

# CASA R5 Genius

Technical catalogue



## QUICK FACTS

- CASA Genius control system
- 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)
- Mounted on the wall or ceiling

## UNIT TECHNICAL CONTENT

Air flow range	30-117 l/s   108-421 m <sup>3</sup> /h
Dimensions, w x l x h	598 x 600 x 598 mm
Duct outlets	4 x Ø 160 mm
Cooker hood outlet	Ø 125 mm
Energy calculations and acoustic data	procasa.swegon.com
Connection power	1040 W   240 W
Power connection	230 V, 50 Hz, 10 A
Fans	220 W, EC
Filters	ISO ePM1 55% (F7) + ISO coarse (G3) filters for supply air and ISO ePM1 55% (F7) for extract air
Colour	Exterior White, RAL 9016 (corresponds to NCS S0502-G50Y)

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# Technical description

## Swegon CASA R5 Genius

Air handling unit with rotary heat exchanger (598 x 600 x 598 mm, Ø 160 mm) suitable installation in homes (240 m<sup>2</sup>). The unit's sound level is low. The intelligent demand-controlled humidity function is standard.



## 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, cooker hood or Swegon CASA app. Operation modes can be automated with unit's weekly programs.

### Temperature control

The supply air temperature is controlled with heat exchanger and if needed with optional heating or cooling element.

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.

### Device models without internal post-heating

Units which are not equipped with an internal heater (R05VL00G00H, R05VR00G00H) are not suitable for cold conditions without an external heater.

If the heat exchanger cannot produce sufficiently warm supply air, the supply air flow is reduced in proportion to the exhaust air flow to maintain the set temperature. For this reason, negative pressure may form in the apartment, and ventilation may drop to minimum speed.

## Available variants

Standard units are available in following variants:

- Unit with 800 W postheater  
L (exhaust air left) / R (exhaust air right)
- Unit without postheater  
L (exhaust air left) / R (exhaust air right)

## Components

### Fans

CASA R5 is equipped with energy efficient EC fans.

### Filter

The ventilation unit is equipped with ISO ePM1 55% (F7) + ISO coarse (G3) filters for supply air and ISO ePM1 55% (F7) for extract air. The need of filter replacement is indicated on the control panel and on the CASA cooker hood.

### Heat exchanger

The ventilation unit is equipped with a **speed controlled rotary heat exchanger**. Heat 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

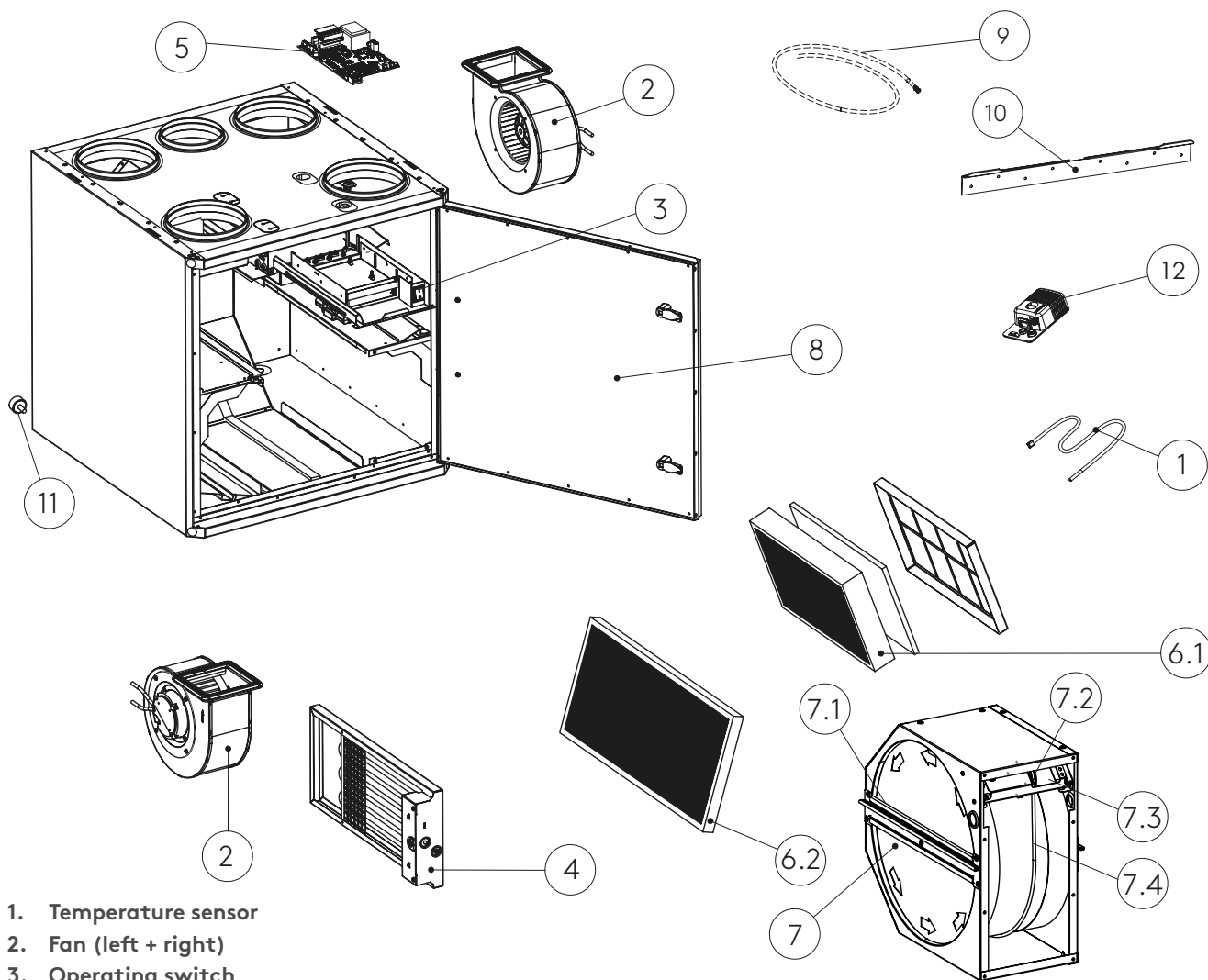
If a sensor fault is detected, an alarm is generated. If the faulted sensor is critical the ventilation unit is stopped. The ventilation unit returns to normal mode once the fault has been corrected.

## The delivery includes

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

## Standard connections

- Power cord with earthed plug (2 m)
- Cable for SEC/SEM connection module with RJ45 connector (2m)
- Modular cable with RJ9 connector (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. Reheating module (optional)
5. Genius control board
- 6.1 ISO ePM1 55% (F7) + ISO coarse (G3) for supply air
- 6.2 ISO ePM1 55% (F7) for extract air
7. Rotor package
  - 7.1 Brush seals
  - 7.2 Drive wheel
  - 7.3 Rotor motor
  - 7.4 Drive belt
8. Door
9. Condensate discharge hose
10. Wall mounting bracket
11. Anti-vibration mountings (2 pcs.)
12. Sensor package



# Swegon CASA Genius

## Intelligent control of the ventilation

With Swegon CASA Genius residents can monitor the indoor air quality (RH, CO<sub>2</sub>, VOC, °C), adjust ventilation to their wishes or let the intelligent control to adjust ventilation automatically while saving energy and providing fresh and healthy indoor air.



