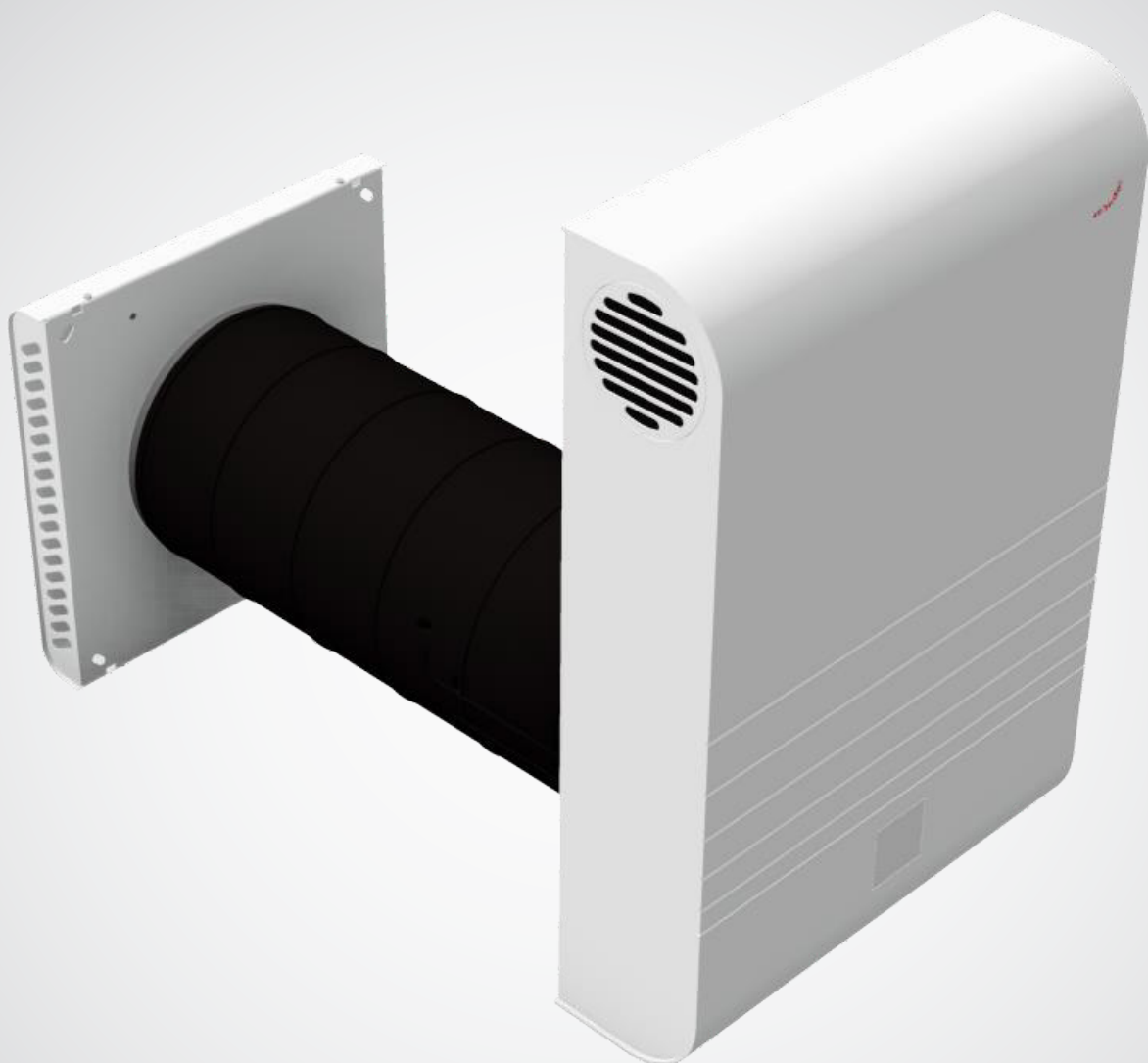


zehnder

always the
best climate

ComfoAir 70

Operating and installation instructions for users and installation technicians



Legal regulations

All rights reserved.

This manual has been compiled with the utmost care. Nevertheless, the publisher accepts no liability for damage caused by missing or incorrect details in this manual. We reserve the right at any time and without previous notification to change the content of these instructions in part or as a whole.

The information contained in these documents is the property of Zehnder Group Deutschland GmbH. Publication, as a whole or in parts, requires the written approval of Zehnder Group Deutschland GmbH. In-house duplication, designated for the evaluation of the product or for proper use, is permitted and not subject to approval.

Zehnder manufacturer's warranty

The current warranty terms can be obtained in paper form using the normal distribution channels.

Trademarks

All trademarks are recognized, even if they are not separately labeled. Our trademarks are acknowledged, even if they are not labeled separately, a missing labeling does not mean that a good or sign is free of trademark rights.

© 2014 Zehnder Group Deutschland GmbH. All rights reserved.

Contents

0	Preface	6
0.1	Validity	6
0.2	Target group and standard operation	6
0.2.1	Qualification of target group	6
0.2.1.1	Users	6
0.2.1.2	Skilled technicians / installers	6
0.2.2	Standard operation of the unit	6
1	Introduction and safety	7
1.1	Proper use	7
1.1.1.1	ComfoAir 70 ventilation unit	7
1.1.1.2	Control panels	7
1.2	Safety	7
1.2.1	Safety regulation	7
1.2.2	Installation conditions	7
1.2.3	Symbols used	8
1.3	Warranty and liability	8
1.3.1	Warranty provisions	7
1.3.2	Liability	8
2	Instructions for the user and skilled technician	9
2.1	Product description	9
2.1.1	Type label	10
2.1.2	Frost protection	10
2.1.3	Operation in residents with fireplaces	10
2.2	Functionality of the internal and external control panel	10
2.3	Operating functions and signaling from the control panel	11
2.3.1	Automatic operating mode	14
2.3.1.1	Functional principle of HUMIDITY sensor system	14
2.3.1.2	Functional principle of CO ₂ / VOC sensor system	15
2.4	Maintenance by the user	15
2.4.1	Replacing the unit filter	16
2.4.2	Resetting the filter runtime	17
2.4.3	What should I do in the case of a malfunction?	17
2.5	Disposal	17
3	Instructions for skilled installers	18
3.1	Installation requirements	18
3.1.1	Transport and packaging	18
3.1.2	Inspection of the delivered product	18

3.2	Installation	18
3.2.1	General installation instructions	18
3.2.2	Installation preparations	18
3.2.3	Connecting the air pipes (for second room connection)	19
3.2.4	Installing the ventilation unit	23
3.2.5	Electrical connections	26
3.2.5.1	Connection for power supply	26
3.2.5.2	Connecting the external control panel	27
3.2.5.2.1	Connecting the cable for the external control panel on the ventilation unit	27
3.2.5.2.2	Connecting the cable for the external control panel	29
3.2.5.3	Connecting the internal control panel	29
3.2.5.4	Installing and connecting the sensor system module	29
3.2.6	Configurable operating modes	31
3.2.6.1	Configuration of Automatic operating mode	31
3.2.6.2	Configuration of the Rush/inrush airing operating mode	31
3.2.6.3	Configuration of the Absent operating mode	32
3.2.7	Installing the exterior wall hood	32
3.3	Maintenance and repair by the skilled technician	34
3.3.1	Inspection and cleaning of enthalpy exchanger	34
3.3.2	Replacing the fans	36
3.3.3	Replacing the control board	36
3.4	Visualization of fault notifications	37
3.4.1	Fault codes in the fault status	37
3.5	Technical descriptions	37
3.5.1	Pressure loss-volume flow-characteristic curves for design of adjoining room connection	38
3.5.2	Dimensions	39
3.5.3	Mounting template (figure not true to scale)	40
3.5.4	Wiring schematic	41
4	Appendices	42
4.1	Checklist A Maintenance work for users	42
4.2	Checklist B Maintenance work for skilled technicians	43
4.3	Commissioning and handover protocol	44
4.4	Air volume protocol	45
4.5	Product data sheet	46
4.6	Product label	46
4.7	Conformity	50
4.7.1	Declaration of conformity of the European Union	50
4.7.2	EAC certification of the Eurasian Economic Union	51

0 Preface

0.1 Validity

This document applies to:

- Unit type ComfoAir 70 series

The subject of this manual is the ComfoAir 70 in its various designs variants. Possible accessories are only described to the extent necessary for appropriate operation in the unit. Please refer to the respective instructions for further information on accessory parts.

0.2 Target group and standard operation

This manual is for users and skilled installers. The activities should only be carried out by appropriately trained personnel who are sufficiently qualified for the respective work involved.

0.2.1 Qualification of target group

0.2.1.1 Users

Users must be instructed by a skilled installer as follows:

- Instructions in hazards when handling electrical devices;
- Instructions in system operation;
- Instruction in the maintenance of the ComfoAir 70;
- Knowledge of and compliance with this manual, including all safety instructions.

0.2.1.2 Skilled technicians / installers

Skilled workers must have the following qualifications:

- Training in dealing with hazards and risks when installing and operating electrical devices;
- Training for the installation and commissioning of electrical devices;
- Knowledge of and compliance with the locally applicable building, safety and installation regulations of the relevant local authorities or municipalities, the regulation of the water utilities and power stations, and other official regulations and guidelines;
- Knowledge of and compliance with this document, including all safety instructions.

Unless otherwise stated in this manual, only a recognized skilled installer is authorized to install, connect, commission, and to service the ComfoAir 70.

0.2.2 Standard operation of the unit

This unit can be used by children ages 8 and up and also by persons with reduced physical, sensory or mental abilities, or a lack of experience and knowledge provided that they are under supervision or have been instructed on the safe use of the unit and understand the risks that result from it. Children must not play with the unit or carry out cleaning and user maintenance without supervision.

1 Introduction and safety

The ComfoAir 70 is built in accordance with current technological standards and accepted safety regulations. The unit is subject to continuing improvement and development. And therefore, is it possible for your unit to deviate slightly from the descriptions in this document.

1.1 Proper use

1.1.1.1 ComfoAir 70 ventilation unit

The ComfoAir 70 can be used for controlled ventilation in living and office areas (with limitations in the commercial sector) at a normal room air humidity of approximately 40-70% relative humidity; briefly up to approximately 80% relative humidity. Conditions outside of this range are considered as misuse. Extreme conditions (e.g. salty air or air polluted with chlorine) can damage the unit. For reasons of safety, it is prohibited to modify the product or to install components that are not explicitly recommended or distributed by Zehnder North America for this product.

1.1.1.2 Control panels

The ventilation unit is equipped with an internal control panel. As an option, an external control panel can be connected to the unit using a cable with maximum 80 ft. (25 m) in length. The external control panel is only suitable for use in indoor areas.

1.2 Safety

Failure to observe the safety regulations, installation conditions, instructions, warnings, and comments in this document can result in personal injury or damage to the unit.

1.2.1 Safety regulations

- Do not make any changes to the unit or to the specifications listed in this document. Such changes can cause personal injury or lead to reduced performance in the ventilation system.
- Always comply with the general locally-applicable building, safety and installation regulations of the relevant local authorities, the regulations of the water utilities and power stations, and all other official regulations.
- Installation, commissioning, and maintenance must be carried out by an authorized person or company, unless otherwise stated in this document.
- Always disconnect the unit from the power supply before performing repair or maintenance on the ventilation system.
- Following installation, all parts that could lead to personal injury are safely shielded by the housing. The unit cannot be opened without the use of a tool.
- Do not disconnect the unit from the power supply unless instructions to the contrary are listed in the manual.
- The electronics can be damaged by static electricity; which is why you must always take measures to prevent electrostatic discharge when handling the electronics (e.g. antistatic wrist strap).
- Replace the filters (at least) every six months. This ensures a pleasant and healthy air quality, and the unit will be protected against contamination.
- Only operate the unit with a closed housing.
- Keep this document in the vicinity of the unit during the life of the ventilation unit.

1.2.2 Installation conditions

- Check that the installation area is protected from freezing.
- The acceptable temperature range for the air being moved is between -4°F (-20°C) and 104°F (40°C).
- The unit must not be installed in rooms subject to explosion hazards.
- The unit must meet all local and national code requirements. Ensure that proper clearance is provided to other fixtures in bathrooms or other "wet" rooms.
- The unit must not be used for removal of combustible or explosive gases.
- The unit can be connected to a 110 or 220 VAC / 50-60 Hz power supply.
- To shut down from the main power supply, a disconnection system using a contact opening width in accordance with the conditions from over-voltage category III for complete disconnection must be provided.
- Check whether the electrical installation is suitable for the maximum power of the unit. The values for the electrical input power can be found in the "Product data sheet" chapter.
- Check that the installation area of the unit meets the requirements in the "General installation instructions" chapter.

1.2.3 Symbols used

You will find the following symbols in this document:



Important note!



Caution: Risk of affecting the operation of the ventilation system or damaging the unit!



Caution: Risk of personal injury!

1.3 Warranty and liability

1.3.1 Warranty provisions

- For full warranty details please visit:
<http://zehnderamerica.com/faq/>

1.3.2 Liability

The ComfoAir 70 was developed and manufactured for the decentralized and semi-centralized ventilation of living areas and functional rooms.

Every other use is deemed as “improper use”, and can lead to damage of the ComfoAir 70, or to personal injury, for which the manufacturer cannot be held liable. The manufacturer shall not liable for any kind of damage that can be attributed to the following causes:

- Failure to observe the instructions listed in this manual pertaining to safety, operation, and maintenance;
- Improper installation;
- Installation of parts that were not delivered or approved by the manufacturer;
- Defects as a consequence of an incorrect connection, improper use, or from system contamination;
- Normal wear.

2 Instructions for the user and skilled technician / installer

2.2 Product description

The ComfoAir 70 is a decentralized or semi-centralized ventilation unit with waste heat recovery for a healthy, well-balanced, energy-saving, and user-friendly ventilation system. The unit can be used in a single room as an isolated solution and ducted for multiple rooms. With this ComfoAir 70 application as a semi-centralized ventilation system, air can be extracted from the kitchen and bathroom using adjoining room connections, and the fresh air introduced into the living room and bedrooms.

