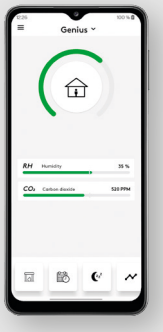
CASA R4-C Genius

Technical catalogue



FAKTA

- Versatile installation options
- Can be recessed into the ceiling using a mounting frame
- Door opening direction is changeable
- Separate duct for extract air from the cooker hood
- Control from the cooker hood or control panel and mobile app
- Can be connected to building automation systems (Modbus)
- Demand-based control of air flows (RH, CO2, VOC*)
- Stepless supply air temperature control
- Automatic summer and winter function
- Designed and tested to work in northern conditions
- Wide range of accessories available

UNIT TECHNICAL CONTENT	
Air flow range	20-92 l/s | 72-331 m³/h
Dimensions, w x l x h	1050 x 700 x 296 mm
Duct outlets	4 x Ø 160 mm
Kitchen by-pass	1 x Ø 125 mm
Energy calculations and acoustic data	procasa.swegon.com
Connection power	690 W
Power connection	230 V, 50 Hz, 10 A
Fans	170 W
Reheater	500 W
Filters	Filter class ISO ePM1 50% (F7) for supply air and for extract air.
Colour	White, RAL 9016 (corresponds to NCS S0502-G50Y)

Content

Technical description

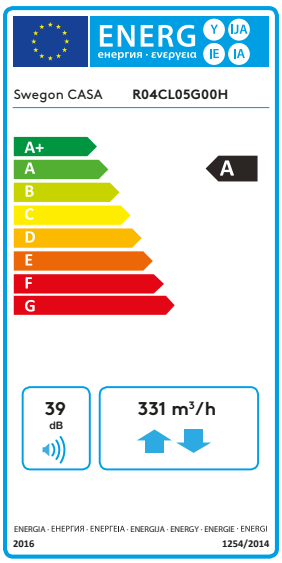
Swegon CASA R4-C Genius

The R4-C can be recessed into a suspended ceiling using a mounting frame. The unit can also be mounted on a wall or floor.

The unit is suitable for residential buildings, small offices and other similar spaces. The unit does not have a condensate connection, so it is not suitable for locations with high humidity levels.

The unit has intelligent, demand-controlled humidity control as standard.

The ventilation unit is controlled from the cooker hood or control panel and via a mobile app (iOS/Android) and can be connected to building automation systems using Modbus.



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 also with standard or optional heating elements and optional cooling elements.

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.

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

Available variants

Standard units are available in following variants:

- **L** (supply air, left) / **R** (supply air, right)

Components

Fans

CASA R4-C is equipped with energy efficient EC fans.

Filter

The ventilation unit is equipped with ISO ePM1 50 % (F7) for supply air and for extract air. The need of filter replacement is indicated on the control panel and on a CASA cooker hood.

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.

Electric air heaters

The electric heater is equipped with automatic and manual overtemperature protection. Overheat cuts the heating circuit and generates an alarm.

Water-based air heaters

The ventilation unit with water-based air heater/cooler has a temperature sensor that protects the coil from freezing. Protection generates the alarm and starts freezing prevention. If freezing prevention is not enough the unit is stopped and demanded-shut-off dampers are closed. Freezing prevention is reseted automatically.