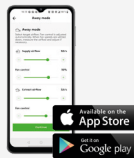
### The Swegon CASA control panel (GC10)

Wall-mounted touch screen for external or flush mounting. From the touch screen user can monitor ventilation, change ventilation mode, change the settings and commission the ventilation unit. The screen can be connected to the home WLAN, enabling the ventilation to be controlled remotely from a Swegon CASA mobile app



### The Swegon CASA app

With Swegon CASA app residents can use all the control functions remotely from their own smartphone. Users get more information about their home's air quality as well as valuable instructions and advice about the ventilation (requires Swegon Genius control panel).



### The CASA Service app

for quick and easy commissioning. The app works locally together with the ventilation unit and doesn't require connection to network. The app defines the I/O connections, presets the fan speeds that correspond to specified air volumes, as well as automatically sets air volumes for home and boost mode. Finished settings can be saved in the app and copied to the next apartment (requires Swegon Genius control panel).



### Swegon CASA cooker hood

With cooker hoods, it is possible to control the ventilation unit's operating mode (home, away, boost), the cooker hood's shut-off damper and the lighting in the hood. The system balances the ventilation automatically when using the cooker hood.



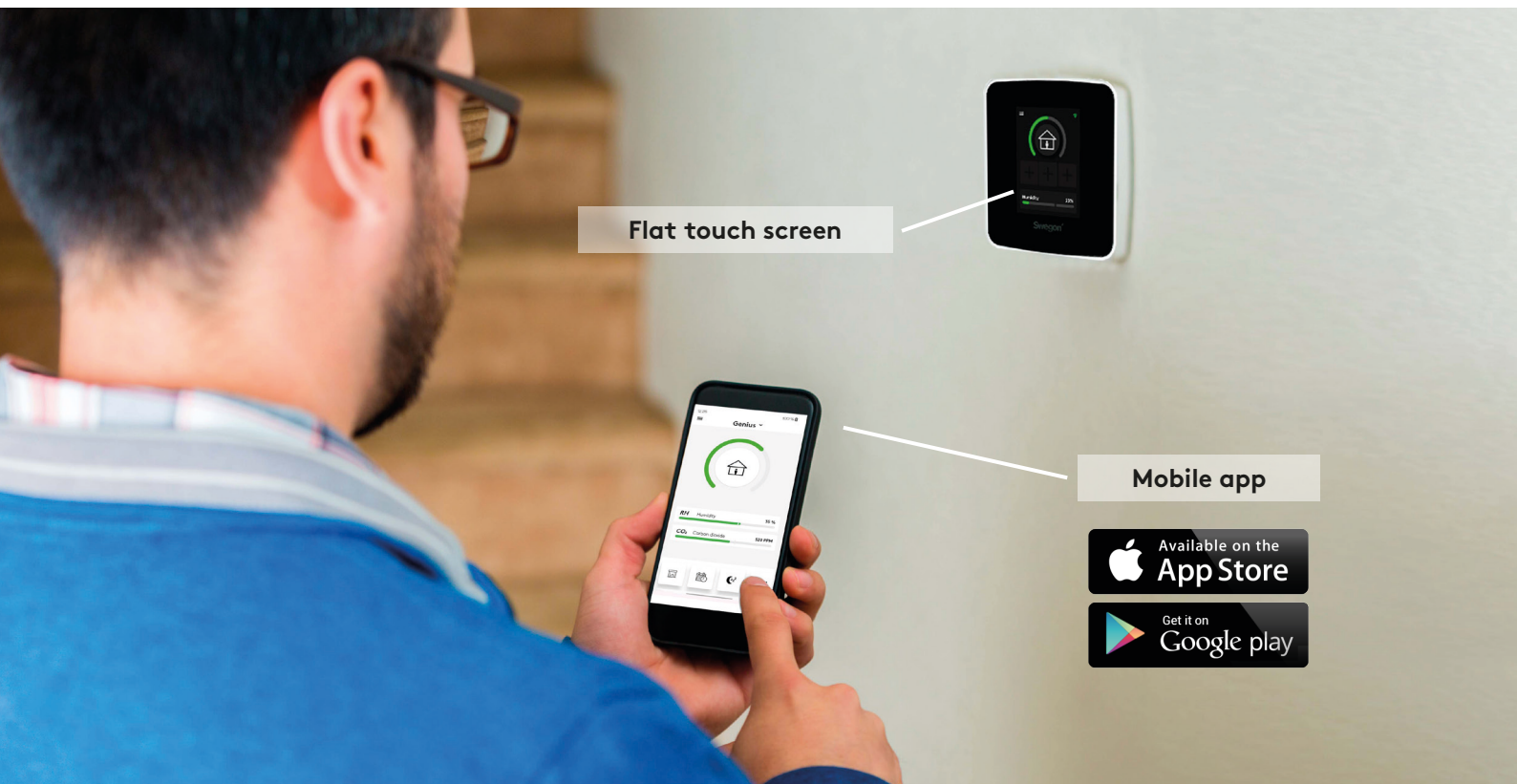
### The Swegon CASA HOME/AWAY/BOOST control switch (GC04)

Wall-mounted control switch for selecting boost, home and away modes.



### 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).



Flat touch screen

Mobile app





### 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.



RH Humidity 35%



#### Automatic RH system included as standard

Humidity automation removes damaging moisture. The intelligent control analyses the indoor air continuously and regulates the ventilation steplessly so that excess moisture is removed, for example when you are washing.