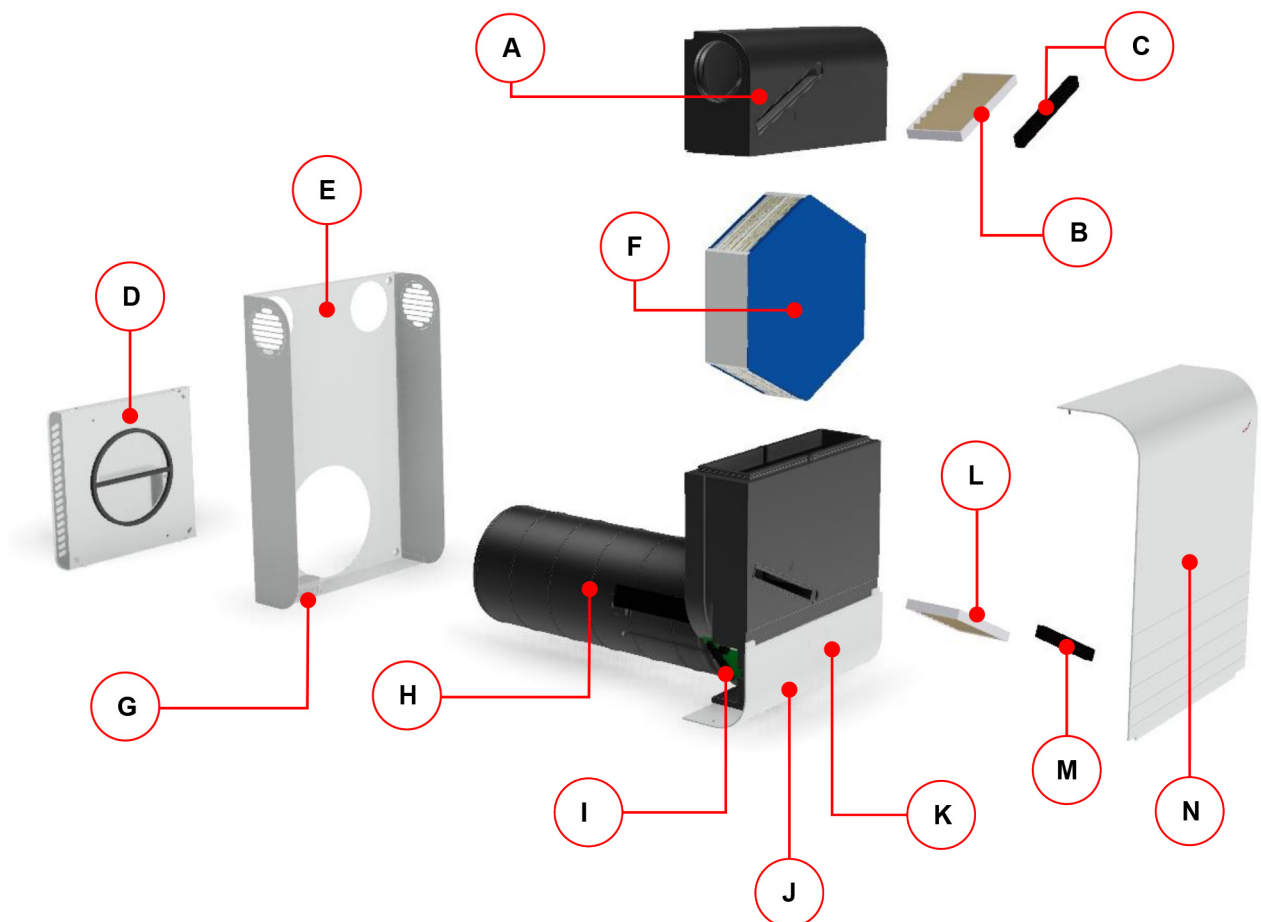
An enthalpy exchanger, which can transfer both humidity and heat, is used in the ComfoAir 70 for energy recovery. The housing consists of a powder-coated steel plate, as well as covers made of aluminum in the RAL9016 color scheme. The unit body, made from a high-quality expanded polypropylene (EPP), is used for accommodating the unit components, and also makes sure there is the necessary heat insulation and unit soundproofing.

The ComfoAir 70 has two maintenance-free, 24 VDC radial fans with electronic commutation. These fans and the control board receive the required operating voltage via an integrated 110 or 220 VAC / 24 VDC transformer.

By default, a class G4 (MERV 8) air filter is used in the unit for the outdoor air and the exhaust air. As an option, a class F7 (MERV 13) air filter for pollen can be used for the outdoor air.

The exterior wall hood is made from white aluminum.

The ComfoAir 70 has valves that, when in specific operating modes, automatically close off the outdoor air supply and indoor air exhaust sections in the unit.



Item	Description
A	EPP housing, upper part
B	Exhaust air filter (Class G4 / MERV 8)
C	Filter cover
D	Exterior wall hood (with sealing gaskets on the rear side)
E	Wall bracket
F	Enthalpy exchanger (moisture heat exchanger)
G	Connection socket
H	EPP housing unit with integrated fans and cover
I	Control board
J	Lower aluminum canopy, with integrated control panel
K	Touch-sensitive control panel
L	Outdoor air filter (class G4 / MERV 8 or F7 / MERV 13)
M	Filter cover
N	Upper aluminum canopy

2.1.1 Type label

The type label identifies the product and can be found underneath the upper canopy on the polypropylene unit core. You will need the details on the type label for the safe use of the product and to provide information for service. The type label must remain attached to the product.

2.1.2 Frost protection

The ComfoAir 70 is equipped with an automatic frost protection control system, which prevents the heat exchanger from freezing should the outside air temperature drop to a very low level. In the first stage of the frost protection mode, the ratio between the supply air and exhaust air volume flow is automatically adjusted to the outside air temperature by the control system. In a second stage, the supply air fan is switched off but the exhaust air volume flow remains unchanged. In outdoor temperatures lower than 5°F (-15°C), the exhaust air fan is also switched off in the final stage of the frost protection mode. At each stage, a check is made (after a waiting period) as to whether the temperature conditions with regard to frost protection have changed, and, depending on the result of the plausibility check, whether the relevant frost protection mode is automatically activated.

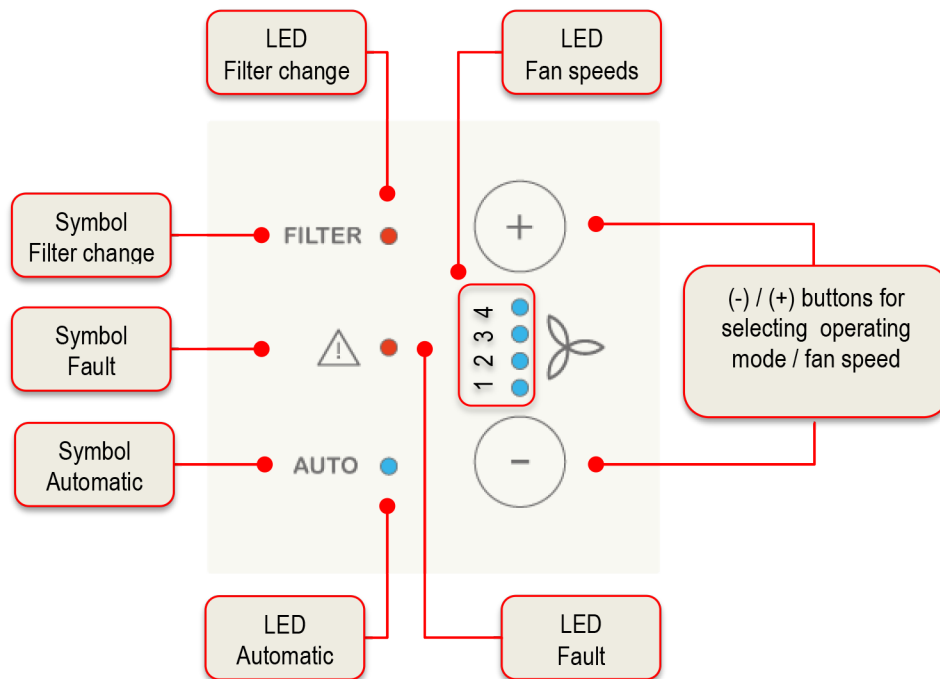
2.1.3 Operation in residents with fireplaces

Joint operation in residents with fireplaces is only permissible in combination with the corresponding safety devices and in compliance with applicable laws, regulations, and standards.

2.2 Functionality of the internal and external control panel

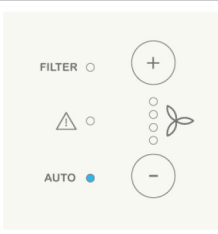

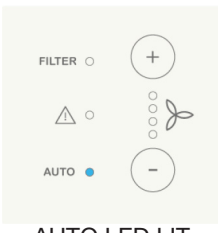

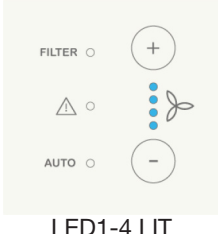

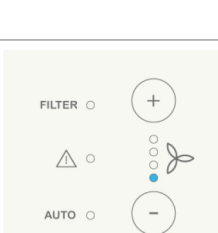

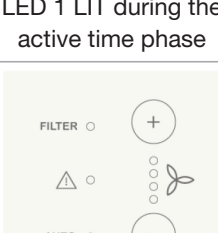
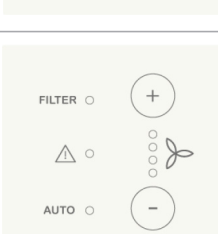


The control panels have touch-sensitive buttons, which means the respective operating functions are triggered by touching the relevant buttons. The ComfoAir 70 can be operated with the internal and the external control panel. The button assignments and the LED signaling in both control panels are identical in terms of functions.

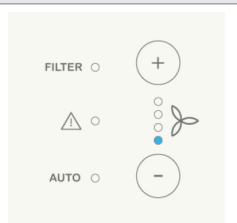
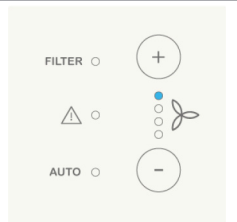
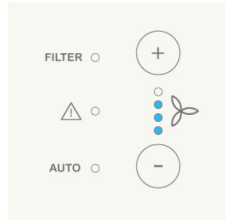

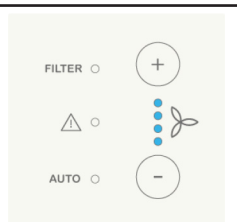
The two buttons are used for setting the various fan speeds and operating modes. The ventilation stages and the Automatic operating mode are indicated with blue LEDs, and the Service information with red LEDs.



2.3 Operating functions and signaling from the control panel

Icon	Description	Explanation
<p>FILTER ○ (+) △ ○ (1) AUTO ○ (-)</p> <p>LED1 LIT</p>	Fan speed operating mode Fan speed 1 (LS1)	<p>The selection for the current fan speed (4 fan speeds with preset speeds for each fan) is made by using the (-) / (+) buttons.</p> <p>Touching the (+) button increases the fan speed to the next setting and touching the (-) button decreases the fan speed to the next setting.</p>
<p>FILTER ○ (+) △ ○ (2) AUTO ○ (-)</p> <p>LED1-2 LIT</p>	Fan speed 2 (LS2)	
<p>FILTER ○ (+) △ ○ (3) AUTO ○ (-)</p> <p>LED1-3 LIT</p>	Fan speed 3 (LS3)	
<p>FILTER ○ (+) △ ○ (4) AUTO ○ (-)</p> <p>LED1-4 LIT</p>	Fan speed 4 (LS4)	

Icon	Description	Explanation
 <p>AUTO LED LIT</p>	Automatic operating mode (AUTO)	<p> The Automatic function can only be activated with a sensor system module.</p> <p>Touching the (+) button from the currently active LS4 transfers the unit to AUTO fan speed. AUTO fan speed is exited by touching the (-) button, and the unit is transferred back to LS4. The Automatic function is in operation when the auto LED is LIT.</p>
 <p>AUTO LED LIT</p>	Bathroom function operating mode	<p> The Bathroom function can only be activated with a sensor system module and configured DIP switch setting.</p> <p>The fans are operated at maximum speed when the relative room air humidity reaches 80%. If this limit value is not reached, the unit remains in the previous active operating mode.</p>
 <p>LED1-4 LIT</p>	Rush / inrush airing operating mode	<p> The Rush / inrush airing function temporarily activates fan speed 4 and can only be activated with a configured DIP switch setting.</p> <p>The rush/inrush operating mode is a timed boost function that can be used to quickly eliminate odors and moisture. After the rush/inrush airing time has elapsed, the unit will be transferred to the most recently selected fan speed. The fan speed that was active for longer than 10 seconds is deemed as the last fan speed. When rush/inrush airing is active, the operating modes “Exhaust air mode” or “Supply air mode”, that may be present, are retained.</p> <p>Rush/inrush airing duration with 15, 30, or 45 minutes can be set with a programming module by Customer Service. (Factory setting: 15 minutes)</p>
 <p>LED 1 LIT during the active time phase</p>	Absent operating mode	<p> The Absent function temporarily activates fan speed 1 and can only be activated with a configured LS 1.</p> <p>The absent operating mode is used to provide minimal ventilation when the living space is vacant. The active operating time of the LS 1 of 15, 30, or 45 min/h can be set with a programming module by Customer Service. (Factory setting: 60 min/h $\hat{=}$ LS1 continuous operation).</p>
	LED display for energy-saving mode	<p>The LED display on the control panel changes into energy-saving mode after 10 seconds without operator input (unit functions remain active; the LED display is switched off). If any button is touched, the LED display will be activated again. Touching the button brings about no change to the operating mode, however.</p>
	Standby operating mode	<p>The unit can be transferred from LS1 to Standby mode by touching the (-) button. The fans then comes to a stop.</p> <p> The supply and exhaust dampers are closed automatically!</p> <p>Standby mode is exited by touching the (+) button. The unit then starts with LS 1.</p> <p> The supply and exhaust dampers are opened automatically!</p> <p>There is no indication of the standby mode from the LEDs of the control panel.</p>

Icon	Description	Explanation
 <p>LED1 and the current LS flash alternately</p>	<p>Exhaust air operating mode</p>	<p>Touching the (-) button for 5 seconds while in operating modes LS1 to LS4 activates or deactivates the Exhaust air operating mode. The supply air fan is switched off; the exhaust air fan continues to run with the current LS.</p> <p>The display for the current LS changes every 2 seconds with the flashing LED1.</p> <p>To avoid condensation appearing on the outer panel, the unit automatically changes to the Frost protection operating mode when the frost protection temperature is reached. The supply air fan is operated for several minutes every hour in order to record the correct outside air temperature.</p>
 <p>LED4 and the current LS flash alternately</p>	<p>Supply air operating mode</p>	<p>Touching the (+) button for 5 seconds while in operating modes LS1 to LS4 activates or deactivates the Supply air operating mode. The exhaust air fan is switched off; the supply air fan continues to run with the current LS.</p> <p>If an outdoor temperature of < 55°F (13°C) is not reached, the exhaust air fan will begin operation.</p> <p>The display for the current LS changes every 2 seconds with the flashing LED4.</p>
 <p>LEDs1-3 flash Flashing of most recently active fan speed when supply air fan is switched off (display of LED1-3 as example)</p>	<p>Frost protection operating mode</p>	<p>A temperature threshold, which activates the Frost protection operating mode, if not reached, is stored for each fan speed. Here, the fan speed for the supply air fan is linearly regulated between the maximum and minimum set point, depending on the outdoor temperature. The fan speed can continue to be changed in the Frost protection mode.</p> <p>The supply air fan is switched off if a second temperature threshold is not reached within a specific duration.</p> <p>This status is indicated by the flashing of the LEDs that are indicative of the most recently active fan speed.</p> <p>If the outdoor temperature falls below a further temperature threshold, then the exhaust air fan will also be deactivated, and the unit will have a status of complete shut-down. The LEDs for the most recently active fan speed will stop flashing.</p> <p> The supply and exhaust dampers are closed automatically!</p> <p>During complete shut-down, the fan speed cannot be changed. Touching the (-) or (+) button leads to rapid flashing (5x) in LED1-4.</p>
 <p>LED1-4 flash</p>	<p>Indication of disabled states</p>	<p>If, by touching a button, a status is entered that is not available, then this will be signaled by rapid flashing (5x) in LED1-4.</p> <p>These states are: disabled standby, disabled supply air or exhaust air mode, and complete shut-down by Frost protection.</p>

Icon	Description	Explanation
<p>LED1 and the current LS flash alternately</p>	Indication of filter inspection	<p>The filters are monitored based on running time. 90 days is the factory preset default. After the filter runtime has elapsed, a notification of a filter inspection is signaled by the filter change LED flashing.</p> <p>Simultaneously touching the (-) and (+) button for 3 seconds allows you to acknowledge the indication of the filter inspection and to reset the filter runtime.</p>
<p>LED1 and the current LS flash alternately</p>	Indication of fault	<p>An occurring fault is signaled by the fault LED.</p> <p>Faults that can be diagnosed by the unit are symbolized by LED1-4 using a fault code (see 3.4.1).</p> <p>Simultaneously touching the (-) and (+) buttons for 3 seconds allows you to reset the fault notification.</p>

2.3.1 Automatic operating mode



Automatic operating mode requires the internal installation and configuration of a sensor system module! The sensor system modules inserted in the exhaust air section of the ventilation unit are available as optional accessories.