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

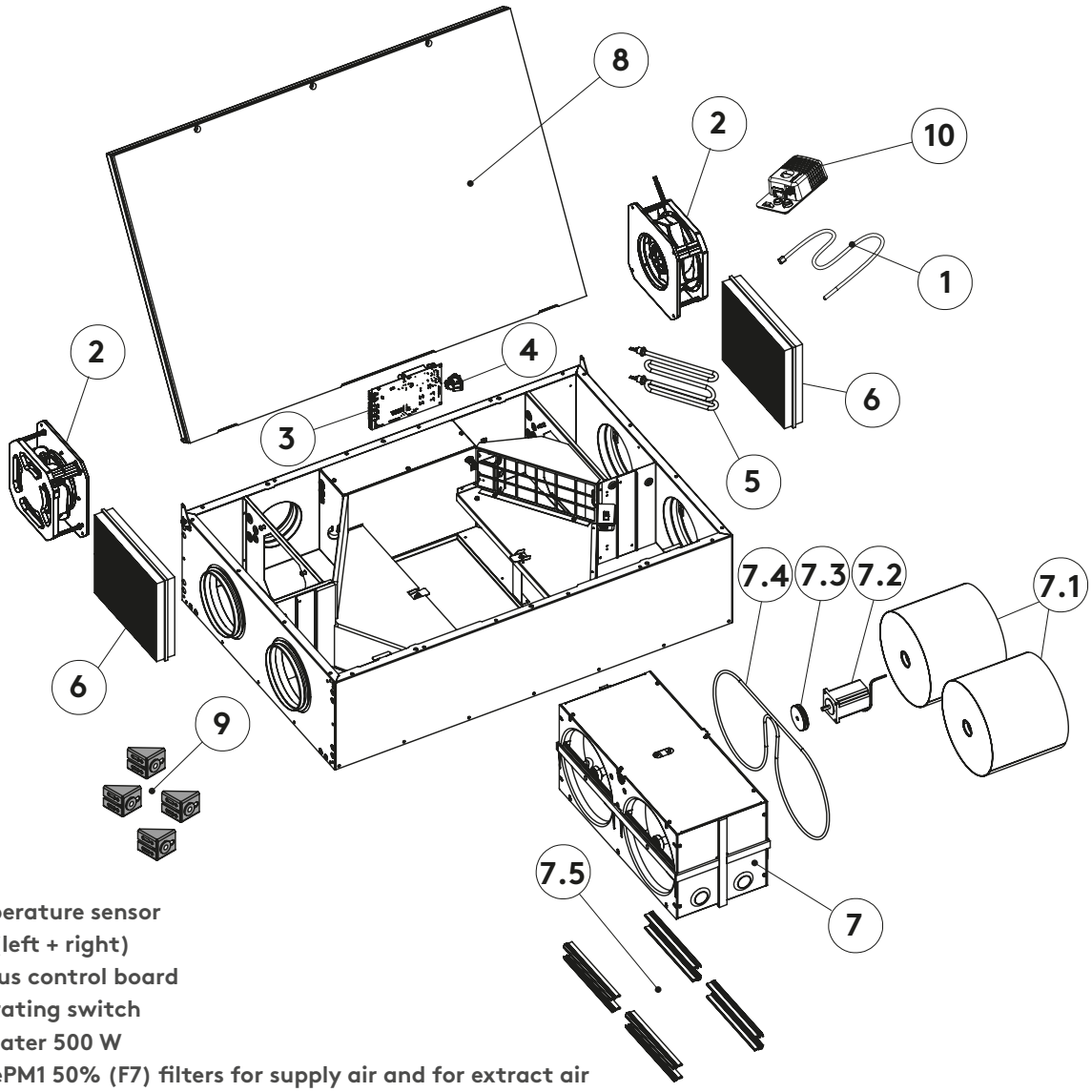
If a sensor fault is detected, an alarm is generated. If the faulted sensor is critical the ventilation unit is stopped. The ventilation unit returns to normal mode once the fault has been corrected.

The delivery includes

- Ventilation unit
- Mounting brackets, 4 pcs.
- Cover plugs, 3 pcs.
- 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 pcs. 1.5 m)
- Freely configurable I/O contacts for connection of accessories (2 pcs.)



