ekkoair by jeremias

GENIUS



Installation manual GENIUS

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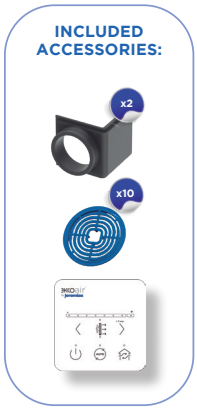
1. DELIVERY

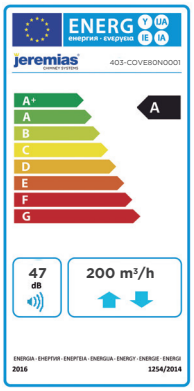
1.1 SCOPE OF DELIVERY

The scope of delivery of the GENIUS consists of the following elements:

1. Heat recovery unit GENIUS
2. Multifunction controller
3. Corner connecting elements 1x Ø 160mm (4 pieces)
4. Corner connecting elements 6x Ø 75mm (2 pieces)
5. EkkoFlex flow reducer Ø 75mm (bag of 10)
6. Installation manual
7. Eco-design label
8. Declaration of conformity
9. Condensate drain hose







1.2 ACCESORIES

ACCESORIES		
Description	Picture	Code
Mounting bracket for Genius/Logic recuperators		000-DRWG107N0001
2 Filters M5 for GENIUS/LOGIC 2 Filters F7 for GENIUS/LOGIC 2 Filters F9 for GENIUS/LOGIC		403-COVE100N0003 403-COVE100N0004 403-COVE232N0001
Pre-Cooler Ø160 for GENIUS/LOGIC		403-COVE100N0005
Post-Cooler Ø160 for GENIUS/LOGIC		403-COVE100N0006
Heat exchanger GENIUS/LOGIC Enthalpy exchanger GENIUS/LOGIC		403-COVE180N0001 403-COVE100N0007
Wifi-Module		403-COVE100N0011
External CO_2 Sensor		403-COVE100N0013
External Humidity Sensor (relative humidity HR)		403-COVE100N0014
External CO_2+HR-Sensor		403-COVE100N0015
Module for Connecting up to 8 Sensors		403-COVE100N0016
Siphon 16/20/25 mm		403-COVE103N0001

2. APPLICATION

The GENIUS is an individually controlled, mechanical ventilation system with heat recovery and a tested efficiency of up to 92%. The device has a maximum ventilation capacity of 150 m^3/h or 200 m^3/h with low-consumption EC motors.

Characteristics:

- Four models in a single recuperator
- Variable flow rate of 150 or 200 m^3/h selectable
- Orientation (left or right) selectable via switch
- Possibility of direct connection of up to twelve Ekkoflex channels Ø 75 mm
- Guaranteed tightness
- Wired multifunction control with up to eight different speeds
- Frost protection through flow compensation
- 100% automatic bypass (mechanical)
- EC motors with constant flow
- Tested with up to 92% efficiency
- Low profile: only 210 mm case height
- Large selection of filters (M5 ex works)
- connection option to ModBus
- Low noise level
- Low weight and material design prevent vibrations
- Possibility of connecting to a web application
- Connection option to CO_2 sensor
- Connection option to humidity sensor
- Possibility of connection to CO_2 and humidity sensor
- Optional: pre- and post-heater
- Optional: Enthalpy exchanger

3. DEVICE

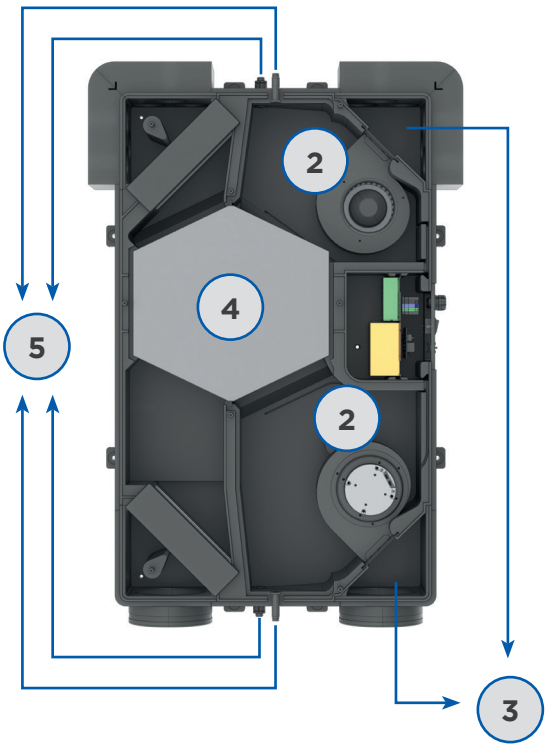
3.1 TECHNICAL DATA

150 m³/h			200 m³/h		
Parameter	Units	Values	Parameter	Units	Values
Airflow	m³/h	150 (200 Pa)	Airflow	m³/h	200 (200 Pa)
Sfp (70% Qvd)	W/m³/h	0,29	Sfp (70% Qvd)	W/m³/h	0,29
Sound pressure LPa -1m	dB	42	Sound pressure LPa -1m	dB	45
Diameter connections	mm	2xØ130/Ø160 + 2x6Ø75	Diameter connections	mm	2xØ130/Ø160 + 2x6Ø75
Controller		8 speeds	Controller		8 speeds
Installation		suspended ceiling, wall	Installation		suspended ceiling, wall
IP classification		IP 30	IP classification		IP 30
Filter type		M5 Coarse 90% ISO 16890	Filter type		M5 Coarse 90% ISO 16890
Weight	kg	20	Weight	kg	20
Mass	mm	970x600x210	Mass	mm	970x600x210
Multifunction Controller (200 Pa)		1 2 3 4 5 6 7 8	Multifunction Controller (200 Pa)		1 2 3 4 5 6 7 8
	m³/h	25 50 70 85 100 120 135 150		m³/h	25 50 75 95 120 145 180 200
Housing		EPP + metal	Housing		EPP + metal

3.2 DETAIL VIEW OF THE DEVICE

GENIUS

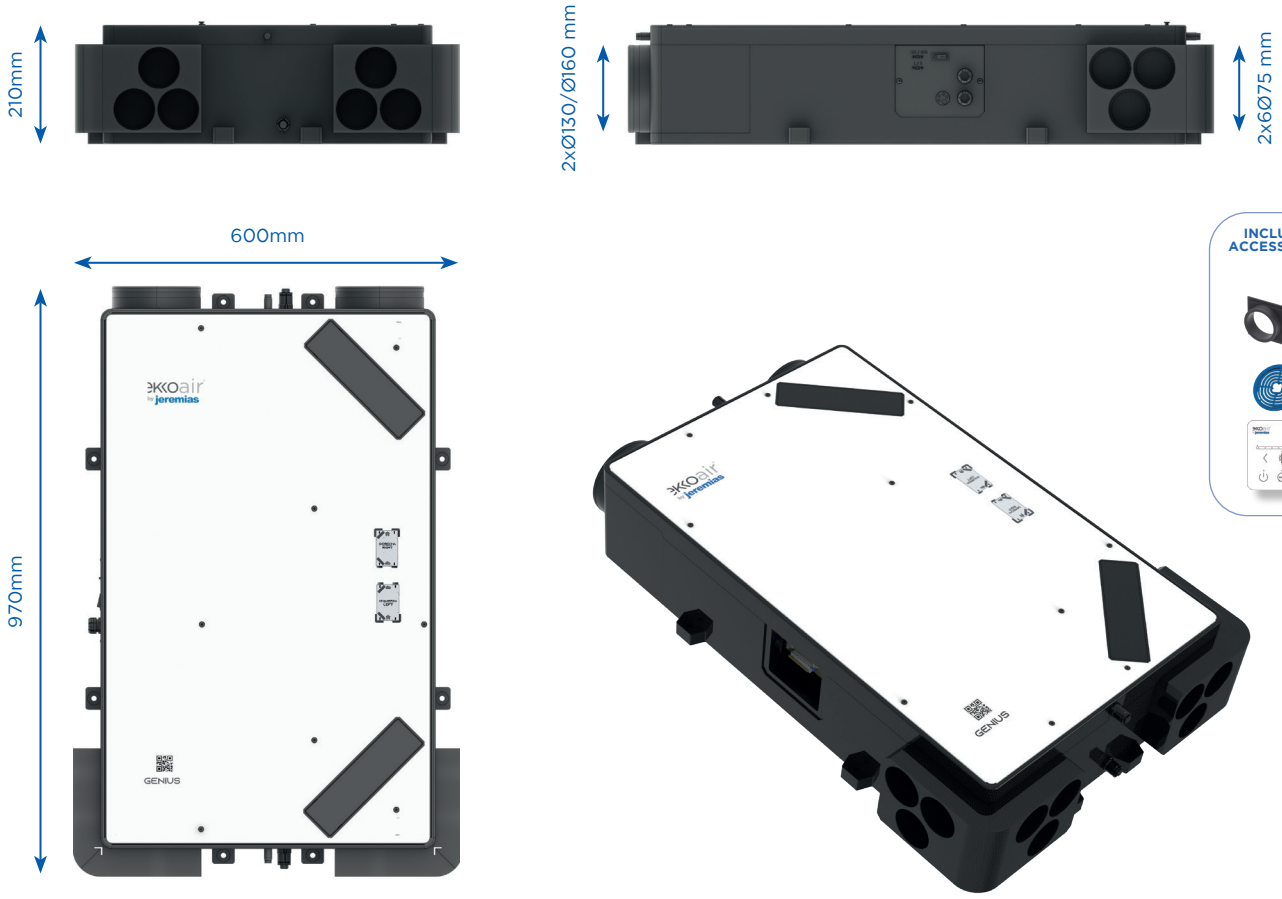
1	High-performance filter
2	Low-consumption EC motors
3	Temperature probes
4	High-performance heat exchanger
5	Condensate drain
6	Electrical connections



