ComfoAir 70

Operating Manual and Assembly Instruction for User and Installer

Version: 1.1_10/2014

EN

Legal provisions

All rights reserved.
This operating manual has been compiled with the greatest care. However, the editor does not assume any liability for damages resulting from missing or incorrect information contained in this operating manual. We reserve the right to change the content of this manual partially or completely at any time without prior notification.
The information contained in these documents is the property of PAUL Wärmerückgewinnung GmbH. The publication, whether partially or completely, requires the written consent of PAUL Wärmerückgewinnung GmbH. Any in-house reproduction intended to evaluate the product or for proper use is permitted and is not subject to approval.

Zehnder manufacturer warranty

The current warranty conditions can be obtained through the usual distribution channels in paper form.

Trademarks

All trademarks are acknowledged, even if they are not labelled separately. A missing labelling does not mean that a good or sign is free of trademark rights.

Zehnder Group Deutschland GmbH
Almweg 34 • 77933 Lahr • Germany
T +49 7821 586 0 • F +49 7821 586 223
info@zehnder-systems.de • www.zehnder-systems.de

© 2014 Zehnder Group Deutschland GmbH. All rights reserved.

Index

0 Preamble

We thank you for choosing ***ComfoAir 70.***

0.1 Validity

This document applies for the decentralized ventilation device ComfoAir 70 with and without two-room connection.

ComfoAir 70 is designed according to the current state of the art and the recognized safety-related regulations. The device is subjected to constant improvement and further development. Therefore, it can happen that your device differs slightly from the description. Please observe and follow all specifications and safety guidelines in the operating manual to ensure a safe, proper and economical operation of ComfoAir 70.

The object of this operating instruction is ComfoAir 70 in different design variants. Possible accessories are described to the extent as to how important is this for a proper operation. For further information with respect to the accessory, please refer to the respective manual.

0.2 Target group

The operating manual is intended for operators and qualified personnel. The activities may only be carried out by personnel having a corresponding formation and being sufficiently qualified for the respective work.

Besides the general section 1 Introduction, this manual consists of:

- A part for the operator and qualified personnel → section 1 and 2
- A part specifically intended for qualified personnel → section 1 and 3

1 Introduction

This chapter has the general specifications of ComfoAir 70.

1.1 Warranty and Liability

1.1.1 Warranty Terms

Zehnder provides 24 months warranty to ComfoAir 70 after the installation or up to a maximum of 30 months after the manufacturing date of ComfoAir 70. Warranty claims can be asserted exclusively for Material error and/or construction error, which have occurred in the warranty period. Repairs, in terms of warranty terms, should be done only through prior as well as written approval by Zender. Spare parts are provided warranty only if these parts were delivered by the manufacturer and installed by an installer, who is recognized by the manufacturer.

This warranty shall be null and void if:

- The warranty period has lapsed;
- the device is operated without the filter provided by the manufacturer of the ventilation device;
- parts, provided by the manufacturer, are not installed;
- the device is not used properly;
- there is malfunction as a result of improper connection, improper usage or soiling of the system;
- Unapproved changes or modifications are made to the system.

1.1.2 Liability

ComfoAir 70 was developed and manufactured for the decentralized ventilation of residential and recreational rooms.

Any other usage is assigned as “improper usage“ and can lead to damages to ComfoAir 70 or damage to persons, for which the manufacturer cannot be made liable. The manufacturer is liable for no damages, which is to be attributed to the following causes:

- Non-compliance of the safety guidelines, operating guidelines and maintenance guidelines, mentioned in this manual;
- improper installation;
- Installation of spare parts, which were not delivered or stipulated by the manufacturer;
- Defects due to improper connection, improper usage or soiling of the system;
- Normal wear and tear.

1.2 Safety

Always note the security instructions in this operating manual. The non-compliance of the safety instructions, warnings, comments and instructions can lead to personal injury or damages to ComfoAir 70.

1.2.1 Intended use

This device is not provided to be used, maintained or cleaned by persons (including children) with restricted physical, sensory or mental abilities or lack of experience and/or knowledge unless they are supervised by a person responsible for their safety and have received instructions from this person as to how to use, maintain and to clean this device. Children should not play with the device.

1.2.1.1 ComfoAir 70

ComfoAir 70 can be used for the controlled ventilation in the residential area in case of normal room air humidity. Any other type of usage is regarded as misused. The ventilation device is not designed to transport excessive arising humidity mainly in the initial phase of usage in case of reconstruction. For safety reasons, it is prohibited to modify the product or to install parts, which are not suggested or distributed exclusively by Zehnder Group Deutschland GmbH for this product. Use ComfoAir 70 exclusively according to the

specifications of the attached documentations and the standards and guidelines, applicable onsite:

- Do not mount the device in explosion-prone areas;
- Do not use the device to exhaust inflammable or explosive gases;
- Only operate the device with the casing cover being mounted;

The specifications mentioned in this document must not be changed:

- The instructions for regular checking and maintenance of the device must be strictly complied with;
- Any modification of the ComfoAir 70 is prohibited;

All enclosed documentation is a part of the product:

- Read and observe the documentation;
- Store the documentation in such a way that they are accessible at any time.

1.2.1.2 Control unit

The touch-sensitive control unit is found in the front of the device and gives an optical feedback for ventilation stage, filter change and error message.

1.2.2 Qualification of the target group

1.2.2.1 Operators

Operators must be instructed by qualified personnel:

- Instruction on risks when handling electrical devices
- Instruction on the operation of the system
- Instruction on the maintenance of the ComfoAir 70
- Knowledge and observance of this manual with all notes on safety

1.2.2.2 Skilled Personnel

The skilled personnel must have the following qualifications:

- Training for dealing with hazards and risks while installing and operating electric devices;
- Training for the installation of start-up of electric devices;
- Knowledge and compliance of design specification, safety and installation instructions of the corresponding communities, waterworks and electricity work, applicable onsite, and other official regulations and guidelines;
- Knowledge and compliance of this document with all safety guidelines.

Unless otherwise specified in this operating manual, only a skilled personnel is authorized to install, connect, operate and maintain ComfoAir 70,

1.2.3 Safety appliances and measures

- Before starting the work on the device, mainly if electrical parts must be made accessible for it, then the device must be switched off.
- When working on electronic parts of the device, and antistatic wrist strap must be worn.

1.2.4 Used symbols

This manual contains the following advisory and safety symbols:

Special notice!

Caution, risk of: ***- Damages to the device or the system***
- Impairment of the device's operation, if the instructions are not strictly complied with.

Caution, risk of: ***- Injury of the operator or the qualified personnel***

2 Hints for the operator and the qualified personnel

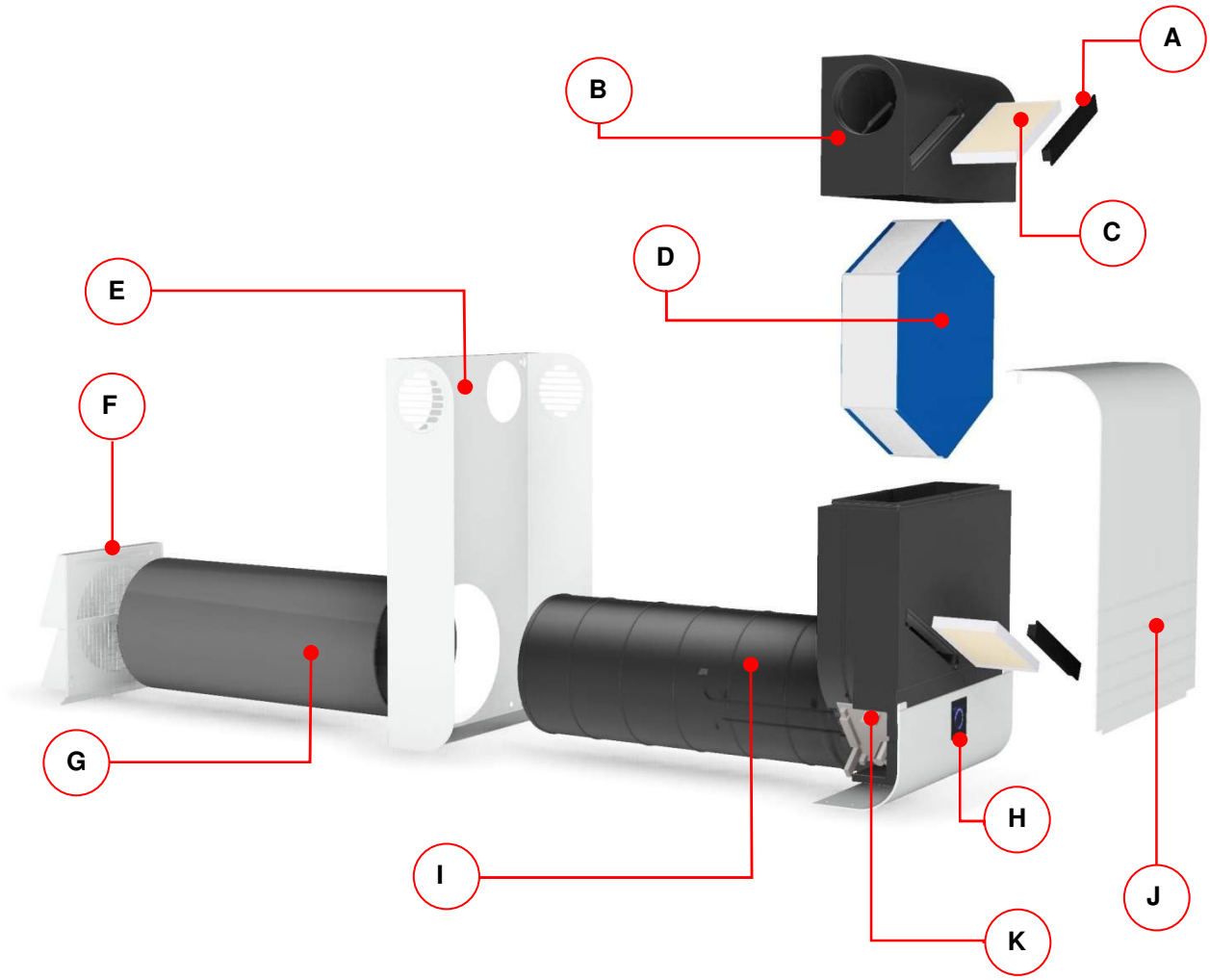
This section describes how to use the ComfoAir 70.