CO<sub>2</sub> Carbon dioxide 520 PPM



#### 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.



VOC Air quality 950 PPM



#### Automatic VOC system as optional equipment

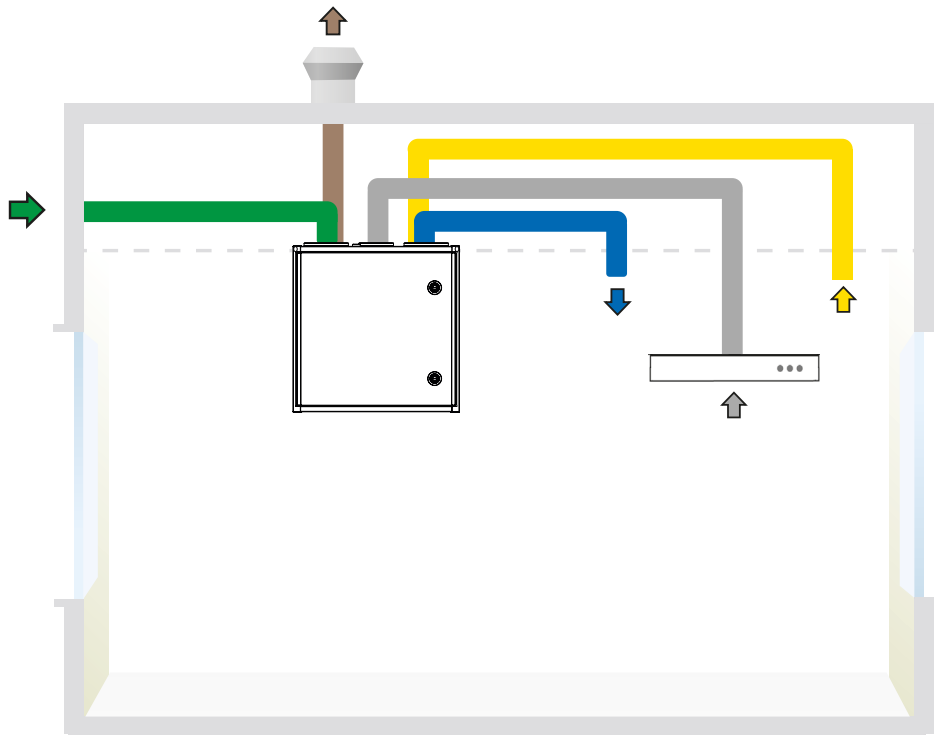
The automatic air quality system boosts the ventilation if pollution, odours or vapours (evaporating organic compounds) are detected in the indoor air.



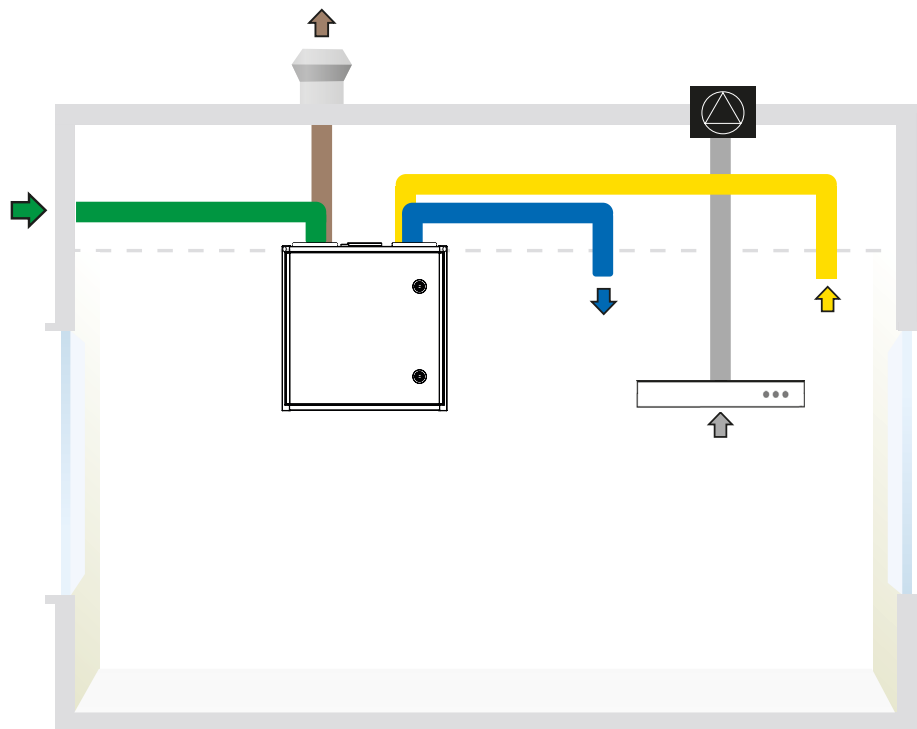
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# Design data



CASA R5 L, duct connections and cooker hood connected to the ventilation unit's kitchen duct connection.



CASA R5 L, duct connections and cooker hood connected to external ceiling fan.



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<sup>®</sup>

Energy calculation, functional diagram and acoustic data on ProCASA.

procasa.swegon.com



## Energy calculator

Select area

FIN - Vantaa

-24.9°C ... 20.9°C  
Data from 187, 2020

Make calculation for commercial building (NBK)

Include Finnish regulation

Project: \_\_\_\_\_

Customer: \_\_\_\_\_

Designed by: \_\_\_\_\_

Location: \_\_\_\_\_

Default values

Supply air: 50 l/s, Extract air: 50 l/s

Duct pressure: 80 Pa, 80 Pa

Cooker hood airflow: 0 l/s

usage time per day: 0 h/d

Indoor temperature 21°C  
Minimum supply air temperature (+10°C...+21°C)

+10 +11 +12 +13 +14 +15 +16 +17 +18 +19 +20 +21

\*) Additional accessories may be needed

Eco-Design requirements

SEC class: A

SEC cold / average / warm class: A

Max airflow rate: 331 m<sup>3</sup>/h

Sound power level: 32 dB(A)

This unit can be equipped with:

Clock control\*

Central demand control\*

Local demand control\*

**Fan power and energy use EN15141-7**

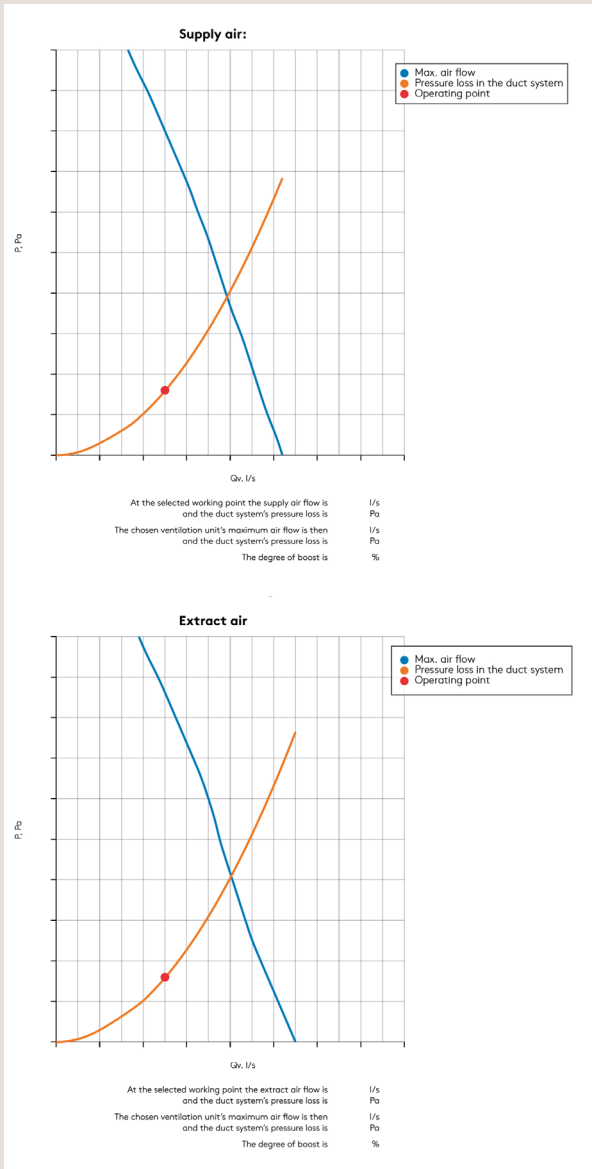
Supply air	31 W
Extract air	27 W
SFP	0.34 W / (m <sup>3</sup> /h)
SFP	1.16 kW / (m <sup>3</sup> /h)
Annual energy use of fans	508 kWh