The Automatic function changes into the frost protection operating mode in the event of frost protection criteria being present!

The application of the Automatic function follows the logic of a demand-based control system for optimizing the indoor air climate, and thus increases comfort and quality of life in the living areas. Consequently, an optimized ventilation response and prevention of mold formation is achieved, which ultimately also leads to an increase in energy savings. The ComfoAir 70 ventilation unit with an automatic sensor system module is classified in energy efficiency class A.

2.3.1.1 Functional principle of HUMIDITY sensor system



The HUMIDITY sensor system module is intended to be installed in units for the aeration and ventilation of rooms that are more likely to have higher humidity; i.e. kitchen, bathroom.

The HUMIDITY sensor system module is equipped with a humidity and temperature sensor and calculates the relative humidity. The fan speeds are regulated based on relative humidity in accordance with the characteristic curve in diagram 1. Dehumidification performance is reduced as the temperature difference between the indoor and outdoor air is decreased. Therefore, the airflow rate is set to 12 CFM (20m³/h) when the difference between the indoor and outdoor air temperature is < 9°F (5 K). When the Bathroom function operating mode is active, the unit will be operated with the highest fan speed when the relative humidity is ≥ 80%.

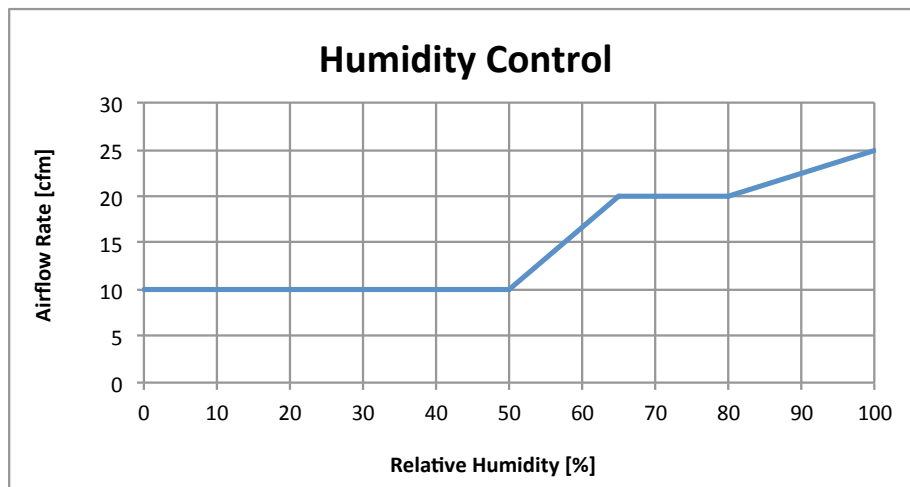


Diagram 1: Factory setting characteristics curve for Automatic operating mode with humidity control.

2.3.1.2 Functional principle of CO₂ / VOC sensor system



The CO₂ sensor system module and the VOC sensor system module are each combined with a humidity/temperature sensor.

The CO₂ sensor system module and the VOC sensor system module both offer you the option to evaluate relative air humidity as well as the air quality for controlling the ventilation unit. The VOC sensor system module detects volatile hydrocarbons (VOC) and the CO₂ sensor system module, using NDIR (nondispersive infrared sensor) technology, detects carbon dioxide (CO₂). Volatile hydrocarbons correlate well with the CO₂ concentration in living spaces. Therefore, the fan speeds are regulated in accordance with the characteristic curve in diagram 2.

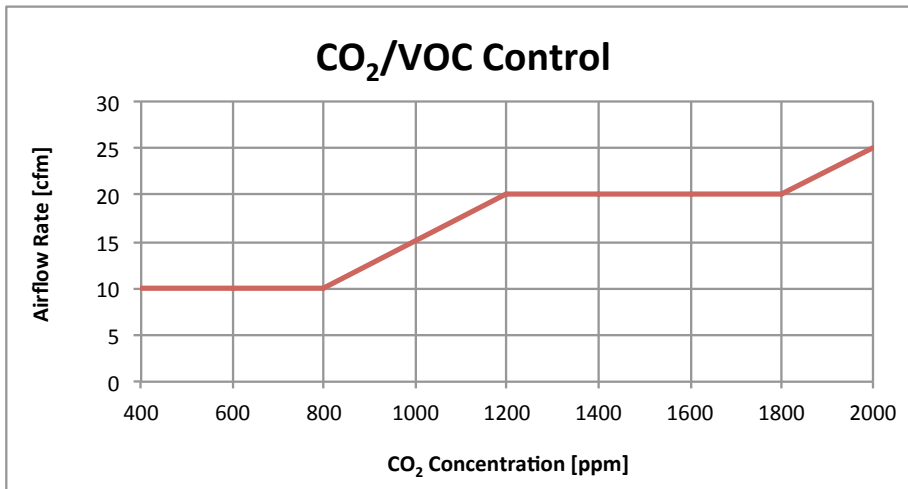


Diagram 2: Factory setting characteristic curve for Automatic operating mode with CO₂ / VOC control



The CO₂ and VOC sensor system modules combined with a humidity/temperature sensor can be deactivated separately if needed, in accordance with the humidity or air quality control. If both sensor system modules are configured as active, the unit will be controlled by the sensor that measures the highest levels. The required hardware settings on the control system are only allowed to be made by competent, qualified personnel!

2.4 Maintenance by user



If the maintenance work is not carried out regularly, this will affect the functionality of the decentralized ventilation unit!

Replace the filters at least every six months. This ensures a pleasant and healthy air quality, and the unit will be protected against contamination.

The maintenance of the ventilation unit for the user is limited to changing the filters periodically and to cleaning the unit on the surface, if needed. Check the filters if you are requested to do so by the flashing of filter change LED.



Cleaning the surface of the unit, and specifically the control panel, should be done using a damp cloth and a mild soap solution. Never use just a dry cloth!

Unsuitable cleaning agents are:

- Alcohol (> 5%)
- Acetone
- Benzene or carbon tetrachloride
- All types of "strong" cleaning agents
- Scouring agents
- Glass cleaners and similar



Instructions for units with a second room connection.

The filter mats should be replaced or cleaned on the exhaust air valves (e.g. bathroom, kitchen) every 2 - 3 months or when deemed necessary by visual inspection.

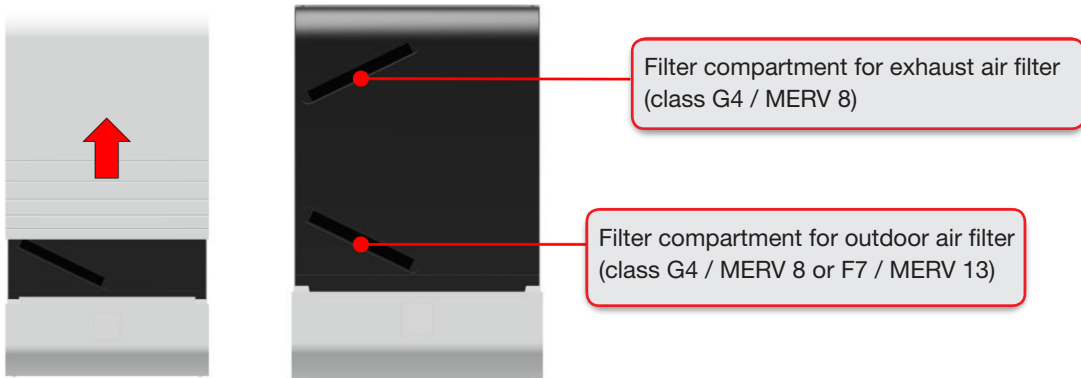
2.4.1 Replacing the unit filters



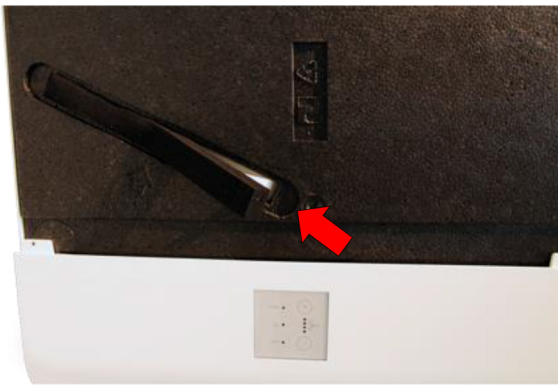
The ComfoAir 70 must not be operated without filters. When changing filters, the unit needs to be set to the Standby operating mode.

The ComfoAir 70 has two high-quality, class G4 (MERV 8) filters that are installed by default. Retrofitting a pollen filter, class F7 (MERV 13), is possible. This is inserted into the lower filter compartment (outdoor air filter). The filters can be obtained via Zehnder North America. The filters in the ComfoAir 70 must be checked in accordance with the relevant notification on the control panel and, if needed must be replaced. In doing so, proceed as follows:

1. Set the unit into the Standby operating mode.
2. Remove the upper canopy by pulling it out of the guides in an upward direction, as shown below.



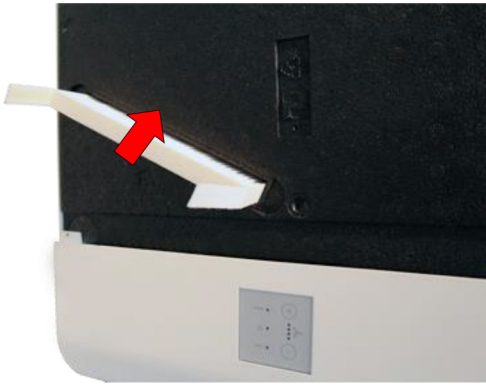
3. Insert your finger into the recess between the filter cover and the housing, and pull the filter cover out.



4. Gripping the pulling tabs, carefully pull the filter out of the filter compartment.



5. Ensure that the directional arrow of the filter label is pointing to the center of the unit, and insert the new filter into the filter compartment. Do not use excessive force when inserting the filter.



6. Insert the filter covers so that the filter compartment is sealed.

7. Proceed in the same way for the upper unit filter.

8. Place the upper canopy onto the unit from above. Make sure that it engages into the guide for the lower canopy and the locking nipples into the designated spring clips of the wall bracket.



9. Switch the unit back into the desired operating mode.

2.4.2 Resetting the filter runtime

After completing the filter change, the counter for the filter runtime must be reset. To do this, you can clear the filter inspection indication again by holding the (-) and (+) button for 3 seconds. The red LED on the control panel, symbolizing the filter change, will no longer be lit.

2.4.3 What should I do in case of a malfunction?

Contact the installation technician in the case of a malfunction. Note the type of your ComfoAir 70; for more on this, see the type label underneath the canopy of the unit.

The main power connection must always be engaged, providing the ComfoAir 70 does not have to be shut down due to a serious malfunction, maintenance work, or due to another urgent cause.



As soon as a main power is disconnected, the living space will no longer be mechanically ventilated. This makes it possible for problems involving moisture and mold to occur in the living space. Long periods of the unit not operating, particularly during the summer months, can lead to the accumulation of contaminants inside of the exterior wall hood and in the EPP housing section of the pipe extension!

It is recommended that, the ventilation unit be operated at all times, except when maintenance and repair work is required. The unit should be operated in the Absent operating mode for the duration of an absence!

2.5 Disposal

Discuss what you should do with your ComfoAir 70 at the end of its life cycle, with your supplier. If you cannot return your ComfoAir 70, do not dispose of it in the normal household waste, but rather contact your local authority for options to recycle components or to process materials in an environmentally-friendly way.

3 Instructions for skilled installers

3.1 Installations requirements

The following requirements must be met for the correct installation:

- Installation in accordance with the general and locally-applicable safety and installation regulations from, among others, the power authority, and in accordance with the regulations stipulated in this manual;
- Outer wall with a final construction thickness of at least 11" (275 mm);
- Sufficient clearance to objects and for maintenance work (at least 4" (10 cm) on each exhaust air side, 8" (20 cm) on the supply air side, 31-1/2" (80 cm) at the front, and 8" (20 cm) above the unit), with regard to the housing surfaces when installed;
- The recommended distance of the suction opening for the outdoor air with respect to the ground is > 39-1/2" (1 m). Ensure that there is no polluted air in the vicinity of the suction area;
- 110 or 220 VAC, 50-60 Hz power supply.

3.1.1 Transport and packaging

Proceed with care when transporting and unpacking the ComfoAir 70. The ventilation unit and the outer panel are packed in a transport-safe box.



Do not damage or dispose of the packaging before final installation of the ventilation unit.

3.1.2 Inspection of the delivered product

If the delivered product is damaged or something is missing, please contact the supplier immediately. Included in the delivery are:

- ComfoAir 70, including installation kit
- Exterior wall hood, including installation kit
- Mounting template as imprint on the inside of the lid of the box
- Operating and installation instructions
- Product labels for energy-efficiency label



For units where a second room connection is desired, you should refer to the accessories section in the Zehnder product program when installing the air ducts.

3.2 Installation

3.2.1 General installation instructions

The ComfoAir 70 is designed for installation in a conditioned space and on a outer wall. The wall must be plumb and the unit must be installed vertically with the display on the bottom. To mount the ventilation unit, a wall mounting pipe must be installed in the outer wall in advance; please refer to the respective installation instructions enclosed for the procedure for installing the wall mounting pipe.



When planning the installation location, please note that the clearance needs to be 4" (10 cm) on the exhaust air side and 8" (20 cm) on the supply air side. For maintenance work, clearances of 31-1/2" (80 cm) in front of the unit and 8" (20 cm) above the unit are to be adhered to!



The location of the unit must meet all local and national code requirements. Ensure that proper clearance is provided to other fixtures in bathrooms or other "wet" rooms.


3.2.2 Installation preparations

Prior to installing the ventilation unit, an appropriate wall mounting pipe must already be installed in the outer wall at the designated installation location, and flush with the finished wall construction.




The installation of the ComfoAir 70 is designed to be connected to a round wall mounting pipe or a square wall mounting pipe!

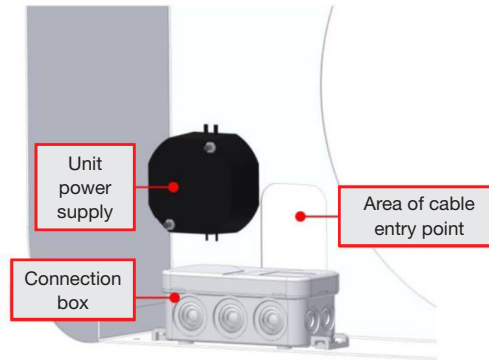
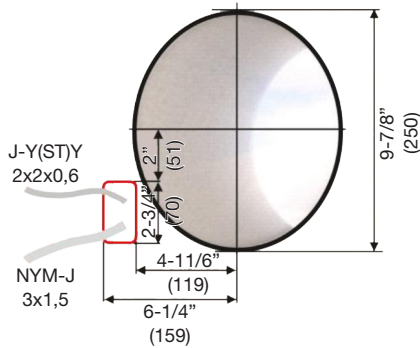
The square wall mounting pipe, intended in particular for new buildings, should be integrated in the outer wall during construction. The round wall mounting pipe is preferably used in the refurbishment and reconstruction of a building, and is inserted in the outer wall by means of a core hole \varnothing 10-5/8" (\varnothing 270 mm).

 **Observe the respective enclosed instructions on professional installation when installing the wall mounting pipe. Use the mounting template in order to transfer all centerings for the holes onto the inner wall surface.**

 **A 110 or 220 VAC main power supply connection is required to operate the unit.**

 **In order to connect an external control panel, a cable must be installed on site between the control panel and ventilation unit (recommendation: type J-Y(ST)Y 2x2x0.6 LG indoor cable with color coding).**

The main power supply line (e.g. NYM-J 3x1.5) and, where applicable, the cable to the external control panel, must be installed flush-mounted up to the area of the bottom left side of the unit. The cable ends should protrude approximately 4" (10 cm) out of the wall surface in the area of the cable entry point.