2.1 Product description

In case of ComfoAir 70, it pertains to a decentralized ventilation device with heat recovery for healthy, well-balanced and energy-saving comfort ventilation. The device can thereby be used as single-room device (exchanging the air in one and the same room) or with the help of a two-room connection as the mentioned isolated application. Stale, polluting smell of air, for example, from kitchen, bathrooms, lavoratory(ies) is thereby extracted and the same amount of fresh air is inserted in the living room, bedrooms and kids room.

An enthalpy exchanger, which can also transfer the moisture in addition to heat on the basis of the physical properties, is used in the ComfoAir 70 for heat recovery. The case includes powder-coated steel sheet as well as aluminium coverings in the colouring RAL9016. The internal lining, made from high-quality polypropylene, takes care of the required heat insulation and the device noise protection.

ComfoAir 70 has two maintenance free 24 VDC radial fans with electronic commutation and external power supply unit for power supply. By default, one filter each of the filter class G3 is used for outside air and the exhaust air. Filters of filter class F7 can be optionally used in the pollen filter quality for the outside air.



With respect to production, there can be odours during the start-up of the device. These odours are completely harmless and evaporate at the most after a week in operation.

Item	Designation
A	Filter cover made of cellular rubber (2x)
B	EPP Insulated Element of the upper part
C	Filter (2x)
D	Enthalpy exchanger (ERV)
E	Wall bracket
F	Combo-External Wall Grid with integrated protective mesh
G	Wall-Installation tube made of plastic
H	Lower design –aluminium cover hood with integrated control panel
I	EPP-housing unit with integrated ventilators and flap mechanism
J	Upper design - aluminium cover hood
K	Control board

2.1.1 Type plate

The type plate clearly identifies the product. The type plate is found below the upper design-cover hood on the device core made of polypropylene. The information on the type plate is necessary for the safe use of the product and in case of service-related questions. The type plate must be permanently attached to the product.

2.1.2 Frost Protection

ComfoAir 70 is equipped with an automatic frost protection control, which prevents the freezing of heat exchanger at a too low outside air temperature.
The ratio between the supply air volume flow and exhaust air volume flow is thereby automatically adjusted through the control. In the case of outside temperature lesser than -15 °C, the device is switched off . After the waiting period lapses, the device automatically checks whether the conditions for frost protection has changed and is again switched on, if required.

Each fan speed has separate settings for frost protection. Only then it is possible to achieve an optimum of heat recovery. Fan speed 3 and 4 are designed till -15 °C; the shutdown is done a little earlier in st ages 1 and 2. If the device is shutdown in levels 1 and 2 then it is possible to manually change to a level with less frost protection limit. If the completely blue LED-Ring keeps blinking repeatedly while changing to the next fan speed then the conditions for the operation are not fulfilled in case of cold outside temperature in this level; in this case the next fan speed is to be selected.

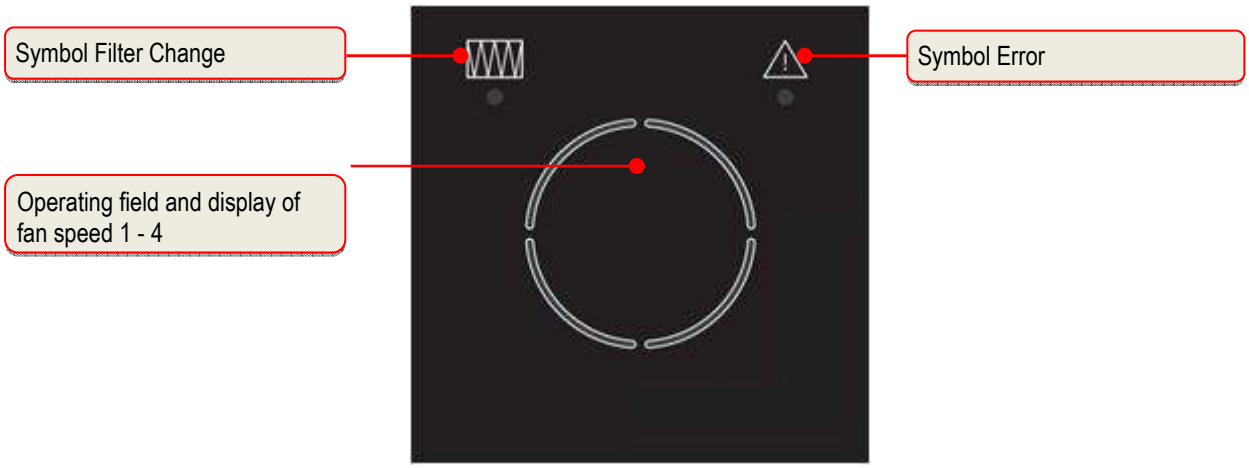
If the conditions are fulfilled with the settings of the next fan speed then, as in the normal operation, the corresponding fan speed is also displayed over the blue LED-Ring and the ventilation device.

2.1.3 Joint operation with heat-producing appliances

In case of common operation with room air dependent heat-producing appliances it must be assured that current laws, standards and norms are observed.

2.2 Touch-sensitive control panel

The control panel provides a button in the middle of 4 circular LED-fan speed-displays. By touching this button, the corresponding operating function is initiated. The active operating mode is signalized for each fan speed with blue LED.



2.3 Operating Functions and Signalizations of the control panel

Symbol	Designation	Explanation
		After selecting the required fan speed, the LED-display goes into the inactive mode-energy saving function after a minute (The device is on but the LED-Display is in the sleep mode). After touching the control panel once again, the LED-Display is again activated.
	Fan speed 0 (FS0)	The fans stand still. The flaps are closed.
	Fan speed 1 (FS1)	By touching the operating field once, the smallest fan speed is set.
	Fan speed 2 (FS2)	By touching the operating field the second time, the medium fan speed is set.
	Fan speed 3 (FS3)	By touching the operating field the third time, the highest fan speed is set.
	Boost ventilation mode	By touching the operating field for the fourth time, the boost ventilation mode or party mode is set. Touching the operating field again changes the device to the fan speed 0.
	Signalling frost protection threshold falls below (depending the selected fan speed)	If the device is in the frost protection mode after exceeding the frost protection threshold and the user changes to a fan speed, which also exceeds the frost protection threshold, then the whole LED-Ring blinks repeatedly. If the frost protection threshold in the selected fan speed does not exceed then, similar to the normal operation, the correspondingly selected fan speed is displayed.
	Signalling Error messages	A blinking red LED below the error-symbol at the right upper margin displays an error message. Refer to chapter 3.4 for this purpose.
	Signalling filter symbol / filter run-time	For cyclic filter checking, an operating hours counter is integrated in the control. The operating hours are counted backwards from the pre-set filter run-time. After the filter run-time had lapsed, a white LED blinks. The filters are to be then checked and, if required, changed; for this purpose refer to chapter 2.3.1.

2.4 Maintenance by the operator

The maintenance of the ventilation device for the operator is restricted to change the filter periodically. A filter check should be done every 3 months. The filter change should be done, if required, latest every 6 months.

Cleaning the surface of the device and especially the control panel is possible with a damp cloth and a mild detergent solution. Never rub dry!

Unsuitable cleaning agents are:

- Alcohol (> 5%)
- Acetone
- Benzene or carbon tetrachloride
- All types of ”sharp” cleaning methods
- Abrasive
- Glass cleaner etc.

Only for devices with two-room connection: Changing or a cleaning of filter mats on the exhaust air ventilators (for example Bath, kitchen, lavatory) should be done every 2-3 months or while checking the degree of soiling, at one’s own discretion.

If maintenance work is not carried out regularly, this impairs the functioning of the comfort ventilation in the long term!

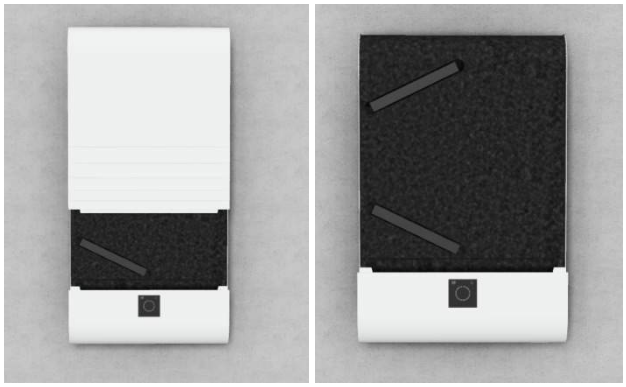
2.4.1 Replacement of the filter

ComfoAir 70 should not be operated without filter. During a filter change, the device must be moved to the operating mode fan speed 0 (LS 0). The ventilation device must be switched off during maintenance works!