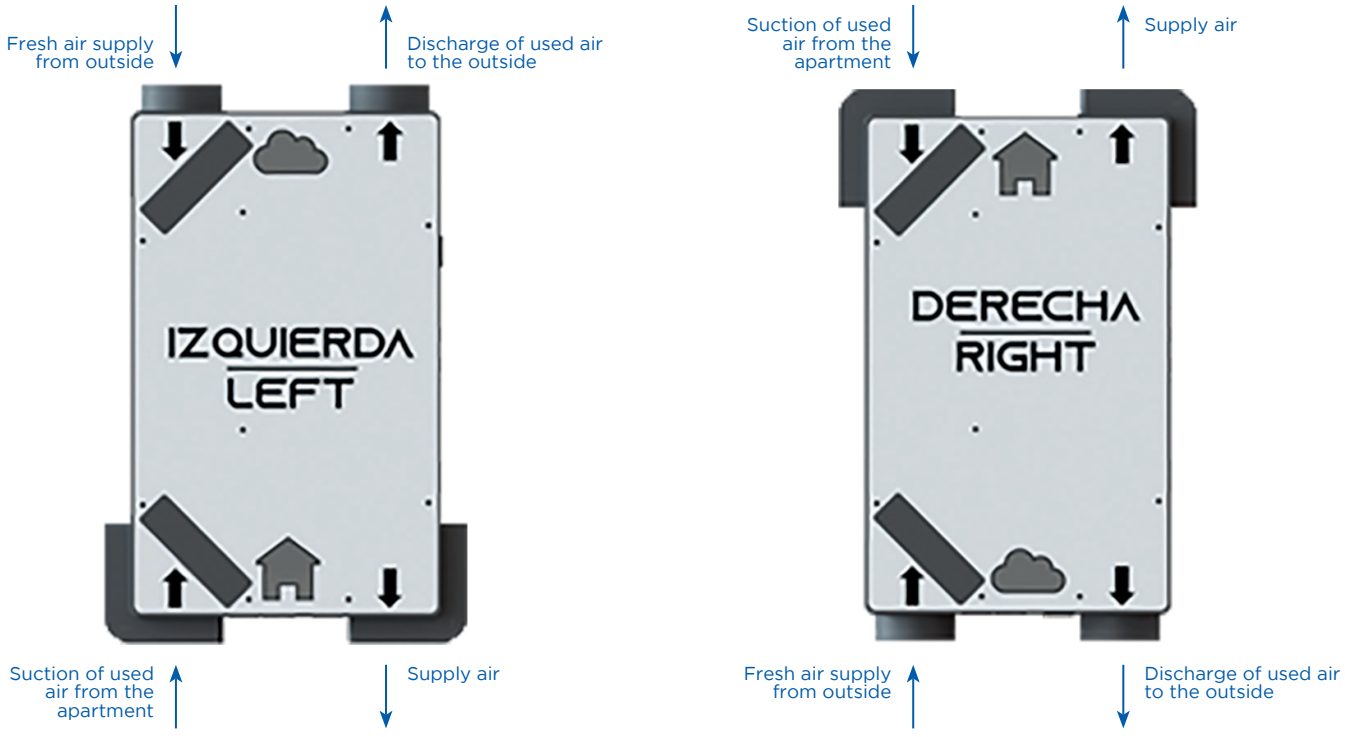


3.3 DIMENSIONS AND POSITIONING

Mass



Positioning



4. OPERATION

4.1 DESCRIPTION

The device is delivered ready for connection and works fully automatically. Used air extracted from the interior releases its thermal energy (heat or cold) to the air flowing in from outside. The result is energy savings in air conditioning systems, as the temperature of the clean air supplied to the houses can be adjusted depending on demand (cooler in summer and warmer in winter).

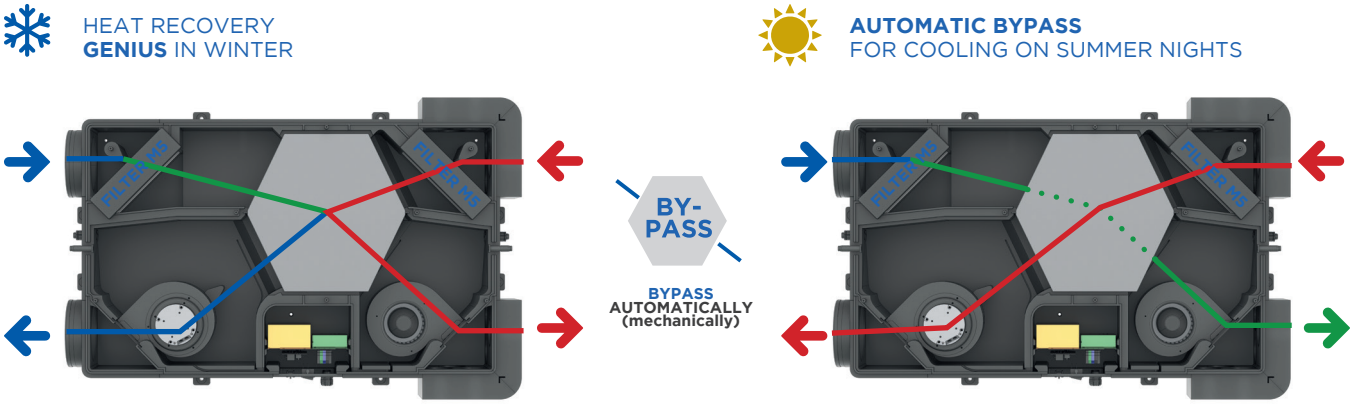
Using the controller supplied, you can select the ventilation speed in 8 levels. The constant volume control allows the air flow of the extraction and Control supply air fans independently of the pressure in the duct.

4.2 SUMMER-BYPASS

The factory-installed mechanical bypass allows the direct supply of fresh air from outside without The heat exchanger is used at certain times, for example on cooler summer nights, to cool the interior of the house to cool down. The bypass becomes automatically activated, if particular Conditions are met, which are listed in the following table.

Conditions	
Bypass activated	The following 3 conditions must be met: • Outside temperature higher than 17ºC • The outside temperature is lower than the temperature of the house's exhaust air • Indoor temperature higher than 24ºC
Bypass deactivated	• If any of the above situations are not met, the bypass remains disabled

Our automatic bypass system always ensures a comfortable temperature in the house, whether in summer or winter.



The temperature of the air coming in from outside can be between -20°C and +50°C. If it is below -20°C, the device can switch off automatically to protect it from possible damage.