**Energy used to heat the air EN15141-7**

Preheating	0 kWh
Reheating to 17 °C	237 kWh
Reheating the supply air to 21 °C	1243 kWh
Reheating the infiltrated air to 21 °C	0 kWh
Energy used to heat up ventilated air to 21°C	1481 kWh
Energy used without heat recovery	7114 kWh
Annual energy efficiency for room (21°C)	79 %
Reheating the infiltrated air to 17 °C	0 kWh
Energy used to heat up ventilated air to 17 °C	237 kWh
Annual energy efficiency for AHU (17 °C)	97 %
Temperature efficiency of heat exchanger	82 %
Temperature efficiency of air handling unit	80 %

**Acoustic data**

Octave band (Hz)	63	125	250	500	1k	2k	4k	8k	L <sub>eq</sub>
	L <sub>w</sub>	L <sub>w</sub>	L <sub>w</sub>	L <sub>w</sub>	L <sub>w</sub>	L <sub>w</sub>	L <sub>w</sub>	L <sub>w</sub>	L <sub>w</sub>
Sound emitted to:	dB	dB	dB	dB	dB	dB	dB	dB	dB(A)
supply air duct	68	69	68	57	52	49	44	37	62
extract air duct	60	63	61	45	34	33	21	19	54
outdoor air duct	60	63	62	47	35	31	21	18	55
kitchen bypass duct	67	68	68	56	52	48	43	36	62
surroundings	50	44	45	37	28	19	12	11	39
surroundings or -4dB sound attenuation	L <sub>eq</sub> dB(A) 35								



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

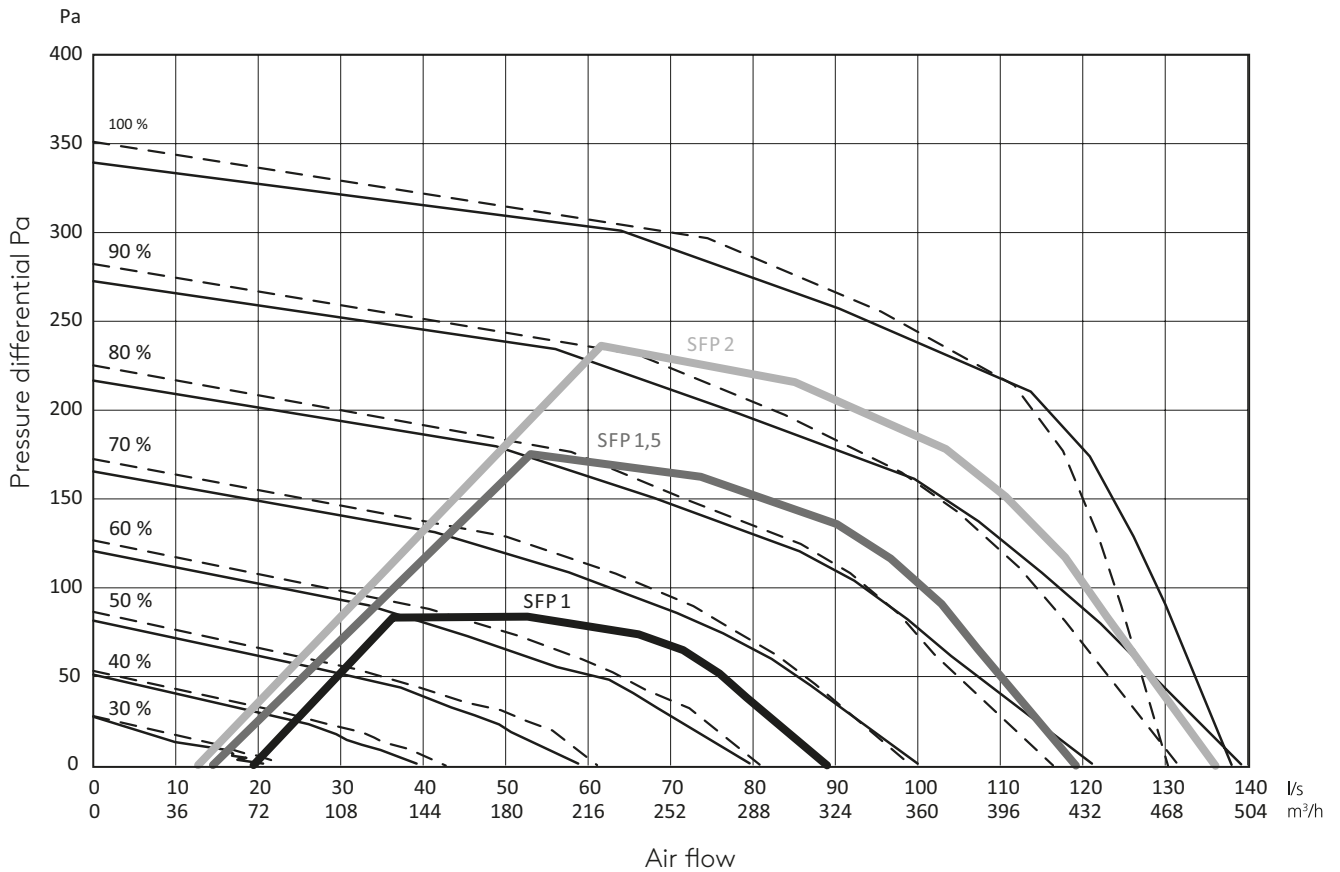


# Air flows

Air flows EN 13141-4

## R5

- Supply airflow
- - - Extract airflow



Note! If the humidity production in the apartment is high, the boost margin must be at least 30%.

## Acoustic data

See acoustic data on ProCASA.