3.2.3 Connecting the air pipes (for second room connection)

 **The installation of the air pipes and the necessary accessories (adapters, bends, sealing tape) should be done prior to installing the drywall, if possible.**

The following points must be observed when installing the air pipes for a second room connection; ComfoFlex ducts may be used to provide aeration and/or ventilation to a second room. The use of the rear duct wall adapter (an accessory available from Zehnder North America) is required to provide the connection between the CA 70 unit and the ComfoFlex ducting that is typically installed between the studs within a wall. The wall adapter can only be oriented in the upward or downward direction to avoid interference with the wall bracket mounting.



Follow the steps below to install the rear duct wall adapter:

1. Determine which secondary room(s) will be aerated and/or ventilated and route ComfoFlex ducting from the register boxes and/or diffusers in that room to the location in the room that the CA 70 unit will be installed.
2. Determine the mounting location for the CA 70 unit on the wall and the relative location of the rear duct opening(s).

3. Attach the ComfoFlex ducting to the rear duct wall adapter and seal with UL 181a rated duct tape.



4. Remove the outer male-threaded ring from the adapter(s).

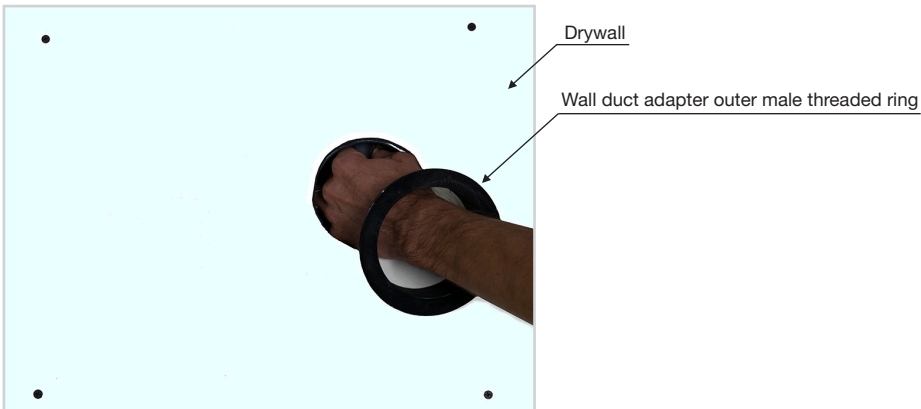


5. To ensure proper alignment of the rear duct wall adapter to the CA 70 unit, the adapter(s) must be located and secured with tape, screws, or adhesive to hold it in place until the drywall has been installed.

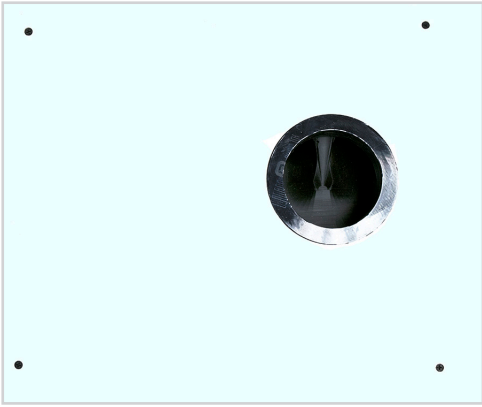


6. Once the drywall has been installed, locate the rear duct wall adapter opening and cut the drywall opening to the inside diameter of the adapter. Repeat if a second adapter was installed.

7. Slip the outer male-threaded ring over one of your hands with the threads oriented toward your fingers. Insert that hand into the hole just created in the drywall for the duct adapter and hold the adapter securely by the internal middle dividing wall.



8. With your other hand, engage and thread the outer ring into the adapter until it is seated flush with the surface of the drywall.



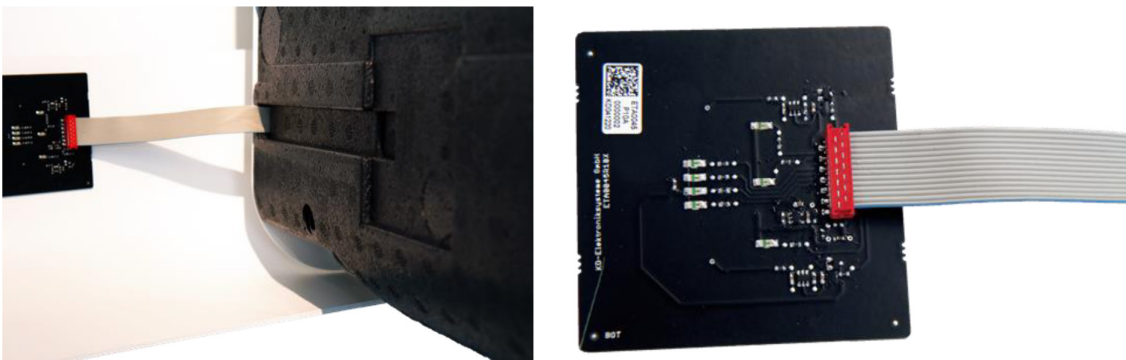
9. Using the self-adhesive foam sealing tape provided with the adapter, form a gasket with the tape on the surface of the outer ring. This will provide a seal between the wall adapter and the CA 70 unit.

Converting the CA 70 unit from side indoor air supply/exhaust to rear indoor air supply/exhaust

1. Remove the upper canopy by pulling it out of the guides in an upward direction and set aside.
2. Remove the two screws at the bottom of the unit that secure the lower canopy to the wall bracket, as shown below.



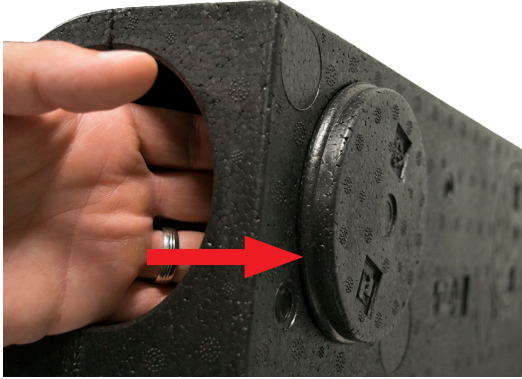
3. Lift the lower canopy slightly, and carefully disconnect the ribbon cable on the inner side of the canopy from the board of the internal control panel, by gripping the red plug.



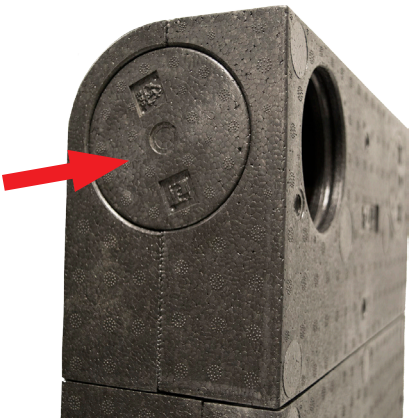
4. Set the lower canopy with the control panel intact, aside.
5. Slide the EPP body of the unit out of the metal wall bracket to expose the left (exhaust) and right (supply) duct connections.



6. Reaching through the side duct opening that is to be converted to a rear duct connection, carefully push the EPP rear duct plug out of the EPP body as shown below.



7. Using the duct plug just removed from the rear of the EPP body, carefully press into the side opening so that it is sealed. Note: the supply and exhaust openings can be either side or rear facing, not both.



- 8. Slide the EPP body of the unit back into the metal wall bracket.
- 9. Fasten the lower canopy with the left-hand screw. The lower canopy can now be pivoted. Plug the ribbon cable into the control panel in the position shown in step 3, above.
- 10. Attach the lower canopy in place on the wall bracket with the remaining right-hand screw.
- 11. Place the upper canopy onto the unit from above. Make sure that it engages into the guide for the lower canopy and the locking nipples into the designated spring clips of the wall bracket.





The air pipes in a second room connection have an effect on the airflow balance of the ventilation unit. The balance adjustment must be conducted in accordance with the system characteristic curve by using the PC software.

3.2.4 Installing the ventilation unit



Prior to starting work, ensure that the main power supply is disconnected!



Match the required load capacity of the respective mounting surface (dead weight of the ComfoAir 70 is 59 lbs (22 kg)) and the mounting options using wall anchors and screws of sufficient length. The supplied mounting material should only be considered as a suggestion.



Use the mounting template as an aid for the mounting holes. Prior to installing the unit, remove the upper and lower canopies. Unplug the plug connection for the ribbon cable on the internal control panel.



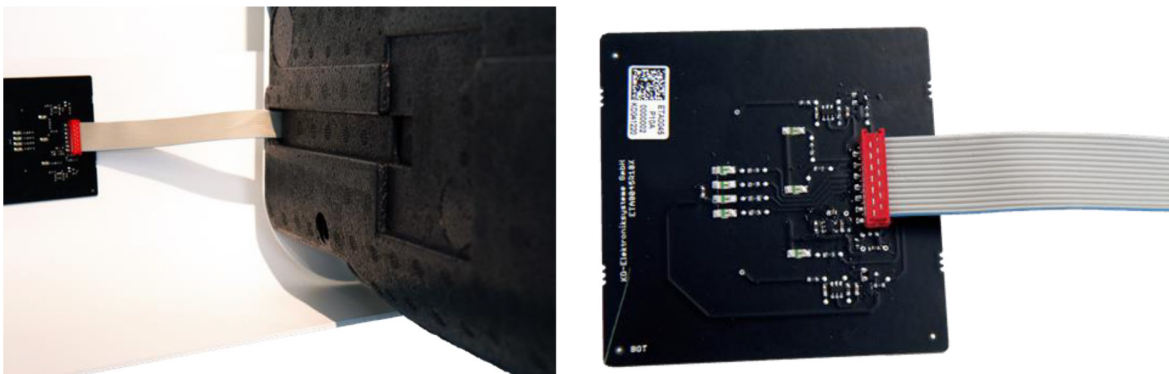
A sensor system module (optional accessory) must be fitted in the unit before the unit is installed!

Proceed as follows for the installation of the sensor system module:

1. Pull the upper canopy upwards and out of the bracket and undo the two screws to remove the lower canopy.



2. Lift the lower canopy slightly, and pull the ribbon cable on the inner side of the canopy carefully off the board of the internal control panel, by gripping the red plug.



3. Remove the wall bracket from the EPP housing.
4. Drill the four mounting holes, in accordance with the mounting template, for attaching the wall bracket, and insert the supplied or, depending on the wall construction, relevant mounting material (wall anchors) into the holes.



Should the location for the mounting holes not be available, the holes can be transferred afterwards onto the inner wall surface by means of alignment of the wall bracket in relation to the pipe axis!

5. Screw the wall bracket to the inner wall, and take care to ensure that the main power supply line and, if present, the cable for the external control panel, are guided through in the area of the cable entry point.



If the inner wall surfaces are uneven, or it is not vertical, then the wall bracket must be aligned using suitable spacers or something similar.



6. Connect the power supply in the connection box in accordance with 3.2.5.1 and, if present, connect the external control panel on the unit side, in terms of the plug-in connector with the screw-type terminals in accordance with 3.2.5.2.1.
7. If necessary, shorten the EPP pipe to the length of the wall mounting pipe +3/16" (+5 mm), or the wall thickness, so that it is also flush with the outside wall surface.



The cut must be perpendicular to the axis of the EPP pipe extension!

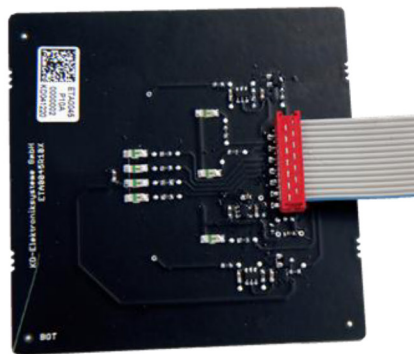
8. As shown below, push the ventilation unit, with a clearance up to approximately 6" (15 cm) to the wall bracket, into the wall mounting pipe so that the control board still remains freely available.



In order to make it easier to insert the ventilation unit, you should deburr the cutting edge of the EPP pipe, and spray some silicone into the wall mounting pipe!



9. Before you push the ventilation unit in completely, the power supply (3.2.5.1), internal control panel (3.2.5.3), and where applicable, external control panel (3.2.5.2) are to be connected electrically with the control board.
10. Fasten the lower canopy with the left-hand screw. The lower canopy can now be pivoted. Plug the ribbon cable into the control panel in the position shown.



11. Push the unit into the wall mounting pipe as far as it will go, taking into account the electrical connections.



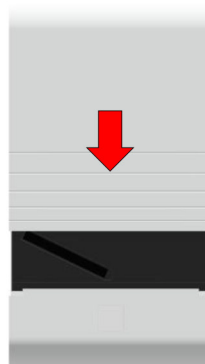
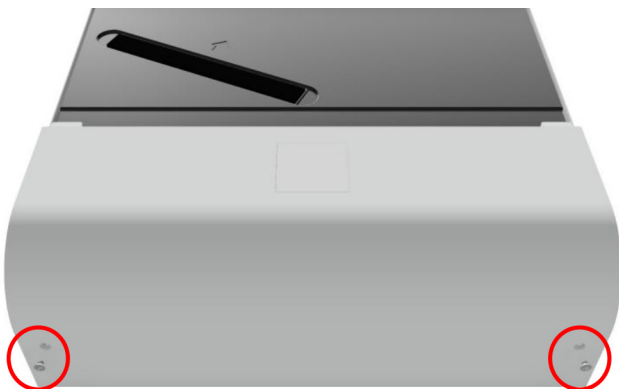
Take care to ensure that the lower side of the EPP housing rests on the wall bracket. If necessary, push the upper frame of the wall bracket slightly upwards. In the final mounting position, the front side of the EPP housing has to line up with the front edge of the wall bracket, or somewhat behind it; if necessary, the wall bracket must be adjusted using spacers.

12. Pivot the lower canopy against the EPP housing. In the process, press the lower canopy slightly away from the wall bracket in order to pivot it in front of and past the edge of the wall bracket without interference.



Take care to ensure that the ribbon cable is located in the designated recess of the EPP housing when installing the lower canopy.

13. Fix the lower canopy in place on the wall bracket using the two screws, and place the upper canopy onto the EPP housing, following the instructions given in 2.4.1.



3.2.5 Electrical connections



Electrical connections are to be completed in accordance with the existing standards specific to the relevant country, and must only be performed by qualified personnel!

3.2.5.1 Connection for power supply



Prior to starting work, ensure that the main power supply is disconnected!



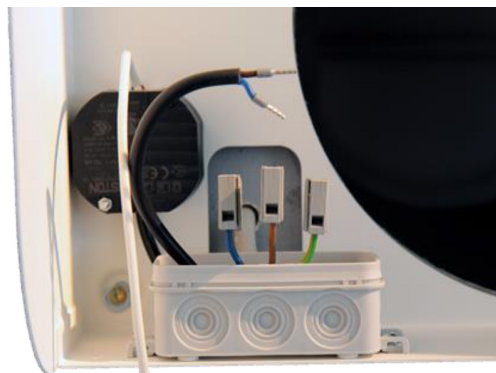
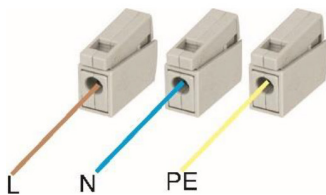
A disconnect with a contact opening width in accordance with the conditions from over-voltage category III for complete disconnection in the fixed electrical installation, has to be installed in accordance with the installation regulations.