5. INSTALLATION

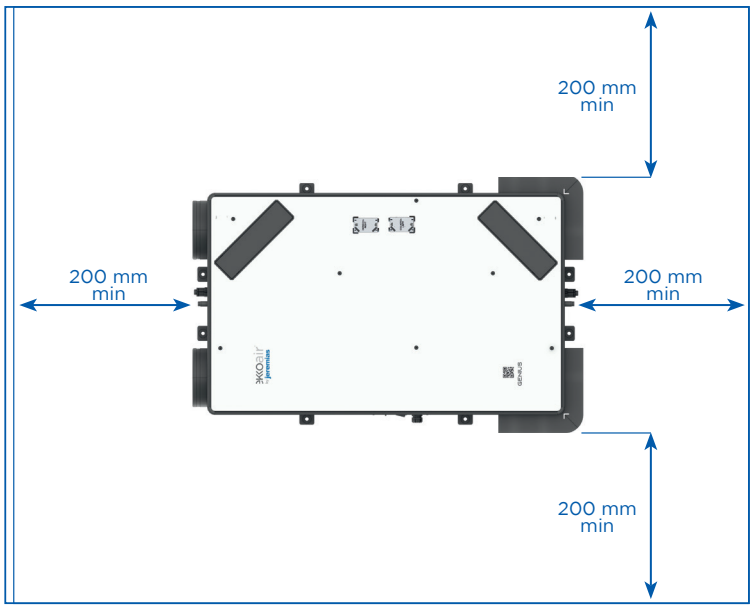
5.1 GENERAL

The installation must be done according to the following guidelines and regulations:

1. Requirements for ventilation quality in rooms according to the guidelines of the Technical Building Code (CTE), in particular Section HS3 of the regulation of thermal facilities in buildings (RITE) from 2007
2. Quality requirements to the balanced ventilation in apartments after Section HS3 of the CTE
3. Guidelines for the ventilation of rooms and apartments in accordance with the provisions of Section HS3 of the CTE
4. Compliance the safety regulations for low-voltage systems
5. Compliance with the guidelines for connecting wastewater drainage systems to sewerage networks in rooms and apartments
6. Any additional guidelines from local energy companies.
7. The electrical connection is always made with household electricity, never with construction site electricity.
8. Special regulations for the installation of the GENIUS device

5.2 MINIMUM INSTALLATION DISTANCES



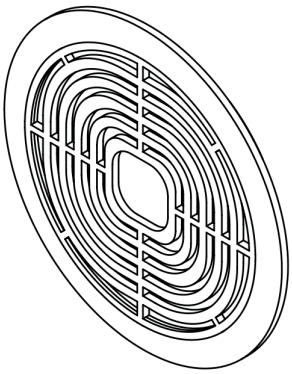


5.3 FLOW LIMITER

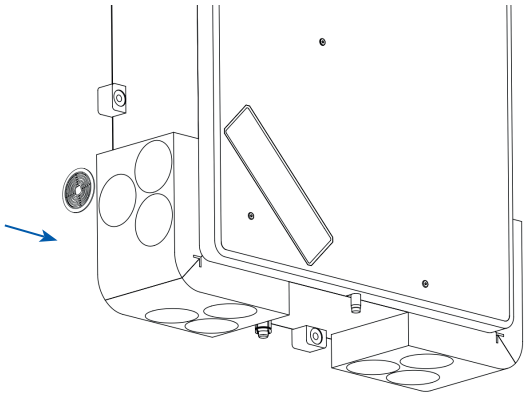
The delivery includes a total of 10 flow limiters.
These are used to adjust the air volume to the requirements of the respective system by removing the rings that are not required. The number of rings required depends on the desired flow rate and the pipe diameter and can be determined using a calculation tool on the Jeremias website.

The flow limiters are installed in three steps:

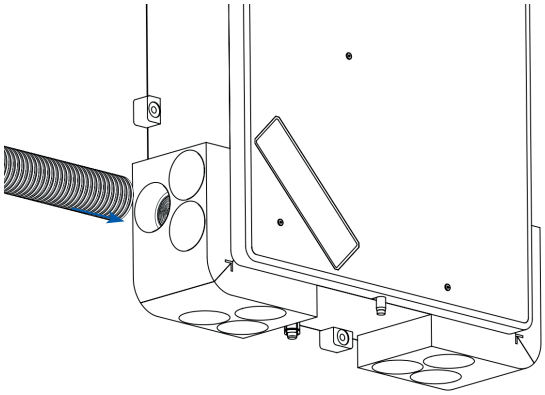
1 Removing the unnecessary rings



2 Inserting the flow limiter into the Ø 75mm opening



3 Connecting the Ekkoflex to the Ø75 mm opening



5.4 ASSEMBLY OF THE GENIUS

Installation and connection must done by a qualified person who has the appropriate authorization for electrical connection and has the appropriate tools and equipment. During installation, all instructions and recommendations of this manual should be followed.

The installation location of the device must be checked to ensure that there are no electrical or other cables (e.g. gas, water, etc.) that could be damaged during installation.

It must be ensured that the installation of the device, including the wall openings (depending on the selected installation position) for the connection cable, does not endanger the statics of the building and meets all legal requirements with regard to safety.

Failure to observe the specified distances may result in the device malfunctioning and thus in fan damage, increased noise or difficulty in accessing the device for service.

Only the positions specified in the manual are valid; any other form is prohibited.

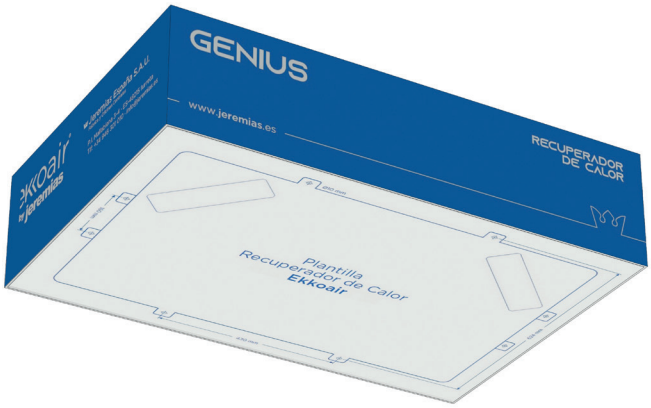
To access the filters and for maintenance purposes, the unit must always be accessible from the front (cover side). If the unit is installed under a wall or ceiling, the wall or ceiling must have an inspection opening large enough to access the unit so that a technician can easily access it at any time to open the ventilation unit.

The wall or ceiling to which the device is anchored must be sufficiently stable and load-bearing.

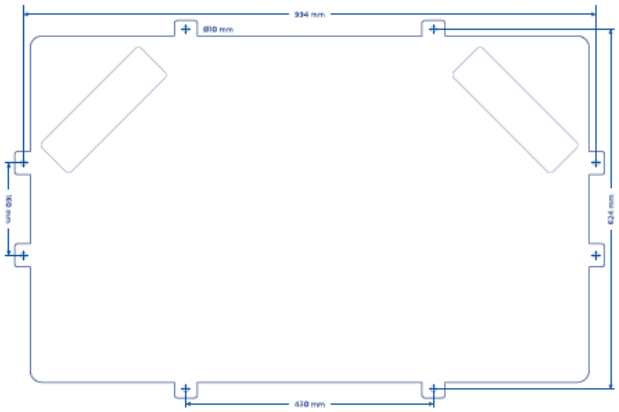
If necessary, you should contact a structural engineer.

5.5 CEILING MOUNTING

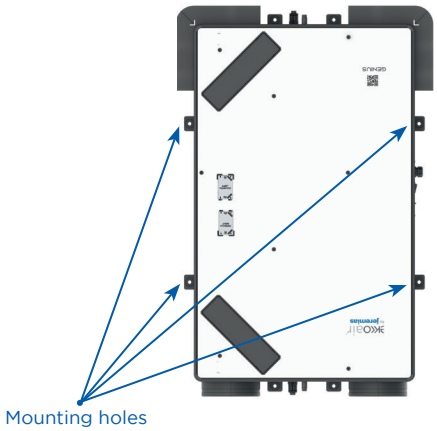
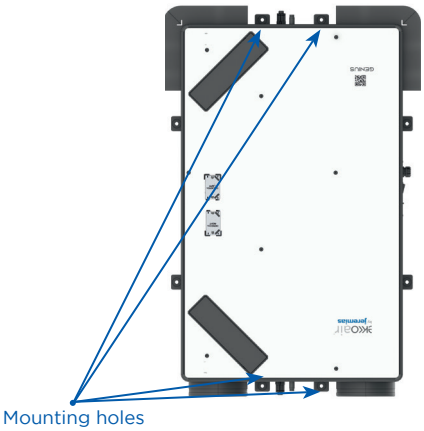
1 The GENIUS box comes with a template that makes it easier to mount the device on the ceiling or wall.