[procasa.swegon.com](http://procasa.swegon.com)



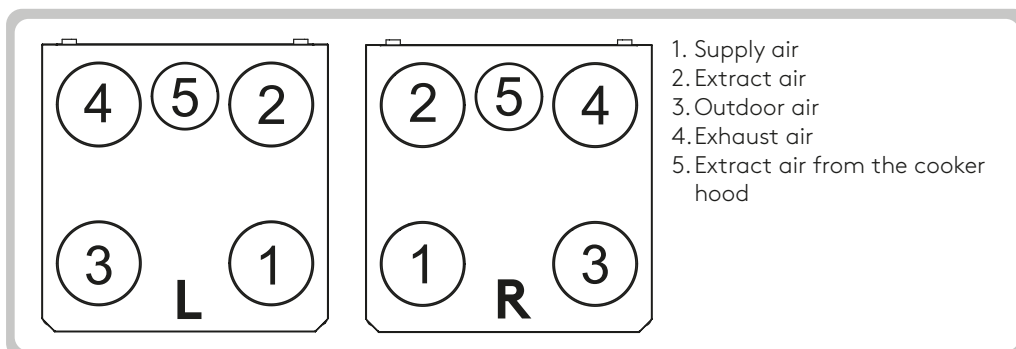
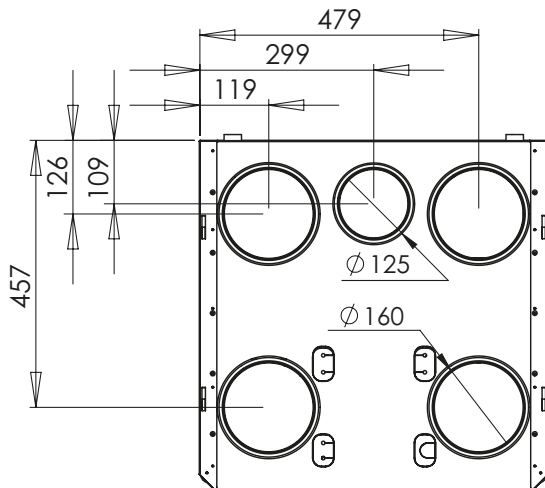
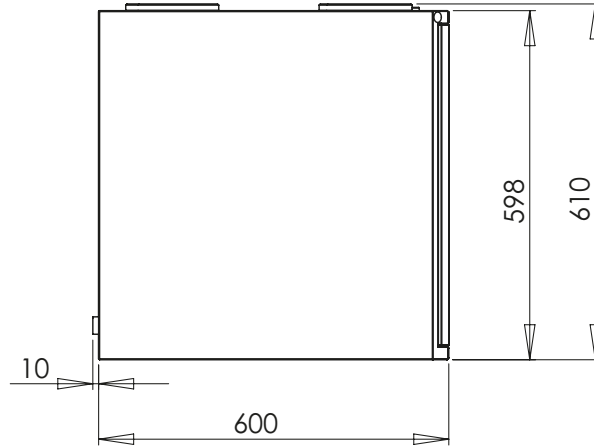
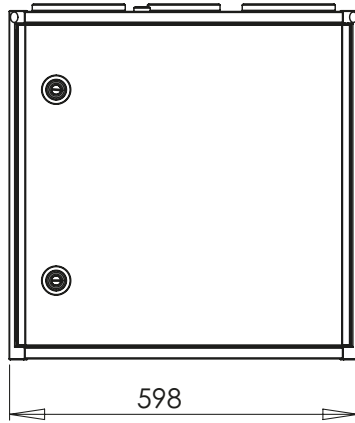
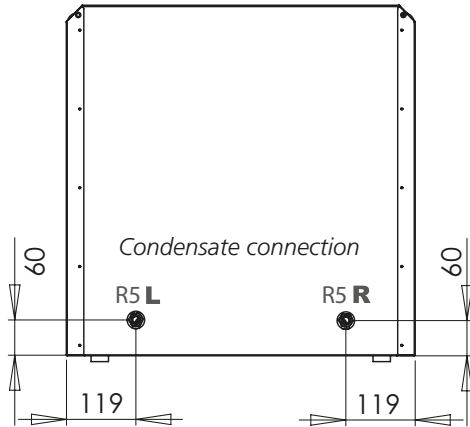