1. Temperature sensor
2. Fan (left + right)
3. Genius control board
4. Operating switch
5. Reheater 500 W
6. ISO ePM1 50% (F7) filters for supply air and for extract air
7. Rotor package
- **7.1 Rotor**
- **7.2 Rotor motor**
- **7.3 Drive wheel**
- **7.4 Drive belt**
- **7.5 Brush seals**

8. Door
9. Mounting brackets
10. Sensor package RH (accessory RH + CO2/RH + VOC)

Swegon CASA Genius

Intelligent control of the ventilation

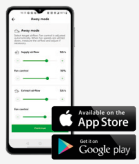
With Swegon CASA Genius residents can monitor the indoor air quality (RH, CO2, VOC, °C), adjust ventilation to their wishes or let the intelligent control to adjust ventilation automatically while saving energy and providing fresh and healthy indoor air.

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).

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.

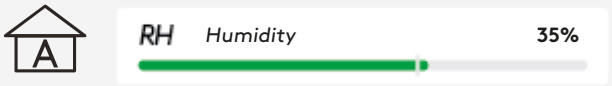
Boost
High air flow. Used if the ventilation requirement increases, for example, when cooking, taking a bath or drying laundry, or when an unusually large number of people are in the home.

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

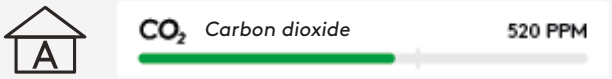
Travelling
Very low air flow and lower supply air temperature. Used when nobody is present in the home.

Automatic functions

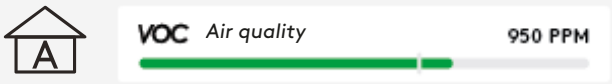
The intelligent ventilation monitors the quality of the indoor air and adjusts the ventilation automatically.



Automatic RH system included as standard
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.



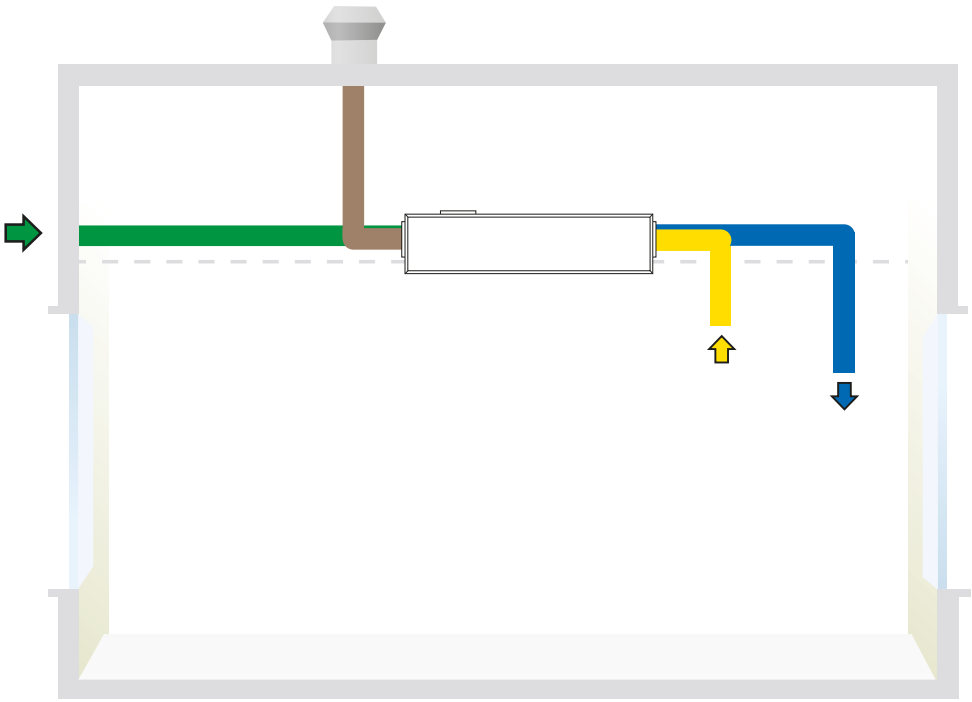
Automatic CO2 system as optional equipment
Automatically lowers the ventilation and saves energy when nobody is in the home. When the residents are at home, the ventilation is automatically boosted to bring exactly the right amount of fresh air into the home.