2 Position the mounting template on the wall or ceiling and mark the drill holes.

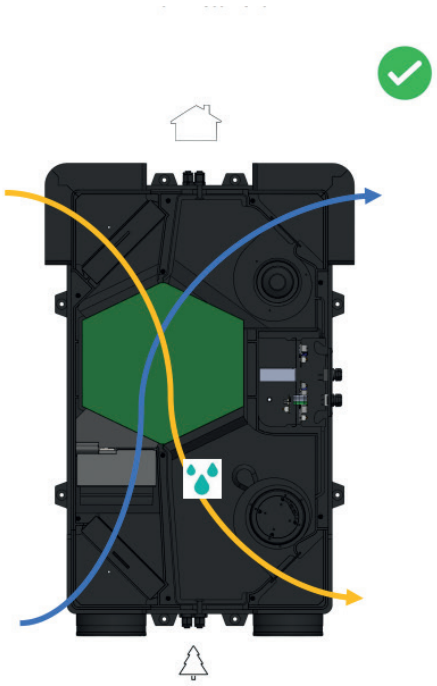
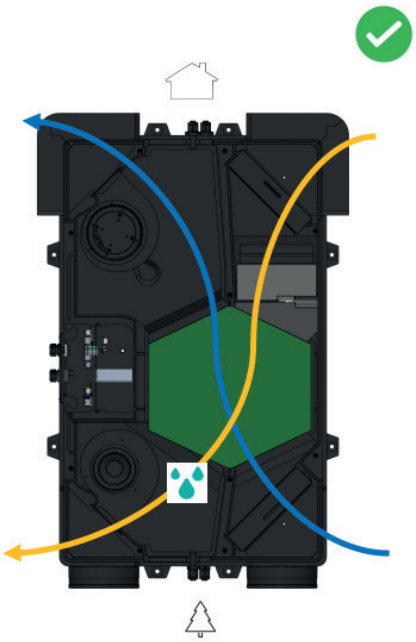


3 Drill holes and mount the device.

Long side	Short side
 Mounting holes	 Mounting holes

5.6 WALL MOUNTING

If you want to install the GENIUS vertically on the wall, there are two mounting positions available.

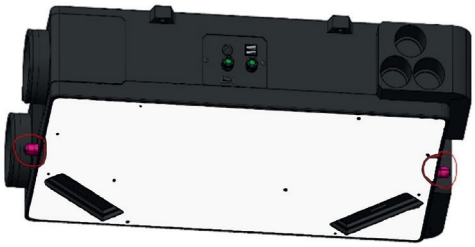
Installation with selector lever in position “right”	Installation with selector lever in position “left”
	

6. CONNECTION OF THE CONDENSER DRAINS

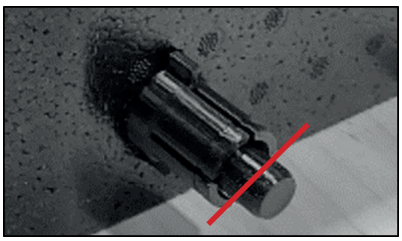
When installing on the ceiling, one of the two side condensate drains must be selected; when installing on the wall, the one in the lower part of the device must be selected.

How to install the drain with siphon

As an accessory we offer a siphon which can be easily installed thanks to various adapters and can therefore be adapted to different types of pipes.



A) Cutting and deburring the closure

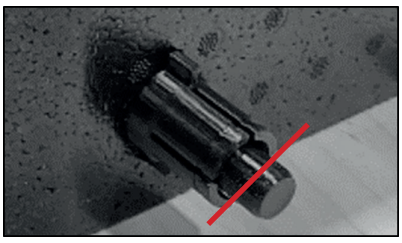


Connect one end of the supplied hose to the condensate drain and the other end to the siphon so that the siphon is as vertical as possible.

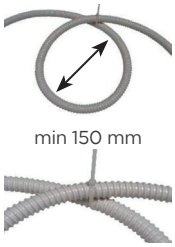


How to install the drain without a siphon

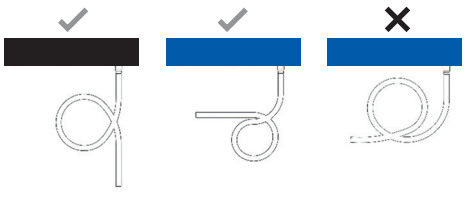
A) Cutting and deburring the closure



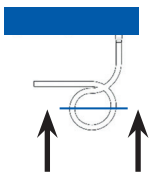
B) Creating a siphon with the condensate hose



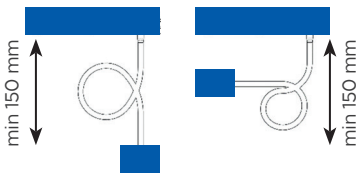
C) Make sure the siphon is installed correctly!



D) Filling the siphon with water and connection to the device



E) Connection to the downpipe



7. ELECTRICAL CONNECTION

7.1 CONNECTION TO THE NETWORK FROM STORAGE

The electrical installation must properly comply with all relevant regulations.



Before starting installation work, make sure that the junction box or socket to which you intend to connect the device is equipped with a protective cable or plug (earth).

Also make sure that the socket is not powered during installation.

The GENIUS has several switches with different functions:

- On off
- Selection of the installation position left or right
- Air flow control: 150 m^3/h or 200 m^3/h

The device comes with a 1 meter 220V power cable.

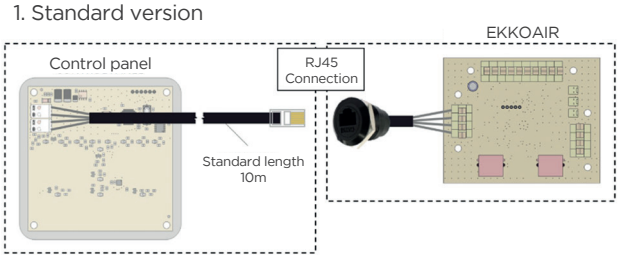
The two cable glands on the panel allow easy routing of the power and sensor cables and ensure the tightness of the device.

The GENIUS also has 2 external connections that work as follows:

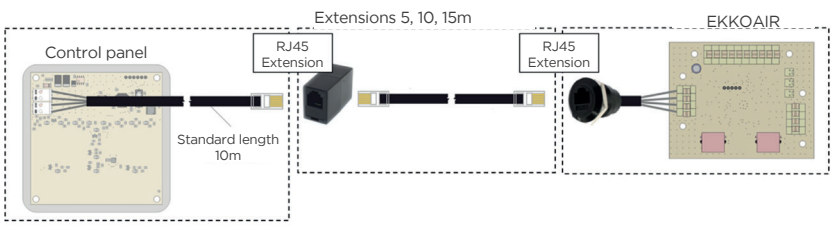
EXT1: Connected to the bathroom lighting via a relay, it increases the extraction power to the maximum for up to 1 minute after the light is turned off.

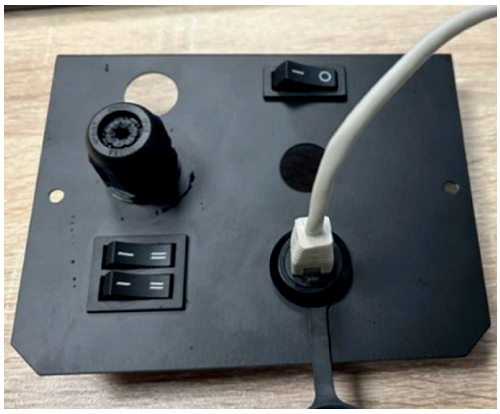
ETX2: Connected to the extractor hood via an inductive relay, it increases the flow rate to the maximum during operation up to 1 minute after the extractor hood is switched off.