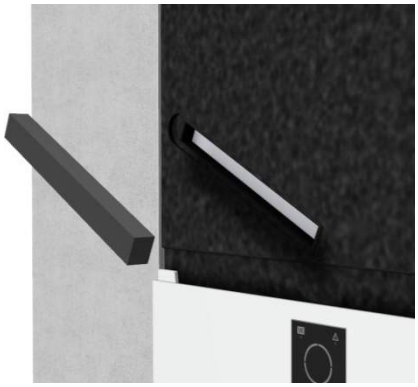
In ComfoAir 70, two high-quality original filters (G3) are installed. The installation of a pollen filter (F7) is possible. This is used in the lower filter slot (outside air filter). The filters can be obtained from Zehnder Group Deutschland GmbH. The filters in ComfoAir 70 are to be checked according to the corresponding message of the operating element. In this case, proceed as follows:

1. Move the device to the operating mode fan speed 0.

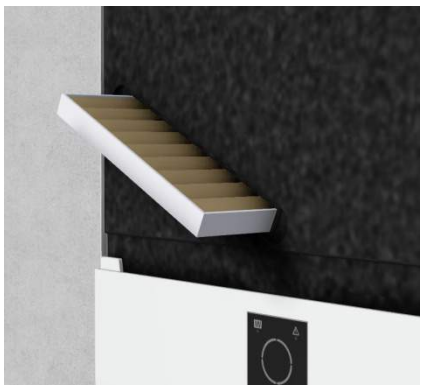
2. Remove the upper Design-cover hood, in which these are extracted upwards from the guiding.



3. With the finger, hold sideways between the cellular rubber and the EPP-case and pull the filter cover.



4. Remove the filter carefully from the filter compartment.



5. Insert the new filter; note that the filter is not forced into the case. Inset the filter covers again such that the filter slot is also filled uniformly.

6. Proceed in the same way for the upper device filter.

7. Switch on the device again.

2.4.2 Resetting the filter run-time

After the filter change, the counter is to be reset for the filter runtime. For this purpose, the filter message can again be deleted by pressing the control panel for 5 seconds. The white LED on the control panel shuts off.

2.4.3 What should be done in the case of a failure?

Contact the installer in the case of a failure. Note the type of your ComfoAir 70; for this purpose, refer to the type plate under the design-cover hood of the device.
The mains connection must always be available, unless the ComfoAir 70 must be put out of operation due to a serious failure, maintenance work or for other imperative reasons.

As soon as there is a power disconnection, the residence is no longer mechanically ventilated. There can thereby be damp problems and mould problems in the residence. Switching off ComfoAir 70 for long is thus to be avoided!

According to DIN 1946-6, the decentralized ventilation device must be in full operation, except during maintenance and repair works. For the period of absence, the plant should be operated at the lowest fan speed or in the un-occupied mode!

2.5 Disposal

Discuss with your suppliers as to what you should do with your ComfoAir 70 at the end of the life cycle. If you cannot run back the ComfoAir 70 then do not deposit it in the standard household garbage but enquire at your premises if there are options to reuse the components or the environment friendly processing of the materials.

3 Hints for qualified personnel

This section describes how to install and commission the ComfoAir 70, how to analyse errors and how to carry out special maintenance work.

3.1 Installation requirements

For proper installation, the following requirements must be fulfilled:

- Assembly in accordance with the general and on-site safety and installation instructions, amongst others of the electric power station and water works as well as in accordance with the instructions contained in this operating manual.
- Frost-free room in the interior
- Voltage supply 230 Vac, 50-60 Hz
- Sufficient space for air duct connections and maintenance work
- Possibility of an all phase cut must be assured

3.1.1 Transport and packing

Proceed with care when transporting and unpacking the ComfoAir 70. The wall installation tube includes the package and can be installed in advance independent of the main device. The main device is packed in a foil dust free. Do not damage the package before the installation of the main device.

The packaging of the device may only be removed immediately before assembly! Prior to and during assembly interruptions, the open air duct connection stubs must be protected against ingress of construction dust and moisture!

3.1.2 Checking the Scope of Delivery

If damages or incompleteness should be determined at the delivered product then contact the supplier immediately.

The scope of delivery includes the following:

- WRG ComfoAir 70 including fixing material
- Power supply unit 230 VAC, 50-60 Hz 24 VDC on the device
- Original operating manual
- Combo- external wall grid including fixing material and assembly material
- Plastic wall installation tube
- Assembly template on the interior of the carton cover

During the installation of the air ducts, the accessory of Zehnder Product Program should be accessed for devices with two-room connection.

3.2 Assembly

The wall-hanging assembly is permitted exclusively for ComfoAir 70. The device should thereby be also appropriate in vertical position.

Use the assembly templates as an aid for drilling.

The device is delivered as pre-installed. Disassemble the upper and lower design-cover hoods before installation the device.

3.2.1 Assembly Preparations

1. Select a suitable assembly location (sufficient distance from the furniture and delimiting walls) on the outside wall and bore a hole with a diameter of 280 mm for installing wall-installation tube (external diameter 250 mm) in the outside wall.

It is important that the axes of the bore hole is horizontal and in an angle of 90°to the internal wa ll surface. If there are bumps in the inner wall or is not vertical then the wall bracket must be aligned with appropriate means (spacer washer or similar).

Please note that the contact points to the wall are in a vertical level. Based on the design, pay attention to the availability of sufficient place for the device on the inner wall surface and mark the bores for fixing the wall bracket.

Leave at least 20 mm of space above so that one can later lift the upper design-cover hood of the device upwards.

230 VAC network connections are to be prepared on site for the power supply of the device. This can be done in an in-wall port behind the device.

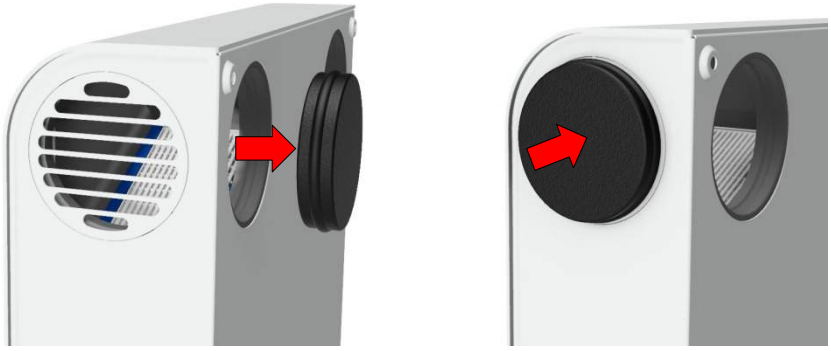
2. **In case of two-room connection:** In the case of a device with two-room connection, the executions should also be prepared for air ducts. The side connections can also be alternatively used after excluding the grid.

3.2.2 Air duct connection (only in the case of two-room connection)

Moving the air ducts and the required accessory (Adapter, curves, sealing tape) should be done before installing the main device.

When mounting the air ducts, the following points must be taken into account:

- Assemble the air ducts air-tight to the provided connection stubs. Therefore, use the recommended sealing tape (accessory article). The sealing tape should be wetted with silicon spray so that the connection of the air duct is easily done with the casing.
- Thereby, there is an option to install the air ducts either sideways or behind the device.
- For an assembly behind the device, take the blind plugs from the EPP-Casing and place the air ducts in the two-room, which is to be ventilated or exhausted. Use the blind plugs, advisable in the delivery status behind the two-room connections, to seal the side connections.



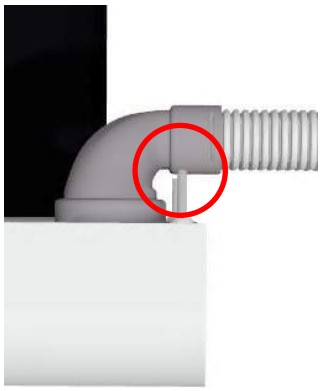
Two-room connection from behind:

- Recommendation: Use the „Transition 90/75 on flat 51" (article number 990 322 013) and manage the channel in the insulation level of the outer wall insulation.

Limitation during the assembly of flat duct flat 51 on the inner wall:

While using the transition piece "Transition 90 on flat 51 / Curve 90°" (article number 990 322 046), the connection should lead downward and then towards left or right initially at 90°-angle ("Curve flat 51 H"; article number 990 322 012).

The reason for this is the fixing point of the wall bracket, found adjoining to the respective two-room connection, which should not be in the area of the flat duct.



An exception hereby forms the assembly of the device on the dry walls or on a front wall installation. Since the wall bracket is fixed directly to the dry wall, the flat duct can be lead behind the wall without coming into collision with the short fixing agents, which are to be used (for example plasterboard dowel). Please consider the smaller screw length or plug lengths, which are to be used, of maximum 35 mm.

While using Zehnder transition pieces:

- The appropriate transition piece of flat51-System 27 mm must protrude from the wall for a correct assembly so that the stub is put in the EPP-Body according to assembly 22 mm.

Sideward Two-room connection:

- In the case of a sideway transition of the air ducts, leave the blind plugs in the back connection stubs and separate only the ventilation grilles on the aluminium casing to the preferred connection end.