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.

The ventilation can be controlled from a Swegon CASA cooker hood

Design data



CASA R4-C -duct connections

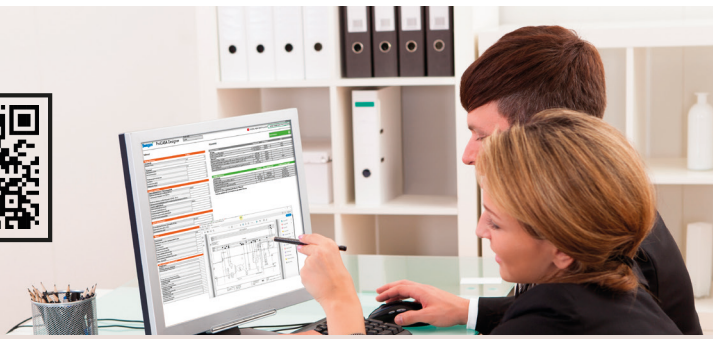
Outdoor air Supply air Extract air Exhaust air

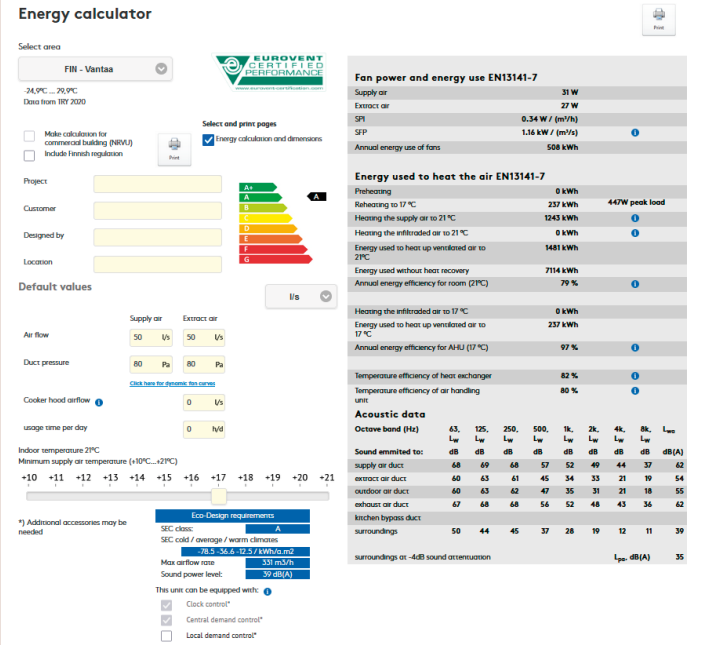
Note! Always check the unit design (L/R) and correct duct sequence in the installation instructions.

ProCASA®

Energy calculation, functional diagram and acoustic data on ProCASA.

procasa.swegon.com





Energy calculator

Select area

FIN - Vantaa

-24,9°C ... 29,9°C
Data from TRY 2020

EUROVENT CERTIFIED PERFORMANCE

Select and print pages

Make calculation for commercial building (NRVU)
Include Finnish regulation

Energy calculation and dimensions

Project

Customer

Designed by

Location

Default values

l/s

	Supply air	Extract air
Air flow	50 l/s	50 l/s
Duct pressure	80 Pa	80 Pa

Click here for dynamic fan curves

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 climates
-78.5 -36.6 -12.5 / kWh/a.m2

Max airflow rate 331 m3/h
Sound power level: 39 dB(A)

This unit can be equipped with:

Clock control*
Central demand control*
Local demand control*

Fan power and energy use EN13141-7

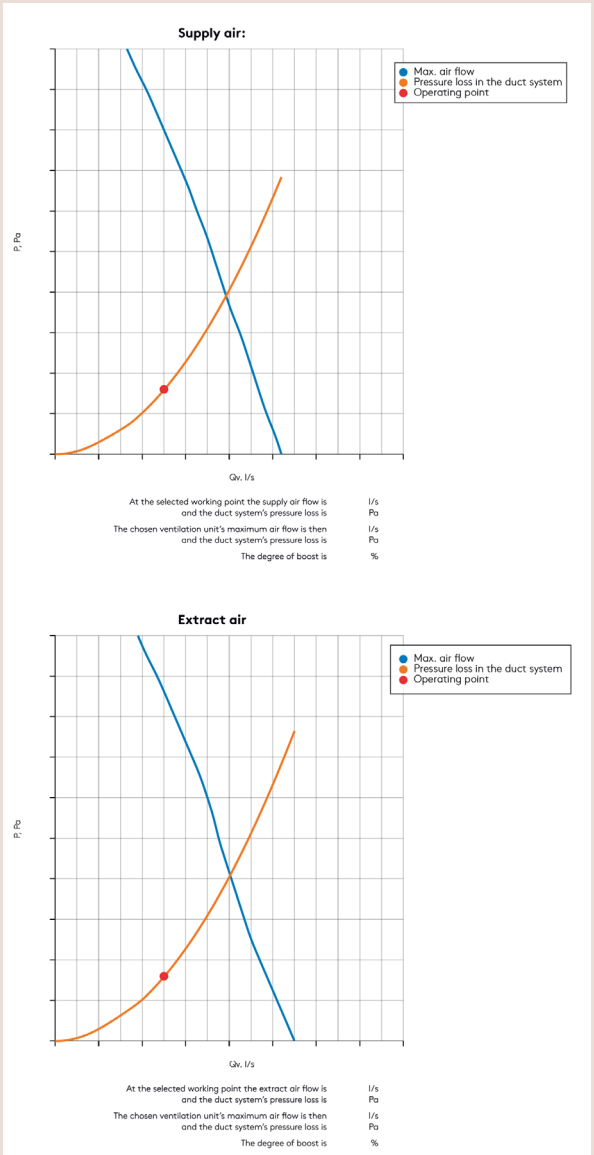
Supply air	31 W	
Extract air	27 W	
SPI	0.34 W / (m³/h)	
SFP	1.16 kW / (m³/s)	
Annual energy use of fans	508 kWh	

Energy used to heat the air EN13141-7

Preheating	0 kWh	
Reheating to 17 °C	237 kWh	447W peak load
Heating the supply air to 21 °C	1243 kWh	
Heating the infiltraded 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 %	
Heating the infiltraded 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, 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 emmited 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
exhaust air duct	67	68	68	56	52	48	43	36	62
kitchen bypass duct									
surroundings	50	44	45	37	28	19	12	11	39
surroundings at -4dB sound attenuation									L_{pa}, dB(A) 35



