CASA R5 Genius

Technical catalogue

QUICK FACTS

- Automatic rotor speed control for demand controlled humidity function as standard.
- Automatic summer function and passive cooling
- Anti-frost protection ensures continuous ventilation
- External coils for heating and cooling as an option
- Can be connected to the automated building management system (I/O/Modbus)
- Control system CASA Genius
- Can keep pressure balanced as a makeup air unit integrating with direct exhaust cooker hoods

UNIT TECHNICAL CONTENT	
Air flow range	ERV: 127-248 cfm | 60-117 l/s
Dimensions, w x l x h	23,5 x 23,6 x 23,5 inch, 165 lbs (598 x 600 x 597 mm, 75 kg)
Duct outlets	4 x 6" (152 mm)
Humidity recovery	83 %
Sound level	42 dB
Heat recovery rate	82 %
Internal leakage **External leakage**	0,60 % 0,42 %
Spesific lectric power	0,37 Wh/m^3
Connection power	887 BTU/hr (260 W)
Power connection	220-240 V, 50-60 Hz, MOP 10 A
Fans	240 W, EC
Filters	MERV13 filters for supply air and for extract air
Colour	Exterior White, RAL 9016 (corresponds to NCS S1002-G50Y)

Swegon

Content

Technical description

Swegon CASA R5 Genius

Compact and high performance Air handling unit with sensible/enthalpy rotary heat exchanger providing ventilation fresh air to smaller homes (up to 254 cfm, 2583 ft²). The market's most intelligent demand-controlled humidity function is standard. Developed, manufactured and tested for North American climate.

Indoor environmental quality

Ventilation control

The unit is controlled steplessly with automation functions to guarantee the best indoor environmental quality. The user can select five operating modes home, away, boost, travelling and home+ by using control panel or Swegon CASA app. Operation modes can be set by defining a weekly programs on CASA controller or CASA app.

Temperature control

The supply air temperature is controlled with heat exchanger. Supply air temperature can be heated or cooled further using optional electric/hydronic heating coil or hydronic cooling coil.

The unit has automatic summer time detection. The function sets lower supply air temperature setpoint and boost ventilation in order to bring more fresh outdoor air to the apartment during summer nights.

Available variants

Standard units are available in following variants:

- ERV **R** (exhaust air right)
- ERV **L** (exhaust air left)

Components

Fans

CASA R5 comes with energy efficient EC fans on supply and extract air stream.

Filter

The ventilation unit is equipped with MERV13 filters for supply air and for extract air. The need of filter replacement is indicated on the control panel.

Heat exchanger

The ventilation unit is equipped with a **speed controlled rotary heat exchanger**. Heath exchanger is controlled either to maintain constant supply air temperature or to achieve maximum energy efficiency (winter mode).

External connections

All connections can be made without opening the electrical box. Plug-in modules are available for external connections. Wide variety of IO functions are available.

The ventilation unit is equipped with In-build Modbus. Modbus cabling can be made easily with external cable (SEC) or module (SEM). Unit can be fully controlled with Modbus and all external IO´s can be configured to Modbus usage.

Protective functions

The heat exchanger freeze protection

The defrosting function guarantees continuous ventilation and maintains units performance even during extreme conditions. If reheat can't maintain sufficient supply air temperature, the air flows are reduced.

The fan overheating protection

The fan overheat protection stops the fan if the temperature rises too high and is reseted automatically. If protection stops the fans an alarm is generated.

Rotor guard

Rotor guard detects that the rotor is working. Malfunction generates an alarm.

Cold supply air

The ventilation unit has built-in condensation protection. If the supply air is too cold, the ventilation unit stops and an alarm is generated.

High temperature

If supply air or units internal temperature is detected dangerously high the unit is stopped and an alarm is generated.

Temperature sensors

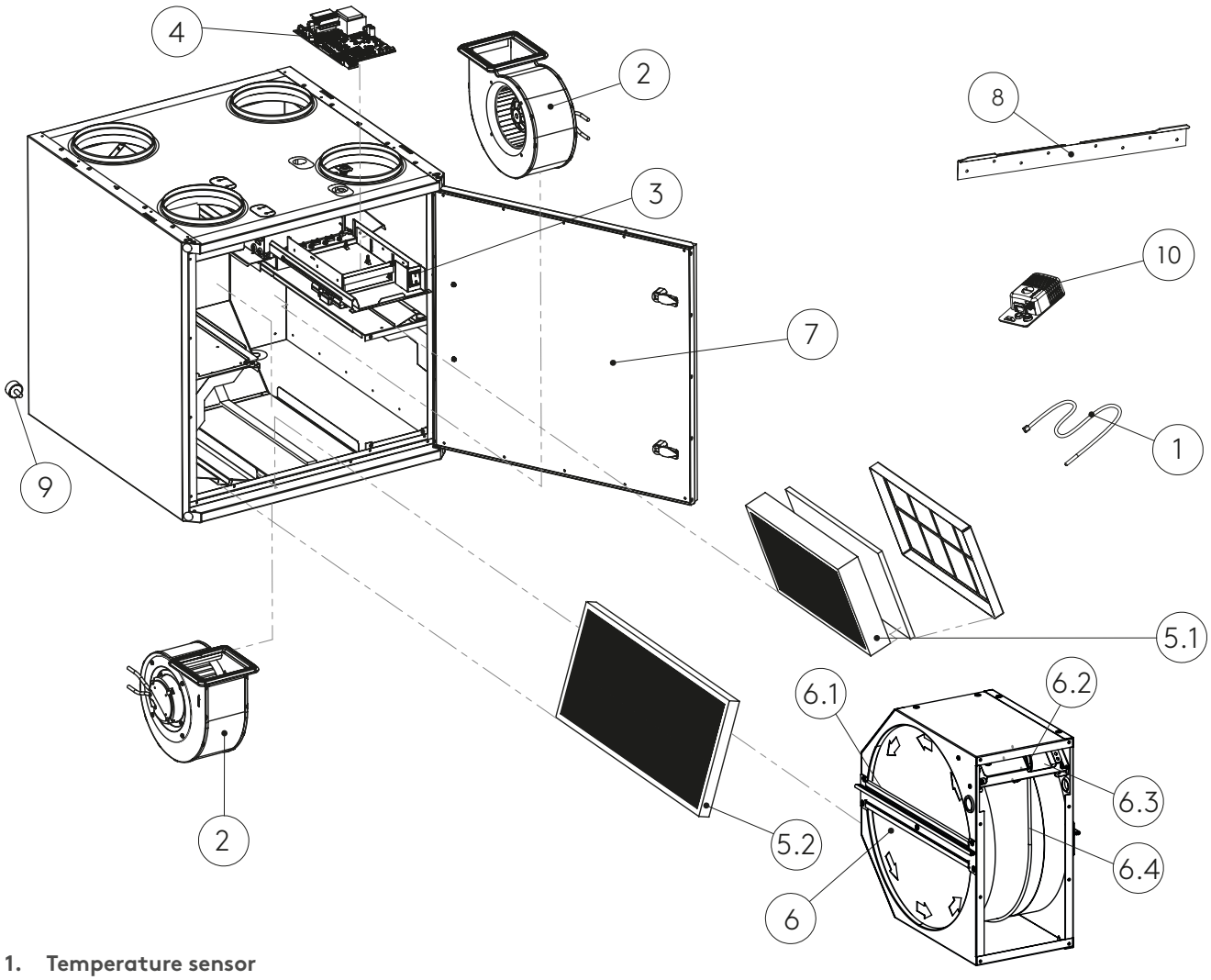
If a sensor fault is detected, an alarm is generated. If the faulted sensor is critical the ventilation unit is stopped. The ventilation unit returns to normal mode once the fault has been corrected.