While using Zehnder transition pieces:

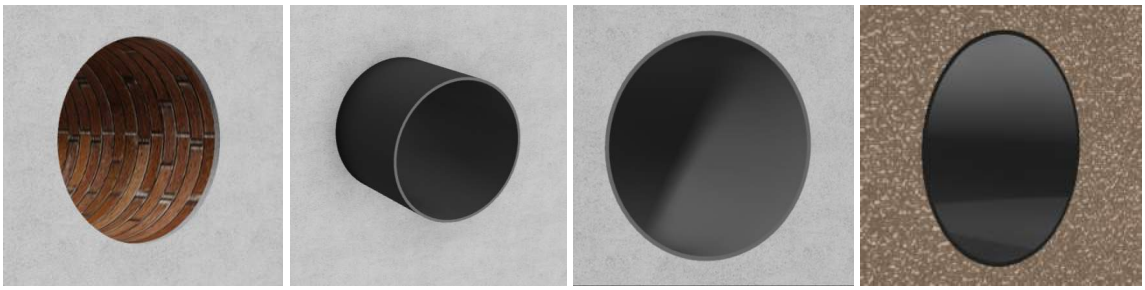
- The self-adhesive sealing tube must be glued from the outside over the entire scope of the stub and 5 mm must also be removed from the front end of the stub. This end of the transition piece (with the glued sealing tube) is plugged into the EPP-body for assembly 20 mm.

Please observe that the tube also sufficiently protrudes from the wall after the plastering of the inner wall!

- For connecting to the two-room, use the tube connection d_a = 100 mm or use the Zehnder flat duct flat 51 with the help of a transition piece. Overview of the duct material and transition pieces is under “Accessory” from the price list CA70 at Zehnder Group Deutschland GmbH.

3.2.3 Installation of the Wall-Installation Tube

1. In the orthogonally (in the 90° angle towards to wall) executing core bore hole, the wall installation tube is set. Reduce the tube according to the available wall thickness so that it flushes with the plaster surface or wall surface of the facade and the plaster surface or wall surface of the inner wall.



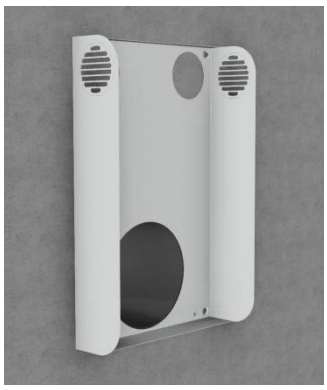
2. Check whether the tube is in the balance. Check the roundness of the tube. The maximal difference from the circular form should have ± 1,5 mm in the inner diameter of the tube. If the tube exceeds these tolerances then it is to be brought in the corresponding form and mutually(!) fixed with suitable auxiliary means (wedges or similar).

3. Fix the wall-installation tube in horizontal positon and fill the room between masonry and tube with suitable non-soaking polyurethane foam.

4. For an easy slide-in of the main device, the cutting edge of the tube should be de-flashed and silicon spray must be sprayed in the wall-installation tube.

3.2.4 Installation of the Main Device

1. Screw the wall bracket initially loose to the inner wall and observe that the power cable leads to the left or the right under core hole through the provided bore. Let this cable be visible from the bore as long as it can be later connected with the control boards. During the execution by the left bore, 30 cm cable length must be left protruding and at least 50 cm while using the bore right next to the core hole. Detailed information can be found in chapter *Electrical Connections*.



Check in advance the required load capacity of the respective fixing surface (dead load of ComfoAir 70 is 22 kg) and the secured fixing option by means of sufficiently long dowel and screws. Assembly material is to be seen only as a suggestion. The customer/ assemble is responsible for a secure assembly.

If required, reduce the EPP-tube to the length of wall-installation tube or the wall thickness so that it also flushes with the facade. We thereby recommend separating the upper and the lower half's in two sections each on the basis of the separation of the EPP-tube and then separate the cleared separating web. A simple Cuttermesser would, for example, not bring you to the middle separating web and there are risks to settle these then.

2. Spray silicon spray on the inner side of the wall-installation tube so that the device can be possibly easily launched.

3. Move the main device according to the below image to the wall-installation tube and connect the network cable with the control boards (refer to chapter *Electrical Connections*).

4. Before inserting the main device completely, connect the cable of the control unit with the control (refer to chapter *Electrical Connections*).

5. Move the main device till the stop in the wall-installation tube.

6. Please consider that the lower side of the main device is on the wall bracket. If required, move the frame a little upwards and screw the wall bracket tight.

7. The main device must close from the front with the front edge of the wall bracket or be somewhat behind it. If this is not the case then separators (moving or similar spacer) can be brought under the assembly points of the wall bracket till the device is in a specific position of the wall bracket.

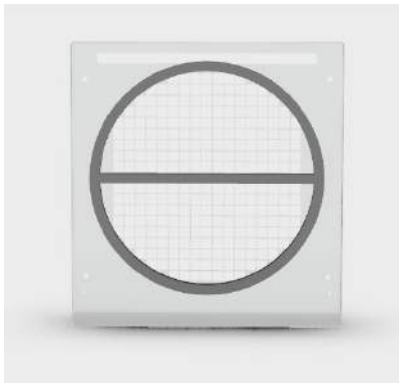
8. Please note that the cable of the control unit is immersed in the cable duct and fix the lower Design-cover hoods with 4 screws at the wall bracket. **Tip:** For a simple assembly, first fix only the front left screws. The lower Design-cover hoods are now swinging – the cable is easier to connect.

9. Set the upper Design-cover hoods from above to the device. Please note that this is locked both in the guiding of the lower design-cover hoods as well as on the upper part of the case with the guide pins.

3.2.5 Installation of the Outer Hood (Facade)

During the assembly of the outer hood, it must be ensured that falling of the outer hood is prevented through corresponding dowels and screws! The provided assembly material is to be seen only as suggestion. The customer / assembler is responsible for a safe assembly!

1. Bore 4 holes in the façade according to the assembly template and provide these with the corresponding assembly material. Attach the enclosed sealing tube according to the figure to the back side of the base plate.

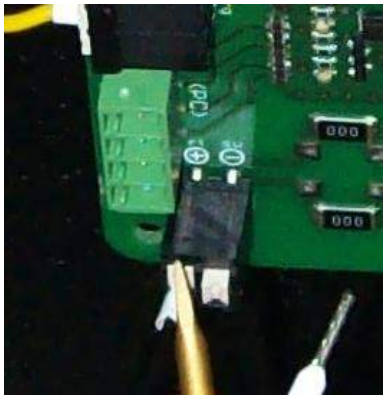
2. Fix the base plate with the angled piece below on the facade. When screwing, the base plate should not bend. If required, loosen the screws again so that the base plate is firmly seated but does not come to a deformation.

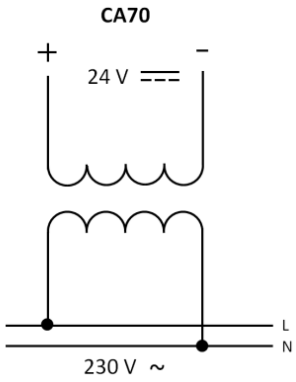
3. Attach both the hoods with the provided screws on the base plate.
   Sequence: First screw the lower hood (4x), then insert the upper hood with the help of the horizontal broad strap in the slot of the base plate and move upwards or move till both sides of the screw holes are on top of each other. Then screw the upper hood and the base plate with each other with the help of the provided screws.


3.2.6 Electrical connections

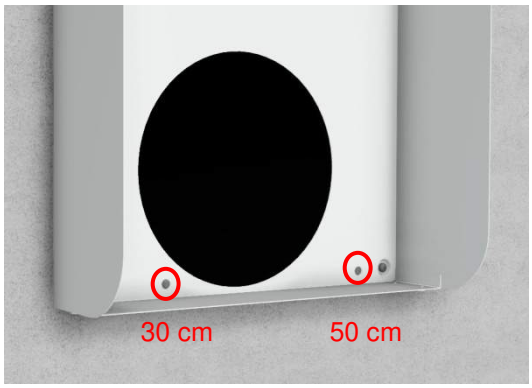
Electrical connections are to be executed according to the existing regulations and only by skilled personnel!

The electrical connections of ComfoAir 70 is done through 2-wire cable from the control board to the power supply unit, which is again linked with the network cable.

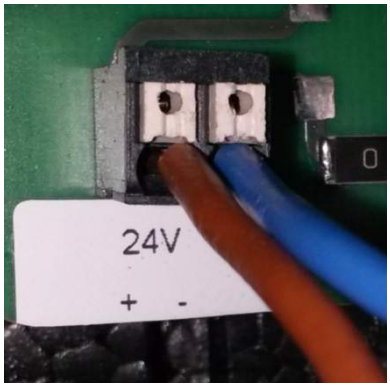




1. Please pay attention that the network cable of sufficient length (left 30cm and right 50cm) is protruding from the lead-through, provided for this.



2. Do not move the main device completely into the wall-installation tube so that you can still reach to control boards of the device and accordingly connect the Pluspol (brown wire) and minuspol (blue wire) of the cable to the board.

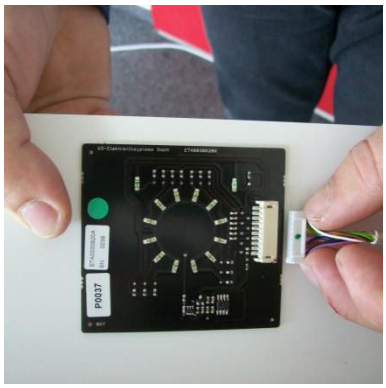


3. Move the main device completely to the wall-installation tube and the wall bracket. Please consider the fact that the network cable cannot be thereby clamped.

Connection of the LED control panel

1. Connect the plug for the control unit to the control boards.

2. Connect the other end of the plug to the control unit.



3. Please note that the cable disappears before the assembly of the design-cover hood in the trough provided for it.

3.3 Maintenance and repair by qualified personnel

If regular maintenance work is not performed at the ComfoAir 70, this impairs the functioning of the comfort ventilation.