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

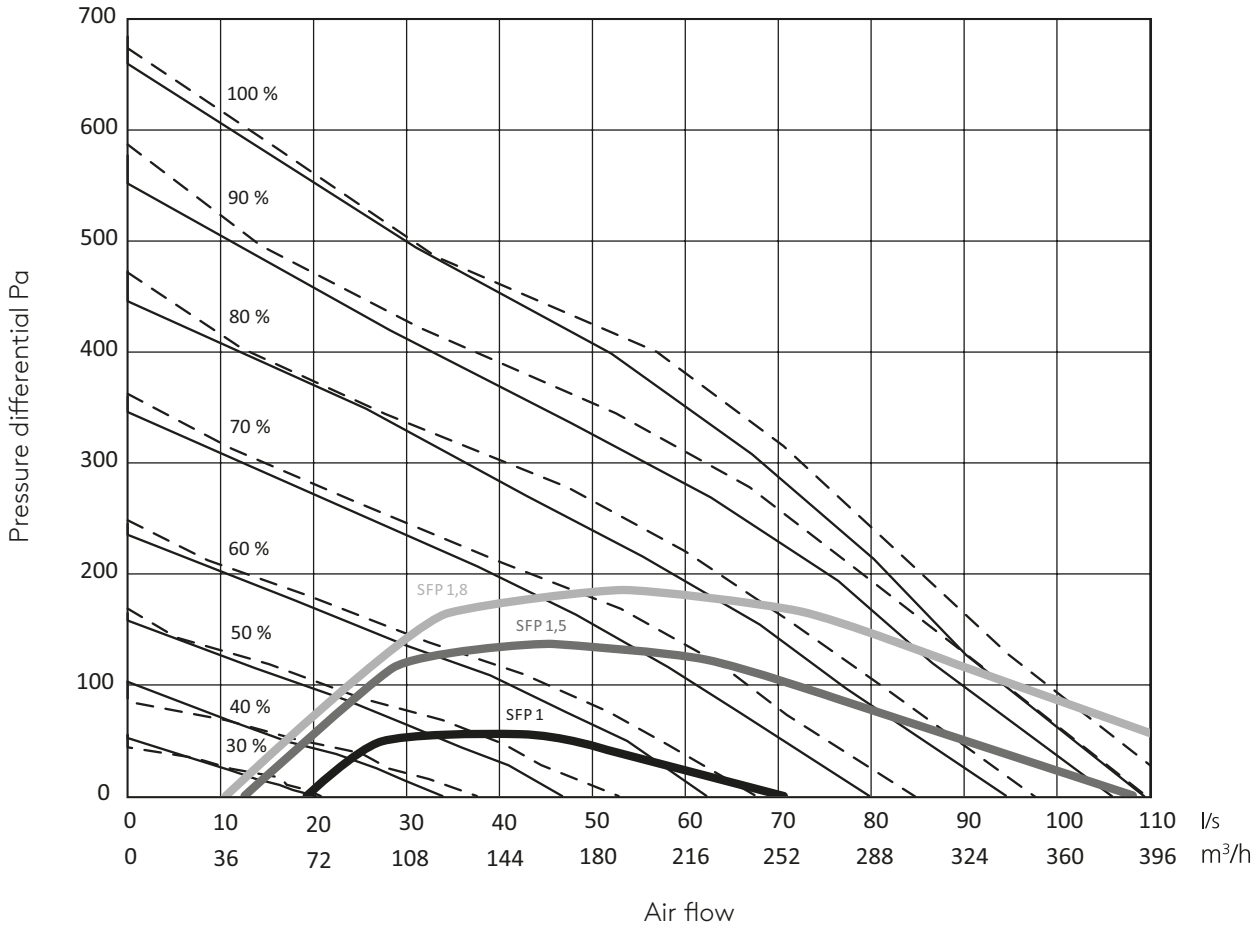
Air flows

Air flows EN 13141-4

R4-C

Supply airflow

Extract airflow



Acoustic data

See acoustic data on ProCASA.

