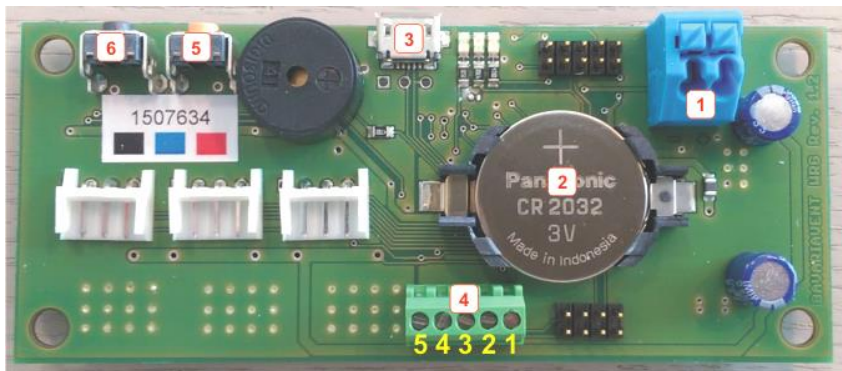


[Abb. 1: Opened unit]

- |                                  |                             |
|----------------------------------|-----------------------------|
| [1] Heat exchanger               | [11] Exhaust air slots      |
| [2] Exhaust air motor            | [12] 4 mounting holes       |
| [3] Fresh air motor              | [13] 3 sensor slots         |
| [4] Antifreeze motor             | [14] 3 motor slots          |
| [5] Anti-freeze slider           | [15] Electronics board      |
| [6] Exhaust air filter           | [16] Socket for 12V DC      |
| [7] Fresh air filter             | [17] Capacitor foil         |
| [8] Fresh air pipe               | [18] 2 free compartments    |
| [9] Exhaust air pipe             | [19] Sound insulation panel |
| [10] Supply air slots/USB socket | [20] 2 magnetic catches     |
|                                  | [21] Radon sensor           |



[Abb. 2: Control panel]



[Fig. 3: Electronics board]

- |  |   |
|--|---|
| [1] 12 volt terminal (compression spring button) | [4] Terminal for external control             |
| [2] Battery holder for 1 lithium CR2032          | [5] Button red = Reset                        |
| [3] Micro USB interface                          | [6] Button black = Currently without function |

## 7 Operation and programming

### 7.1 Opening the device



**Do not reach into running fan motors. We recommend turning off the unit before opening it.**

The unit door is held on the inside by two magnetic catches, while the hinge is located on the right side. To open the unit, pull firmly on the slightly protruding door on the left.



**When closing the door later, make sure that the condensate foil in front of the heat exchanger is upright and that both magnets snap into place.**

### 7.2 Triggering the unit self-test

WITH RESET TO FACTORY SETTINGS



**Since the unit is reset to factory settings during this self-test, please do not perform it if you have received your unit pre-parameterized. Otherwise, the settings would be lost and you would have to reset them.**

1. To trigger the self-test, stay on the power key for approx. 9 seconds until the device has emitted 4 beeps. Then release the power key.
2. As soon as you have released the button, the device will give a short beep.

3. Then the sensor slots are tested for function in sequence

Exhaust air (bottom right)

Fresh air (top right)

Exhaust air (top left)

Supply air (bottom left)

The tones differ as follows:

Short tone: sensor present and ready for use

Long tone: Sensor not present or defective

**Example AlphaAir Freshbox 25 Basic:** In the usual configuration with a temperature sensor (frost protection), the sound signals would therefore sound as follows: long - short - long - long

**Example AlphaAir Freshbox 25 with humidity sensor:** In this version, three sensor slots are occupied, resulting in the following sequence: long - short - short

**Example AlphaFreshbox 25 with humidity + radon sensor:** In this version, three sensor slots are occupied, resulting in the following sequence:

long - short - short

The sound signals of the AlphaFreshbox 25 with radon and humidity sensor correspond to the version with humidity sensor.



4. After the sound signals, the upper frost protection motor, the right fresh air motor and the left exhaust air motor are tested before the unit ends the self-test with 3 sound signals.

#### WITHOUT RESETTING TO FACTORY SETTINGS

To perform a functional test without resetting to factory settings, press and hold the minus button while either pressing the upper button on the unit board (pink) or powering the unit at that moment. The rest of the procedure is identical to the steps "WITH RESET TO FACTORY SETTINGS".

#### RADON SENSOR SELF-TEST

When the AlphaFreshbox 25 with radon sensor or the AlphaFreshbox 25 with radon and humidity sensor is powered for the first time, the AlphaSensor automatically initiates a self-test and switches to the highest ventilation level or the level set in boost mode for 30 seconds. Afterwards, the unit returns to the originally set level.

This self-test is always initiated when the power supply is interrupted and then restored.

## **7.3 Control panel**

To operate your device, there are four keys on the control panel, which are highlighted accordingly. In the delivery state, each "keystroke" is acknowledged by a short acoustic signal.

Chapter 7.5 Special functions explains how this sound can be deactivated under KEY ACKNOWLEDGMENT SOUND.

## **7.4 Basic functions**

### **SWITCHING ON / OFF**

Pressing the left power key switches the device on/off. After switching on, it runs again with the power/program at which it was last switched off.

### **SELECT POWER**

Press the plus or minus key. The LED's indicate which internal level 1-10 the unit is at.

### **LED TIMEOUT**

By pressing the Plus and Minus keys simultaneously for about 3 seconds (sound signal), it is possible to toggle between the LEDs being on continuously and them going off about 15 seconds after the last key was pressed.

## FIX POWER

In an automatic humidity program (cellar mode / comfort mode), the unit can change the power independently. If you want to temporarily deactivate the automatic mode and fix a power manually, press the Plus or Minus key for about 3 seconds until the unit emits a double beep. The unit will now permanently maintain the selected power. If you want to release the automatic mode again, just press the Plus or Minus key briefly so that the unit emits a short tone. From now on, it regulates its power again under moisture control.

## TIMER OPERATION (E.G. INTENSIVE VENTILATION OR SETBACK)

The right timer key is factory programmed with the parameters (power = 30% and interval = 1 hr). This programming can be changed as described in chapter 7.5 Special functions under PROGRAMMING THE TIMER BUTTON.

Each time the timer key is pressed, the timer with which the unit runs on silent power, for example, increases by one interval step (factory setting 1 hr).

### **Application example stronger ventilation limited in time**

The unit hangs in a bathroom and runs at low level due to already dry air. After going to the toilet (with a lot of odor), intensive ventilation is required for two hours = press the timer key twice. After the two hours have elapsed, the unit automatically returns to basic ventilation.

To exit intensive ventilation prematurely, press the + or - key or switch the unit off with the power key.

### **Application example weaker ventilation time limited**

In a conference room, the unit is operated at full power between meetings. In order to lower the ventilation noise below the audible threshold in the room for the duration of the conference, you have changed the assignment of the timer key, as described in chapter 7.5 Special functions under PROGRAMMING THE TIMER KEY, as follows: Power 40% and Interval = 2 hrs.

At the beginning of the conference, a single press on the timer key is now sufficient to temporarily reduce the power for 2 hours. After the time has elapsed, the unit returns to intensive ventilation. This function is also popular for home theaters.