The delivery includes

- Ventilation unit
- Anti-vibration mountings (2 pcs.)
- Wall mounting bracket
- Quick Guide
- Installation and commissioning instruction

Standard connections

- Power cord with earthed plug (6,6 ft | 2 m)
- Modular cable with RJ9 connector (4,9 ft | 1.5 m))
- Freely configurable I/O contacts for connection of accessories (2 pcs.)



1. **Temperature sensor**
2. **Fan (left + right)**
3. **Operating switch**
4. **Genius control board**
5. **MERV13 filters for supply air and for extract air**
6. **Rotor package**
   - **6.1 Brush seals**
   - **6.2 Drive wheel**
   - **6.3 Rotor motor**
   - **6.4 Drive belt**
7. **Door**
8. **Wall mounting bracket**
9. **Anti-vibration mountings (2 pcs.)**
10. **Sensor package**

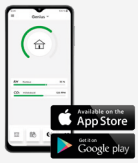
Swegon CASA Genius

Intelligent control of the ventilation

Using the Swegon CASA Genius control system, residents can monitor the quality of the indoor air (RH, CO2, VOC, °F, °C), control the ventilation according to need or allow the intelligent control to regulate the ventilation automatically.

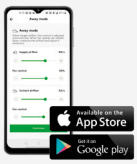
Swegon CASA control panel

Wall-mounted touch screen for external or flush mounting. From the touch screen, it is possible to monitor ventilation, change the ventilation's operating mode, change the equipment's settings and commission the ventilation unit. The screen can be connected to the home's WLAN network, enabling the ventilation to be controlled remotely from a mobile app.



The Swegon CASA app

Using this app, the home owner can use all the functions in the control panel remotely from their own smartphone. With the aid of the app, the user has access to more information about their home's air quality as well as valuable instructions and advice about the ventilation (needs Swegon Genius control panel).



The CASA Service app

App for installation engineers/service engineers, which provides assistance when commissioning the ventilation unit. The app works locally together with the ventilation unit and does not require connection to a network. For example, the app defines the I/O connections, presets the percentage values for the fan speeds that correspond to specified air volumes, as well as automatically setting air volumes for home and boost mode. Finished settings can be saved in the app and copied to the next home (needs Swegon Genius control panel).

Home automation

Can be connected to the home automation for centralised monitoring and control, either directly via configurable I/O or with the aid of a separate Modbus connection module (SEM).

Basic modes

You can switch as required to an appropriate operating mode or let the pre-programmed weekly clock switch operating mode according to the diurnal rhythm you want.

Home
Normal air flow. Sufficient amount of fresh indoor air to ensure the wellbeing of the residents and the structural building elements when there are people in the home.

Home+
Higher air flow. Can be used when more ventilation is required. The home owner can change the efficiency of the operating mode from the settings.

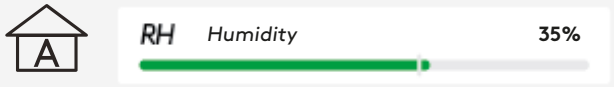
Boost
High air flow. Used if the ventilation requirement increases, for example, when cooking, taking a bath or drying laundry, or when an unusually large number of people are in the home.

Away
Low air flow. Reduces the energy consumption when nobody is present in the home.

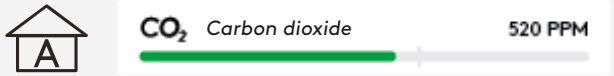
Travelling
Very low air flow and lower supply air temperature. Used when nobody is present in the home.

Automatic functions

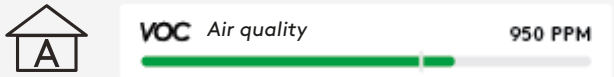
The intelligent ventilation monitors the quality of the indoor air and adjusts the ventilation automatically.



Automatic RH system included as standard
The humidity automation analyses the indoor air humidity continuously. The intelligent control utilizes heat exchanger (sorption rotor) high humidity recovery and rotor speed control to manage indoor humidity level. In addition the control boosts the ventilation steplessly by demand.