# Dimensions and weight

## Dimensions

### R5

Weight of the unit: **80 kg**

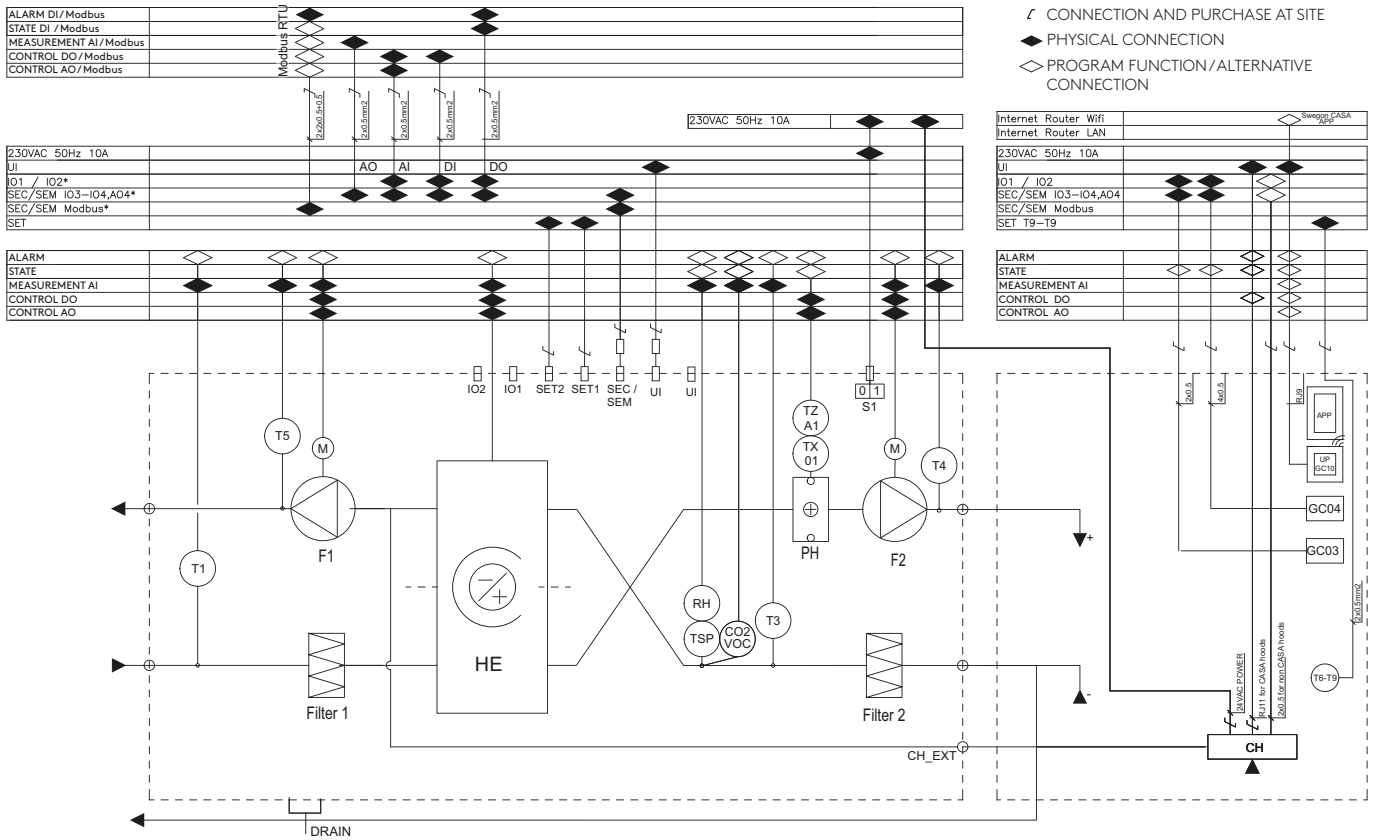




# Functional diagram

## Functional diagram

# R5

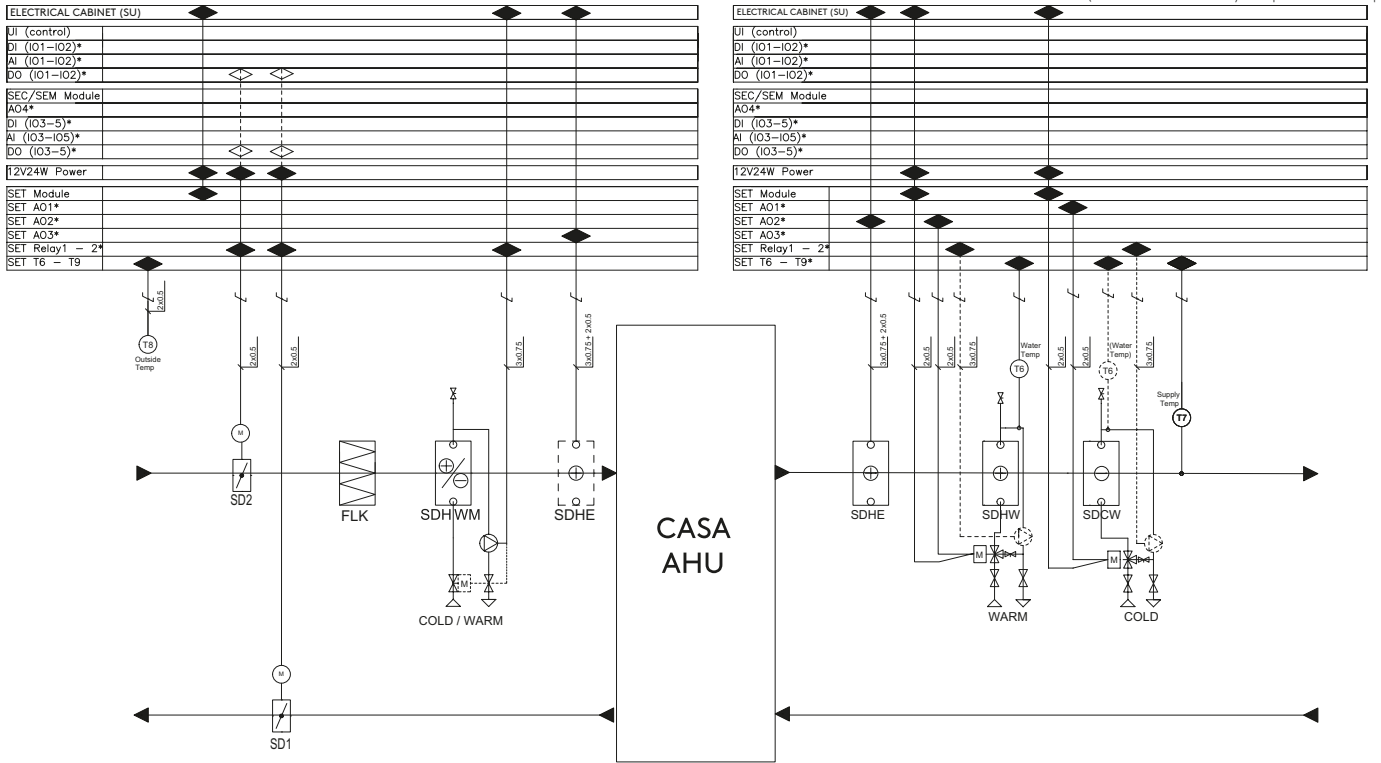


- CONFIGURATION AT SITE
- ◊ CONNECTION AND PURCHASE AT SITE
- ◆ PHYSICAL CONNECTION
- ◇ PROGRAM FUNCTION/ALTERNATIVE CONNECTION

Device	Description	Modbus register
T1	Temperature sensor, outdoor air	3x6201 (0,1°C)
T3	Temperature sensor, extract air	3x6204 (0,1°C)
T4	Temperature sensor, supply air	3x6203 (0,1°C)
T5	Temperature sensor, exhaust air	3x6205 (0,1°C)
TZ01	Manual overheat protection 70°C post heater	Alarm 3x6117
TZA1	Automatic overheat protection 55°C post heater	Alarm 3x6117
Filter 1	Fresh air filters ISO ePM1 55% (F7) + ISO coarse (G3)	Service reminder info 3x6129
Filter 2	Extract air filter ISO ePM1 55% (F7)	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
PH	Post heater (800W/-), controlled steplessly according to demand (optional)	Control 3x6317 (%)
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	
CH_EXT	Extra duct connection for the cooker hood. Duct bypasses the heat exchanger. Note! Do not connect the general ventilation of the kitchen here. Connect the hood status information to the ventilation unit. (Duct connection is plugged at the factory)	
DRAIN	Condensate discharge drain. Connect the water trap and drain hose to the condensate connection. Check the operation of the water trap.	

# Functional diagram Duct actuators

- FIELD CONFIGURATION AU
- ∠ FIELD CONNECTION SU
- ◆ PHYSICAL CONNECTION
- ◇ ALTERNATIVE CONNECTION (Note: an additional relay is required for DO outputs)