1. Guide the main power supply line and the units primary-side power supply cable into the connection box.

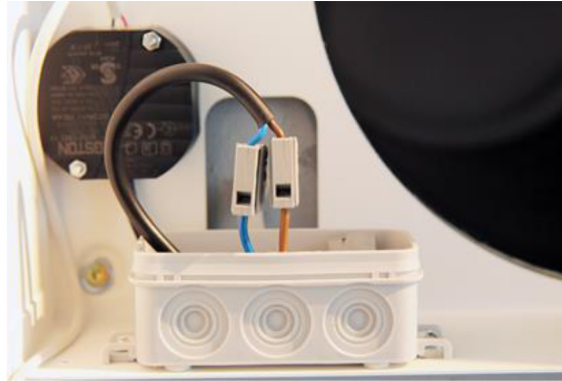
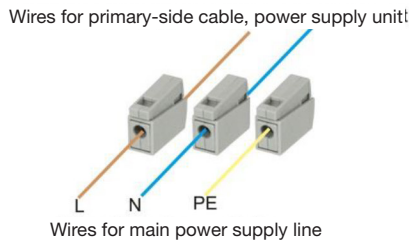


In accordance with protection class II (protective insulation), the wires for the main power supply line and the wires for the primary-side power cable of the unit must be installed into the connection box with double insulation through the cable bushings!

2. Slip a WAGO luminaire terminal from the installation kit, together with the plug connection for solid conductors, onto one wire of the main power supply line.



3. Connect one wire from the primary-side power cable of the unit to the clamping connection for the stranded wire of the WAGO luminaire terminal for the L-conductor and the N-conductor. The WAGO luminaire terminal of the PE conductor remains unassigned (ventilation unit corresponds with protection class II – protective insulation).



4. Push the connections into the connection box and install the cover.

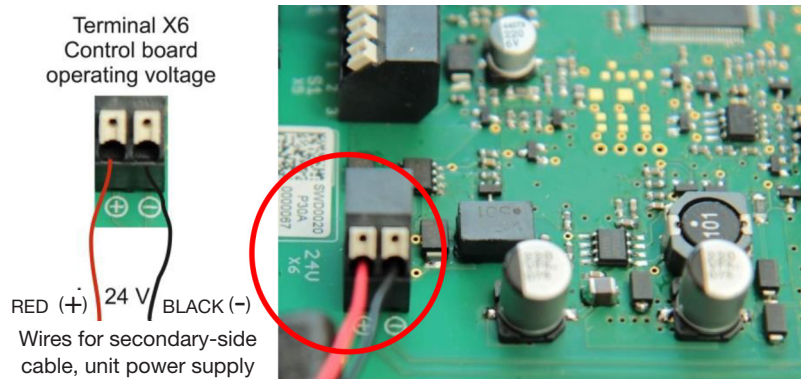


5. Connect the wires of the secondary-side low-voltage cable of the power supply unit to the 24 V X6 terminal on the control board.



The secondary low-voltage side of the power supply is polarity-dependant

Color coding low-voltage cable power supply unit	Termination point for 24 V X6 terminal
red	Positive (+)
black	Negative (-)



3.2.5.2 Connecting the external control panel

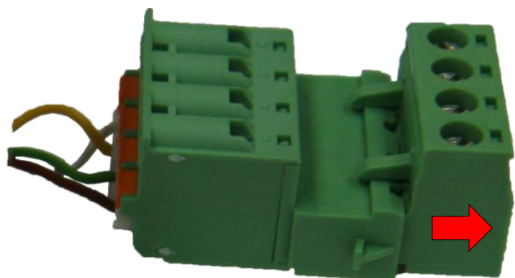


The unit-side connection of an optionally available external control panel must be completed when connecting the power supply.

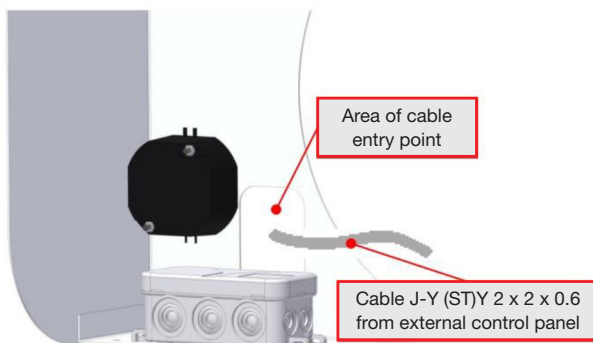
3.2.5.2.1 Connecting the cable for the external control panel on the ventilation unit

The on-site cable (J-Y(ST)Y 2 x 2 x 0.6), protruding in the area of the cable entry point, for the external control panel must be connected as follows:

1. Pull the plug-in connector part with the screw-type terminals off the 4-pin plug connection of the pre-assembled connecting cable (contained in the delivery kit).



2. Connect the four wires of the on-site cable (J-Y(ST)Y 2x2x0.6) for the external control panel to the plug-in connector part with the screw-type terminals.



Note the color of the wires in accordance with the assignment of the terminal points. The color coding must match with the terminal points on the external control panel! Enter the color coding in the table below in order to have a reference available so that it can be reproduced when the external control panel is removed.

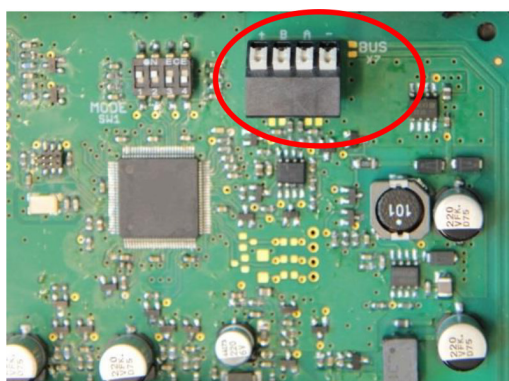
Color coding connecting cable	Terminal point for plug connection	Color coding cable for external control panel
white	Negative (-)	
yellow	A	
green	B	
brown	Positive (+)	

3. Connect the wires of the connecting cable to the BUS X7 terminal on the control board.



Ensure that the connecting cable wires are connected correctly to BUS X7 terminals per the table below.

Color coding connecting cable	Terminal point for BUS X7 connection
white	Negative (-)
yellow	A
green	B
brown	Positive (+)



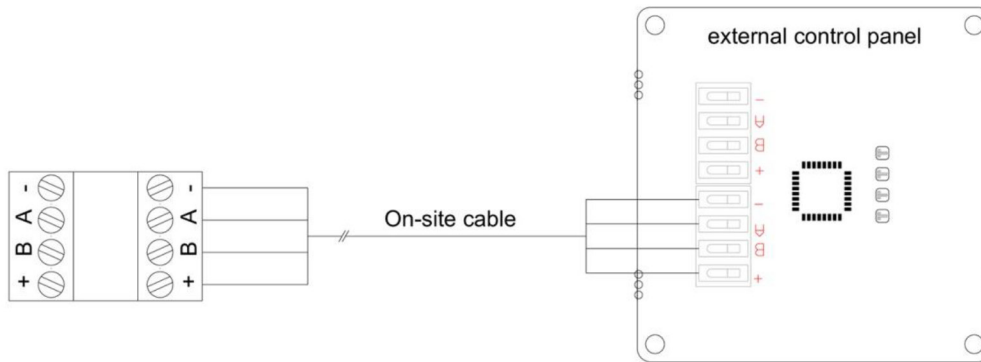
4. Assemble the plug-in connector part for the connecting cable with the plug-in connector part of the cable of the external control panel.

3.2.5.2 Connecting the cable on the external control panel

Connect the cable to the spring-type terminals for the connection board of the external control panel as depicted.



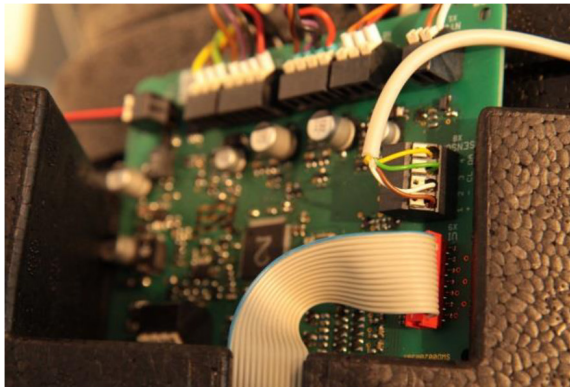
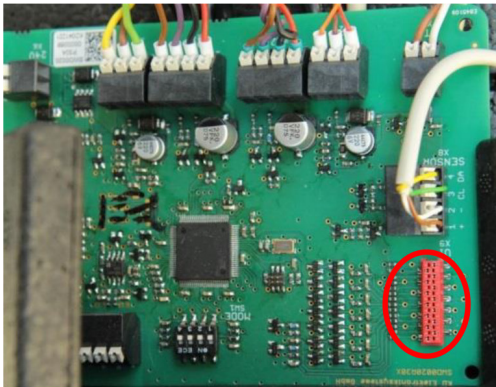
Be aware of the correct assignment of the wires in accordance with the assignment of the plug connection!



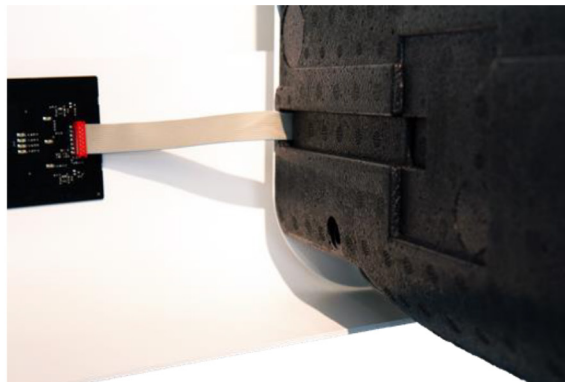
3.2.5.3 Connecting the internal control panel

The internal control panel must be connected to the control board using the ribbon cable.

1. First, plug the connector of one end of the cable (in the position shown) into the designated X9 socket on the control board.



2. Plug the connector of the other end of the cable into the control panel (in the position shown).



Ensure that the ribbon cable is located in the designated recess of the EPP housing when installing the lower canopy.

3.2.5.4 Installing and connecting the sensor system module



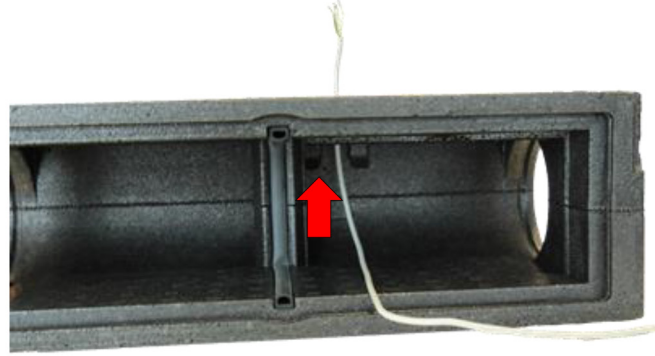
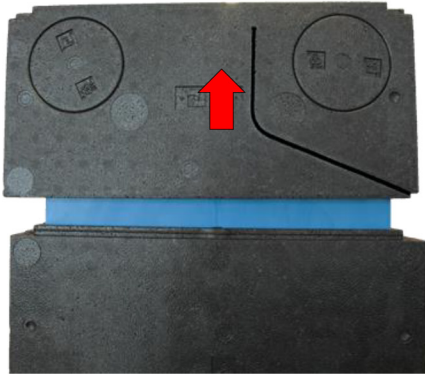
The installation and connection of a sensor system module should be completed prior to installing the ventilation unit.



In the event of a delayed installation, the ventilation unit has to be withdrawn far enough out of the wall mounting pipe until the EPP housing is located in front of the side edge of the wall bracket.

Follow removal of the upper and lower canopies, as follows:

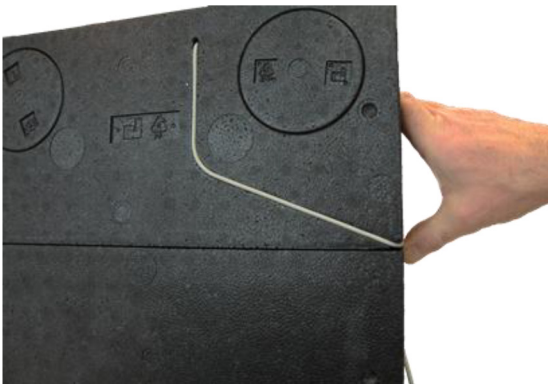
1. Pull off the upper part of the EPP housing and guide the sensor cable, together with the wire ends, from the inside to the outside through the hole in the EPP housing.



2. Press the sensor system module into the recess of the EPP housing, bearing in mind the cable routing.



3. Put the upper EPP housing section on the lower EPP housing. Install the sensor cable at the rear and side in the designated cable recess on the EPP housing sections to that the cable ends in the vicinity of the control board.

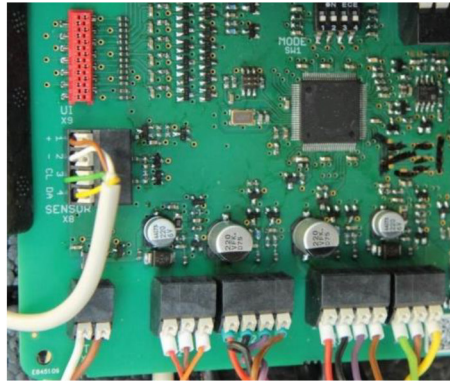
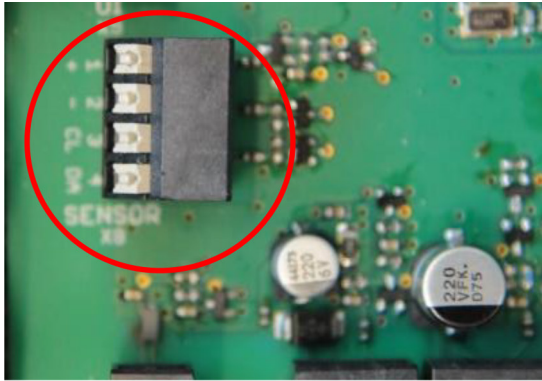


4. Connect the cable to the terminal point SENSOR X8 on the control board.



Ensure that the sensor wires are connected correctly to the sensor X8 terminals per the table below.

Color coding for sensor cable	Terminal point for SENSOR X8	Signal
brown	1	Positive (+)
white	2	Negative (-)
green	3	CL
yellow	4	DA



5. The four-pin DIP switch MODE SW1 is used for the configuration of the Automatic function for the sensor system module. If necessary, correct the positions of the DIP switches in accordance with designated functional principle of the Automatic mode.

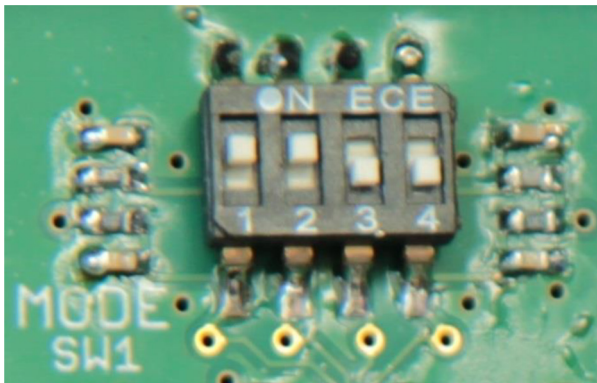


Fig. position of DIP switches, factory setting

3.2.6 Configurable operating modes

3.2.6.1 Configuration of Automatic operating mode

The DIP switch MODE SW1 can be used to configure the Automatic operating mode for various functionality. The use of the bathroom function requires the installation of the HUMIDITY sensor system module (DIP switch no. 2 of MODE SW1 in ON position).

DIP Switch no.				Activated Automatic function
1	2	3	4	
ON	OFF	OFF	OFF	VOC- / CO ₂ control
ON	ON	OFF	OFF	VOC- / CO ₂ control and HUMIDITY control
OFF	ON	OFF	OFF	HUMIDITY control
OFF	ON	OFF	ON	HUMIDITY control with bathroom function
ON	ON	OFF	ON	VOC- / CO ₂ control and HUMIDITY control with bathroom function

3.2.6.2 Configuration of the Rush/inrush airing operating mode

The temporarily active fan speed 4 operates as the rush/inrush airing function. To enable rush/inrush airing operating mode, DIP switch no. 3 in MODE SW1 must be set to the ON position.