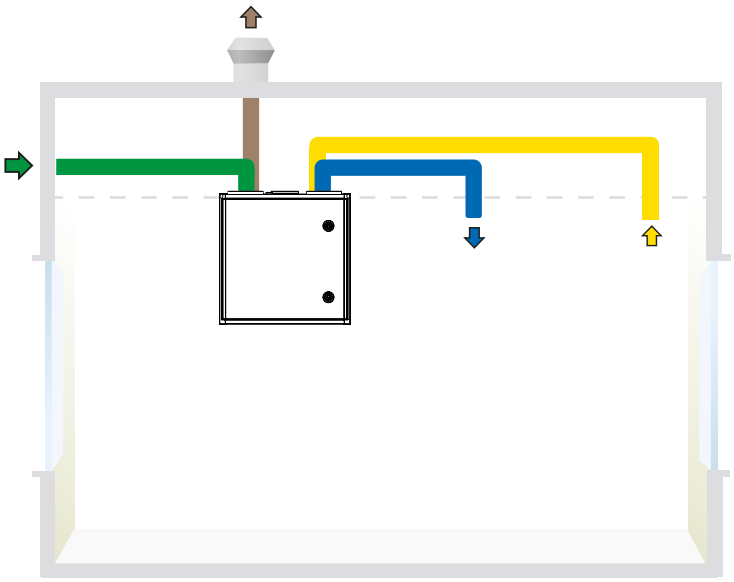


Automatic CO2 system as optional equipment
Automatically lowers the ventilation and saves energy when nobody is in the home. When the residents are at home, the ventilation is automatically boosted to bring exactly the right amount of fresh air into the home.



Automatic VOC system as optional equipment
The automatic air quality system boosts the ventilation if pollution, odours or vapours (evaporating organic compounds) are detected in the indoor air.

Design data



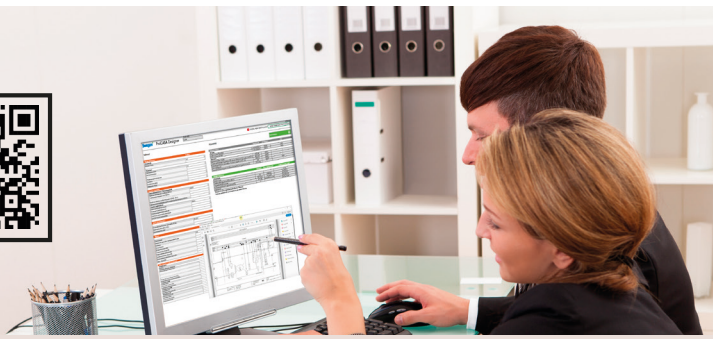
Outdoor air | Supply air | Extract air | Exhaust air

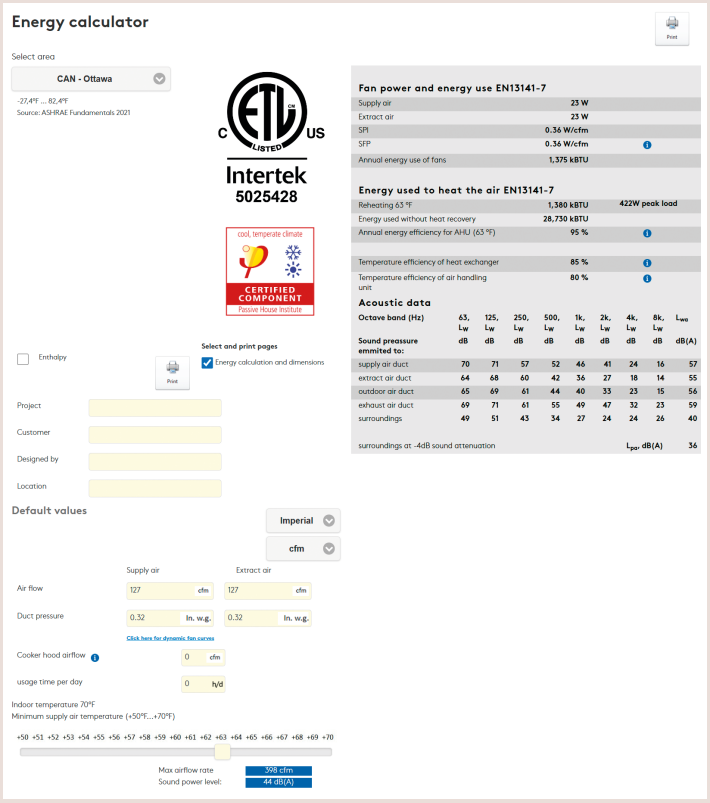
Note! Always check the unit design (L/R) and correct duct sequence in the installation instructions.

ProCASA®

Energy calculation, functional diagram and acoustic data on ProCASA.

procasa.swegon.com





Energy calculator

Select area

CAN - Ottawa

-27,4°F ... 82,4°F
Source: ASHRAE Fundamentals 2021

Intertek 5025428

cool, temperate climate
CERTIFIED COMPONENT
Passive House Institute

Enthalpy

Select and print pages
Energy calculation and dimensions

Project
Customer
Designed by
Location

Default values

Imperial
cfm

	Supply air	Extract air
Air flow	127 cfm	127 cfm
Duct pressure	0.32 In. w.g.	0.32 In. w.g.