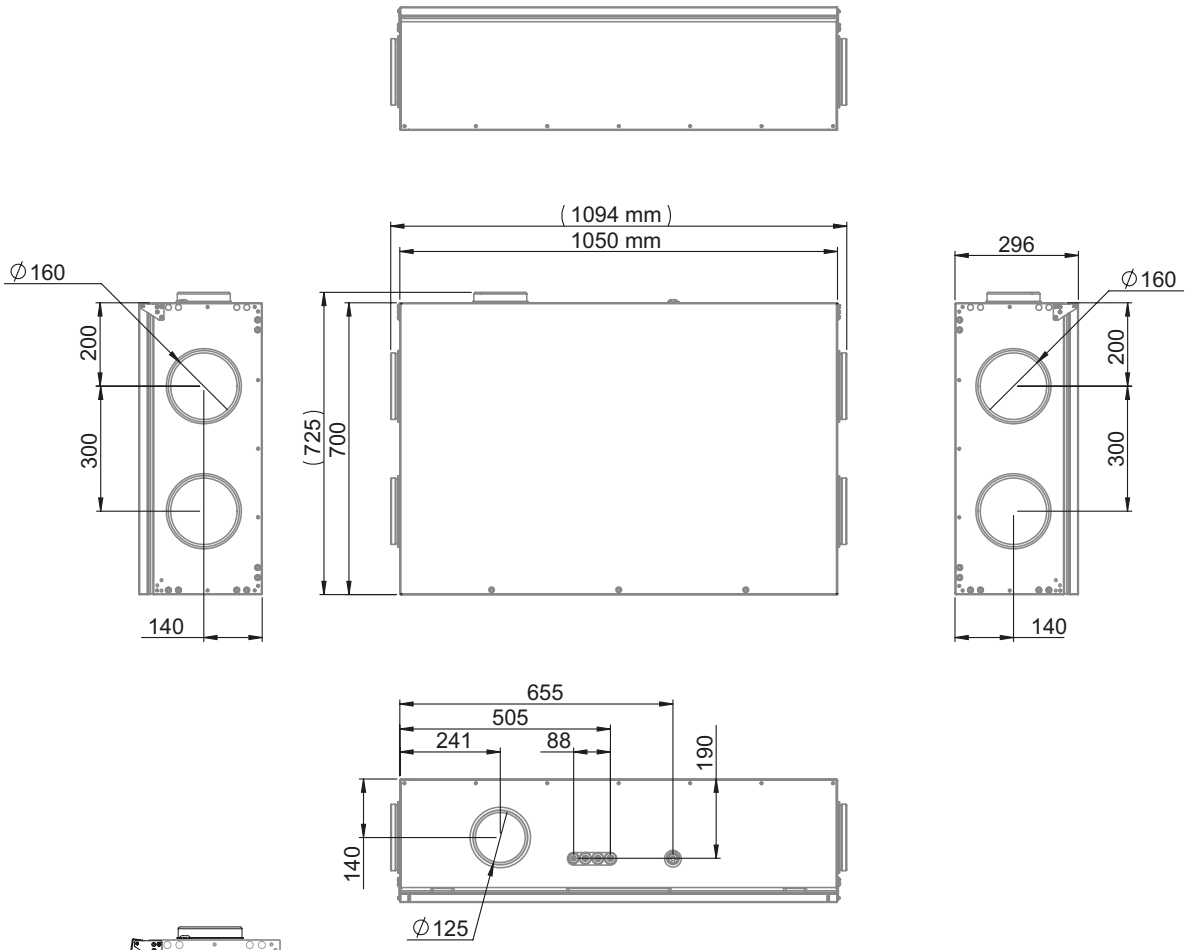
procasa.swegon.com

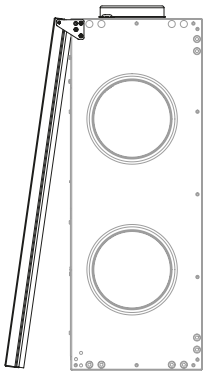
Dimensions and weight

Dimensions

R4-C

Weight of the unit: **70 kg**

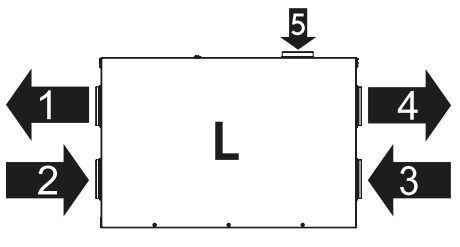




Changing the door opening direction

It is possible to change the opening direction of the door by moving the hinge plates shown in the drawing to the other side of the unit. Changing the opening direction of the door must be done before installing the unit.

Note! When the opening direction has been changed, the door must have clearance to open more than 90 degrees, so that it is possible to get the filters and the rotor package out of the machine. Therefore, the distance of the unit from the wall must be at least 528 mm.