DIP switch no.	Position of DIP switch
3	ON

The rush/inrush airing duration of 15, 30, or 45 minutes can be set with a programming module.

3.2.6.3 Configuration of the Absent operating mode

The temporary activation of fan speed 1 operates as the Absent function. The active operating time of fan speed 1 of 15, 30, or 45 min/h can be set with a programming module.

3.2.7 Installing the exterior wall hood



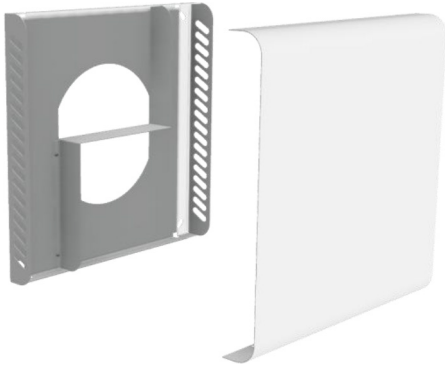
For the installation of the exterior wall hood, one needs to make sure that a temporary support is used to prevent it from dropping down! Supplied installation accessories must, if necessary, be replaced on-site with appropriately suitable mounting material depending on the design of the outside wall surface. The responsibility for professional, safe installation lies with the technical crew!



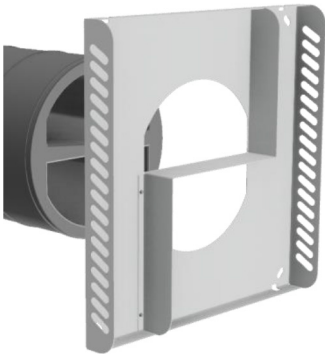
The exterior wall hood should not be installed until the outside wall surface is completed; however, immediately following installation of the ventilation unit! Check the flatness between the wall mounting pipe, the EPP pipe housing, and the outside wall surface!

Proceed as follows for the installation of the exterior wall hood:

1. Remove the front cover from the exterior wall hood.



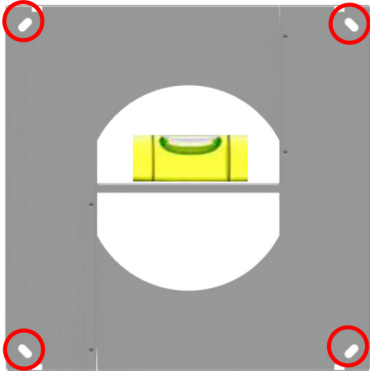
2. Place the back cover into the contour of the EPP housing unit on the outer wall side. The side air passage louvers on the back cover are directed downwards.



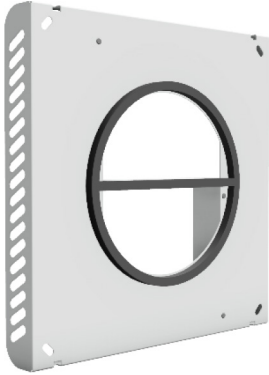
3. Transfer the center points of the slotted holes onto the outside wall surface.



The partition between the outdoor air and exhaust air guide should be in a horizontal position and also match up with the partition of the EPP pipe housing!



4. Determine a suitable fastening method for the four attachment points, in accordance with the outside wall surface.
5. Stick the self-adhesive, swelling sealing tape supplied with the installation kit onto the contour of the airflow features on the back, as shown below.



6. Install the back cover of the exterior wall hood onto the outside wall surface.



***When attaching the back cover, the cover must not bend! If necessary, loosen the screws so that the back cover is still installed tightly to the outside wall surface, but does not cause any deformation.
To protect against penetrating water, the gap between the back cover and barrel end should be sealed using a suitable sealant (weatherproof acrylic)!***

7. Assemble the front cover to the back cover using four screws from the supplied installation kit.



3.3 Maintenance and repair by the skilled technician



If regular maintenance work is not carried out on the ComfoAir 70, this will affect the functionality of the user-friendly ventilation system.



It is vital that an ESD armband be worn during work on the electrical system, in order to protect the control board from electrostatic effects!



Prior to performing repairs or maintenance on the unit, make sure that the main power supply is disconnected!

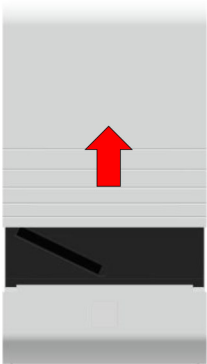
Routine maintenance of the Zehnder ComfoAir 70 is easy to carry out and should be performed regularly to keep the unit operating hygienically and flawlessly. If the air filters are replaced with a factory-recommended model at least every six months, the maintenance interval is two years for other items. If the unit is operated improperly or with low-quality filters, the enthalpy exchanger must be cleaned immediately, before continued operation.

As part of the maintenance for the unit, the exterior wall hood and the intake passage for the outdoor air must be regularly checked for debris and blockage. Any possible debris occurring must be removed immediately. The removal and installation of the exterior wall hood is described in 3.2.7.

3.3.1 Inspection and cleaning of enthalpy exchanger

In doing so, proceed as follows:

1. Disconnect the ComfoAir 70 from the power supply voltage.
2. Remove the upper canopy. Undo the right-hand fastening screw for the lower canopy, and pivot it to the left.

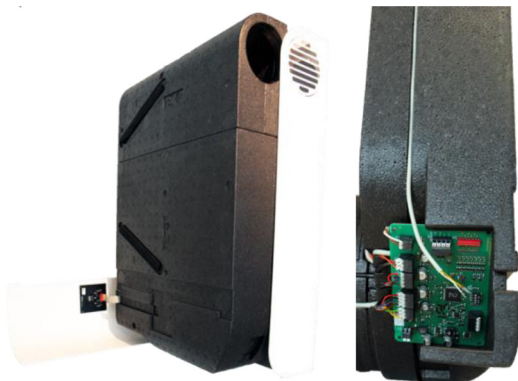


3. Pull the unit carefully out of the wall mounting pipe until the back side of the upper EPP housing is in front of the top edge of the wall bracket.



If a sensor system module is installed, then the sensor cable must be disconnected at the SENSOR X8 terminal point on the control board, and withdrawn from the recess in the lower EPP housing!

To do so, the plug on the ribbon cable must be removed from the control panel, and the lower canopy unscrewed. After that, the unit can be pulled out enough to have free access to the control board.

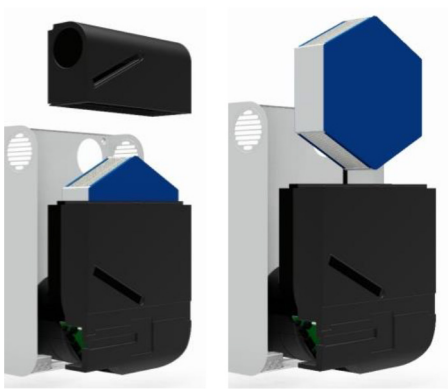


4. Remove the filter cover and the filter from the upper filter compartment.

5. Remove the upper part of the EPP housing, pulling in an upward direction. The enthalpy exchanger can now be pulled out of the lower part of the EPP housing.



Make sure that air pipes that may have been installed for the second room connection do not get damaged.



6. Clean the enthalpy exchanger if needed:

In doing so, proceed as follows:

- Dip the enthalpy exchanger several times in warm water, maximum 104°F (40°C).
- Then rise off the enthalpy exchanger thoroughly with warm tap water, maximum 104°F (40°C).



Do not use aggressive or dissolving cleaning agents!

- In order to dry it, position the enthalpy exchanger such that residual water can run out of the apertures.



Instructions on correct disinfection methods can also be found on the manufacturer's website (www.paul-waermetauscher.de).

7. Following the inspection, install all parts in the reverse order.



After completing the maintenance work, all disconnected air pipes must be connected and sealed to the ComfoAir 70 again.

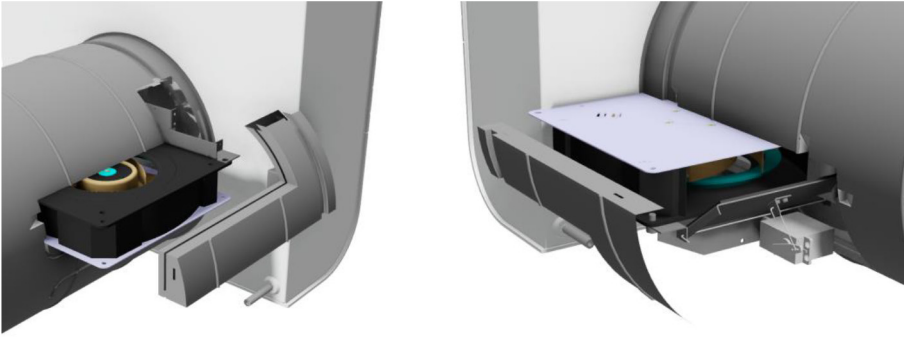
8. Restore the power supply to the unit.

3.3.2 Replacing the fans

To change the fans, the unit must be completely pulled out of the wall. In doing so, proceed as follows:

1. Disconnect the CA 70 from the power supply voltage.
2. Perform steps 2. and 3. as described in 3.3.1.
3. Remove the plug on the ribbon cable from the control panel.
4. Disconnect the secondary-side low-voltage cable from the 24 V X6 terminal on the control board. Disconnect the plug connection of the external control panel, if applicable.
5. Pull the unit completely out of the wall mounting pipe.

The fans are located in the EPP pipe, and are accessible through removal of the sealing plugs. The structurally identical fans can be removed sideways out of the EPP pipe after the cables have been disconnected from the terminals on the control board, while feeding the connected cables in at the same time.



When replacing the fans, make sure that all the wires in the cables are disconnected prior to removal, and are reconnected per the wiring schematic (see 3.5.4) when installing.

6. Following the inspection, install all parts in the reverse order.



After completing the maintenance work, all disconnected air pipes must be connected and sealed to the ComfoAir 70.

7. Restore the power supply to the unit.

3.3.3 Exchanging the control board

The control board is located in the bottom left section of the EPP housing, and becomes accessible through pulling the unit out of the wall mounting pipe. In doing so, proceed as follows:

1. Disconnect the CA 70 from the power supply voltage.
2. Perform steps 2. to 4. as described in 3.3.1, so that you can gain access to the control board.



When replacing the control board, make sure that all the wires in the cables are disconnected prior to removal, and reconnected per the wiring schematics (see 3.5.4) when installing.

3. Install all parts in the reverse order.



After completing the maintenance work, all disconnected air pipes must be connected up airtight to the ComfoAir 70.

4. Restore the power supply to the unit.

3.4 Visualization of fault notifications

The unit control system is equipped with an internal system for recognizing faults. A fault notification is visualized through the flashing of the red “Fault LED” and a coded failure prediction using LED1-4. As a reaction to a fault status, the fans are shut down and the supply and exhaust valves are automatically closed.

3.4.1 Fault codes in the fault status

Fault	LED1	LED2	LED3	LED4
Fan 1	flashes	-	-	flashes
Fan 2	-	flashes	-	flashes
Temp. sensor outdoor air	-	-	flashes	flashes
Servo 1	flashes	-	flashes	flashes
Servo 2	-	flashes	flashes	flashes
Humidity sensor	flashes	flashes	-	flashes
CO ₂ / VOC sensor	-	-	-	flashes

Should a fault notification occur, note the type label serial number, and please contact a responsible installation technician.

3.5 Technical description

General specifications		Description / Value		
Heat exchanger type		Enthalpy exchanger with polymer membrane		
Housing / Interior lining		Aluminum, power-coated, free of thermal bridges, interior lining is made of expanded polypropylene (EPP) to provide heat and sound insulation		
Pipe connections		DN 100 (sleeve size)		
Weight		59 lbs. (22 kg)		
Electrical connection		110 or 220 VAC, 50-60 Hz		
Rated current		0.15 A		
Protection class		II		
Degree of protection		IP 20		
Temperature ranges		-4°F to 104°F (-20°C to 40°C)		
Installation location		Inner side of vertical outer wall; wall thickness 10-13/16” min. to 23-5/8” max. (275 mm min. to 600 mm max.)		
Mounting position		Wall-mounted, supply air and exhaust air aperture at top		
Operation data				
Fan speed	Volume flow [cfm] / [m ³ /h]	Thermal efficiency [%]	Humidity efficiency [%]	Power consumption [W]
Standby	-	-	-	< 1
FS1	10 / 15	90	84	4
FS2	15 / 25	83	73	5
FS3	25 / 40	76	61	9
FS4	35 / 60	71	54	17

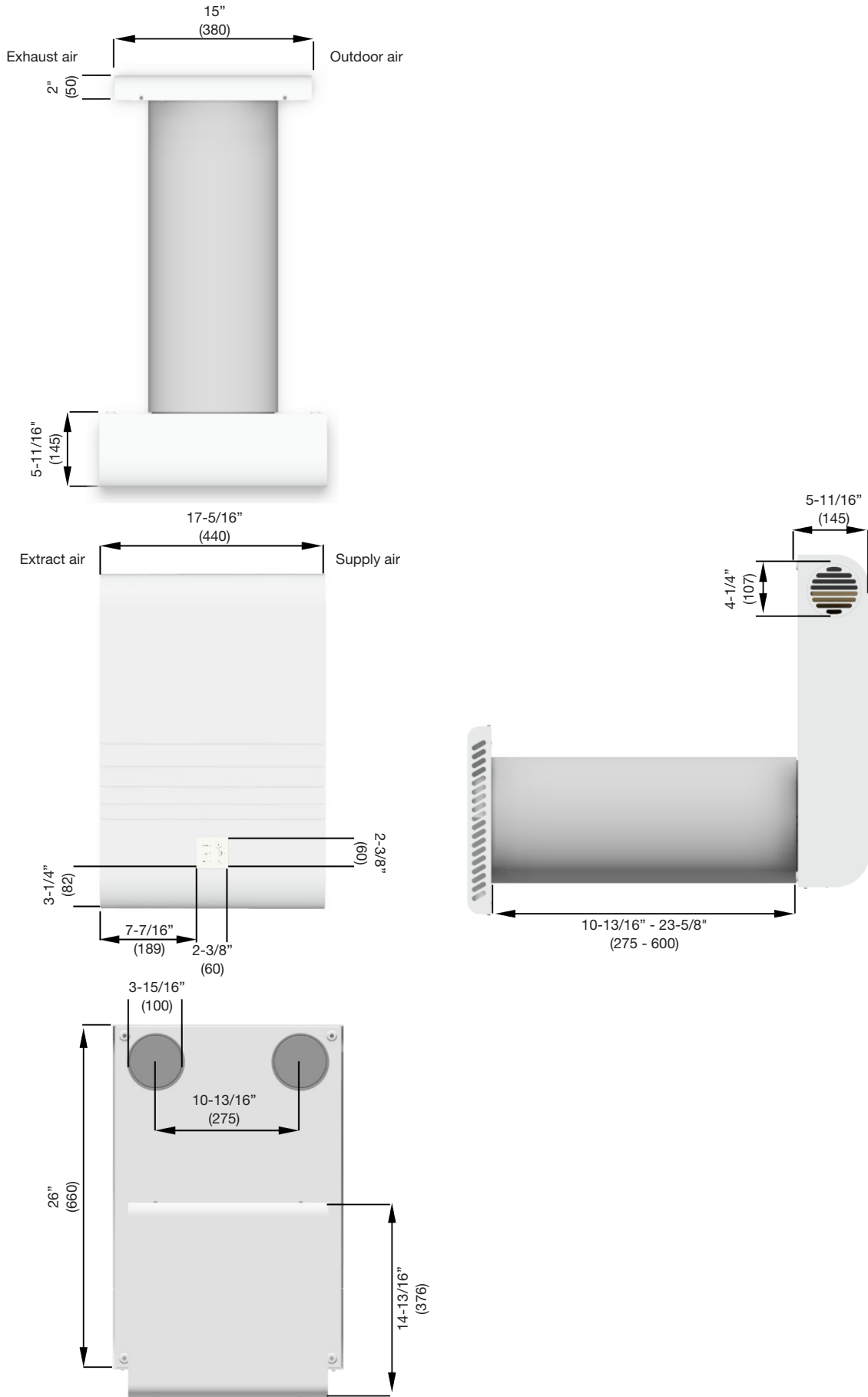
Sound data housing emission				
Sound pressure level L_p in [db(A)], free-field conditions with 10 ft. (3 m.) clearance				
Fan speed	Standard	1 adjoining room connection	2 adjoining room connections	On the outside
FS1	11.0	9.2	2.9	22.3
FS2	23.6	16.3	16.0	35.0
FS3	29.4	24.3	16.2	42.0
FS4	36.4	31.2	22.7	51.7