Click here for dynamic fan curves

Cooker hood airflow 0 cfm
usage time per day 0 h/d

Indoor temperature 70°F
Minimum supply air temperature (+50°F...+70°F)

+50 +51 +52 +53 +54 +55 +56 +57 +58 +59 +60 +61 +62 +63 +64 +65 +66 +67 +68 +69 +70

Max airflow rate 398 cfm
Sound power level: 44 dB(A)

Fan power and energy use EN13141-7

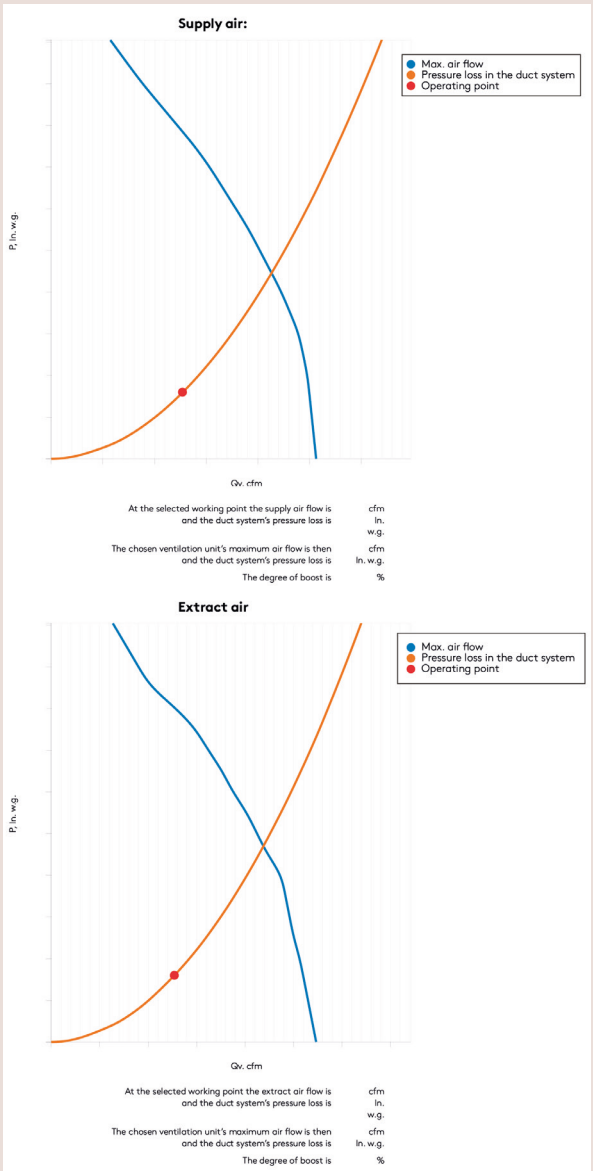
Supply air	23 W	
Extract air	23 W	
SPI	0.36 W/cfm	
SFP	0.36 W/cfm	
Annual energy use of fans	1,375 kBTU	

Energy used to heat the air EN13141-7

Reheating 63 °F	1,380 kBTU	422W peak load
Energy used without heat recovery	28,730 kBTU	
Annual energy efficiency for AHU (63 °F)	95 %	
Temperature efficiency of heat exchanger	85 %	
Temperature efficiency of air handling unit	80 %	

Acoustic data

Octave band (Hz)	63, L_W	125, L_W	250, L_W	500, L_W	1k, L_W	2k, L_W	4k, L_W	8k, L_W	L_{WA}
Sound preassure emmited to:	dB	dB	dB	dB	dB	dB	dB	dB	dB(A)
supply air duct	70	71	57	52	46	41	24	16	57
extract air duct	64	68	60	42	36	27	18	14	55
outdoor air duct	65	69	61	44	40	33	23	15	56
exhaust air duct	69	71	61	55	49	47	32	23	59
surroundings	49	51	43	34	27	24	24	26	40
surroundings at -4dB sound attenuation								L_{pa}, dB(A)	36



MagiCAD

3D models and CAD dimension sketches for all Swegon CASA products are available from MagiCloud. You can download DXF files directly from MagiCloud or use a MagiCAD plugin to transfer dimension sketches to the Revit and AutoCAD software packages.