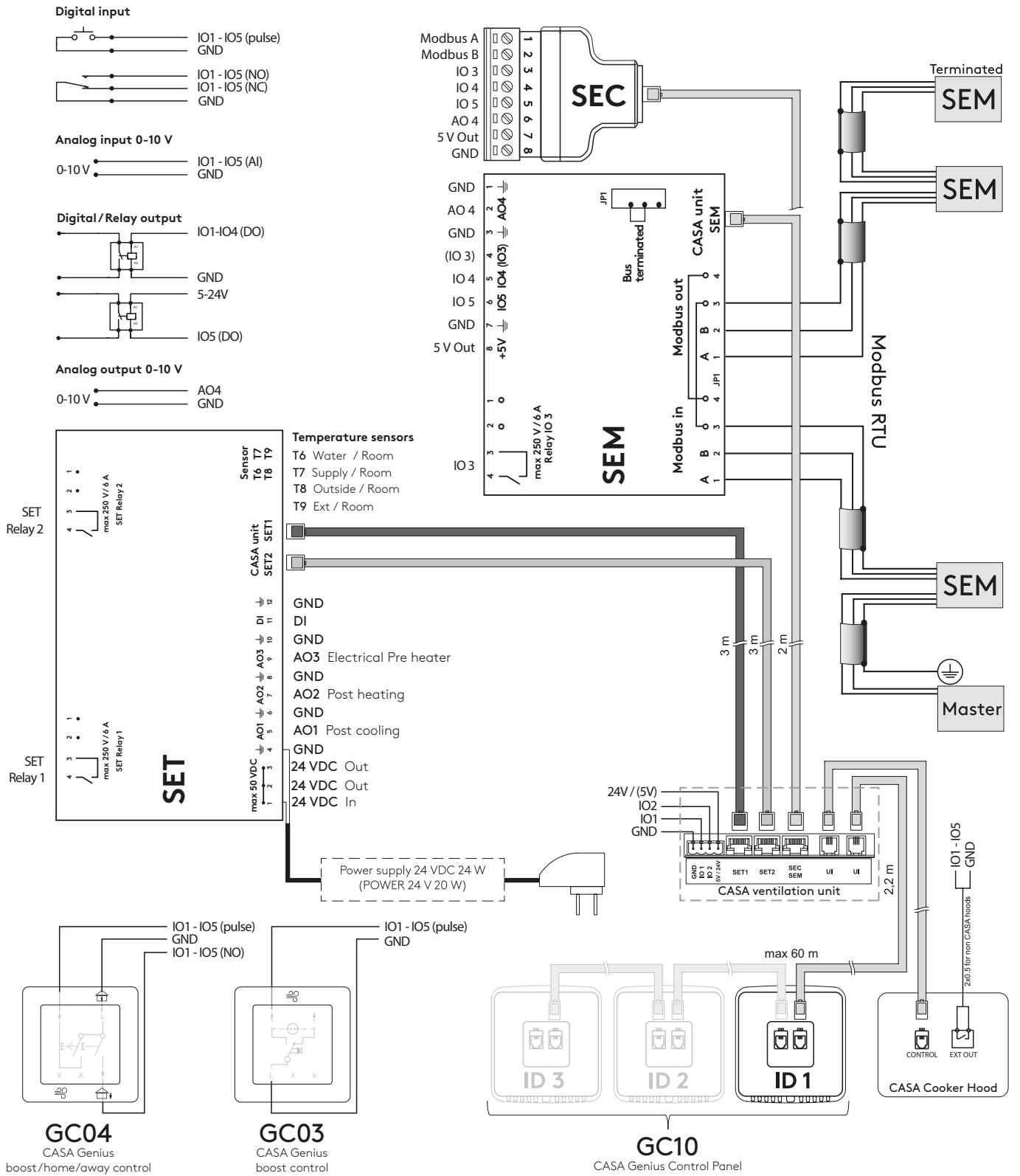


Device	Description
T6-T9	Temperature sensor. Connection to the SET module. The sensor must be defined on the control panel.
SD1, SD2	Duct Plate for Outdoor/Exhaust duct.
FLK	Duct filter in combination with an electric pre heater (SDHE)
SDHWM	Ground Liquid preheating/cooling coil for outdoor air duct. (Inc SET, heating/cooling coil, sensor)
SDHE	Electrical duct heater for Supply/Outdoor air duct (Inc. SET, duct heater and sensors) Note! A duct filter (FLK) is required for the preheater.
SDHW	Heating coil for supply air duct (Inc. SET, three-way valve + actuator, heating coil, sensors).
SDCW	Cooling coil for supply air duct (Inc. SET, three-way valve + actuator, cooling coil, sensors).
CO2	CO2 sensor for CO2 automation
VOC	VOC sensor for VOC automation
SEM	Modbus module (Inc. 2m RJ-45 cable)
SEC	IO extension module (Inc. 2m RJ-45 cable)
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 (GC10) to operate.
UP GC10	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.
CH	Cooker hood. The CASA hood is connected to the ventilation unit with a modular cable. With other hoods, you can control the cooking function with a switch input that is determined for the function.



# External connections

## External connections CASA Genius

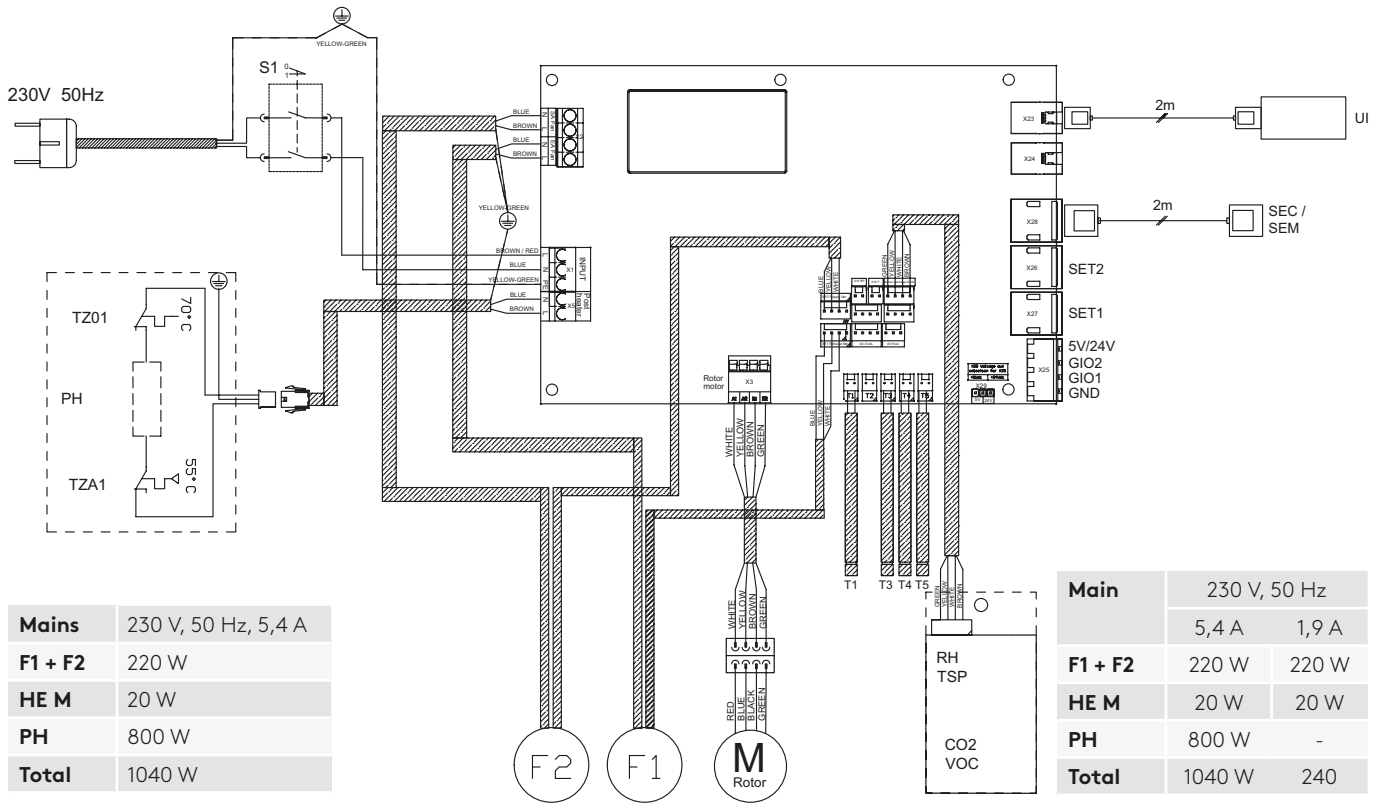


- SEC** IO extension cable with Modbus RTU
- SEM** IO extension module with relay and Modbus RTU (input and output connections)
- SET** IO extension module for control of external accessories