Sound data sound passage		
Operating status of covers	Weighted sound reduction index $R_{w,p}$ (C;Ctr) [dB]	Weighted normalized level difference $D_{n,e,w}$ [dB]
Supply and exhaust valves open	17 (-1; -3)	40
Supply and exhaust valves closed	25 (-1; -4)	48

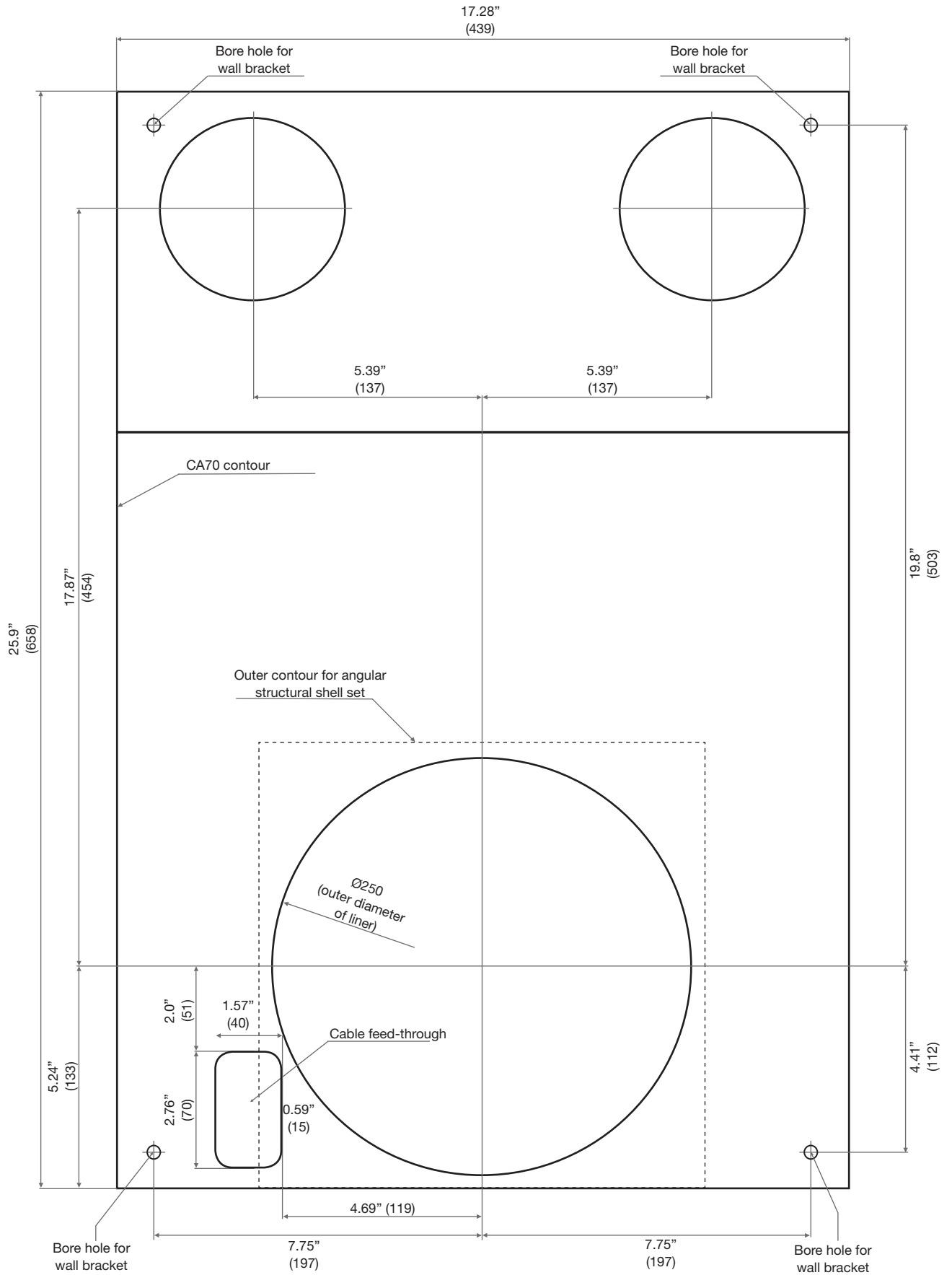
3.5.1 Pressure loss-volume flow-characteristic curves for design of adjoining room connection



3.5.2 Dimensions



3.5.3 Mounting template (figure not true to scale)

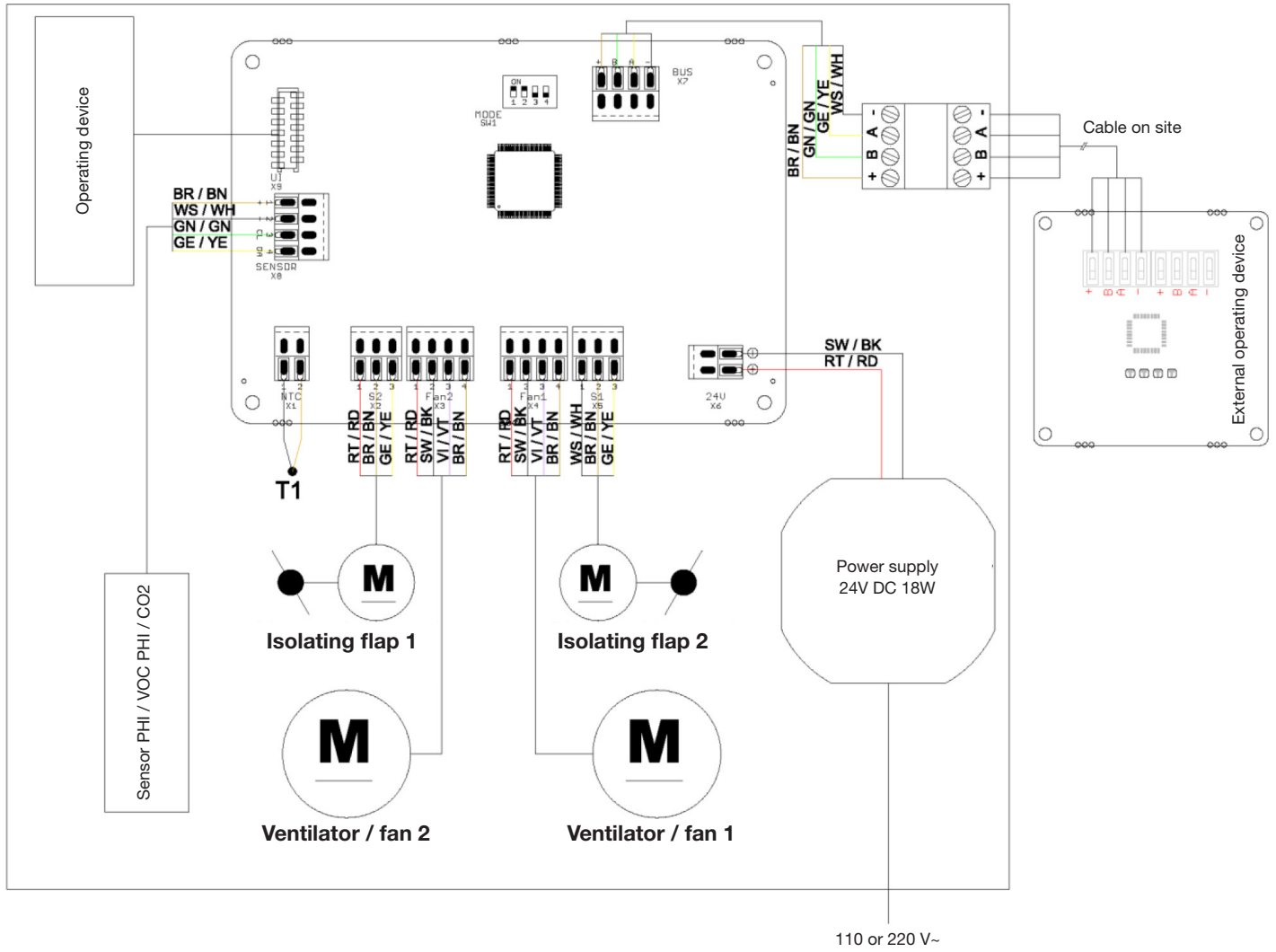


3.5.4 Wiring Schematic

Terminal diagram WRG CA 70 Premium 1 Stand 11.05.17

Version Premium 1	
Intake air	T1 / isolating flap 1 / fan 1
Supply air	
Exhaust air	Fan 2 / isolating flap 2
Extract air	Sensor PHI / VOC PHI / CO2

DIP-switch SW1		
Switch No.	Function	Factory setting
1	VOC / CO2 sensor active	ON
2	Humidity sensor active	ON
3	Boost ventilation function	OFF
4	Bathroom function	OFF



4.2 Checklist B Maintenance work for skilled technicians

Maintenance work			Enter result					
<ul style="list-style-type: none"> ■ The listed maintenance work must be carried out in accordance with the components actually available. ■ Comments on status using informal protocol ■ Further annual tranches on separate sheet 								
No.	Components	Annually	Result	20...	20...	20...	20...	20...
1	Fan / ventilation unit	Cleaning of components carried out? <ul style="list-style-type: none"> ■ Fan ■ Enthalpy exchanger ■ Air-contacting surfaces on unit 	yes / no					
		Frost protection / dew device operational?	yes / no					
		Structure-borne sound transmission, are fasteners tight?	yes / no					
		Are status displays operational	yes / no					
2	Electrical controls	Cable connections and clamping assemblies secure?	yes / no					
		Are the regulating and control units operational?	yes / no					
3	Air pipe / heat insulation	Has cleaning (if necessary) been carried out? Check OK? For cleaning when needed, see VDI 6022	yes / no					
		Heat insulation and moisture barrier OK?	yes / no					
		Are flexible connections between unit and air pipe operational?	yes / no					
4	Fan, ventilation unit, filter, filter status	Stipulated filter class adhered to?	yes / no					
5	Fan / ventilation unit and fireplace, if applicable	Safety device with fireplace operational?	yes / no					
6	Exhaust air / supply air passage	Seat and locking provided?	yes / no					
		Stipulated filter class adhered to?	yes / no					
		Filter, filter status OK?	yes / no					
		Airflow volumes according to protocol OK?	yes / no					
7	Overflow air vents	Open cross section provided?	yes / no					
		No structure-borne and airborne sound transmission?	yes / no					

4.3 Commissioning and handover protocol

Customer data		
Last Name:	First Name:	Tel.:
Street:	City / State:	Zip code:
Construction project:		
Unit type:	Serial no.:	Year of construction:

Completeness			
No.	Components	Version	Result
1	Supply air duct	<ul style="list-style-type: none"> ■ Design as planned ■ Cleaning option provided 	yes / no yes / no
2	Supply air vents	<ul style="list-style-type: none"> ■ Arrangement as planned ■ Design as planned ■ Cleaning option provided 	yes / no yes / no yes / no
3	Overflow air vents	<ul style="list-style-type: none"> ■ Arrangement as planned ■ Design as planned 	yes / no yes / no
4	Exhaust air vents	<ul style="list-style-type: none"> ■ Arrangement as planned ■ Design as planned ■ Cleaning option provided 	yes / no yes / no yes / no
5	Exhaust air duct	<ul style="list-style-type: none"> ■ Cleaning option provided 	yes / no
6	Extractor fan	<ul style="list-style-type: none"> ■ Cleaning option provided 	yes / no
7	Control / regulation system	<ul style="list-style-type: none"> ■ Operational 	yes / no
8	Filter, optional	<ul style="list-style-type: none"> ■ Replacement or cleaning option provided 	yes / no
9	Heat exchanger for waste heat recovery	<ul style="list-style-type: none"> ■ Cleaning option provided 	yes / no
10	Documentation	<ul style="list-style-type: none"> ■ Available 	yes / no

Function			
1	Operational with rated ventilation, as planned	<ul style="list-style-type: none"> ■ Result OK ■ Action required 	yes / no yes / no
2	Switching steps possible, as planned	<ul style="list-style-type: none"> ■ Result OK ■ Action required 	yes / no yes / no
3	Electrical power consumption	<ul style="list-style-type: none"> ■ Result OK ■ Action required 	yes / no yes / no

Note of confirmation	
Date:.....	Signature / Stamp:
Commissioning personnel / installation technician	

4.4 Air volume protocol

Customer data		
Last Name:	First Name:	Tel.:
Street:	City / State:	Zip code:
Construction project:		
Unit type:	Serial no.:	Year of construction:

Measurement data		
Measuring instrument used:	Faults during measurement:	Indoor temperature:
		Outdoor temperature:

Filter status when measuring	Outdoor air	Exhaust air	Building moisture status:	Fan speed ration Exhaust air / supply air:
Clean		% relative humidity without ventilation mode
Approx. days used				
very dirty				

Supply air			Fan stage:	%
No.	Room name	Project data	Measurement data	
		CFM	CFM	

Exhaust air			Fan stage:	%
No.	Room name	Project data	Measurement data	
		CFM	CFM	

$P_{el} =$ W

⇒ The listed measurement data must be determined in accordance with the components actually available.
 ⇒ Reference has been made to the hygienic requirements for operating the ventilation system.
 ⇒ Reference has been made to the influence of room air humidity for winter and summer operation.
 ⇒ To safeguard warranty claims, only original parts (e.g. filters) are allowed to be used.