www.magicloud.com

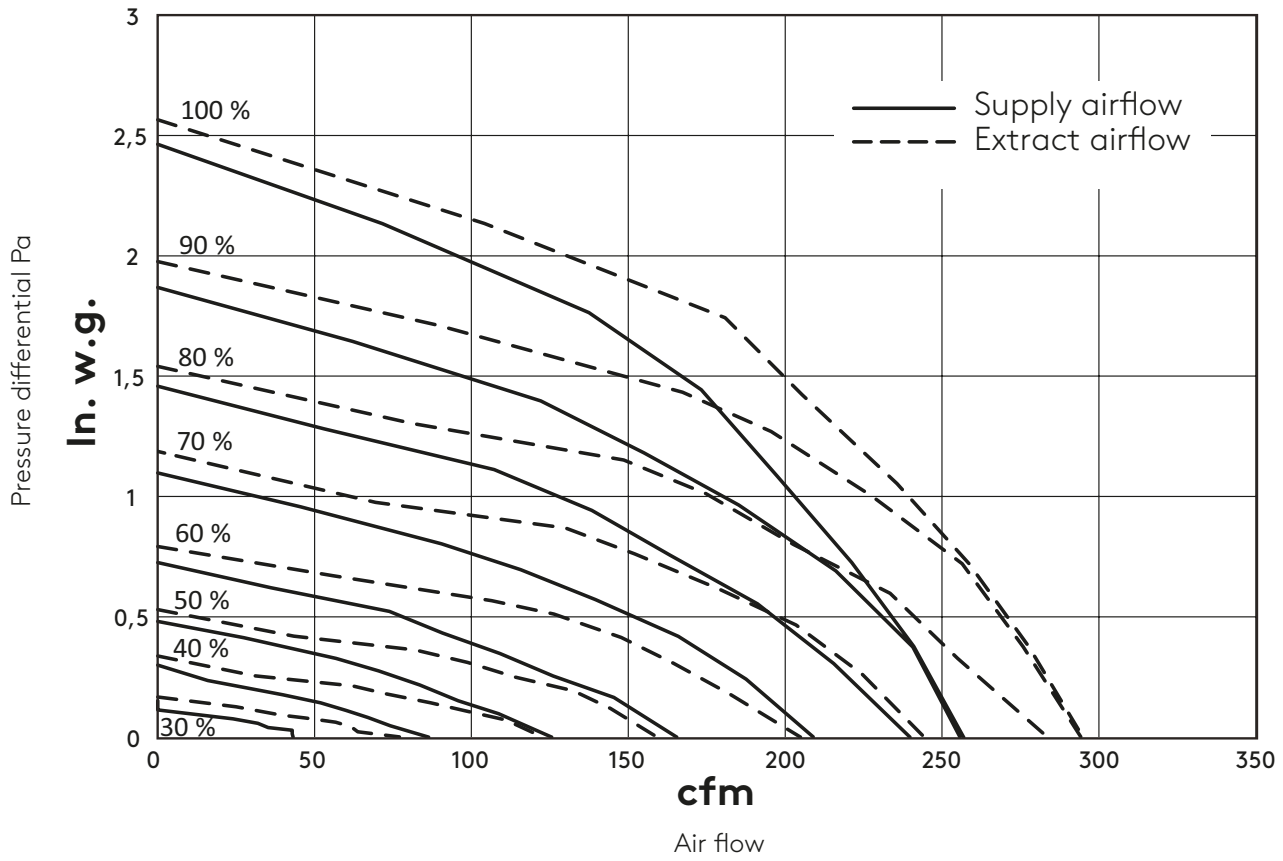
Air flows

Air flows EN 13141-4

R5

Supply airflow

Extract airflow

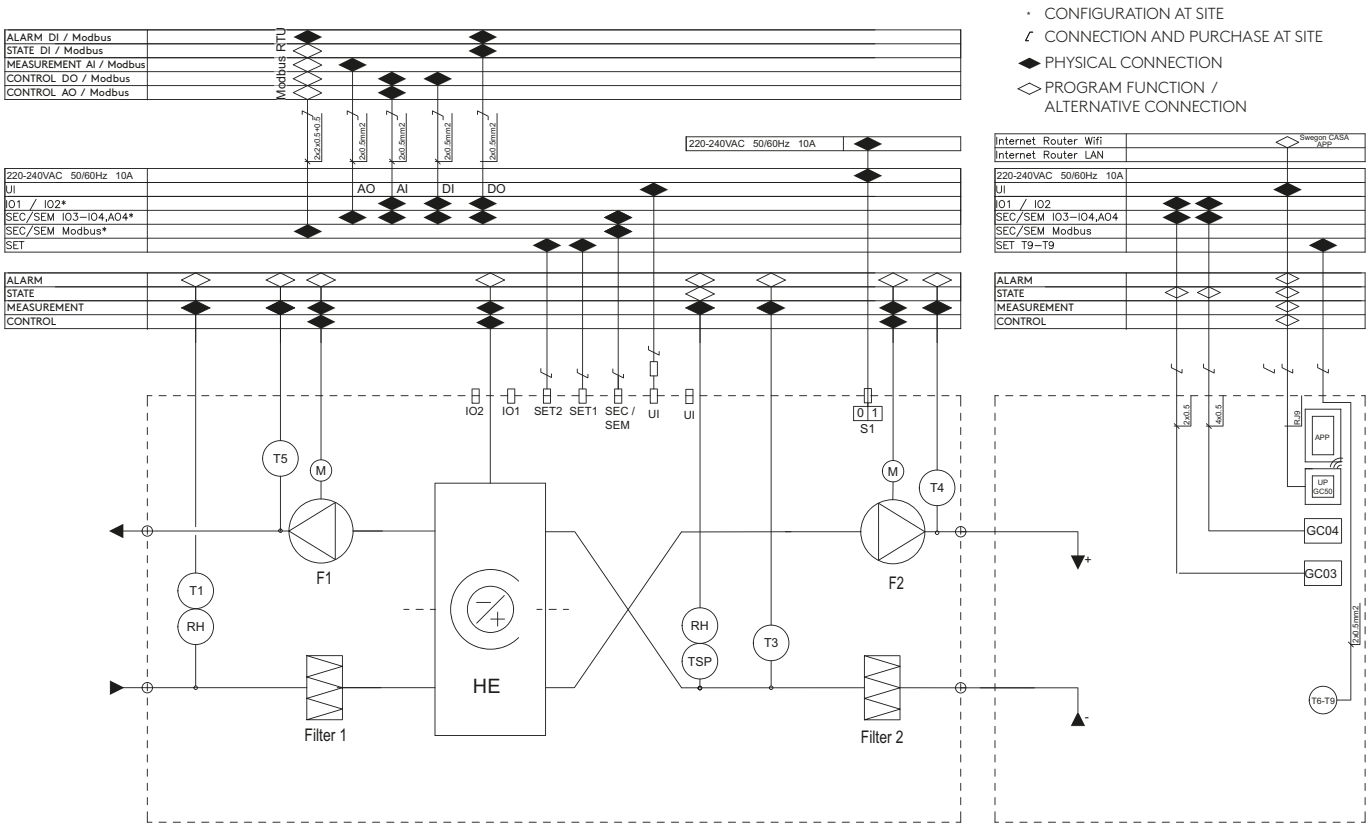


Considerable in dimensioning

The boost margin must be at least 30%

Functional diagram

Functional diagram
R5

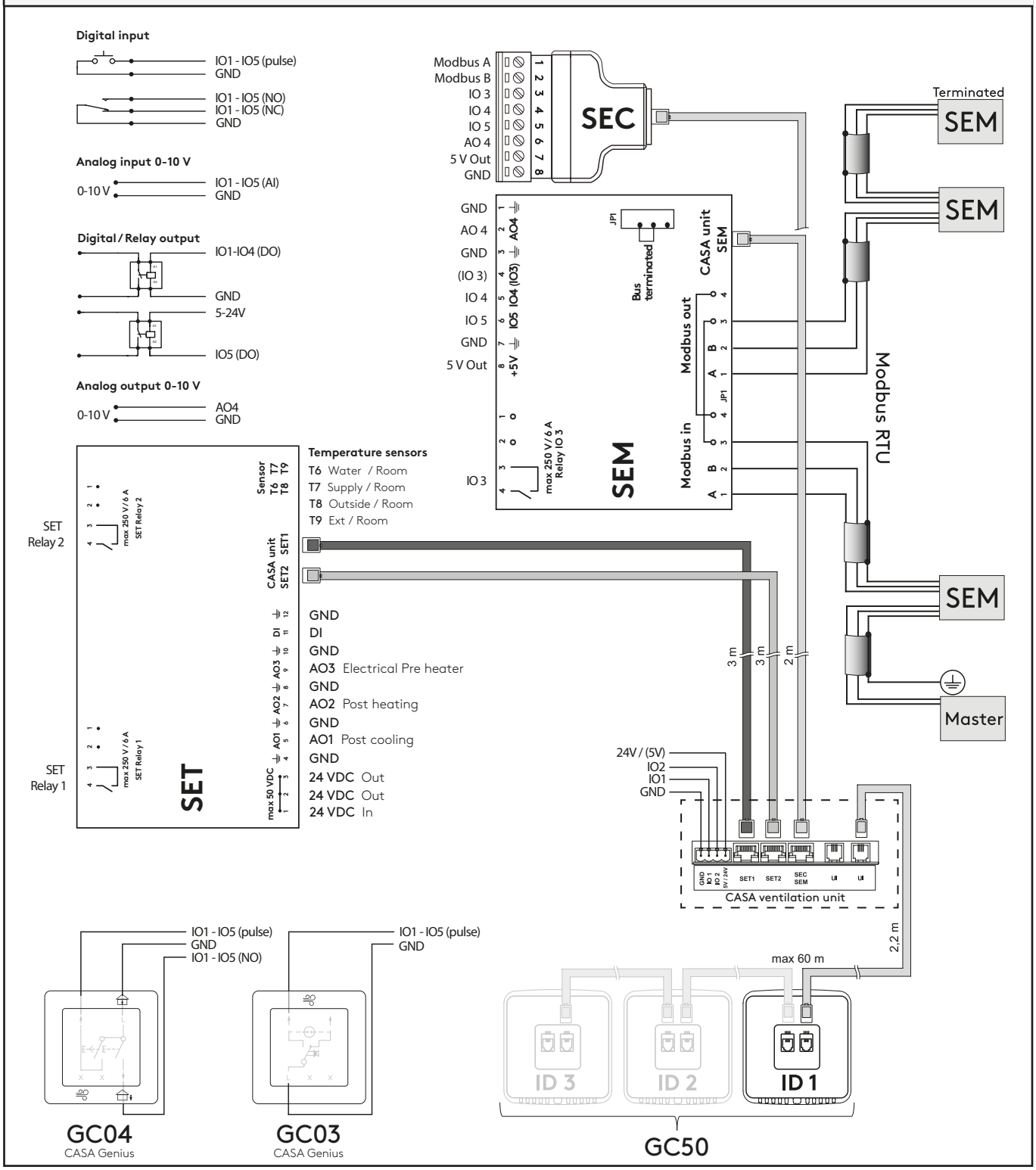


Device	Description	Modbus registers
T1	Temperature sensor, outdoor air	3x6201
T2	Temperature sensor, extract air	3x6204
T4	Temperature sensor, supply air	3x6203
T5	Temperature sensor, exhaust air	3x6205
Filter 1	Fresh air fine filter MERV13	Service reminder info 3x6129
Filter 2	Extract air fine filter MERV13	Service reminder info 3x6129
F1	Extract fan including internal overheat protection.	Control 3x6304(%), RPM 3x6306
F2	Supply fan including internal overheat protection.	Control 3x6303(%), RPM 3x6305
HE	Rotating heat exchanger (Rotor)	
HE M	A heat exchanger motor which speed is steplessly controlled based on the temperature and humidity of the supply air	Control 3x6332 (0.1xRPM)
S1	Use Switch. Note! power off the unit by removing the socket from the Mains when Service	
RH	Humidity sensor for RH automation	RH 3x6214
TSP	Extract air temperature sensor for humidity measurement	
UI	Connectors for the control panel. One connection point is wired outside the unit.	
SEC/SEM	Connector for connecting the SEC or SEM module.	
SET 1&2	Connectors for connecting the SET module.	
5V/24V	24V voltage output, which can be changed to 5V output with a jumper on the circuit board. (IO max 125 mA/3W)	
IO 1&2	Two general-purpose IO connectors. Connectors must be configured for the desired functions.	
GND	Ground for IO connections.	

Accessories	
CO2	CO2 sensor for CO2 automation
VOC	VOC sensor for VOC automation
SEM	Modbus module (Inc. 2m RJ-45 cable)
SEC	IO extension module
SET	Connection module for duct batteries and temperature sensors. (Inc. 2 x 3m RJ-45 cable)
APP	Swegon CASA mobile application for ventilation control and monitoring. Requires a Genius control panel (GC50) to operate.
UP GC50	Genius control panel that can be connected to Swegon CASA application via WiFi.
GC04	Control switch to select boost, home and away mode.
GC03	Control switch to select boost mode.