### **REPEAT FUNCTION (REPEAT)**

The electronics of your Freshbox ventilation unit are equipped with an internal clock, which allows you to automate daily recurring ventilation operations. To activate the repeat function, please press the timer button for about 3 seconds (2 beeps) after setting the timer (not longer than 6 seconds).

### **Application example daily recurring intensive ventilation**

The unit hangs in a bedroom and runs continuously at night at 20% power. After getting up, the occupants want the unit to

ventilate at 100% power for 10 hours in order to change the room volume several times for fresh air until the evening and to expel accumulated humidity. The programming of the timer button is in the delivery state (power = 100% and interval = 1 hour).

It is now sufficient to perform the following steps once to auto-matize the daily airing:

1. at the desired switch-on time (after getting up), use the +/- keys to select the desired basic ventilation of e.g. 20% for the night.
2. Now press the timer button 10 times to start the 10-hour intensive interval.
3. Now press the timer key again and hold it down for at least 3 seconds (2x beep).

You have thus already activated the repeat function and from now on the unit will ventilate intensively for 10 hours every 24 hrs before returning to basic ventilation for the remaining time.

To exit the repeat mode, press the timer button again for approx. 3 seconds until the unit beeps 2x again.

**Note:** If you change the power by pressing the plus/minus key or switch off the unit during timer operation, the timer programming will not be lost. For example, you can reduce the power in the bedroom during intensive ventilation in order to take a nap in a quiet environment. The unit will still go back to intensive ventilation the next morning.

## 7.5 Special functions

### PROGRAMMING THE TIMER KEY

Two values can be assigned to the timer key:

#### a) Assign power

1. Select the desired power with the +/- keys. 2.
2. Now press and hold the timer key for about 6 seconds until 3 beeps were heard. 3. now release the key and press the timer key again.
3. Now release the button and the value will be saved.

#### b) Assign timer-intervall

In the delivery state, the interval is 1 hour.

1. To increase the interval per keystroke to, for example, 5 hours, press the timer key 5x.
2. Then press and hold the timer key for approx. 9 seconds until the device beeps 4x.

The value has been saved and in the future one press of the button will be enough to ventilate intensively for 5 hours.

**Note:** If you perform step b) again, the timer button is already programmed with 5 hrs. per button press. If, for example, you were to press the button twice now and then save the value again by holding it down for a long time, you would have programmed the timer button with 10 hours (2 x 5 hours). If you want to assign a shorter value to the key, reset your device

to factory settings. To do this, press and hold the power key for about 9 seconds until you hear 4 beeps.

#### KEY CONFIRMATION TONE

To turn the standard key confirmation tone on/off, please press and hold the power key for min. 3 seconds (2x tone).

**Note:** As soon as you enter the programming mode (e.g. for the timer key), the key confirmation tone activates temporarily to make programming easier for you. As soon as you exit the programming mode, the device can be operated again without the beep tone, provided the tone was previously deactivated.

#### CHILD LOCK

Press and hold the power key for approx. 6 seconds until the device beeps 3x. The control panel is now locked and can only be unlocked again using the same procedure.

#### DEPLOYMENT FUNCTION

If, for example, the antifreeze slide valve next to the antifreeze motor is not replaced in time at the beginning of winter, icing may occur in the heat exchanger. This does not cause any damage, as the ice does not continue to grow after the exhaust air ducts are closed. However, efficiency is lost and the unit must be defrosted manually.

Since a considerable amount of melt water can be released during the defrosting process, you should check beforehand whether the exhaust air duct is free and not also closed with ice. This would have to be defrosted beforehand, e.g. with boiling water (caution: danger of scalding).



**Do not use a hair dryer or similar as this could damage the heat exchanger.**

To start the defrost function, press the timer button while the unit is running until the unit beeps 5 times in succession. Close the upper fresh air tube with one of the two stored foam cores or with a cloth.

The defrost function ends automatically after one hour but can also be ended earlier by pressing the power button.



**Note that in this mode there is an asymmetry between fresh air and exhaust air, which may result in a slight negative pressure in the room. Remove the plug from the fresh air pipe.**

## WINDOWS CONFIGURATION TOOL

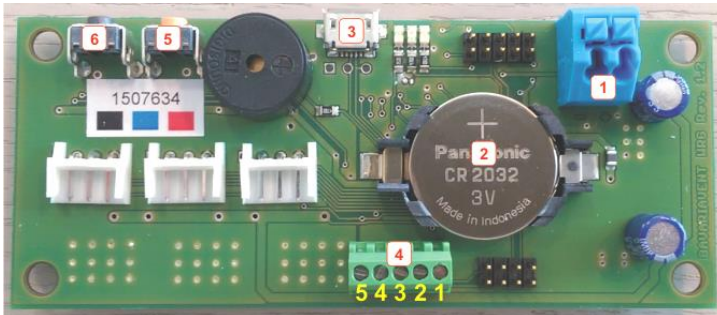
A very convenient way of programming is offered by our Windows tool for communication via the USB interface. Both the software and the instructions are available for free download on the AlphaAir Freshbox 25 product page of our RadonShop.

## EXTERNAL CONTROL OF THE TIMER FUNCTION

Since software version 13080000 (update available for free in RadonShop), the unit can be remotely controlled by external buttons, switches or relays. This function is useful if, for example, the unit is not directly accessible in the room, it is to be controlled via the relay of a light switch (toilet) or motion detector (smoking room), or the occupants wish to send



several units into intensive ventilation at the same time, e.g. when leaving the building. In addition, many other applications are possible.



[Fig. 3: Electronics board]

On figure no. 3 the green terminal strip [4] can be seen. If the contact between pin 1+2 is closed, it has the same function as if the timer button is pressed on the device, which is freely programmable in power and duration.

Thereby there are the following application possibilities:

1. If the contact is closed  $>0.5$  but  $<3$  seconds, the device recognizes that a button has been operated and per button press the interval is extended by one interval period. In the delivery state, each push of the button brings 1 hour of intensive ventilation with 100% power.
2. If the contact is closed for  $>3$  seconds, the device recognizes that either a switch or a relay is connected and remains in intensive ventilation as long as the contact is closed. Here, a run-on time can also be defined via the Windows tool so that, for example, after a relay coupled to the light switch of a bathroom lighting drops out, the

unit does not immediately return to basic ventilation.



**Only connect switches, buttons, relays or similar to the two pins of the terminal.**



**Do not apply voltage to the two pins of the clamp, as this would destroy the board.**

### INSERTING THE MEMORY PROTECTION BATTERY

Basically, the device can be used without the battery inserted. The operating system as well as the factory parameters are stored in a non-volatile memory.