1. Standard version



2. Version with cable extension

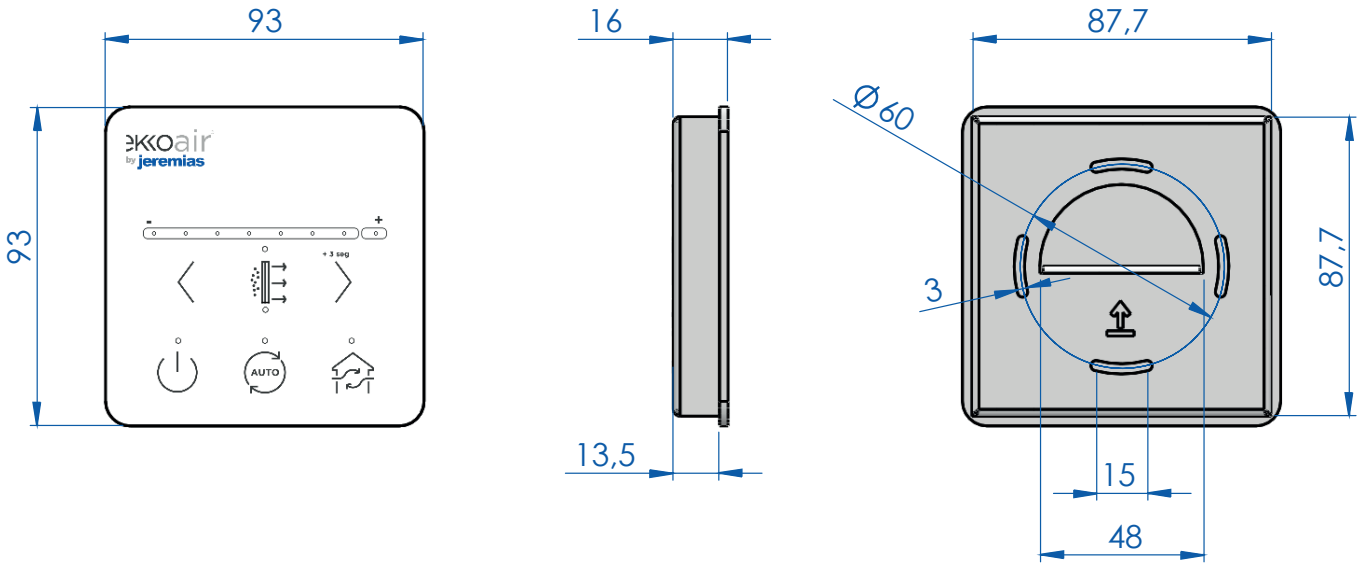




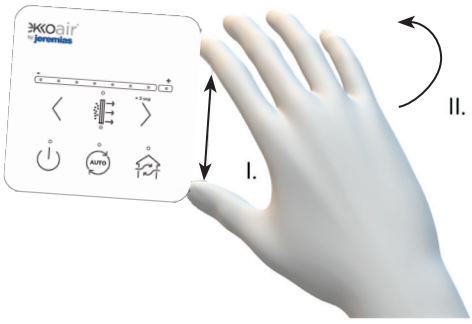
7.2 FURNISHINGS THE CONTROL

- **Required cable**
  An 8-core UTP cable without clamps is in scope of delivery contain. The length des connection cable amounts 10 m.
- **Concealed cable routing**
  The connection cable from the device to the control panel must be laid under plaster as part of the construction preparation and end in a flush-mounted box.

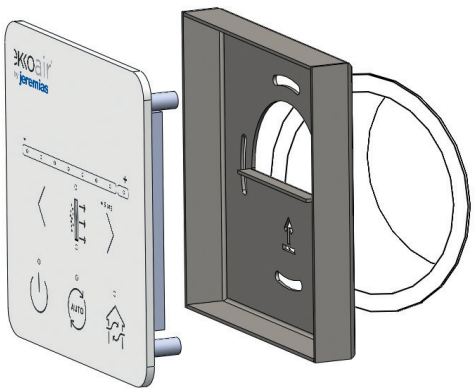
Dimensions of the controller



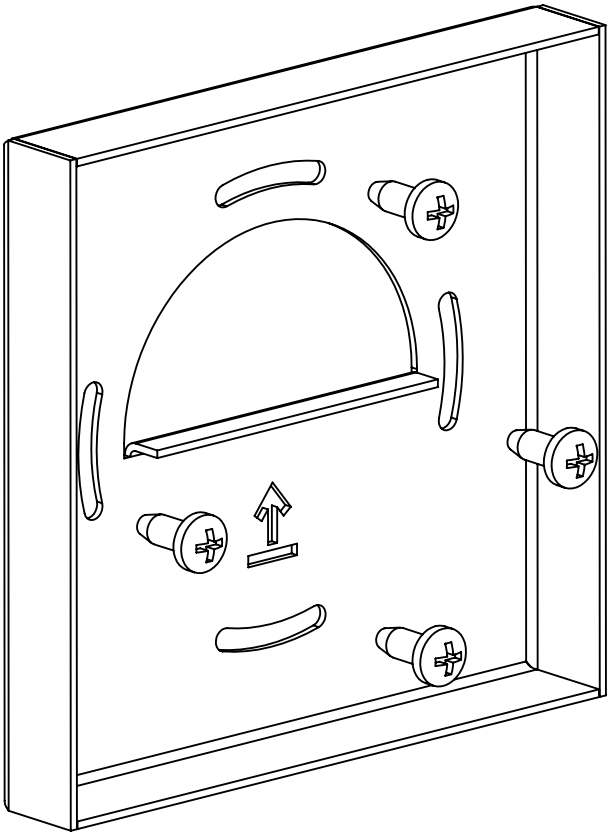
A) Open controller



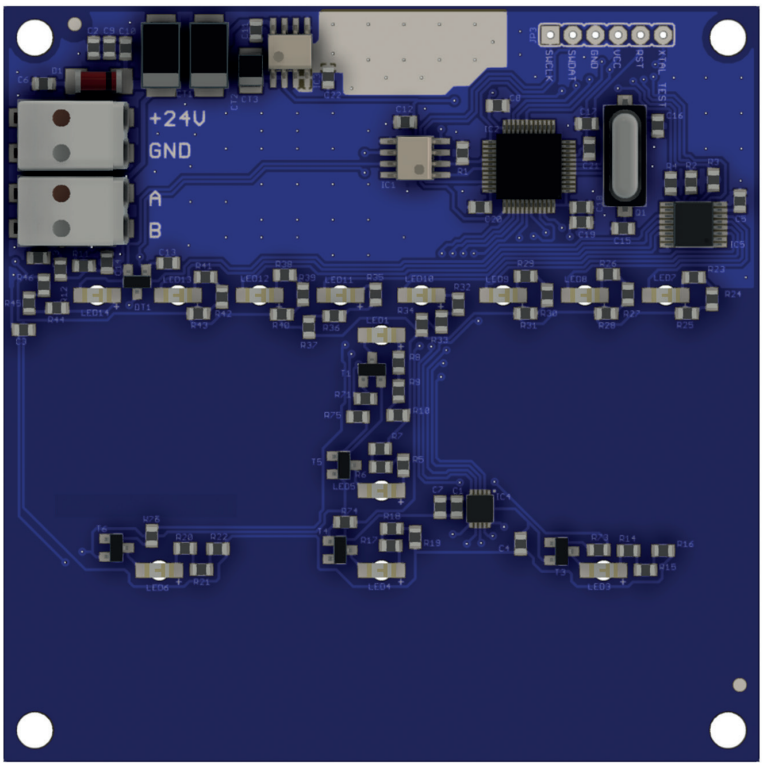
B) Route cables



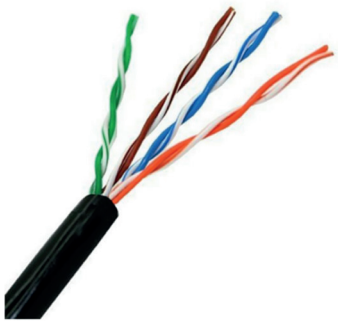
C) Attach the housing to the wall



D) Control command connection



+24 V: Brown and white/brown
GND: Orange and white/orange
A: Blue and blue/white
B: Green and white/green



Network cables are included in the scope of delivery of the control unit

8. COMMISSIONING

Once the ventilation unit is installed, the system can be started for the first time.

First, we switch on the GENIUS using the on/off switch (f). The LEDs on the control unit then light up for one second, followed by the buttons for the bypass, filter status and automatic operation flashing.

Please wait 30 seconds before pressing the power button on the remote control for 3 seconds. From this point on, the device starts working at speed 4.

Controller functions

1. Working states of the controller:

a) Normal operating mode

Only the operating status is displayed - the device is switched on and the LED (e) is lit. The device is fully functional and works according to the user settings.

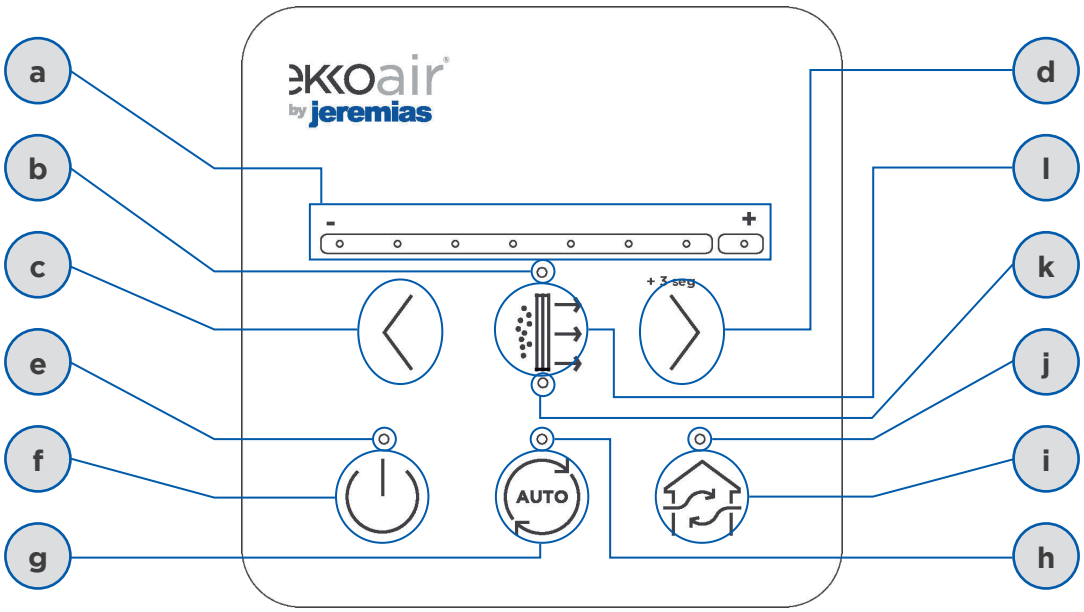
b) Control mode - 1 click on any key

Displays the active functions and settings of the device (ventilation performance). The display lasts for about 4 seconds, then the controller returns to sleep mode.

c) Adjustment mode - 2 clicks

Setting or activating some functions is only possible in this mode. Therefor double-click the button whose function you want to change.