External connections

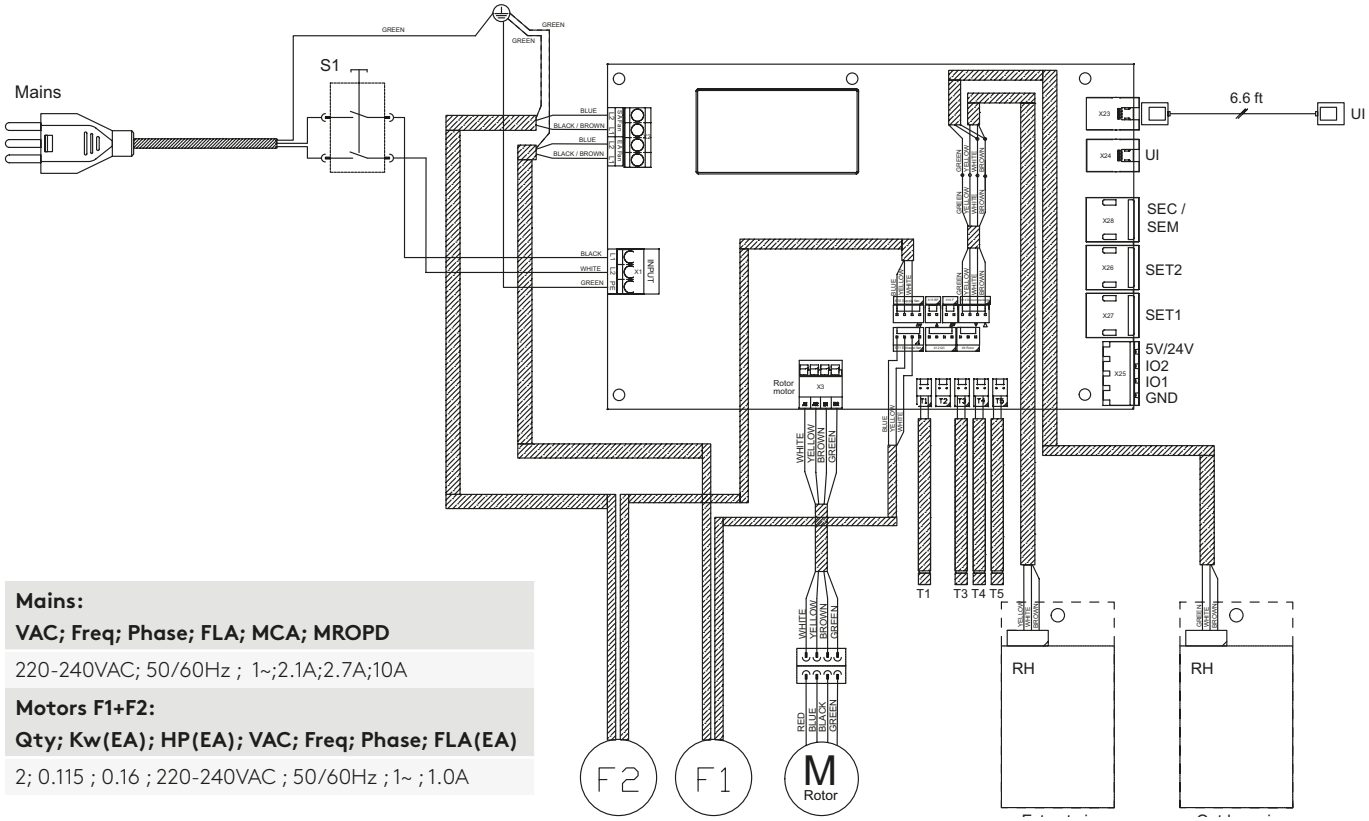
External connections
CASA Genius



SEC IO extension cable with Modbus RTU
SEM IO extension module with relay and Modbus RTU (input and output connections)
SET IO extension module for control of external accessories

Electrical wiring diagram

Electrical wiring diagram
R5



Mains:
VAC; Freq; Phase; FLA; MCA; MROPD

220-240VAC; 50/60Hz ; 1~;2.1A;2.7A;10A

Motors F1+F2:
Qty; Kw(EA); HP(EA); VAC; Freq; Phase; FLA(EA)

2; 0.115 ; 0.16 ; 220-240VAC ; 50/60Hz ; 1~ ; 1.0A

Device	Description
T1	Temp. sensor, outdoor air
T3	Temp. sensor, return air
T4	Temperature sensor, supply air
T5	Temperature sensor, exhaust air
F1	Extract fan
F2	Supply fan
M Rotor	Rotor's motor
RH	Sensor package RH
UI	Connectors for control panel

Installation options

Installation site

The temperature of the operating area of the ventilation unit must be at least -4 °F/-20 °C.

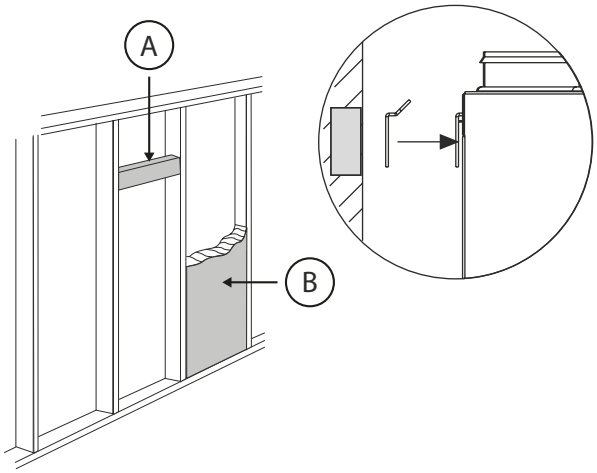
The temperature in the space where the unit will be installed must be more than +50 °F (+10 °C).

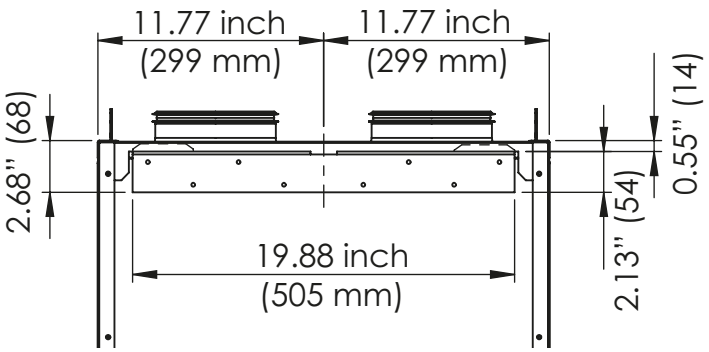
Due to the risk of disruptive noise, the ventilation unit should not be installed on the wall towards the living room or bedroom.