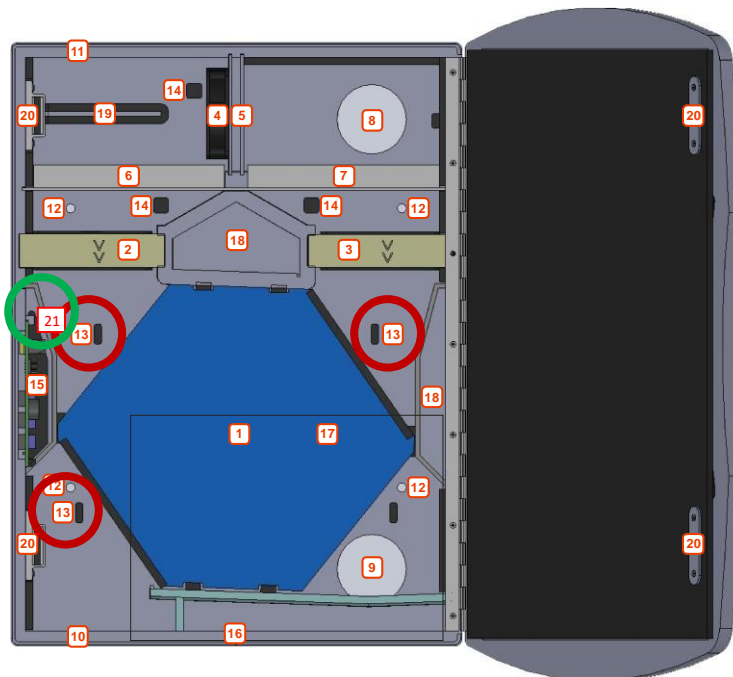
Since the device has an integrated timer that would stop in the event of a power failure, a CR2032 lithium battery can be inserted in the holder on the circuit board for its backup. This saves restarting the timer repeat operation after a thunderstorm, for example.

There are sensitive circuits on the circuit board which should not be touched. It is advisable to touch a grounded object (faucet, radiator, etc.) before pulling out the electronics to dissipate any static charge.

1. To insert the battery, pull the circuit board out of the device by approx. 4-5 cm.
2. The holder is now on the right side.
3. Insert the battery into the holder with the positive pole (+) to the right (the battery label is legible) and press it down lightly.
4. Push the board back into its compartment.

Thanks to the battery, the internal clock continues to run even in the event of a power failure. However, the automatic changeover between summer/winter time requires that the device is supplied with power via a 12 volt power supply unit at the time of the changeover, as only then is the main processor active.

## 7.6 Sensor slots



[Fig. 1: Opened device]

Figure no. 1 shows the four sensor slots [13] and [21] outlined in red and green.

**All AlphaAir Freshbox 25 variants:** The top right slot is equipped with a temperature sensor.



**Do not attempt to pull out the sensor as it is sealed to protect it from condensation.**

**AlphaAir Freshbox 25 with humidity sensor and AlphaAir Freshbox 25 with radon and humidity sensor:** The two slots to the left of the heat exchanger (blue) are equipped with the two components of the humidity sensor.

**AlphaAir Freshbox 25 with radon sensor and AlphaAir Freshbox 25 with radon and humidity sensor:** The AlphaSensor for measuring radon is located in the extract air duct of the ventilation unit (outlined green).



**Do not remove the AlphaSensor 10 from its position and do not make any changes to its connection to the exhaust air duct.**

## 8 Operating modes

### For **AlphaAir Freshbox 25 with humidity sensor** and **AlphaAir Freshbox 25 with radon and humidity sensor**

If you do not specify an installation location when ordering (e.g. unoccupied cellar, bedroom, bathroom, etc.), the operating mode is set by the manufacturer to the comfort mode for normal living rooms. The unit is pre-programmed in such a way that it is allowed to regulate independently, depending on the humidity values, around the clock between level 4 (min. basic ventilation) and level 10 (full power, e.g. for humid room air). In a bedroom, a night setback to level 3 would be provided between 9 p.m. and 9 a.m. without any further requests.

### 8.1 Selecting the operating mode

There are three operating modes:

- a) Without humidity control
- b) Cellar mode (maximum dehumidification)
- c) Comfort mode

The most convenient way to set the mode is via our Windows tool ("System" tab) but it is also possible to change directly via the control panel on the unit itself by pressing and holding the power key for a longer period of time:

<b>Without humidity control</b>	approx. 15 seconds on power (1 long tone)
<b>Basement mode</b>	approx. 20 seconds on power (2 long tones)
<b>Comfort mode</b>	approx. 25 seconds on power (3 long tones)

To ensure that the selected mode is accepted, the unit should then be switched on/off once.

## 8.2 Mode without humidity control

In this mode, the unit operates purely manually or time-controlled and ignores any sensors that may have been inserted. If you remove the sensors one day, please return the unit to this mode.

## 8.3 Cellar mode

This operating mode is used to dehumidify rooms and to protect them from the entry of humidity caused by ventilation (e.g. sultry outside air in summer). The unit automatically compares the absolute humidity of the incoming fresh air with the room air.

In the event of humid outdoor air, a reduced basic ventilation or the complete shutdown of the unit can be defined.

If the unit is to switch off completely when the outside air is humid (level FN = 0), it will

only start up briefly twice an hour and "sniff" to see if the outside air has become drier in the meantime. Only if it has become drier than the room air in the meantime (hysteresis can be parameterised in the expert settings), the unit will continue to ventilate intensively. Otherwise, it goes back to "sleep" for 30 minutes (this value can also be set).

## 8.4 Comfort mode

In contrast to the cellar mode, this mode is not only about drying a room. Rather, comfort includes exactly the right ratio of humidity to the room temperature.

Since this mode can also be combined with the timer, it is suitable for all occupied rooms, from the bathroom to the bedroom. In addition to automated humidity protection, the focus here is on the well-being of the occupants.

## 8.5 Fixing the output

During a humidity-controlled operating mode, the unit will automatically adjust its output depending on the selected parameters. This also happens if an output was previously selected manually at the wedge-shaped output selection area. If you want to suspend the automatic control and fix a level manually, press the desired power for about 3 seconds until the unit emits 2 acoustic signals. The level is now fixed and will not adjust automatically. All three LEDs on the circuit board light up. To release the fixation, press the power selection area again (approx. 0.5 sec) so that the unit emits a sound signal.

## 9 Radon monitoring

### For AlphaFreshbox 25 with radon sensor and AlphaFreshbox 25 with radon and humidity sensor

The radon sensor AlphaSensor is already installed at the factory in the AlphaFreshbox 25 variant with radon sensor. No changes or adjustments need to be made to the unit or the sensor.

The sensor is located in the extract air duct of the ventilation unit, where the radon activity concentration of the room air is measured before it is blown out of the house.



**Do not remove the AlphaSensor from its position. No liability is accepted for damage caused by improper handling.**



**Do not make any modifications to the AlphaSensor or its connection to the exhaust air duct.**

### OPERATION OF THE ALPHASENSOR

If the factory-defined radon limit value of 200 Bq/m<sup>3</sup> is exceeded in the room air, the ventilation unit automatically switches briefly in boost mode to the maximum ventilation level 10 in order to reduce the radon concentration as quickly as possible. After 10 minutes, the AlphaFreshbox 25 with radon sensor switches back to the previously set ventilation stage if the radon concentration has fallen below the set limit value. If



the radon concentration is still above the limit value, the running time is extended by a further 10 minutes.

The boost mode is set to level 10 in the factory, but can be set as desired via the software tool (level 1-10).

In the Windows software, the ventilation level can be selected between 1 and 10 in the "Timer" tab.

If in the Windows software in the "Timer" tab the checkmark is set for Run-on, the boost ventilation runs for 3 minutes more after the radon value has already fallen below the limit value again.



**The radon ventilation has priority over all other ventilation options of the AlphaFreshbox 25. As soon as the radon limit value in the room air is exceeded, boost ventilation is initiated, regardless of set ventilation modes or timer times.**

Summer cross-ventilation without heat recovery is not recommended for the AlphaFreshbox 25 unit variant with radon sensor. The negative pressure created in the room by this mode would draw more radon into the building and significantly increase the radon activity concentration in the room air.