Internal connections

R5



Device	Description
T1	Temperature sensor, outdoor air
T3	Temperature sensor, extract air
T4	Temperature sensor, supply air
T5	Temperature sensor, exhaust air
PH	Post heater, steplessly, controlled steplessly according to demand
TZ01	Manual overheat protection 70°C post heater
TZA1	Automatic overheat protection 55°C post heater
F1	Extract fan including internal overheat protection.
F2	Supply fan including internal overheat protection.
HE M	A heat exchanger motor which speed is steplessly controlled based on the temperature and humidity of the supply air
S1	Use Switch. Note! power off the unit by removing the socket from the Mains when Service
RH	Humidity sensor for RH automation
TSP	Extract air temperature sensor for humidity measurement
CO2	CO2 sensor for CO2 automation (accessory)
VOC	VOC sensor for VOC automation (accessory)
UI	Connectors for connecting the control panel and/or CASA cooker hood. One connection point is wired outside the unit.
SEC/SEM	Connector for connecting the SEC or SEM module. The connection point is wired outside the unit.
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 1&2	Two general-purpose IO connectors. Connectors must be configured for the desired functions.
GND	Ground for IO connections.

# Installation options

## Ventilation unit installation site

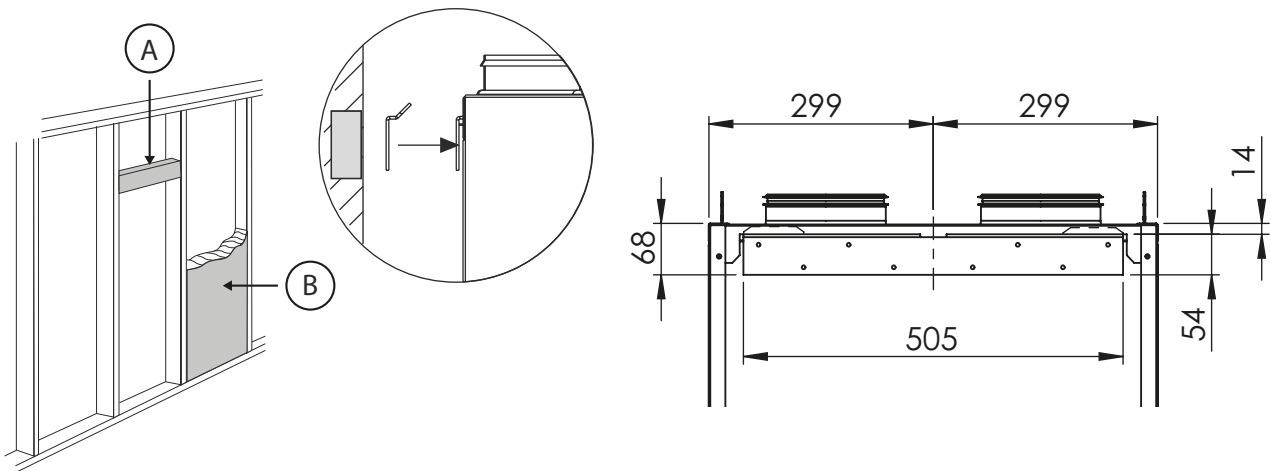
The temperature in the space where the unit will be installed must be more than +10 °C. Due to the risk of disruptive noise, the ventilation unit should not be installed on the wall towards the living room or bedroom.

## Wall mounting

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

If it is a question of a light partition wall, the wall must be reinforced with horizontal studs (A) that support the weight of the ventilation unit. In addition, Swegon also recommends that the wall be insulated with mineral wool or similar insulation (B) for preventing sound from propagating to other rooms.

Screw the wall mount firmly in horizontal position onto the wall where a wall stud will support the weight of the unit. Lift up the ventilation unit onto the wall mounting bracket so that the ears on the bracket engage in the corresponding notches at the top on the backside of the unit. Set the final position of the ventilation unit with the help of the adjustable anti-vibration mountings so that the ventilation unit tilts slightly backward.



## Ceiling mounting

The ventilation unit can also be mounted in a ceiling mounting frame (available as an accessory) on the ceiling.

The ceiling mounting frame must not be used as part of a support structure for the ducts, the duct support must be sufficient even without the support effect provided by the ceiling mounting frame.







## Product codes

### R5

Product	Product code	GTIN
CASA R5 Genius L 800W RH	R05VL08G00H	6430080090235
CASA R5 Genius R 800W RH	R05VR08G00H	6430080090259
CASA R5 Genius L ex.el RH	R05VL00G00H	6430080090228
CASA R5 Genius R ex.el RH	R05VR00G00H	6430080090242

### Accessories

Product	Product code	GTIN
Ceiling mounting frame	10212KA	6415879063072
Mounting frame with vapour barrier	10212YP	6415879063041
Water trap	UVLL	6415879069302
Condensate discharge tube	CDH3	6415879066776



# CASA R - Accessories

Control accessories	Part no.	GTIN
GC10 CASA Genius control panel and WiFi	GC10	6430080090846
GC10 control panel + 10 m long cable	GC14	6430080090853
GC10 control panel + 10 m long cable + frame	GC15	6430080090860
GC10 control panel + frame	GC16	6430080090877
Frame for control panel GC10	102SAK	6415879066752
CASA Genius boost/home/away control button	GC04	6430080090013

Building automation	Part no.	GTIN
Modbus connection module	SEM	6415879067346
Connection cable (configurable I/O) for Genius ventilation units	SEC	6415879067353
Room temperature sensor, total package with connection unit for ventilation units. The sensor is installed on the wall or in a recessed junction box (60 mm between holes).	WSTC	6415879069395

Automatic functions	Part no.	GTIN
RH + CO2 automation	SRHCO2	6415879066936
RH + VOC automation	SRHVOC	6415879066943

Waterborne air coolers	Part no.	GTIN
Cooling coil package Ø 160	SDCW160	6415879068053

Waterborne air heaters	Part no.	GTIN
Heating coil package Ø 160	SDHW160	6415879068046

Brine air heater/cooler for ground source heat pump	Part no.	GTIN
Heating/cooling coil Ø250, G4	SDHW250F	6415879068084

Electric air heater	Part no.	GTIN
Electric heater Ø 160	SDHE160-1T	6415879067247
Prefilter box Ø 160 mm, G4	FLK16	6415879067483

Duct mounted shut-off dampers	Part no.	GTIN
Damper Ø 160 mm	SDD160	6415879069937

Other accessories	Part no.	GTIN
Connection module for control of the duct mounted air heater/cooler / control of shut-off dampers	SET	6415879067339
SET / power source for actuators	POWER24V20W	6415879068404
PTH Regulation for constant duct pressure	PTH	6415879067285

Feel good **inside**



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