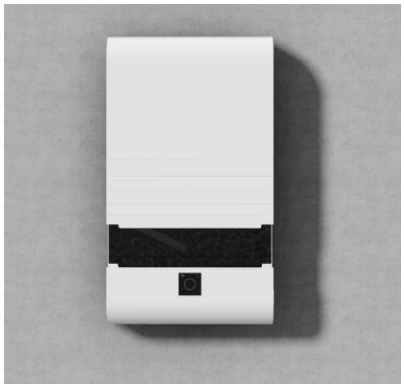
The required maintenance works are to be easily done at Zehnder ComfoAir 70 and should be regularly completed so that the device works hygienically. In case of regular filter change and using our original filter, a maintenance interval of 2 years is to be adhered to. If the device is not operated according to the regulations also only temporarily without or with low-quality filters then the enthalpy exchanger is to be immediately cleaned and the device is to be again operated according to the regulations.

Independent of the maintenance of the device, the combo- external wall grid is to be checked regularly for soiling, especially the induction tract, found in the upper part. Possibly occurring soiling is to be immediately removed.

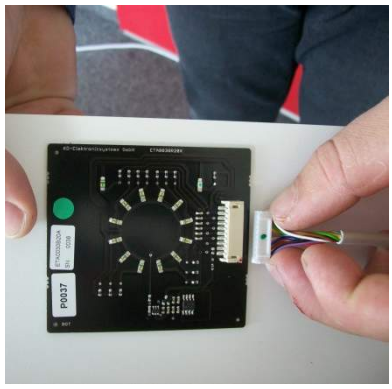
3.3.1 Inspection and Cleaning of the Enthalpy Exchanger

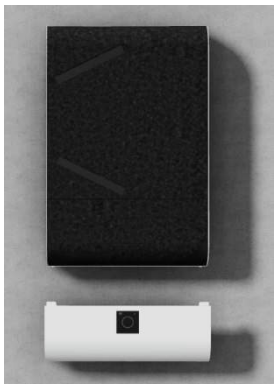
In order to do so, proceed as follows:

1. Separate CA70 from the supply voltage (secure).
2. Remove the upper Design-cover hood.



3. Loosen the fixing screws of the lower design-cover hood and remove these. Carefully separate the plug from the control unit. **Do not(!)** pull the cable but the plug!





4. Pull the device carefully from the wall-installation tube. Please pay attention that the network cable and the cable for the control unit to not suffer any damage.


5. Now you can lift the upper part of the EPP-casing upwards. Ensure that the possibly assembled air ducts for the two-room connection are thereby not damaged.

6. The enthalpy exchanger cannot be pulled upwards.

7. Clean the enthalpy exchanger if required.

   In order to do so, proceed as follows:

   - For this immerse the enthalpy exchanger few times in warm water (max. 40 °C).
   - Rinse the enthalpy exchanger in the end basically with warm duct water (max. 40 °C).

   As a general rule, do not use any aggressive or dissolvent detergents!

   - Position the enthalpy exchanger for drying such that the available residual water can flow from the opening.

   Hints for proper cleaning can also be found at the manufacturer's website (www.paul-lueftung.de).

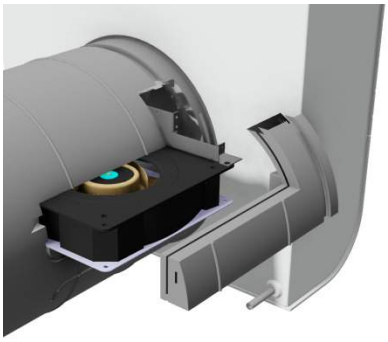
8. After inspection, mount all parts in reverse order.

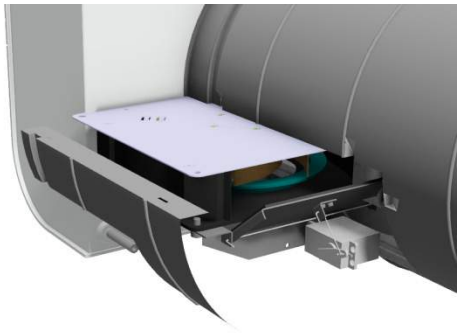
After completing the maintenance works, all separated air ducts are again connected air-tight to ComfoAir 70.

9. Establish network connection again.

3.3.2 Changing the Ventilators

The device is to be separated from the network and is to be pulled out from the wall for changing the ventilators. It is essential to wear an ESD-strap. The ventilators are in the initial part of the EPP-tube and can be reached by removing the sealing plugs.



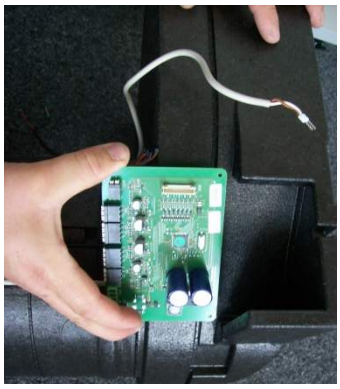


The identically constructed ventilators are interpolated sideways in the tube and can also be subsequently easily extracted. It is to be thereby noted that all connection cable are separated before extraction and are again connected during the reassembling according to the connection plan (refer to chapter 3.5.3).

3.3.3 Changing the Control Boards

The device is to be separated from the network before changing the board! An ESD-Strap is to be created!

The board is found in the lower left part of the casing and can be easily reached by extracting the device from the wall sleeves. After all connected cables were separated from the board, the board can be easily extracted from the provided guiding.

The control boards can now be changed. Then connect all the cables again to the boards (network connection in the end) and set the device again properly in the wall sleeves.

3.4 Messages, Visualization of Errors and Error Treatment

The device control is equipped with an internal system for error detection. The visualization of messages and the error forecast is done through a red LED.

Error Signalization through LED

If there is an error in the system then this is displayed through a red LED under the error symbol.

LED-Signalization	Definition
Red LED blinks	Ventilator is defective or is blocked
	Flap-Servomotor is blocked
	Temperature sensor is defective
White LED blinks	Check/change filter

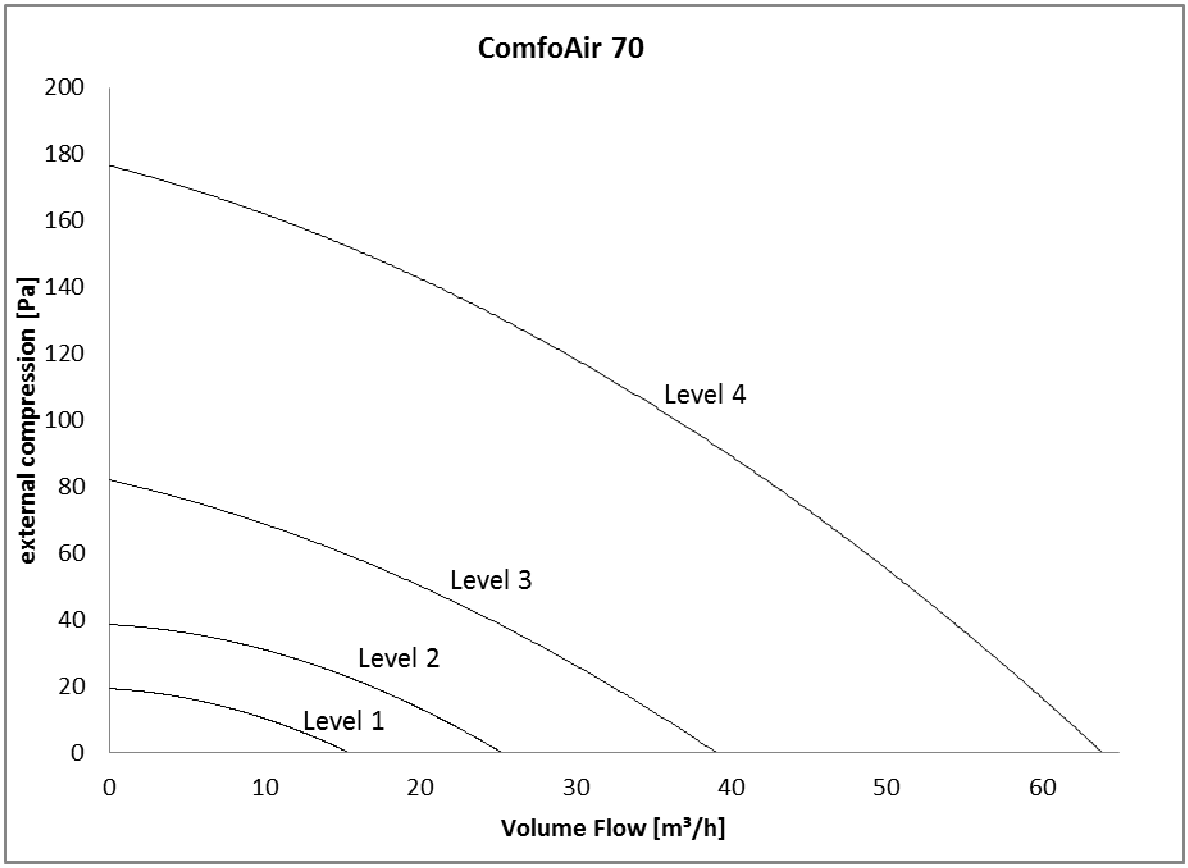
If an error occurs then note the type plate serial number (refer to type plate on the EPP-base body) and please contact the responsible installer.