## 10 Mounting the device



Please note that deviations from the following description are possible depending on your wall construction! If in doubt, ask the builder of your walls.

### 10.1 Selecting the correct mounting location

If possible, your ventilation unit should be mounted directly on an outside wall. This allows for short pipe runs and easy installation.

Since the room air usually rises at a heating source and sinks at the cooler outside wall, the unit exhausts the stale air at the top and blows in the fresh air at the bottom. Thus, it increases the natural room circulation, which leads to a good mixing of the fresh air with the room air. There is no need to worry about particular drafts. On the contrary, better air circulation often provides less cold feet, because the warm air is no longer accumulated only under the ceiling of the room.

The following points are mainly to be considered when choosing the installation location:

- Do not install the unit directly above a wall radiator. The rising warm air flows against the desired direction of circulation and has not yet had the opportunity to absorb moisture in the room.

- Do not hide the unit behind curtains or cabinets, as this would also hinder the circulation of the air.
- Keep a distance of at least 30 cm from the bottom edge of the unit to the floor and at least 10 cm from the top edge of the unit to the ceiling. It has been proven to be best to install the unit at about eye level, as this allows both good circulation and easy operation.
- If the unit is to be installed on an upper floor and the outer panels are not accessible, e.g. via scaffolding, it is also conceivable to install the unit next to a window so that the tube panels can be fitted from the window. At this point, we would like to remind you once again of appropriate safety precautions, e.g. to prevent the installer from falling!
- In the case of wet rooms, select the placement in such a way that neither the device nor the power supply unit is exposed to direct pointed water.
- When selecting the mounting location, make sure that no lines run behind it and that no load-bearing parts are weakened by the subsequent drilling.

## **10.2 Recommended tools e.g. for brick walls**

- Drilling machine with SDS attachment
- 65 mm carbide drill bit with SDS extension
- 6 mm masonry drill bit
- cable locator
- screwdriver
- bucket
- gloves
- safety goggles
- assembly foam
- joint silicone
- metal saw blade
- protective foil + adhesive tape + wipes

## **10.3 Installation without a suitable outer wall**

Special forms are usually attics without a sufficiently high wall (sloping roof) and cellars without an external wall above ground level.

If no sufficiently high external wall is available, the unit can also be mounted on an "artificial wall", e.g. made of plasterboard, which is either built at a distance in front of the roof slope or turned by 90° in front of an internal wall.

If pipe warping becomes necessary, please do not choose unnecessary detours to keep the pipe length as short as possible, use as few kinks as possible, and make sure there is a continuous slope so that condensation does not sit in depressions.

Pipe lengths of up to 2 meters are possible without significant loss of performance. Larger distances should be bridged with correspondingly larger pipe cross-sections, e.g. DN75.



**Please note that in winter, ice-cold air flows through the pipes and therefore vapor diffusion-tight insulation (e.g. covered Armaflex hose) is required to prevent condensation water from forming on the pipes. This task is performed by the construction foam in the case of "normal installation".**

In basements below ground level, the question of condensate drainage must be clarified, since the water cannot be led upwards. For this reason, a suitable T-piece (50 mm HT standard pipe) should be inserted in the exhaust air pipe, which branches off downwards.

Following gravity, the condensation water is separated here and can either be drained to the sewer system or, if necessary, into a canister, which must be emptied if required. The connection to the sewer system should be made with a reduced pipe / hose diameter ( $\varnothing$  approx. 5-10 mm) and a siphon.

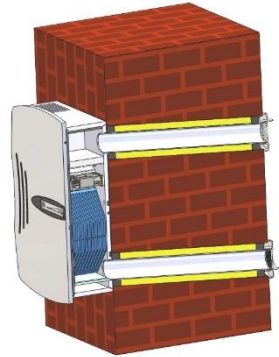
If unused window surfaces are available, it is also possible to install the system on a composite plate, which is used instead of the glass surface. In this case, the plate is drilled and not the wall.

## 10.4 Marking the drill holes

The unit is usually fastened to the wall with 4 screws and dowels. The wall must be load-bearing and vertical.



**A slight outward inclination of the top of the unit is tolerable, while an inward inclination must be prevented by suitable compensation measures.**



**Due to the condensation to be drained off, mounting in landscape format is also not possible.**

To mark the drill holes, hold the enclosed cardboard drilling template vertically against the wall.



**Only a minimal inclination to the right may be tolerated in case of doubt.**

The template can also be temporarily fixed to the wall with some adhesive tape. Now use a pointed object to transfer the 4 fixing points and the center points for the two core drill holes to the wall. Using a 6 mm masonry drill bit, now drill both the four holes for the dowels and the center holes for the ventilation pipes. The latter already with a slight outward slope.

## 10.5 Drilling the fresh air and exhaust air holes



Only carry out the following work yourself if you are suitably qualified.

Before drilling, the area under the drill holes should be protected with a laid-out foil, which can be attached to the wall with adhesive tape.

For most masonry, drilling using a carbide drill bit is recommended.

Exceptions are, for example, walls made of concrete or in wood stud construction. Concrete makes special demands on the tool used, which is why a specialist company should be consulted.

In the case of wood stud construction, care must be taken to ensure a tight transition of the pipes through the vapor barrier. The builder of your walls may even offer suitable system components for the passage of pipes. Since no installation foam is usually used here to fix the pipes, they should be protected from sweating, e.g. with a sleeve made of Armaflex or similar.

In any case, the pipes must be fixed in the wall with a slight slope of 2 to 3° to the outside (condensation drainage). It is therefore advisable to already drill the holes at the appropriate angle. Pay particular attention to this point if you have the drilling carried out by a specialist company, as they are usually used to drilling exactly at right angles.

If you drill the hole yourself with a drill bit ( $\varnothing$  65 to 70 mm) (e.g. for brick walls, Ytong or sand-lime bricks), first place the drill bit horizontally with the center drill in the center hole. Now lift the rear end of the drill slightly by approx. 3 cm to achieve the necessary slope.

We recommend simultaneous dust extraction by a helper with a vacuum cleaner or at least maintaining a dustpan. Drill without percussion function and select pressure and speed so that the drill bit becomes warm but not too hot. Excessive pressure and speed reduce the service life of the tool and, in extreme cases, can lead to "burning" of the Widia teeth.

Depending on the core bit used, you now have approx. 5 cm working depth before the core bit is completely filled with the drill core. Pull the core bit out of the wall and empty it into a bucket. It is possible that the drill core has remained in the wall and must be broken off or sucked out with the aid of a tool. As soon as the drill hole is free, the next 5 cm can be drilled.



**Always make sure to drill at the same angle so as not to get wedged in the wall.**

To prevent plaster from breaking out on the outside when breaking through the wall, the pressure on the drilling tool should be reduced shortly beforehand. For this purpose, a mark of the wall thickness can be drawn on the drill bit or a helper can observe when the longer center point first appears on the outside. The cutting action of the carbide teeth is really excellent, so that usually only the slightest fraying is to be expected, which is later easily concealed by the outer screens.



Before breaking through, also pay attention to the fact that the drill core can fall down and pose a danger, e.g. for passers-by, against which appropriate precautions must be taken!