2. Control scheme



3. Function of the buttons:

a) Display of the device air flow setting via LEDs

LED 1-7: Standard flow rate (low – high)

LED 1 flashing: EXT1 mode (bathroom) is active. Lights up for 1 minute after the bathroom light is switched off.

LED 8:

- short flashing: Boost mode is active

- long flashing: EXT2 mode (extractor hood) is active. Lights up for 1 minute after the extractor hood is switched off.

b) Set airflow rate (LED diodes 1 to 7)

c) Button to reduce the airflow

d) Button to increase the airflow

Pressing for approx. 3 seconds starts the boost functionality for 1 minute (8 LEDs flash briefly). Pressing again for 3 seconds stops the boost function.

e)/f) ON/OFF switch

Simply press to activate the ventilation.

If the system is running and you press the button for approx. 3 seconds, the ventilation unit automatically starts the necessary cooling for approx. 3 minutes and the LED (e) flashes quickly. After cooling, the LED (e) no longer lights up and the unit continues to operate at a minimum flow rate.

By pressing the button for approx. 6 seconds, the ventilation unit automatically starts the necessary cooling for approx. 3 minutes, the LED (e) flashes slowly. After cooling, the LED (e) no longer lights up and the unit is switched off.

g) Automatic mode button - control according to AQS sensors

Standard state (LED (h) is not lit): manual mode active , that Device operates according to AQS sensors and with the flow rate set by the user (a).

Pressing the button (g) activates automatic operation, LED (h) lights up. The device now reacts in a gently regulated manner to the ventilation requirements according to real-time sensors. Once CO_2 = 800 ppm, HR = 65% is reached, ventilation continues with the minimum flow rate .

If the concentration of CO_2 and HR in the room cannot be reduced, the device increases the flow rate up to the maximum flow value set by the user and then gently reduces the flow rate as the concentration decreases.

The aim of ventilation control is to find the optimal ventilation level (flow rate) based on the concentration of the controlled substance in the ventilated space. For this reason, the device can ventilate for a long period of time until the safe concentration limit or complete exhaustion of the controlled substance is reached. Once the concentration has dropped to the set value of CO_2 = 700 ppm and HR = 60%, the ventilation is switched to the minimum flow rate.

When using multiple sensors, the control gives priority to the sensor with the highest ventilation requirement.

LED h flashes: No AQS sensor is connected or the AQS sensor is defective.

i) Button to activate the summer bypass:

Pressing the button (i) activates the bypass when the bypass conditions are met (page 10) or deactivates it again.

Signal (j) lights up: Bypass function is activated.

Signal (j) flashes: Bypass function cannot be started. The device is in frost protection mode.

Signal (j) is not lit: Bypass is not active.

Parental controls

Protection against unauthorized use can be activated by pressing the bypass button (i) for 6 seconds activated. The LEDs (j), (h) and (b) flash 3 times . Nothing can then be set using the buttons (c) and (d). When these buttons are pressed, the LEDs (j), (h) and (b) flash 1 time .

The EXT1 and EXT2 functions remain active. The child safety lock can be deactivated by pressing the bypass button (i) again for 6 seconds.

k) Filter signal

As soon as the LED (k) flashes red, both filters of the device must be cleaned or replaced. This is necessary after approx. 4400 operating hours (approx. 6 months) . The function of the device is not restricted in any way.

By pressing buttons (g) and (i) simultaneously, the filter display is reset and the red LED (k) goes out.

Error table

ERROR TABLE			
Number	Error message	Possible cause of the error	Troubleshooting
1	The device does not start	The power cord is not connected	Network connection check/activation check the safety function
		The main switch stands on position 0	Place She the Switch on position 1
		The entire charging process des driver was not completed	Device with main switch turn off and switch it on again, wait until the controller complete loaded is – Controller hears on to blink
2	The red indicator light above the filter symbol flashes	Filter clogging indicator	Substitute the filter
3	Also at maximum device performance done none or only one low ventilation performance	Clogged filter	Substitute the filter
		Clogged pipes or heat exchanger defect	Check the appliance's outlets or pipes for blockages that prevent free air circulation
4	The Device becomes to loud	Clogged filter	Substitute the filter
		Fan distribution incorrectly configured	Please contact us!
		Defective bearing	Please contact us!
5	The external electric heating des device does not heat (preheating, reheating)	Clogged filter	Substitute the filter
		Fan distribution incorrectly configured	Check and clean the device
		Device outlets clogged	Turn off the device using the main switch and wait 5 minutes before turning it on again. Visually inspect the thermal protector and contact the supplier if the problem persists.
6	The night cooling function can not be activated. The signal button blinks 3x and the Function does not turn on.	Does not meet the starting requirements of the Function, the outside temperature is to low	Wait until the outside temperature rises. The Function is only at the programmed temperature active.
7	The bypass function cannot be activated, all diodes flash once (on buttons 6,4,7,10), the function does not switch on	BOOST mode activated	Wait until the boost function has finished or turn off the boost as explained in the user manual
		Parental controls activated	Deactivate the parental controls
8	The BOOST mode can not be activated , the LEDs (6,4,7,10) flash 1 or 3 times	3 blinking signals: very low outside temperature	Wait until the outside temperature rises
		1 flash: child lock function activated	Deactivate the parental controls
9	The auto mode lets itself at pressing 3 times the button not activate	3 x Blinking: The Device is with not equipped with a sensor	Check if the sensor is connected and if the wiring is OK
10	When any function is pressed, the LEDs flash once	Parental controls activated	Deactivate the parental controls
11	The device does not work and the LEDs for controlling the speed of the heat exchanger are constantly flashing	LEDs 1,2,3,4 flash (supply air fan)	Turn off the device at the control panel and the main switch, let the Device switched off for about 10 seconds - restart the device!
12		LEDs 5,6,7,8 flash (exhaust fan)	Turn off the device at the control panel and the main switch, let the Device switched off for about 10 seconds - restart the device!
13		LEDs 3,4,5,6 flash (defrost sensor defective)	If the error persists after resetting the device, contact the device supplier.

9. AIR QUALITY SENSORS

The GENIUS can be equipped with these additional sensors:

- CO_2 sensor (not in the delivery included)
- Humidity probe (not in the scope of delivery contain)

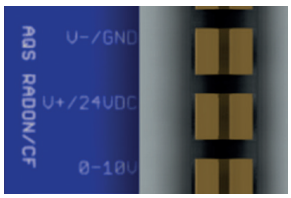


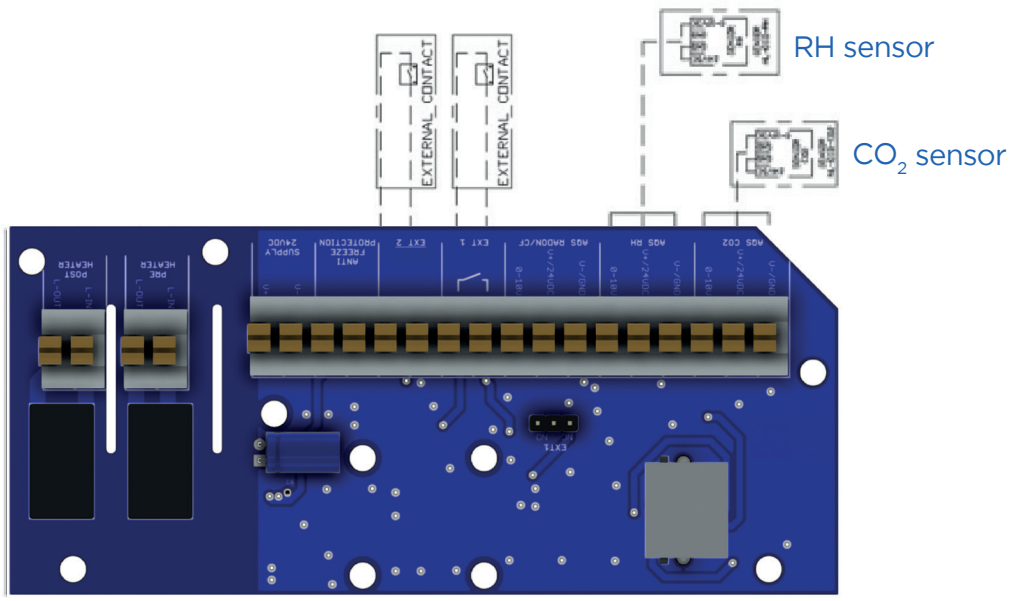
The GENIUS has the option of installing a CO_2 sensor. This measures the carbon dioxide (CO_2) content in the air in the various rooms of a house and transmits its measurements to the GENIUS system. The device is able to adjust and change the ventilation flow according to the information provided by the CO_2 sensor in order to ensure the air quality in the interior.