3.5 Technical Description

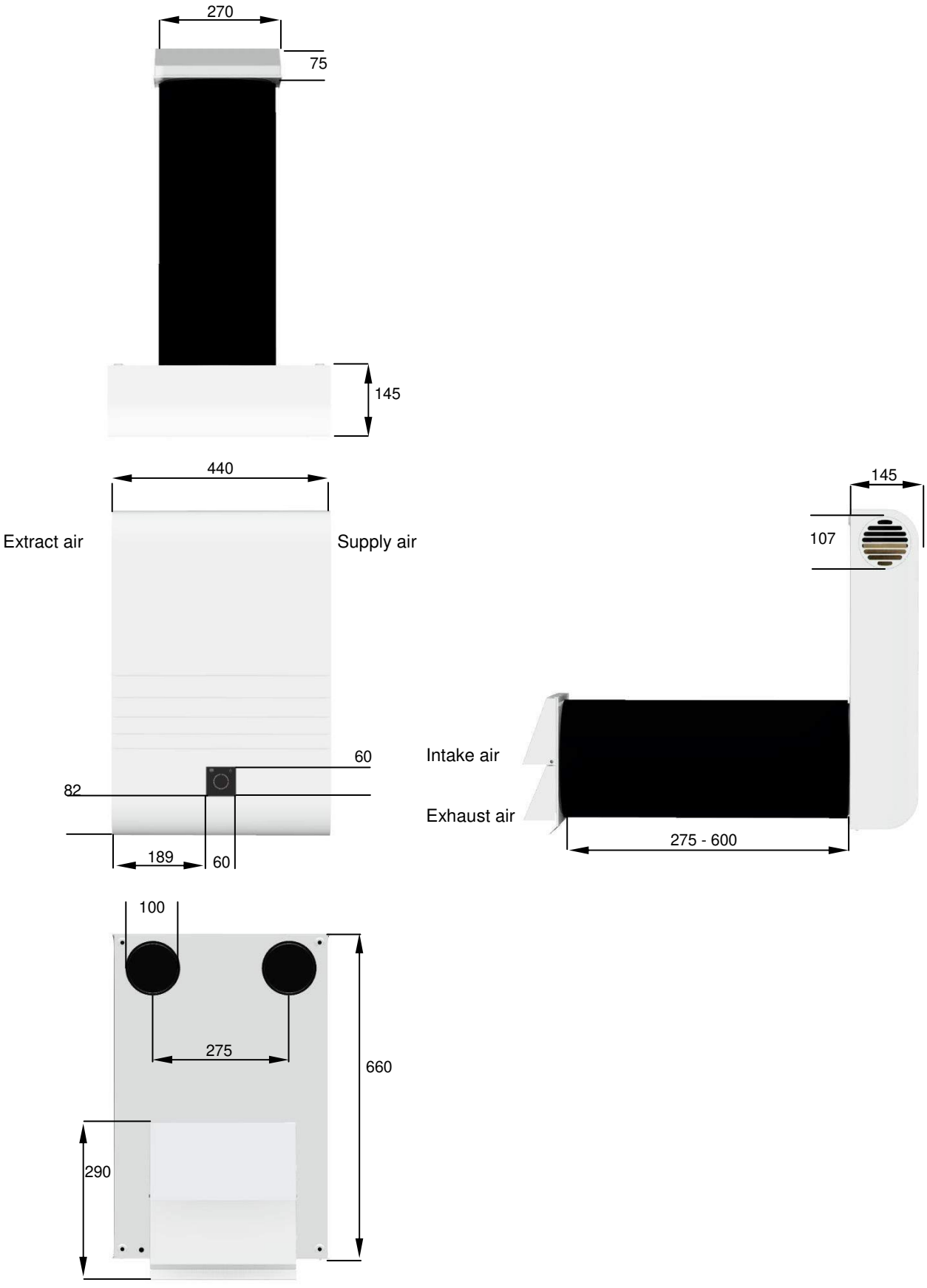
General specification	Description / value
Type of heat exchanger	Enthalpy exchanger
Casing / internal lining	Aluminium, powder-coated, thermal bridge-free; internal lining made of expanded polypropylene EPP for thermal and sound insulation
Pipe connections	DN 100 (sleeve dimensions)
Weight	22 kg
Electrical connection	24 VDC on the device, 230 VAC, 50-60 Hz at the power supply unit
Max. current consumption	0,75 A
Protection class	III (voltage protection)
Degree of protection	IP 30
Limitations of use	-20 to 40 °C
Assembly site	Frost-free interior area
Installation position	Wall hanging, supply air and opening and exhaust air opening above
Operating data (Manufacturer Details)	**Value**
Volume flow	FS1: 15 m³/h
	FS2: 25 m³/h
	FS3: 40 m³/h
	FS4: 65 m³/h
Medium degree of change in temperature	FS1: 88,5 %
	FS2: 84,3 %
	FS3: 79,1 %
	FS4: 72,9 %
Medium degree of change in humidity	FS1: 78,5 %
	FS2: 70,3 %
	FS3: 61,3 %
	FS4: 50 %
Power consumption	Rest status: 3 W
	FS1: 4 W
	FS2: 5 W
	FS3: 8,5 W
	FS4: 19 W
Leakage	Internal: 1,7 %
(according to DIN 13141 Part 8 – 2006)	External: 2,3 %
	Density class: U2

Sound Pressure Level	Value
(Lp in 3 m distance A = 10m²)	
Device without two-room connection	FS1: 10,6 dB(A)
	FS2: 23,1 dB(A)
	FS3: 29,0 dB(A)
	FS4: 35,9 dB(A)
Device with two-room connection	FS1: 7,9 dB(A)
	FS2: 15,4 dB(A)
	FS3: 22,9 dB(A)
	FS4: 30,8 dB(A)
Device with two two-room connections	FS1: 2,7 dB(A)
	FS2: 14,7 dB(A)
	FS3: 15,3 dB(A)
	FS1: 22,3 dB(A)
Standard noise level difference	Flap closed: 48 dB
	Flap open: 40 dB