## 10.6 Inserting the pipes into the wall

If the pipes included in the scope of delivery are too short for your wall thickness, you can use commercially available 50 mm HT pipes (wastewater pipes), which you can obtain inexpensively locally from specialist dealers or DIY stores.



**These should be made of gray polypropylene to prevent harmful substances from outgassing into the air you breathe.**

The large socket at the end of such a sewage pipe is not needed and can be easily sawed off.

A fine-toothed saw blade such as for metal is suitable for sawing off the pipes. Provided that the outside of the wall is easily accessible, you can cut the pipe to length only after foaming.

It may protrude 5-8 mm from the outside of the wall and will later be covered by the cover.

If you cut the pipe to length before foaming, shorten it to wall thickness + 1.5 cm. The resulting burr should be removed e.g. with a pocket knife.

To support the subsequent hardening of the mounting foam, it is best to moisten the pipes with a little water (when using

commercially available foam that hardens by means of atmospheric humidity).

Now take two foam rings (please keep two cores) and pull one ring onto each pipe. Now push the pipes through the wall to the outside and seal the gap between the pipe and the larger hole with the foam rings (on the inside). The foam rings may protrude 1-2 mm from the inside wall, the pipes initially about 2 cm.

Next, place the unit on the still slightly protruding tubes and screw it provisionally to the wall with the 4 screws. The tubes slide further into the wall in the process and must sit completely in the recess on the back of the unit (if necessary, push on the tubes from the outside after screwing them on).

The correct fit should also be checked by looking through the open unit door to the connections.

The unit must already be aligned vertically using the spirit level.

## **10.7 Foaming in the tubes**

Now that the pipes are in their final position and the unit is hanging vertically, the assembly foam can be injected into the gap around the pipes from the outside.

Shake the can before use and follow the respective instructions of the foam manufacturer.

Insert the hose from the outside into the gap between the pipe and the wall bore. Foam the gap while pulling out the hose.



**Note that the foam swells and can lead to dripping on the wall if the dosage is too generous.**

Close the last centimeters of the gap by stuffing one of the two remaining foam rings per tube into the gap. Use a screwdriver, for example, so that the foam rings are inserted approx. 10 mm deeper into the wall (space for the later outer screen).

If your two holes are not exactly aligned with the outer wall, you can make generous corrections in the area of the outer panel overlap before the foam hardens.

## **10.8 Power connection**

The next step is to remove the unit from the wall once again so that a flush-mounted power cable can be connected if necessary.

### **PLUG-IN POWER SUPPLY UNIT**

The standard scope of delivery includes a plug-in power supply unit, which has approx. 1.5 meters of cable and a suitable plug. If there is a power outlet within reach, the 5.5 mm plug can later be conveniently plugged into the socket on the underside of the device. A fine cable duct is suitable for concealing the connection cable.

If the connection cable is too short, it can be extended with simple two-core cable (e.g. bell wire or speaker cable).



**Make sure to keep the correct polarity.**

#### IN-WALL POWER SUPPLY (INVISIBLE POWER SUPPLY)

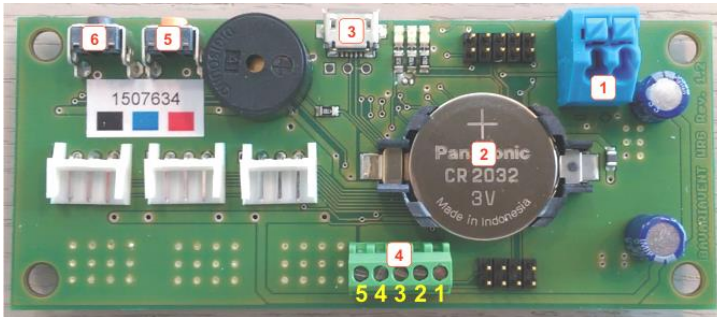
If you have already planned the use of the devices in the construction phase, a corresponding flush-mounted box may have been placed, into which only the matching flush-mounted power supply unit (optionally available in the RadonShop) is now inserted. Since this box will later be covered by the device, it allows an invisible power supply from behind.



**Work on 230 volts (UPU power supply) may only be carried out by a qualified person!**

The UPU power supply is connected directly to the 230 volt line in the box by means of suitable clamps and on the other side to the 12 volt input of the board by means of a short piece of cable.

In order to be able to lead the cable to the board, there is a small slot in the black foam (Panaskin) of the rear panel behind the board insert.



[Fig. 3: Electronics board]

The 12 volt terminal strip has the component number [1] on figure 3. This terminal strip can also be used, if a central 12 volt power supply is used, which supplies e.g. all devices of a housing unit with power. Up to now, there has been a red and a black wire in the terminal block, which leads to the power socket on the underside of the unit. Since this socket is not required when using a flush-mounted power supply unit, these wires can be disconnected in order to connect the wires of your power supply unit at the same place.



**Make sure that the connection has the correct polarity!**

In order to be able to work comfortably at the voltage terminal, the board can be pulled out approx. 3-4 cm from the device. The terminal has 2 buttons which release the cable when pressed.



**Protect the bare cable ends of the wires remaining blind in the device (to the voltage socket) with some insulating tape, so that they cannot cause a short circuit on the circuit board.**

## 10.9 Sealing the pipe transition

After the mounting foam has tightened, you can loosen the 4 screws once again and briefly remove the unit from the wall.

In case your wall thickness is much more than the tube length of the mounting foam, remove the foam rings again and foam out the gap around the tube before reinserting the foam rings.

The foam not only has the task of fixing the tubes, it also prevents the tubes from sweating due to the temperature difference in winter.

If necessary, connect the external power supply as described in the previous chapter.



**Now press sufficient joint silicone into the lower rear recess in the rear wall of the unit (exhaust air pipe) to ensure a tight condensation water transition from the unit to the pipe.**

The unit is then placed back on the pipes and after it has been aligned with the spirit level, all four screws may be tightened.

Any surplus silicone in the lower exhaust air pipe that is likely to ooze out during this process should be smoothed out through the open door to ensure a bead-free transition from the unit to the pipe without condensation water accumulating at this point later.

## 10.10 Fastening the outer panels

Apply a generous amount of silicone or Sikaflex all around the front end of the tube circumference (not on the face). Then slide on the respective tube cover.



**The lower orifice faces downwards with the drip lip, the upper orifice faces upwards with the small roof.**

## 11 Function of the automated frost protection

Your ventilation unit is equipped with a bus line, a temperature sensor and a frost protection motor. During outside temperatures above 0°C, the closed partition (to the right of the frost protection motor) should remain pushed in to utilize the full efficiency.

As soon as the outside temperatures start to drop sustainably below 0 to -5°C (tolerance range) in winter, this partition should be pulled out in good time and exchanged for the winter insert (has a window cut-out covered with filter fleece).

The removed partition can be stored in one of the two empty compartments.

If the replacement is overlooked, the speed of the antifreeze motor is ramped up to a clearly audible range, reminding the user. Automatic shutdown of the working motors then protects the unit.

If the semi-permeable winter insert is used and the outside temperature continues to drop, the frost protection motor will start up gently and add exactly enough warm air (in recirculation mode, as it were) through the heat exchanger to keep the condensation water liquid.