With a humidity sensor (RH), measurements can be taken in different areas of the house regarding the humidity and the data can be transmitted to the GENIUS. The device then adjusts the ventilation flow accordingly in order to create or maintain the ideal humidity concentration in the room air.

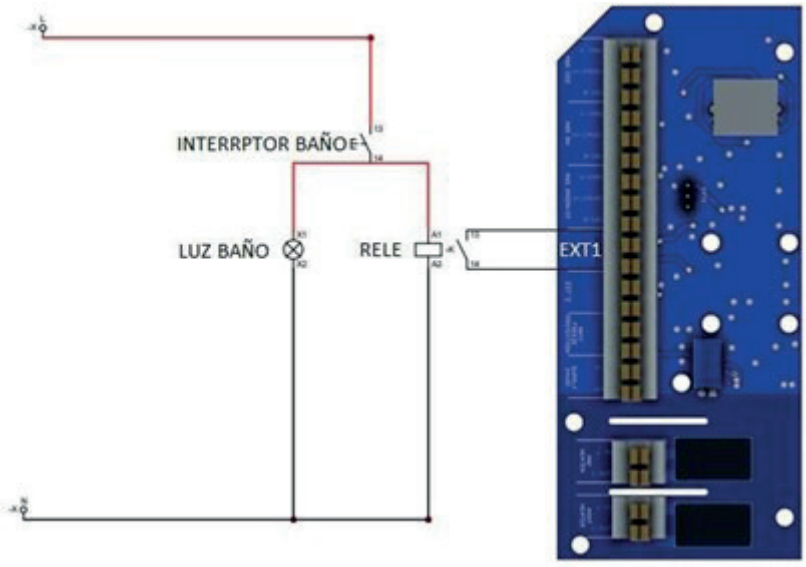
Connection of external outputs

- Negative 0V
- Positive pole 24 V
- 0-10 V signal
- Analog input resistance 100,000 Ω





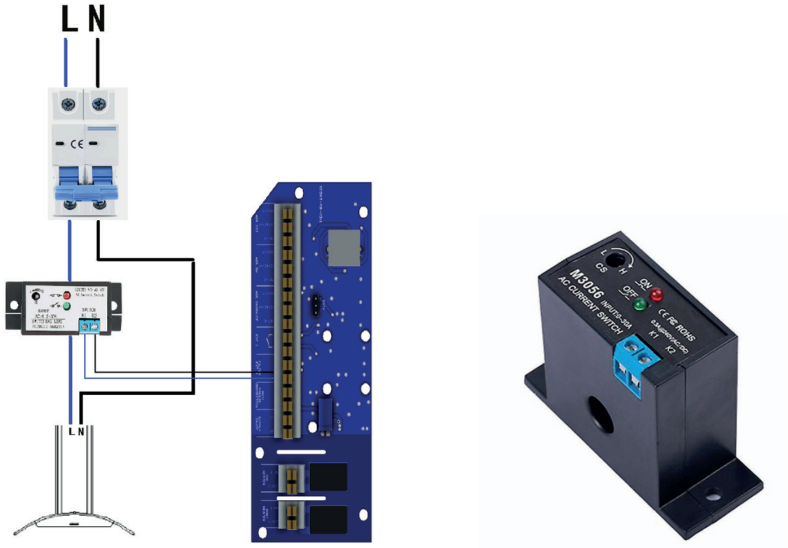
Solid-state relay circuit with useful lighting



The system enables full-power bathroom exhaust ventilation by switching solid-state relays when the bathroom light is on. The exhaust ventilation remains active for one minute after the light is turned off.
Compatible relays with the following specifications are required for correct implementation of this system:

- Type: Electromechanical
- Control voltage: 230 V AC
- Number of contacts: 2 changeover contacts (SPDT)
- Current capacity: 8 A
- **Example model: 2P 25A 2NO 230V contactor, 1 Hager ESC225S Silent Module**

Inductive relay switches with the extractor hood



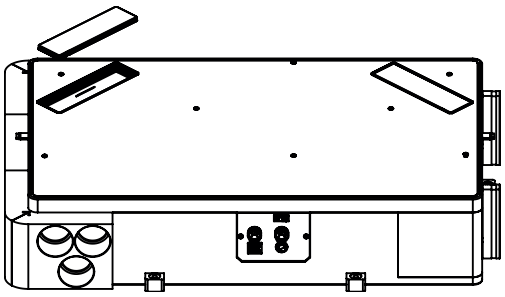
An inductive relay can be connected to the EXT2 input to detect the range hood current. When the range hood is switched on, this relay enables the heat recovery unit in the bedrooms and living room to operate at full power. The supply remains active for one minute after the range hood is switched off. This ensures greater ventilation efficiency and prevents smoke or heat build-up, optimizing system performance. Valid installation options: AC detection M3010 and M3056.

10. MAINTENANCE

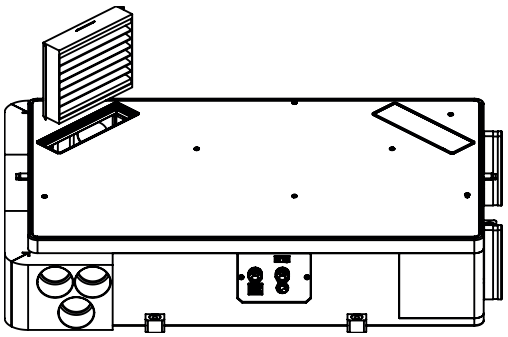


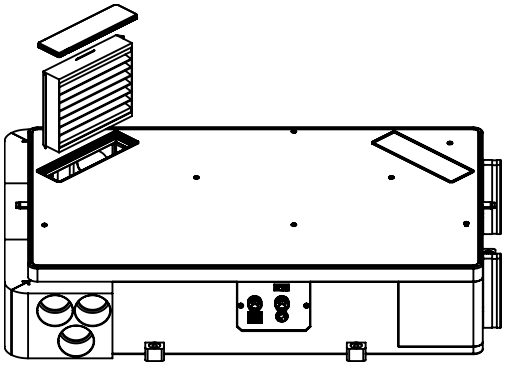
- If the filters are not replaced (cleaned) properly, the functionality of the device may be reduced.
- Never operate the device without an air filter, otherwise the device may be damaged.
- FILTER CHANGE OR CLEANING (BY THE USER)
- Before starting any maintenance work, the power supply must be disconnected. During installation, the switch must be secured in such a way that it cannot be switched on again without authorization.
- During normal operation, a filter change is necessary after approximately 6 months (approx. 4400 operating hours).
- Filter clogging depends on the environment in which the device is operated.
- The more dust particles the ambient air contains, the faster the filter box becomes clogged. If a filter blockage is indicated, you should therefore always consider replacing the filter.
- The filter change control is indicated on the control panel by a red LED flashing below the filter function.
- Before you start replacing the filter, make sure you are using the correct filter (M5 and F7)
- Remove the plastic covers from the device lid.
- Remove the filters, check them and/or replace them with new filters.