Date:..... Signatures:

Commissioning personnel / installation technician User

4.5 Product data sheet

Model Identification	ComfoAir 70			ComfoAir 70 sensor technology		
Unit configuration	Unit only			Unit only		
Specific energy consumption [kWh/(m ² a)] (cold, average, warm)	-66.4	-32.9	-11.1	-76.3	-40.0	-16.6
Type of ventilator	Bi-directional			Bi-directional		
Type of drive motor	ECM, multi-speed			ECM, variable speed		
Type of heat recovery system	Recuperation			Recuperation		
Thermal efficiency of heat recovery [%]	76			76		
Maximum air volume flow [cfm]	35			35		
Electrical input power at maximum airflow [W]	17			17		
Sound power level [dBA]	47			47		
Reference air volume flow [cfm]	25			25		
Reference pressure difference [in H ₂ O]	0			0		
Specific power input at reference airflow [W/cfm]	0.36			0.36		
Control factor	1 manual			0.65 Automatic		
Maximum internal and external leakage rates [%]	Internal 0.1			Internal 0.1		
	External 0.9			External 0.9		
Location of the filter warning	Warning located on system display					
Internet address for instructions	www.zehnderamerica.com					
Pressure fluctuation of the airflow [%]	< 20			< 20		
Air tightness of unit [cfm]	After outside: 3			After outside: 3		
	After inside: 4			After inside: 4		
Annual electricity consumption (cold, average, warm) [kWh/a]	871	334	289	704	167	122
Annual energy savings in heating (cold, average, warm) [kWh/a]	7941	4060	1836	8517	4354	1969

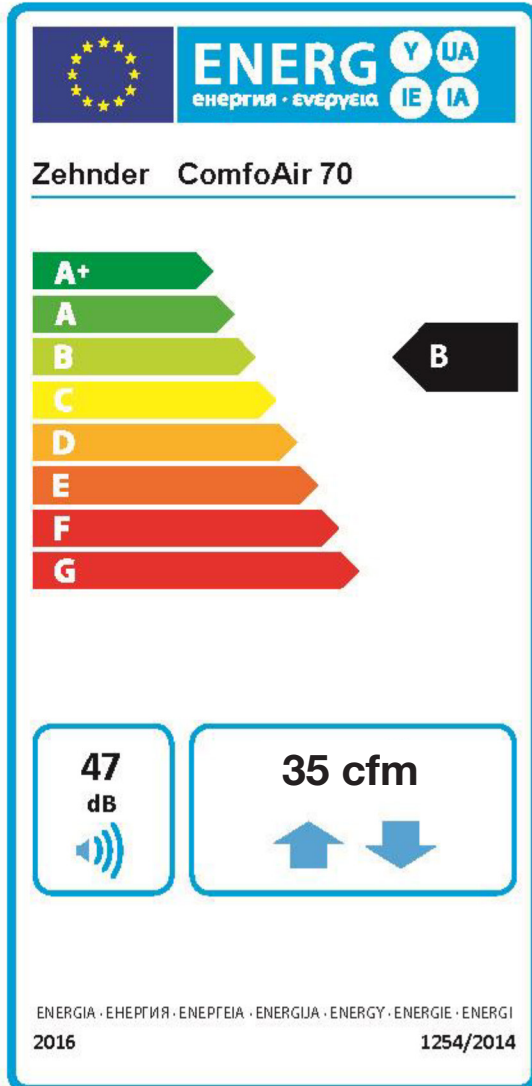
Model Identification	ComfoAir 70			ComfoAir 70 sensor technology			ComfoAir 70			ComfoAir 70 sensor technology		
	Unit configuration	1 Remote room connection			1 Remote room connection			2 Remote room connections			2 Remote room connections	
Specific energy consumption [kWh/(m ² a)] (cold, average, warm)	-68.5	-34.3	-12.1	-77.5	-40.8	-17.1	-68.5	-34.3	-12.1	-77.5	-40.8	-17.1
Type of ventilator	Bi-directional			Bi-directional			Bi-directional			Bi-directional		
Type of drive motor	ECM, multi-speed			ECM, variable speed			ECM, multi-speed			ECM, variable speed		
Type of heat recovery system	Recuperation			Recuperation			Recuperation			Recuperation		
Thermal efficiency of heat recovery [%]	76			76			76			76		
Maximum air volume flow [cfm]	50			50			50			50		
Electrical input power at maximum airflow [W]	17			17			17			17		
Sound power level [dBA]	42			42			34			34		
Reference air volume flow [cfm]	35			35			35			35		
Reference pressure difference [in H ₂ O]	50			50			50			50		
Specific power input at reference airflow [W/cfm]	0.21			0.21			0.21			0.21		
Control factor	1 manual			0.65 Automatic			1 manual			0.65 Automatic		
Maximum internal and external leakage rates [%]	Internal 0.1			Internal 0.1			Internal 0.1			Internal 0.1		
	External 0.9			External 0.9			External 0.9			External 0.9		
Location of the filter warning	Warning located on system display											
Internet address for instructions	www.zehnderamerica.com											
Pressure fluctuation of the airflow [%]	-			-			-			-		
Air tightness of unit [cfm]	-			-			-			-		
Annual electricity consumption (cold, average, warm) [kWh/a]	845	308	263	693	156	111	845	308	263	693	156	111
Annual energy savings in heating (cold, average, warm) [kWh/a]	8091	4136	1870	8614	4404	1991	8091	4136	1870	8614	4404	1991

4.6 Product label

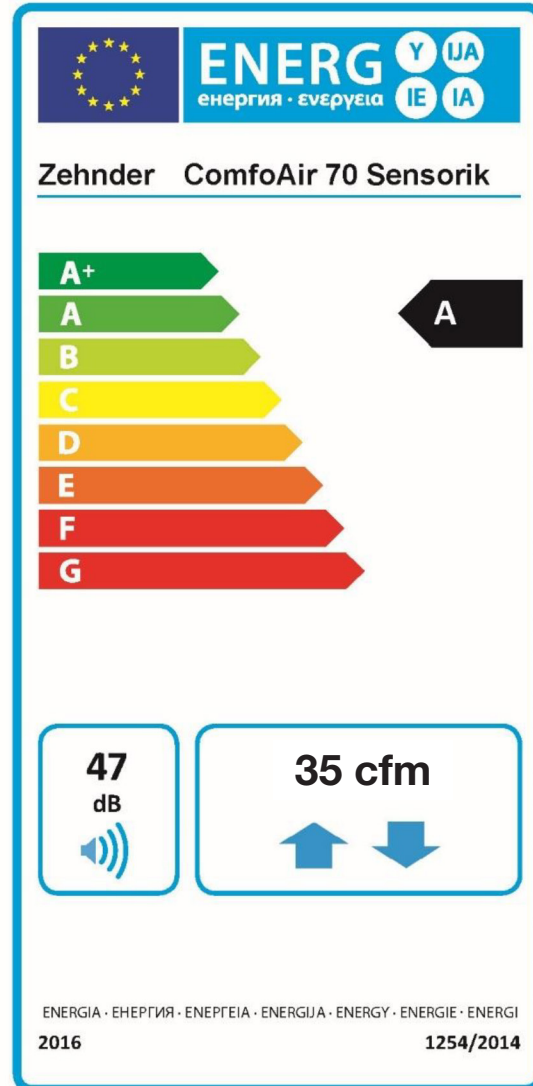
Produced for the ComfoAir 70 are product labels of various energy efficiency labels in accordance with the energy related products directive 2009/125/EC, depending on the application of the unit. The product label applicable for the ventilation system is based on the installation of the system and the model identifier from the product data sheet. The product label shows the following details from the product data sheet:

- Energy efficiency class for “average” climate zone
- Sound power level L_{WA} in internal spaces
- Maximum airflow volume

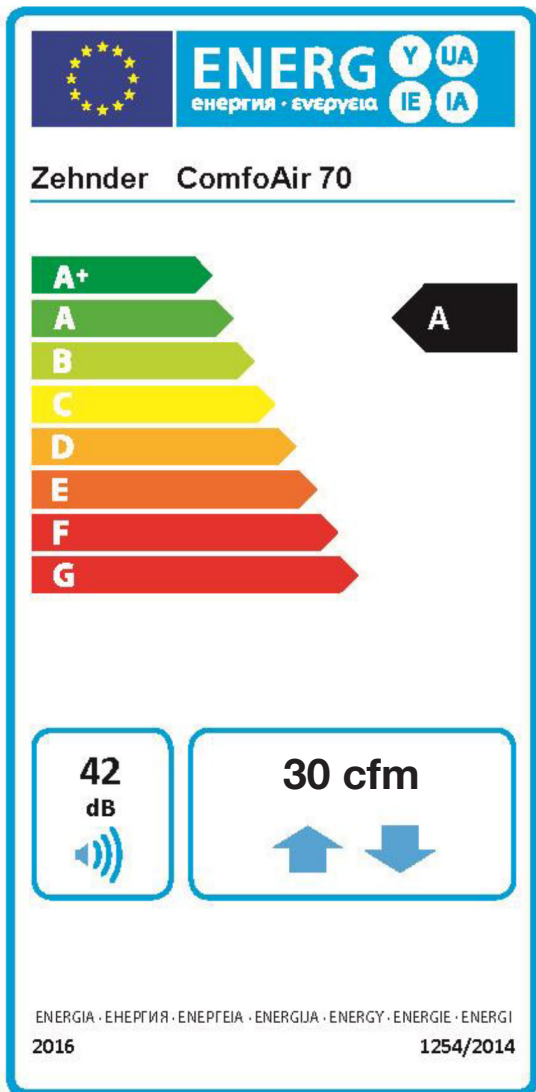
Standard



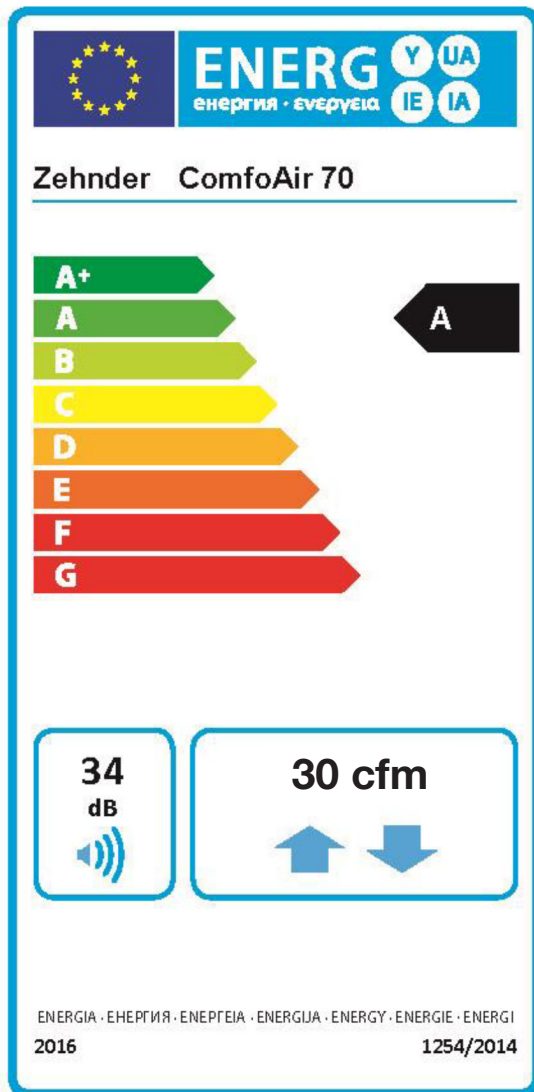
Sensor system



1 Room installation



2 Room installation



4.7 Conformity

4.7.1 Declaration of conformity of the European Union

Manufacturer:
PAUL Wärmerückgewinnung GmbH
August-Horsch-Straße 7
08141 Reinsdorf
Germany

EU DECLARATION OF CONFORMITY

We hereby declare that the product/series named in the following, by virtue of its conception and design, as well as in terms of the configuration placed on the market by us, meets the relevant and essential health and safety requirements in the valid guidelines listed below from the European Union, and that the manufacturer bears sole responsibility.

Product name: Decentralized waste heat recovery unit ComfoAir 70 - Series

Directive 2014/35/EU of the European Parliament and Council from February 26, 2014, for the harmonization of legal provisions of member states concerning the provision of electrical equipment on the market for use within specific voltage limits

Applied standards:

EN 60335-1:2012 + AC:2014 + A11:2014 Household and similar electrical appliances - Safety – General requirements
EN 60335-2-40:2003 + A11:2004 + A12:2005 + A1:2006 + A13:2012/AC:2013 + A13:2012 + A2:2009 + AC:2006 + AC:2010
Household and similar electrical appliances - Safety / Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers

Directive 2014/30/EU of the European Parliament and Council from February 26, 2014, for the harmonization of legal provisions of member states concerning electromagnetic compatibility

Applied standards:

EN 61000-6-1:2007 Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments
EN 61000-6-3:2007 + A1:2011/AC2012 + A1:2011 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
EN 55011:2009 + A1:2010 Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement

Directive 2009/125/EC of the European Parliament and Council from October 21, 2009, with regard to the requirements to be met by the environmentally compatible design of energy-related products

Applied standards:

DIN EN 13141-7:2010 Performance testing of components/products for residential ventilation – Part 7: Performance testing of a mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for single family dwellings
DIN EN 13141-8:2014 Performance testing of components/products for residential ventilation – Part 8: Performance testing of un-ducted mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for a single room

Further applied standards:

EN ISO 12100:2010 Safety of machinery - Risk assessment and risk reduction
EN ISO 3744:2010 Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane
EN ISO 5136:2009 Acoustics - Determination of sound power radiated into a duct by fans and other air-moving devices - In duct method

Signed for an in the name of:

Reinsdorf, 1 March 2017



Michael Pitsch
Managing director

4.7.2 EAC certificate of the Eurasian Economic Union

Manufacturer:
PAUL Wärmerückgewinnung GmbH
August-Horsch-Straße 7
08141 Reinsdorf
Germany

EAC CERTIFICATE

We hereby declare that the product/series named in the following, by virtue of its conception and design, as well as in terms of the configuration placed on the market by us, meets the relevant and essential health and safety requirements in the EAC certificate of the Eurasian Economic Union listed below.

Product name: Decentralized waste heat recovery unit ComfoAir 70 - Series

ТАМОЖЕННЫЙ СОЮЗ

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ ТС RU C-DE.AЯ46.B.67165
Серия RU № 0250181

ОРГАН ПО СЕРТИФИКАЦИИ Орган по сертификации "РОСТЕСТ-Москва" ЗАО "Региональный орган по сертификации и тестированию". Адрес: 119049, г. Москва, ул. Житная, д. 14, стр. 1. Фактический адрес: 117418, г. Москва, Нахимовский просп., д. 31. Телефон: (499) 1292311, (495) 6682893. Факс: (495) 6682893. E-mail: office@rostest.ru. Аттестат пер. № РОСС RU.0001.10АЯ46, 13.05.2014 г., Росаккредитация

ЗАЯВИТЕЛЬ Общество с ограниченной ответственностью "Цендер ГмбХ". Агентский договор № б/н от 30.10.2012 г. Адрес: РФ, 117152, г. Москва, Севастопольский проспект, д. 11Г. ОГРН: 1037789004120. Телефон: (495) 6020315. Факс: (495) 6020315. E-mail: mail@zehndergroup.ru

ИЗГОТОВИТЕЛЬ Фирма "Zehnder Group Deutschland GmbH". Адрес: Almweg 34, D-77933 Lahr, Germany (Германия). Заводы: 1. "Zehnder Group Nederland B.V.", Lingenstraat 2, 8028 PM Zwolle-NL, The Netherlands (Нидерланды). 2. "PAUL Warmeruckgewinnung GmbH", August-Horch-Strasse 7, 08141 Reinsdorf, Deutschland (Германия)

ПРОДУКЦИЯ Приточно-вытяжные вентиляционные установки с рекуперацией тепла. Модели: см. приложения (бланки №№ 0176030, 0176031). Директива № 2006/42/ЕС. Серийный выпуск.

КОД ТН ВЭД ТС 8415

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ ТР ТС 010/2011 "О безопасности машин и оборудования"

СЕРТИФИКАТ ВЫДАН НА ОСНОВАНИИ Протокол испытаний № 1132-11-2013 от 28.11.2013 г. Испытательный центр Федерального государственного унитарного предприятия "Всероссийский научно-исследовательский институт стандартизации и сертификации в машиностроении" (пер. № РОСС RU.0001.21АЮ15 от 01.07.2010 г. до 01.07.2015 г.). Акт анализа состояния производства № 32-220 от 09.10.2013 г. ОС "РОСТЕСТ-МОСКВА" (пер. № РОСС RU.0001.10АЯ46 от 07.05.2013 г. до 07.06.2015 г.)

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Срок службы указан изготовителем в документации на продукцию.

СРОК ДЕЙСТВИЯ С 28.11.2014 ПО 28.11.2018 ВКЛЮЧИТЕЛЬНО

Руководитель (уполномоченное лицо) органа по сертификации (подпись) А. Б. Савкин (инициалы, фамилия)

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы)) (подпись) С. А. Пасько (инициалы, фамилия)

Signed for an in the name of:

Reinsdorf, 1 March 2017

Michael Pitsch
Managing director