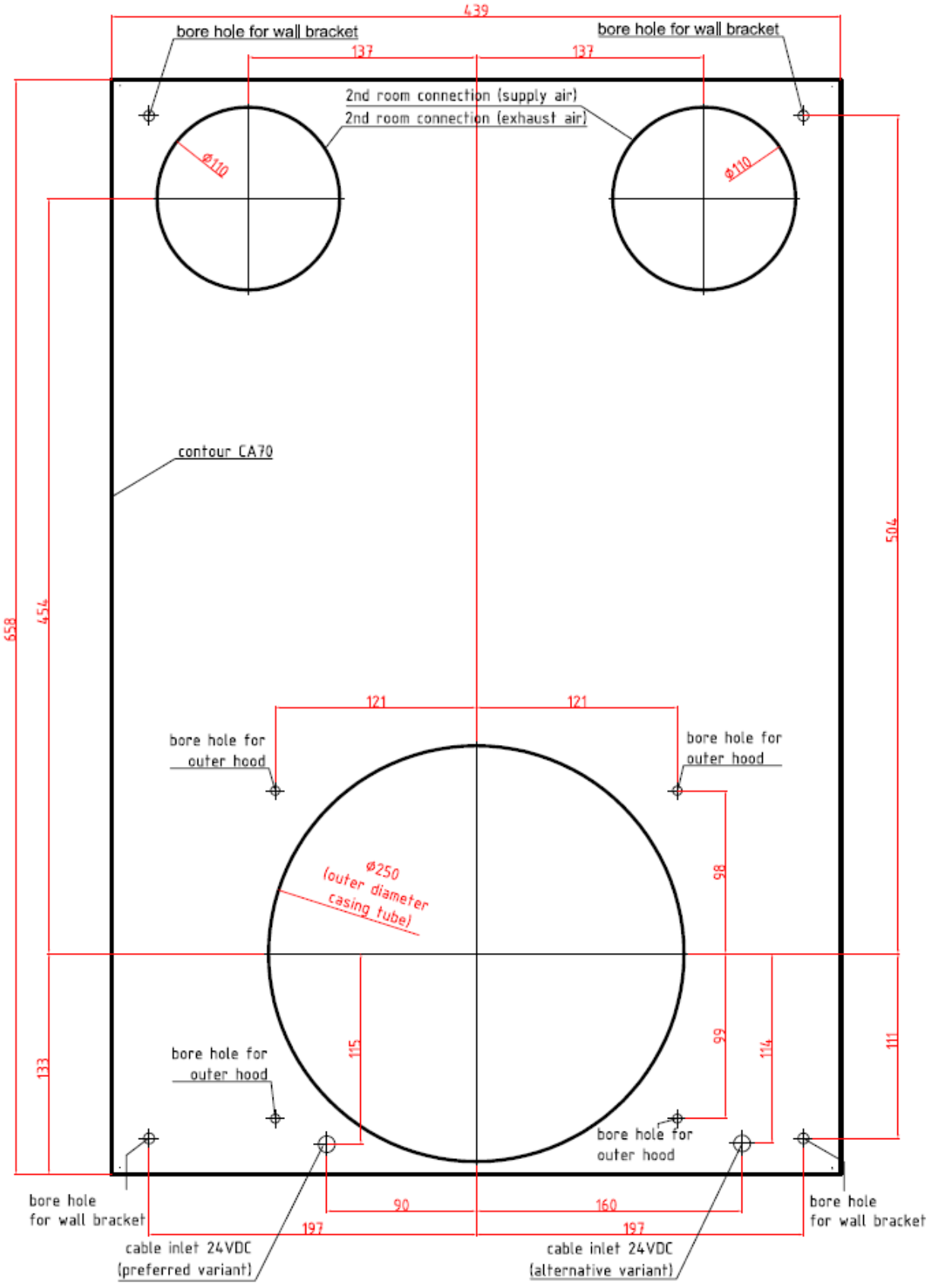
P-V- Characteristic Curve



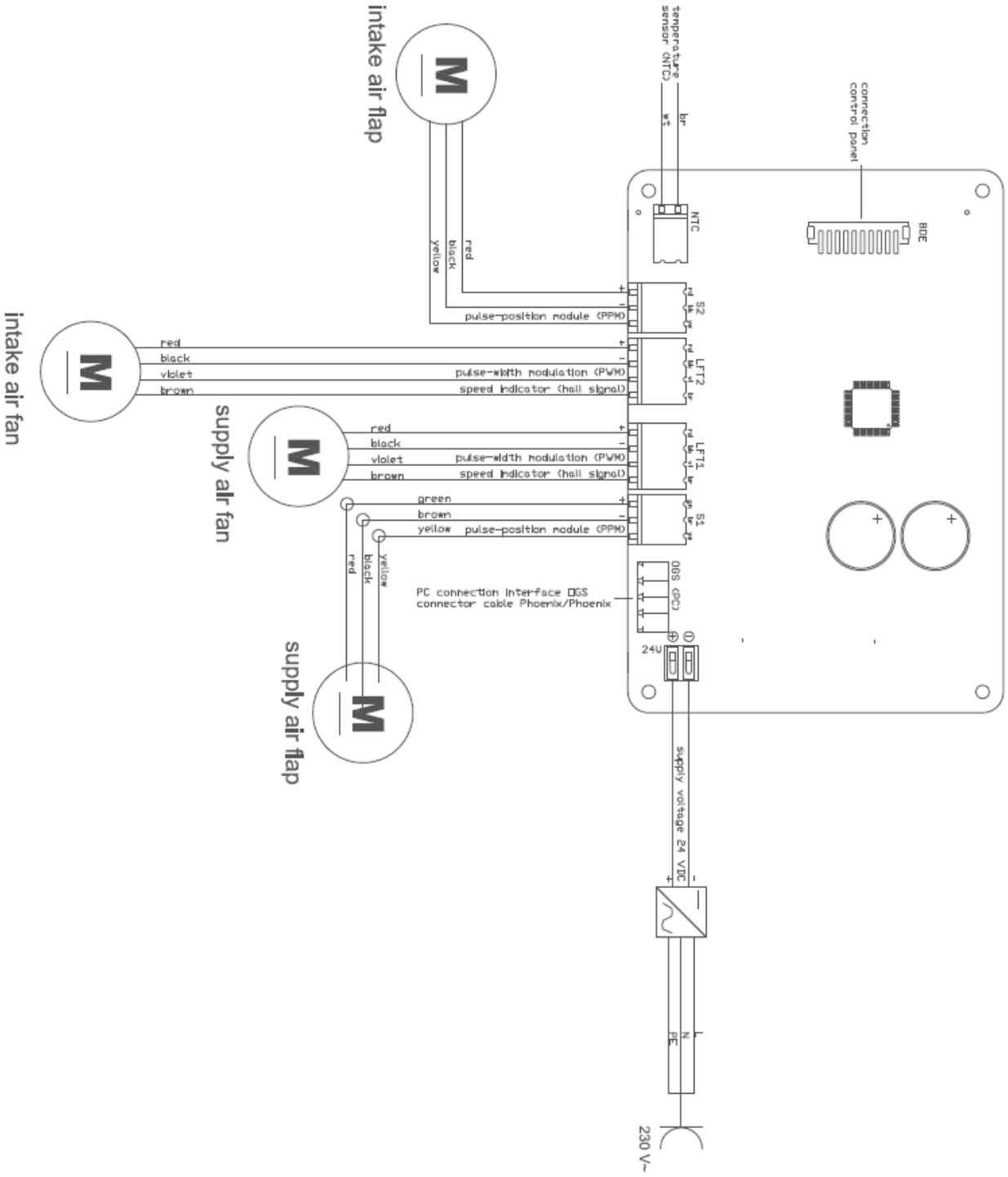
3.5.1 Dimension Drawing



3.5.2 Assembly Template measured (Figure is not scaled)



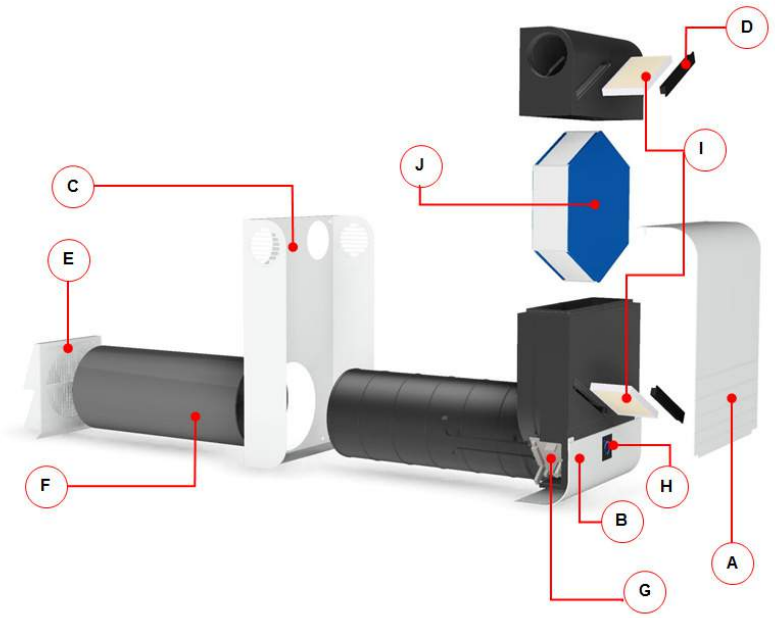
3.5.3 Connection Plan Control Board CA70



A 230 VAC network connection is to be prepared on site for the power supply of the device. This can be done in an in-wall port behind the device.

3.5.4 Spare Parts

List of Spare Parts CA70		
Position	**Art.-No.**	**Description**
	Case	
A	10004161	Upper Design-Cover Hood
B	10004162	Lower Design- Cover Hood
C	10004163	Wall bracket
D	10004164	Filter cover from cellular rubber
without	10004165	Fixing screw lower Design- Cover Hood
E	10004204	Combo- external wall grid with integrated protective mesh
F	10004205	Casing tube in the wall
without	10004206	Sealing tape for Combo- external wall grid
without	10004116	Sealing tape for additional room connection, length: 1 m
	Control	
G	10004208	Main board
H	10004209	Control unit
without	10004210	Power supply unit
	Electronic	
without	10004211	Equivalent temperature sensor
without	10004158	Fan
without	10004159	Servomotor for flaps
	Filter	
I	10002509	Filter set for ComfoAir 70 G3, Set-Content: 2 pieces
I	10004110	Filter set for ComfoAir 70 F7/G3, Set-Content: 1 piece F7, 1 piece G3
I	10004111	Filter set for ComfoAir 70 G3, Set-Content: 10 piece
I	10004114	Filter set for ComfoAir 70 F7/G3, Set-Content: 5 pieces F7, 5 pieces G3
I	10002265	Single filter F7 for ComfoAir 70
	Heat exchanger	
J	10004115	Enthalpy exchanger for ComfoAir 70
	Accessory	
without	10000982	Software package



3.5.5 Volume Flow Setting using OGS-Interface

Scope of delivery of the service-software package

1. Interface module OGS 3.4
2. USB-Interface Cable for OGS 3.4
3. Connection cable for interface module at CA70-control board
4. Control Software.



Instruction:

1. Install the software on your PC (On request, Software is available per mail or CD).
2. Switch off the device.
3. Connect the connection cable for the interface module to the device.
4. Connect the PC with the help of the USB-interface cable with the interface module.
5. Switch on the supply voltage.
6. Start the software (Figure 1) on your PC.
7. Under settings → COM Port, the corresponding COM Port must be set.
8. Click “Reading from device“.
9. You can now change the setting date.
10. After entering the parameter, click on “Writing to the device”.
11. Wait for approx. 5 seconds after the configuration is done.
12. You can now separate the interface module again from the device.

Fan Speed:

Standard-values for devices without two-room connection:

02. Lüfterstufen	
Lst1Ab	32
Lst1Zu	30
Lst2Ab	47
Lst2Zu	42
Lst3Ab	69
Lst3Zu	62
Lst4Ab	100
Lst4Zu	90
TAbw	60

Devices with two-room connection:

- Devices with two-room connection in the supply air:

The pressure loss of the connected channel in case of nominal volume flow (40 m³/h) must be known for the setting of a balanced volume flow. A measurement of the volume flows is always required. The fan speed is to be set according to the following table, whereby interim values are to be interpolated:

Pressure Loss [Pa]	FS1 supply air	FS2 supply air	FS3 supply air	FS4 supply air
0	30	42	62	90
10	35	47	65	95
20	37	48	70	96
30	40	53	74	97
40	42	58	77	98
50	44	59	81	99

- Devices with two-room connection in the exhaust air:

The pressure loss of the connected channel in case of nominal volume flow (40 m³/h) must be known for the setting of a balanced volume flow. The fan speed is to be set according to the following table, whereby interim values are to be interpolated:

Pressure Loss [Pa]	FS1 exhaust air	FS2 exhaust air	FS3 exhaust air	FS4 exhaust air
0	32	47	69	100
10	32	48	70	100
20	33	51	73	100
30	34	51	77	100
40	35	53	82	100
50	36	55	85	100

- Devices with two-room connection supply air **and** in the exhaust air:

Combine the details according to the pressure losses of both the connected channels.