1 REMOVE THE FILTER COVERS



2 REMOVE THE FILTERS





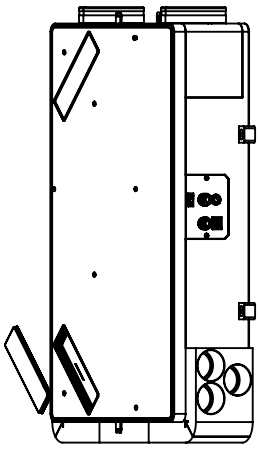
3 INSERT NEW FILTER

10.1 MAINTENANCE OF THE HEAT EXCHANGER (FOR THE INSTALLER)

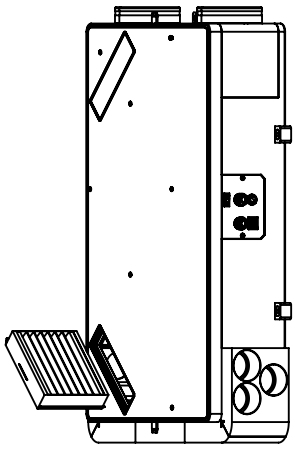
Visual inspection and cleaning of the heat exchanger

- Visually inspect and clean the heat recovery exchanger.
- Vacuum the heat exchanger with a vacuum cleaner or use the vacuum cleaner brush attachment. Always vacuum the heat exchanger from the front to remove fine dust.
- This should be done at least once a year.

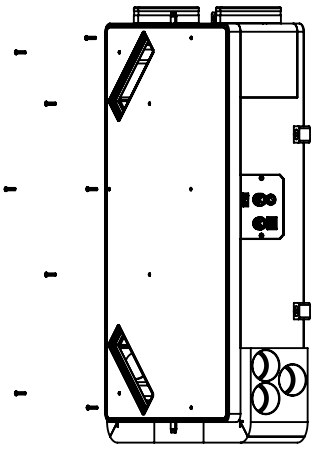
1 Removing the filter cover



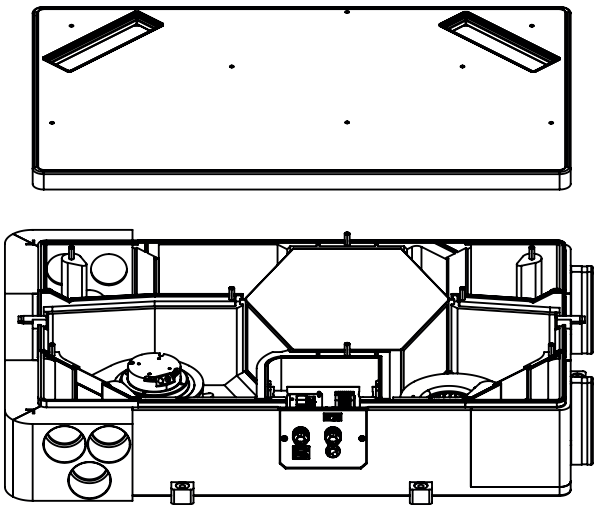
2 Pulling out the filters



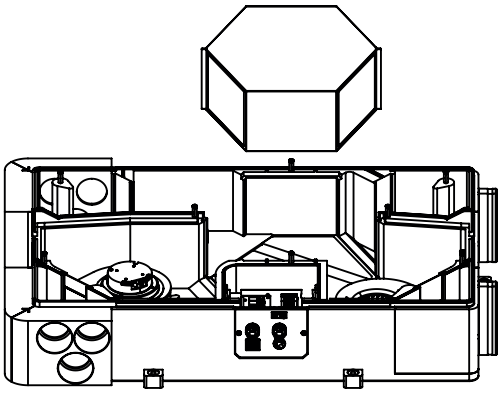
3 Unscrewing the outer cover

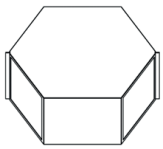


4 Remove the outer cover and the front polypropylene the device, exposing the interior



5 Remove the heat exchanger



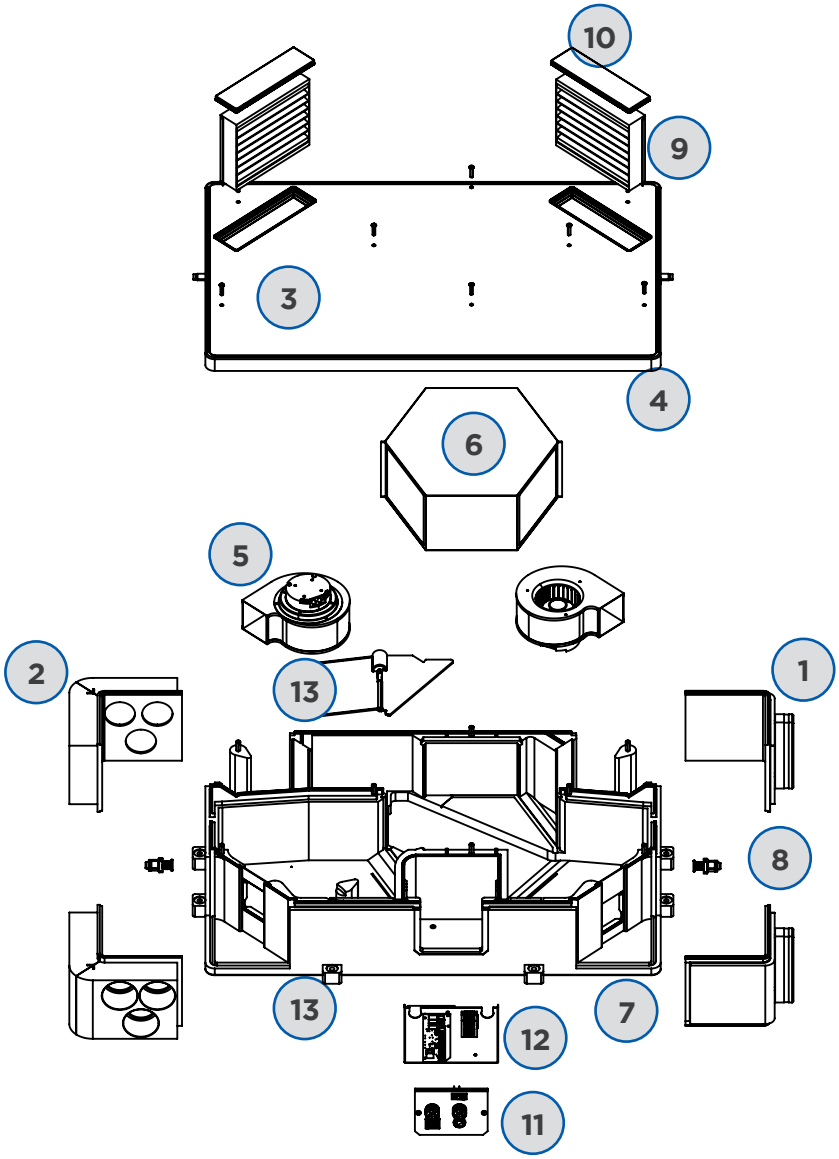


Clean the heat exchanger with water

- Treat the disassembled heat exchanger with a disinfectant or antibacterial product suitable for cleaning and disinfecting aluminum and plastic. Allow the heat exchanger to dry thoroughly before reinstalling it in the appliance.
- Do not use sharp tools or brushes with hard bristles to clean the heat exchanger. Avoid high-pressure cleaning and chemicals. The heat exchanger could be permanently damaged.
- After cleaning, reinstall the heat exchanger in the body of the appliance.

11. EXPLODED VIEW

Exploded view		
Number	Description	Piece
1	Corner joints Ø 1 60mm	4
2	Corner joints Ø 75 mm	2
3	Front cover	1
4	Front Polypropylen	1
5	Low-consumption fan	2
6	High-performance heat exchanger	1
7	Clamping tabs	8
8	Condensate drain	4
9	High-performance filter	2
10	Filter cap	2
11	Connection plate	1
12	Electronic connection plate	1
13	100% automatic bypass valve	1



12. WARRANTY

The warranty per unit is in accordance with the statutory provisions. The guarantee is only valid if all installation and maintenance instructions have been followed. The guarantee covers manufacturing defects, material defects or functional defects of the device. We do not guarantee the suitability of the device for specific purposes; the determination of suitability is solely at the discretion of the customer.

The guarantee does not cover defects caused by:

- Incorrect handling
- Transport damage - financial compensation must be clarified with the carrier
- Non-compliance with the terms of service
- Incorrect electrical connection or protection
- Incorrect operation
- Interventions in the product
- Normal wear and tear
- Due to a natural disaster
- Lack of or incorrect maintenance of the system

When making a warranty claim, a report (included in the product documentation) must be submitted containing:

- Information about the applicant/company
- Sales invoice
- Detailed description of the defect
- Data on socket protection
- Photo of the product manufacturing label and serial number if applicable
- Photo of the product installation location
- Measured product values: air temperature, voltage, current

In the case of both warranty and post-warranty service, please contact the supplier or installation company that performed the installation. Warranty repairs are carried out at the place of installation of the device or by agreement. The method of resolving warranty repairs is at the sole discretion of the company‘s service center. The complainant will receive a written notification of the outcome of the complaint - warranty repair. In the case of an unjustified complaint, all associated costs are to be borne by the claimant.

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