The heat recovery will drop a little bit, but the used heat is well invested, because after an icing of the exhaust air tube or the heat exchanger the efficiency would drop to zero.

While units with manual frost protection usually open the damper further than necessary as a precaution, the frost protection motor can automatically adjust its output and also reduce it as soon as, for example, outside temperatures are higher during the day than at night. In this way, one always runs close to the maximum possible efficiency.

Especially in rented properties, users do not want to worry about changing the two plug-in units. In this case, please leave the slide-in with window and white fleece inserted all year round. The only disadvantages are a slightly lower heat recovery in times when frost is guaranteed not to prevail and a slightly reduced external sound attenuation.



## 12 Maintenance and cleaning

### 12.1 Filter material

Rectangular filter mats with dimensions 126x90 mm and a thickness of up to 20 mm are used.

The standard scope of delivery includes class G3 filters, which protect the heat exchanger from rapid fouling and the occupants from penetrating coarse dust.

In principle, the unit can also be operated without filters, but this shortens the cleaning intervals for the heat exchanger accordingly.

Finer filters are available as an option, although it should be noted that finer filters reduce the air flow rate and the unit may therefore have to be operated at a higher level.

Special filters to mention are pollen filters and activated carbon filters. The latter reduce exposure to exhaust fumes and odors. They have proved their worth both in busy city centers and in rural areas where a lot of heating is done with wood and coal.

To maintain symmetry between supply and exhaust air, two identical filters (left and right) should always be inserted. With activated carbon filter on the right, the standard filter can also remain inserted on the left.

If your filter has a fluffy and a hard side, the harder side rests on the bottom of the grille.

## 12.2 Filter change

The filters should be changed completely at least 1x per year. Activated carbon filters earlier, in case of decreasing efficiency. Clean filters are important for the performance and efficiency of your unit!

## 12.3 Regular cleaning

Depending on the environmental pollution, the filter mats should be cleaned with a vacuum cleaner at least twice a year. In case of higher pollution accordingly more often.

The filters should not be interchanged between the fresh air side and the exhaust air side, the filters should only be vacuumed from the top side and should also be reinserted into the unit with the top side facing upwards.

Before the cold season, the antifreeze motor/insert should be checked for dust deposits and cleaned with the vacuum cleaner (crevice nozzle), a cloth or suitable brush if necessary.

If there is any other dirt on the unit, it can be wiped off with a soft cloth and mild detergent. Dust deposits in the air ducts can be removed with a vacuum cleaner or also with a cloth.



**Put the device down before cleaning to avoid damaging fine components or cables.**



**Do not get moisture on the electronics board.**

Organic deposits in the area of the condensation drain are removed with spirit or chlorine cleaner.

Especially during the time when dandelions are in bloom, the grille of the top orifice plate may become blocked with fibers sucked in from the outside. This should be checked regularly. If the outer orifice is not easily accessible, it is sufficient to spray the sharp water jet of an old spray bottle through the tube from the inside so that the "felt" falls off on the outside.

## 12.4 Cleaning the heat exchanger

The transparent material of the heat exchanger allows a good view and thus makes it possible to detect contamination at an early stage. If the unit is operated with filters, cleaning of the heat exchanger is often only necessary after several years.

To do this, pull the heat exchanger out of the unit towards the front while grasping it with your fingers at the very back, if possible. If you were to grasp the heat exchanger at the front, it would be pulled apart like an accordion, which could cause its welds to crack.



**Note the orientation in which the heat exchanger was inserted, as this is not arbitrary.**

Deposits are usually the finest particles that have been able to pass through the filter and are encrusted when combined with condensation. These deposits settle almost exclusively in the exhaust air ducts, since condensation usually only occurs in these.

To dissolve the deposits as far as possible, place the heat exchanger in a tub with lukewarm water and a strong shot of chlorine cleaner.



Use suitable protective gloves / goggles and do not use water that is warmer than 50°C.

The heat exchanger should be soaked for a good 1-2 hrs and swished several times during this time.



**Cleaning in a dishwasher will damage the heat exchanger!**

After rinsing and draining, the heat exchanger can be put back into the unit immediately.

Since the heat exchanger is made of rot-proof material, any remaining discoloration is usually only residual dirt which does not impair the function.

The heat exchanger must be replaced if it has been damaged or its channels have become completely blocked due to lack of maintenance. You will find the suitable spare part in our RadonShop.

## 12.5 Cleaning the humidity sensor

For **AlphaAir Freshbox 25 with humidity sensor** and **AlphaAir Freshbox 25 with radon and humidity sensor**

Coarse dirt on the paper filters can be wiped off carefully. Depending on the ambient conditions, the filters may need to be replaced after a few years.

Please do not immerse the sensor in liquids and do not try to clean the openings mechanically with pointed objects.

## 12.6 Cleaning the AlphaSensor

For **AlphaAir Freshbox 25 with radon sensor** and **AlphaAir Freshbox 25 with radon and humidity sensor**

The AlphaSensor does not need to be cleaned.

However, it is recommended to recalibrate the sensor approximately every 3 years. To do this, remove the Radon sensor from its position and return it directly to RadonTec.

## 13 Troubleshooting

Malfunction	Possible cause / elimination
Device does not work	<p>No power, insufficient contact, or wrong polarity.</p> <p>Please check whether the power supply unit is supplying power, the polarity (+/-) is connected correctly and the green LED on the device board is lit.</p>
Device cannot be operated	<p>Probably the child lock is activated.</p> <p>It can be deactivated again by pressing the left power button for approx. 6 seconds (3 beeps).</p>
A motor does not run, or the unit does not respond to button presses	<p>One plug has no contact.</p> <p>Check which plug has come loose either at the circuit board or at the motor sockets and press it tight again.</p>
The air flow rate is too low	<p>Filter or grille of the tube shutters clogged.</p> <p>Clean or replace the two filter mats. The grille of the outer tube orifice may have become clogged with dust that has been sucked in and needs to be cleaned.</p>

The fresh air is not preheated      The heat exchanger is iced up.

The partition next to the antifreeze motor may need to be pulled out and replaced. Defrost the unit according to chapter 7.5 Special functions under DEFROSTING FUNCTION.

The unit whirs very loudly      Check whether a fan motor has shifted in its holder.

The motor must be held by the surrounding foam padding and must not be in direct contact with the housing. Is a cable or loose object possibly rubbing against the fan motor blades?

It is known that new motors need to run in for a while. If necessary, please give it some time if it is just a quiet whirring noise.

The timer operation is interrupted      The lithium storage battery is empty and needs to be replaced with a fresh one.

The unit reduces its power without setting the timer      Very low outside temperatures prevail, which can be seen from the running antifreeze motor.

The closed partition to the right of the motor must not be pushed in. If the power of the working motors is now throttled,

this is only temporary as long as the outside temperature exceeds the power capability of the antifreeze motor

## **14 Things to know and tips & tricks**

### **14.1 Basics**

Air can absorb different amounts of moisture depending on the temperature (the warmer the more). If moist air is cooled, it must release moisture again below a certain temperature (dew point). In nature, we recognize this condensation by the formation of fog or clouds. In our rooms, the air also condenses first where it is coolest and earlier, the more humid the air.

### **14.2 Humid rooms**

Special care must be taken in cool basement rooms. Here, in summer, there is a great danger that enormous amounts of moisture will be introduced by too much ventilation. The muggy summer air not only brings heat, but also a lot of moisture. If the air then cools down on the cool basement walls, the moisture is released and accumulates in the masonry.