Servo Flaps

Parameters for the end position of the flap positions are assigned here. These parameters are separately determined in the manufacturer plant for each device. An arbitrary change of these settings can lead to functional impairments and/or to the deterioration of the flap mechanism.
Should these settings be modified by mistake then the EPP-covers above the ventilators are to be carefully removed and all 4 possible parameters are to be set to the standard value “15”.

These settings are then to be transferred to the device control with the help of “Writing to the device”. Switch the device to the fan speed 0 (flap position “closed”). The original setting, in which the effects of the changed parameter can be optically checked, can be determined through careful modification of the settings.

The flaps must rest lightly on the ventilator in the closed status. A setting, in which the flaps are compressed from the Servomotor against the ventilator, is not permitted and must be absolutely avoided!

The flaps should be opened at approx. 90°. A large opening angle can lead to collisions with the electric cabling and to the failure of the device. Switch the device to fan speed 1 and make the settings similar to the process in the case of setting “Flap position closed”. During the setting, never touch the running ventilators. Also do not look through the shared pipe of the EPP-Casing unit in the running exhaust air ventilator. There is increased risk of injury.

Filter

The filter run-time can be set here between 60 and 360 days. After the filter run-time had lapsed, a white LED blinks in the control unit. Our suggestion is for a filter run-time of 90 days.

Frost Protection

These plant settings should never be changed!

4 Annexes

4.1 Checklist A Maintenance Works User

Maintenance Works				Enter date for the quarter
1. Change both the filters in the WRG-device (Filter change cycle 90 days)				
Quarter / Year	**I**	**II**	**III**	**IV**
201...				
201...				
201...				
201...				
201...				
201...				
201...				
201...				
201...				
201...				
2. Exhaust air header filter/ clean filter in the exhaust air fans (only in the case of two-room connection) (Filter change cycle approx. 2 months)				
Quarter / Year	**I**	**II**	**III**	**IV**
201...				
201...				
201...				
201...				
201...				
201...				
201...				
201...				
201...				
201...				
3. Change other filters in the air duct system				
Quarter / Year	**I**	**II**	**III**	**IV**
201...				
201...				
201...				
201...				
201...				
201...				
201...				
201...				
201...				
201...				

4.2 Checklist B Maintenance Works Skilled Personnel

Maintenance Works			Enter Result					
– Reviewing the ventilation plants according to DIN 1946-6 Annex E (normative) and Annex F (informative) – Hygiene inspection according to VDI 6022, point 5.3.2. – Comments for the status with informal report – Continuous annual pie charts on a separate sheet								
No.	**Parts**	**Annually**	**Result**	**201...**	**201...**	**201...**	**201...**	**201...**
1	Ventilator / Ventilation Device	Have the components been cleaned? - Ventilator - enthalpy exchanger - air handling cylinders of the device	yes / no					
		Frost protection / thaw setup functional?	yes / no					
		Is the transmission of structure-born noise, fixing prevented?	yes / no					
		Are the operation displays functional?	yes / no					
2	Electrical Engineering/ Regulation	Are the cable connections and terminal fixing secure?	yes / no					
		Are the control devices and control units functional?	yes / no					
3	Air duct / heat insulation	Is the device cleaned (if required)? Is the testing in place? If required, refer to VDI 6022 for cleaning	yes / no					
		Is the heat insulation and vapour barrier in order?	yes / no					
		Are the flexible connections between the device and the air duct functional ?	yes / no					
4	Ventilator, ventilation device, Filter, filter status	Are the stipulated filter class adhered to?	yes / no					
5	Ventilator / ventilation device and heat-producing appliance if available	Is the safety device with heat-producing appliance functional?	yes / no					
6	Exhaust air/supply air-passage	Seat and lock given?	yes / no					
		Is the stipulated filter class adhered to?	yes / no					
		Filter, filter status ok?	yes / no					
		Is the air quantity according to the log?	yes / no					
7	Overflow air passages	Is there is free cross-section?	yes / no					
		No transmission of structure-born noise and transmission of airborne sound?	yes / no					

4.3 Start-up and Handover Certificate

Customer Data		
Name:	First Name:	Tel:
Street:	Postal Code:	City:
Construction Projects:		

Type of device:	Serial-No.:	Year of manufacture:

Completeness			
No.	**Parts**	**Design**	**Result**
1	Supply air duct	- Design as planned - There is an option to clean	yes / no yes / no
2	Supply air duct passages	- Layout as planned - Design as planned - There is an option to clean	yes / no yes / no yes / no
3	overflow air passages	- Layout as planned - Design as planned	yes / no yes / no
4	Exhaust air passages	- Layout as planned - Design as planned - There is an option to clean	yes / no yes / no yes / no
5	Exhaust air line	- There is an option to clean	yes / no
6	Exhaust air ventilator	- There is an option to clean	yes / no
7	Control unit and control device	- functional	yes / no
8	Filter, optional	- Exchange or there is an option to clean	yes / no
9	Heat exchanger for mechanical ventilation heat	- There is an option to clean	yes / no
10	Documentation	- available	yes / no
Function			
1	Operational at nominal ventilation, as planned	Result OK. Measure required	yes / no yes / no
2	Switching stages is possible, as planned	Result OK. Measure required	yes / no yes / no
3	Electrical power consumption	Result OK. Measure required	yes / no yes / no

Auditor's Report
Date: ..... Signature/Stamp:..... Start-up Personnel / Installer

4.4 Air Volume Log

Customer Data		
Name:	Name:	Name:
Street:	Street:	Street:
Construction Projects:		

Type of device:	Type of device:	Type of device:

Measurement Data		
Used measuring device:	Description of failures during the measurement:	Internal temperature[2)]:
		External temperature [2)]:
		Weather [2)]:

Filer status during calibration	Supply air	Exhaust air		Ventilator rotation speed-ratio Exhaust Air / Supply Air:
clean				
approx. ... days used				.....
Very dirty				

Supply Air				Ventilator stage: %	
No.	Room Description	Project Date m³/h	m³/s	Measurement Data m³/h	m³/s

Exhaust Air				Ventilator stage: %	
No.	Room Description	Project Date m³/h	m³/s	Measurement Data m³/h	m³/s

P_{el} = W (2 Ventilators)

[1)] The air volume flow is measured according to the agreement in case of normal operation[3)] of the device
[2)] According to DIN EN 14134, Point 7.3.1.5.
[3)] According to DIN EN 14134, Point 7.4.1. b) End
[4)] According to DIN 1946-6, the ventilation plant must also be in full operation, except during maintenance and repair works. The plant should be operated in the lowest fan speed or with an intermittent holiday program for the duration of the absence.

⇨ Reference was made to the hygienic requirements [4)] for operating the ventilation plant.
⇨ Reference was made to the interference of room air humidity during winter and summer operation.
⇨ Only PAUL-Original parts (for example Filter) should be used for governing the warranty claims.
⇨ The warranty period starts with the delivery ex work.

Date: ..... Signatures: .....
Start-up Personnel / Installer User

PAUL Wärmerückgewinnung GmbH (Member of Zehnder Group GmbH)
August-Horch-Straße 7
08141 Reinsdorf
Deutschland
Tel.: +49(0)375 - 303505 - 0
Fax: +49(0)375 - 303505 - 55

EG- Declaration of Conformity

We hereby declare that the product/series described below in their design and construction as well as the version that we have introduced corresponds to with the essential health and safety requirements of applicable, below mentioned EC-Derivatives.

Product Description: **Decentralized Heat Recovery Unit** **ComfoAir 70**

Derivative 2004/108/EG of the European Parliament and the council on 15th December 2004 to approximate the laws of the Member States relating to the electromagnetic compatibility and for repealing the directive 89/336/EWG

Applicable Standards:

EN 61000-6-1 electromagnetic compatibility (EMV) – Part 6-1: Generic Standards- noise immunity for residential, business and commercial sectors as well as small enterprises

EN 61000-6-3 electromagnetic compatibility (EMV) – Part 6-3: Generic Standards- noise immunity for residential, business and commercial sectors as well as small enterprises

EN 55011 industrial, scientific and medical devices – radio interferences – limit values and measurement method

Derivative 2006/42/EG of the European Parliament and the council on 17th May 2006 with respect to machines and for changing the directive 95/16EG (New version)

Applicable Standards:

EN ISO 12100 Safety of machines –risk assessment and risk minimization

EN ISO 3744 Acoustic – Provision of sound power levels of noise sources from sound pressure measurements – using the enveloping surface methods of the accuracy class 2 for an essentially free sound field through a reflecting level

EN ISO 5136 Acoustic – Provision of sound power – channel process, radiated from ventilators and other power machines in the channels

Derivative 2006/95/EG of the European Parliament and the council on 12th December 2006 to approximate the laws of the Member States relating to the electrical operating means for using within the specific voltage limits.

Applicable Standards:

EN 60335-1; EN 60335-2-40+A2 Safety of electric devices for domestic use and similar purposes – General requirements / specific requirements for electrically operated heat pumps, air handling units and air dehumidifier

EN 60730-2-15 Automatic electric control devices and control units for domestic use and similar purposes – Part 2-15: Specific requirements for automatic electrical air flow state, water current status depending on the control devices and control units

Reinsdorf, 20.08.2014
PAUL Wärmerückgewinnung GmbH

Michael Pitsch
Managing Director

PDE-Manual, V1014, EN, subject to change

Zehnder Group Deutschland GmbH
Almweg 34 · 77933 Lahr · Germany
T +49 7821 586 0 · F +49 7821 586 223
info@zehnder-systems.de · www.zehnder-systems.de

Version: 1.1_10/2014

EN