Wall mounting

A wall mounting bracket is supplied together with the ventilation unit.

If the wall is composed of vertical studs and wallboards, the wall must be reinforced with horizontal studs **(A)** that will support the weight of the unit. Swegon also recommends that the wall be insulated with mineral wool or similar insulation **(B)** for preventing sound from propagating to other rooms.



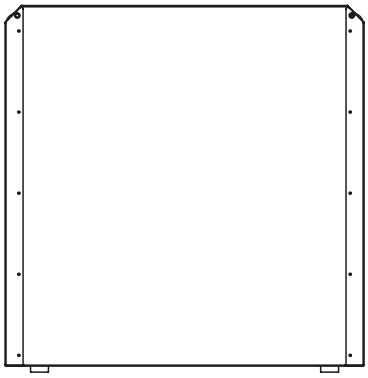


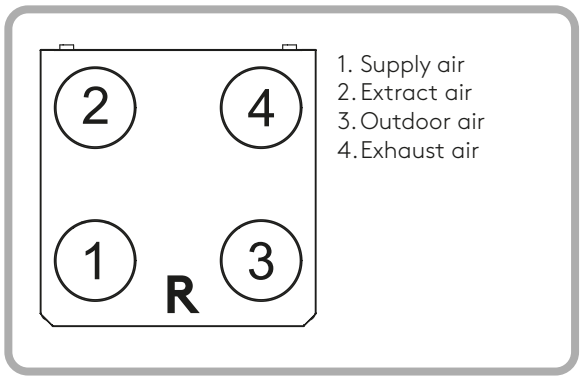
Dimensions and weight

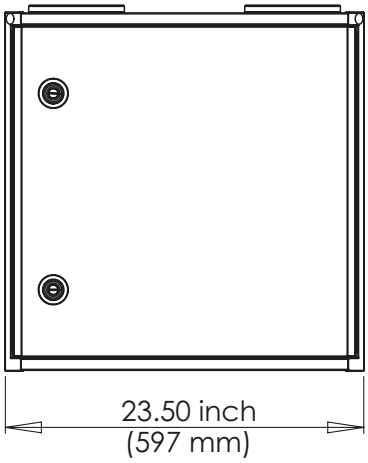
Dimensions

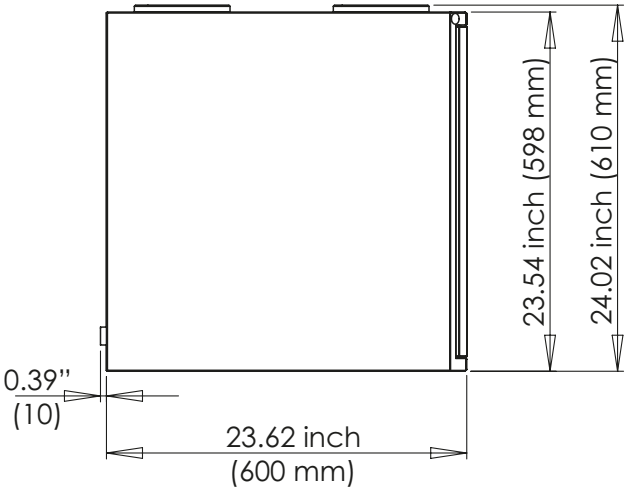
R5

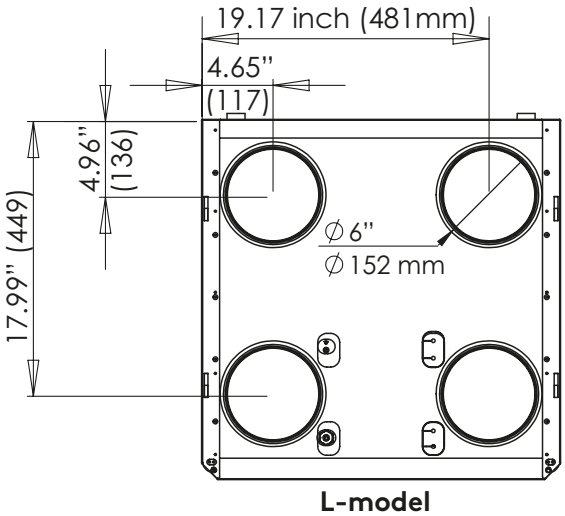
Weight of the unit: **165 lbs (75 kg)**



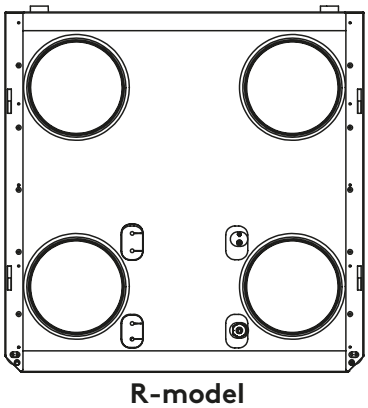








L-model



R-model

Product codes

R5

Product	Product code
CASA R5 Genius R ex.el RH NA Sorption (ERV)	R05VR00G0NHAS
CASA R5 Genius L ex.el RH NA Sorption (ERV)	R05VL00G0NHAS

Accessories

Control accessories	Part no.
GC50 Control panel NA	GC50
Mounting frame control panel	102SAK
Modular cable 33 ft (10m) white	PMK10
Modular cable 66 ft (20m) black	PMK20

Building automation	Part no.
Modbus connection module	SEM
Connection cable (configurable I/O) for Genius ventilation units	SEC
Connection module for control of the duct mounted air heater/cooler / control of shut-off dampers	SET

Mounting	Part no.
R5 Ceiling mounting frame	*******

Feel good **inside**

Swegon