So a rule of thumb to dry out cool, damp rooms is to ventilate a lot during cool, dry hours and little during hot, humid hours. This is exactly what you achieve automatically by using the



humidity sensors in basement mode. If ventilation takes place via a window, this also has the disadvantage that ventilation in cold hours cools the room down even further, which can exacerbate the problem. Intelligent ventilation by means of WRG and dew point control provides a remedy here. Through the humidity sensors, the unit fully automatically uses every hour of outdoor air that is suitable for drying and immediately blocks humid weather phases. Make sure that the basement mode has been activated for this function.

### **14.3 Bed room**

It is often heard from residents that bedrooms are not heated and that the heat coming from neighboring rooms is sufficient. Please keep in mind that not only heat but also a lot of humidity comes into a cool room! Sometimes you can smell it when you enter such rooms. It smells musty and you feel the need to ventilate. It does not cost more energy to temper the heating in the bedroom slightly and keep the door closed for that. The heat from the other rooms is then no longer necessary and, above all, their humidity can no longer enter.

Silence is a basic need in our bedrooms. Since airflow is always accompanied by airflow noise, even previous units liked to use a timer to turn the unit off at night. The stale air is exchanged for fresh air several times the following day, and enriched moisture is expelled. The wall plaster then has the capacity to buffer moisture again without the dreaded condensation occurring.

The great advantage of your new unit is now that it no longer has to be switched off completely at night by an external timer,

but can be throttled down to reduced ventilation by an integrated timer. This automatically maintains a fresh air contribution that can be adjusted according to the room size and individual sensation, below the hearing threshold.

## 14.4 Energy saving

It is incomprehensible why vast sums are spent on insulation and tight windows, while the heat paid for is then only ventilated out of the window unused.

If, for example, the air exchange rate of 0.5 h<sup>-1</sup> specified in DIN 1946-6 is to be adhered to, the following example calculation for determining the ventilation-related heating energy loss results for an apartment with 120 m<sup>2</sup> of living space and a room height of 2.5 m (outside temp. 0°C, room temp. 22°C):

$$\text{Air exchange} \times \text{area} \times \text{height} \times \text{air mass} \times \text{energy} \times \Delta T = \\ 0,5 \quad \times 120 \times 2,5 \quad \times 1,29 \quad \times 1,09 \quad \times 22 =$$

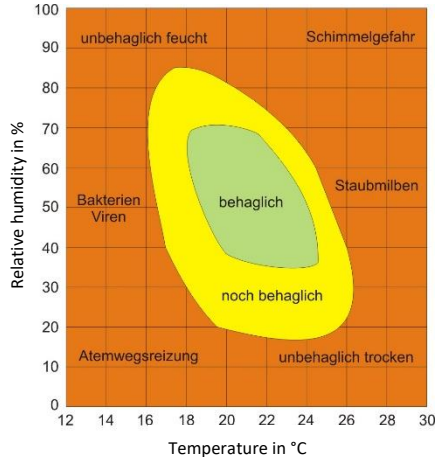
Amount of energy  
4,64 MJ/h

In other words, you are irretrievably ventilating about 1.29 kWh out the window every hour. With a heat recovery of up to 90%, up to 1.16 kWh could be saved every hour if the apartment were equipped with these devices.

## 14.5 Comfort

Despite rising energy prices, the comfort of the occupants should not be neglected. The connection between comfort with temperature + humidity plays a decisive role.

The adjacent graphic (comfort field) illustrates how closely



illness-promoting conditions are connected with this. The simple control of the ventilation unit allows you to adjust the performance individually to your room conditions. In winter, excess humidity can be removed very well, and in summer, controlled ventilation leads to less mugginess, which you would quickly have in the room by an open window.

## 14.6 Condensation and icicles

Condensation will occur mainly in the cold season, as soon as the temperature in the heat exchanger falls below the dew point. In summer, the temperature difference is usually not sufficient for this, but there is hardly any danger of condensation on the warm inner walls. Before the surface temperature of the walls drops in winter, the unit can already remove a lot of moisture.

If the outside temperatures drop into the negative range, icicles will probably form on the drip lip of the outside screen in your case as well. A nice example of the effect of the device is that the icicles are usually much larger in the first year than in subsequent years. This is due to the fact that the walls are often still wet at first, prior to installation, and is evidence of the fact that after they have been "discharged", only the acutely occurring moisture needs to be removed.

Since some condensation can also form in the two storage compartments in the device, no moisture-sensitive objects should be stored there. The compartment for the circuit board is located on the warm side and is therefore not affected by condensation.



**Especially on the first cool days after assembly, check whether the condensate is correctly drained to the outside and that there are no leaks!**

## 15 Extensions

An optional WLAN module is available in our RadonShop, which allows wireless access. Currently, all parameters can be changed and live values can be read out via Windows tool. The latter is also possible platform independent e.g. via smartphone browser.

## 16 Software update

In order for the device to work together with newly developed components later on and for you to be able to enjoy new functions, the possibility of a system update has been created. The necessary software can be downloaded from our homepage and transferred to the board via USB cable using the included Windows tool.

## 17 Disposal

When the device has reached the end of its service life, please dispose of it properly. Take the device to a collection point for electronic waste. Do not throw it into the household waste.

Also dispose of the packaging materials properly and in an environmentally friendly manner. These are raw materials and can be reused.

Contact your local administration for information on the currently applicable disposal regulations.

**Battery ordinance:** Batteries and rechargeable batteries must not be disposed of in household waste. As the end user, you are legally obligated to return used batteries and rechargeable batteries. After use, you can return them free of charge to our sales outlet, to a municipal collection point or to your local retailer. You can also return them to us by mail. Batteries or rechargeable batteries containing harmful substances are marked with a sign consisting of a crossed-out waste garbage

can and the chemical symbol (Cd, Hg or Pb) of the heavy metal that is decisive for the classification as containing harmful substances.

## 18 Technical Data

<b>Dimensions base body HxWxD</b>	40x30x10,5 cm
<b>Dimensions door (standard) HxWxD</b>	44,5x32x1 cm
<b>Weight incl. standard accessories and packing</b>	4,5 kg
<b>Heat recovery rate</b>	Up to 90%
<b>Ventilation pipe outer diameter</b>	50 mm
<b>Air flow rate</b>	80 mm
<b>Sound power level</b>	5 to 20 m <sup>3</sup> /h
<b>Exterior noise attenuation</b>	22 dB(A) up to 38 dB(A)
<b>Standby power consumption</b>	Up to 45 dB
<b>Power consumption in operation</b>	< 0.5 Watt 1.5 to 6 Watt

We reserve the right to make minor changes during further technical developments.

## 19 Product data sheet

<b>SEV in kWh/(m<sup>2</sup> x a) per climate zone (cold, average, warm)</b>	-71,08	-36,12	-13,47
<b>SEV class</b>	A+	A	E
<b>ventilation unit type (WLA = residential ventilation unit)</b>	SSC two directions		
<b>Type of speed drive</b>	Controllable		
<b>Type of heat recovery</b>	Recuperative		
<b>Degree of temperature change in % for dry air</b>	67		
<b>Highest air volume flow in m<sup>3</sup>/h</b>	20		
<b>Fan power at highest air flow rate in watts per direction</b>	2,16		
<b>Sound power level LwA at reference air volume flow in dB(A)</b>	38		
<b>Reference air volume flow in m<sup>3</sup>/sec (supply air)</b>	0,0038		

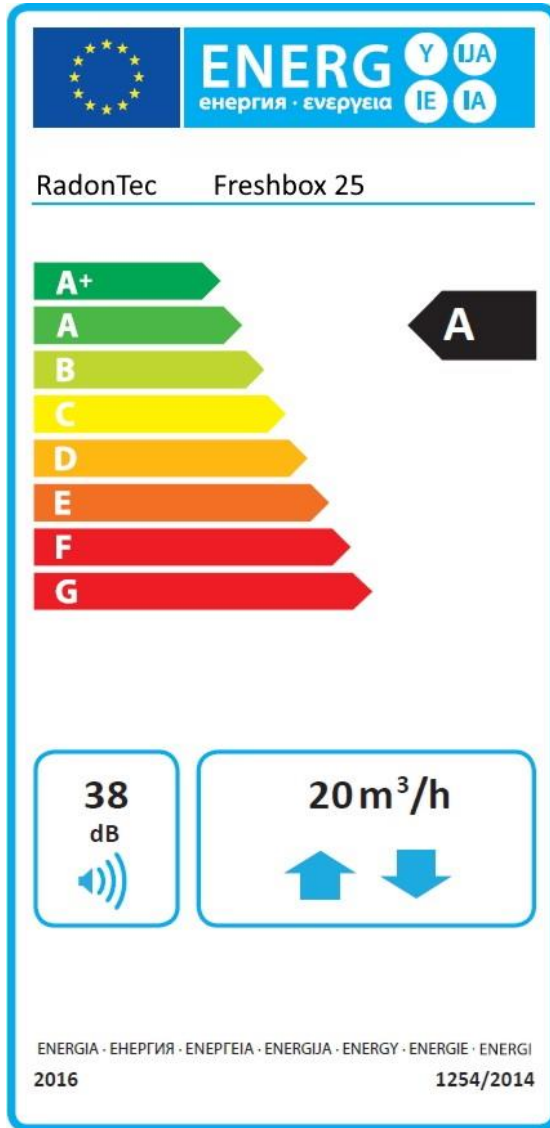
<b>Reference pressure difference in Pa</b>	27		
<b>Specific input power at reference volumetric flow in W/m<sup>3</sup>/h</b>	0,42		
<b>Type of ventilation control (manual / time / central / demand)</b>	Demand		
<b>x-value (speed control factor)</b>	2		
<b>inner leakage in %</b>	3		
<b>external leakage in %</b>	3,5		
<b>Annual power consumption JSV per 100m<sup>2</sup> in kWh/a per climate zone (cold, average, warm)</b>	1061	524	479
<b>Annual heating energy savings per 100m<sup>2</sup> (JEH) in kWh primary energy/a per climate zone (cold, average, warm)</b>	7633	3902	1764



## 20 Data AlphaSensor

<b>Type</b>	Lucas-Zelle
<b>First data</b>	10 min
<b>Data interval</b>	10 min Update
<b>Sensitivity</b>	17 cph bei 100 Bq/m <sup>3</sup>
<b>Operating range</b>	0 - 60 °C , RH < 99 %
<b>Measuring range</b>	1 - 1.000.000 Bq/m <sup>3</sup> 0,2 - 27.000 pCi/l
<b>Accuracy</b>	< ± 10 % bei 370 Bq/m <sup>3</sup> (10 pCi/l)
<b>Measuring accuracy</b>	< ± 10 %
<b>Size W x D x H</b>	55 x 55 x 28 mm
<b>Data communication</b>	UART   PWM 0-5V   (optional I <sup>2</sup> C, optional 0-10V)

## 21 Energy efficiency label



## 22 Quick guide

### Power key

Print duration	Sound signals	Function
ca. 0,5 sec	1	Device on/off
ca. 3 sec	2	Key tone on/off
ca. 6 sec	3	Child lock on/off
ca. 9 sec	4	Reset to factory settings

### Timer key

Print duration	Sound signals	Function
ca. 0,5 sec	1	Activate timer/change automatic level
ca. 3 sec	2	Daily repeat mode on/off
ca. 6 sec	3	Assign timer power
ca. 9 sec	4	Assign timer duration
ca. 12 sec	5	Defrost function

### LED signals (main board)

Color	Action	Meaning
Green	Lights	Voltage supply established
Red		This LED is currently unused
Blue		This LED is currently unused
Green + Blue	Lights together	Bootloader mode activated

### LED signals (On the door during operation)

LED	Bedeutung
One LED runs slowly from left to right	The humidity sensors have detected humid outdoor weather. The unit is waiting for drier outside air
LED 10 flashes	Flue gas mode active

LED signals (control panel on the door).

To be called up by briefly pressing the + and - keys simultaneously

LED	Lights up	Flashing
1	Unit is switched on	Device is switched on and power is fixed
2	Timer automatic activated	Automatic timer is activated and currently active
3		Timer button active
4	Comfort mode	Basement mode
5	Cross ventilation supply air activated	Cross ventilation exhaust air activated
6		
7		
8	Child lock activated	
9	Rental mode activated	
10		

## **23 Two-year warranty**

We warrant this unit for a period of two years from the date of sale. If a material or manufacturing defect occurs within the 2-year warranty period, the unit will be repaired or replaced at our expense.

The warranty service requires that sufficient proof, e.g. a proper invoice, is provided and that the warranty claim is made within the warranty period.

The warranty does not cover parts of the device that are subject to normal wear and tear (e.g. filters) and can therefore be considered wear parts.

The warranty is void if the device has been damaged, improperly used or maintained.

In the event of a warranty claim, we recommend that you first contact us.

To obtain this warranty service, please contact us at:

[info@radontec.de](mailto:info@radontec.de)

## 24 Declaration of Conformity

The manufacturer **RadonTec GmbH**

declares that the product "**Decentralized ventilation unit with heat recovery and humidity automatic**", type designation **AlphaAir Freshbox 25 with humidity sensor**

complies with the following regulations and directives when used as intended:

**EN 61000-6-1:2007** Generic standard EMC - Immunity to interference

**EN 61000-6-3:2007** EMC Generic standard - Emission of interference

**EN 60335-1:2012, EN 60335-2-65** (Safety of household and similar electrical appliances)

in accordance with the provisions of **Directive 2004/108/EC and 2006/95/EC** (Low Voltage Directive).

**Ecodesign Directive EU 1253/2014 and 1254/2014.**

The ventilation unit as well as the power supply unit bear the CE marking

Manufacturer address:

**RadonTec GmbH**  
**Main street 5**  
**89426 Wittislingen**  
**Germany**  
Tel. 09076-9199835

**Wittislingen, 01.07.2020**

Place, date



**RadonTec GmbH**  
Hauptstraße 5  
89426 Wittislingen  
09076-9199835

Signature Martin Waltl  
Compliance Officer

## 25 Support and Contact

### 25.1 Troubleshooting/FAQ

You will find answers to the most frequently asked questions on our website:

<https://www.radontec.de>

### 25.2 Contact Us

Should you have any further questions or require further help and technical support, please do not hesitate to contact us.

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