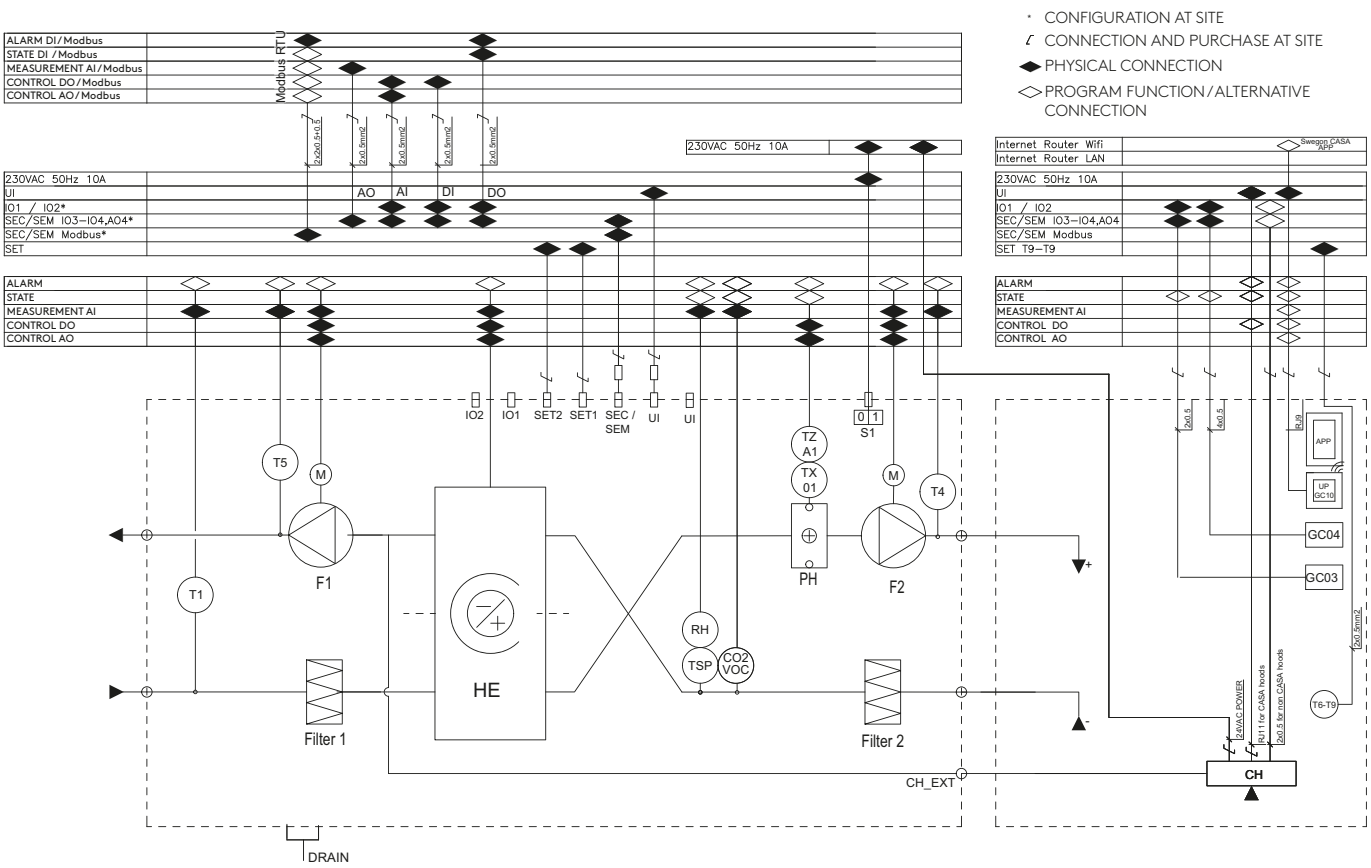


1. Supply air
2. Extract air
3. Outdoor air
4. Exhaus air
5. Extract air from the cooker hood

The unit is shown from the hatch/door side.

Functional diagram

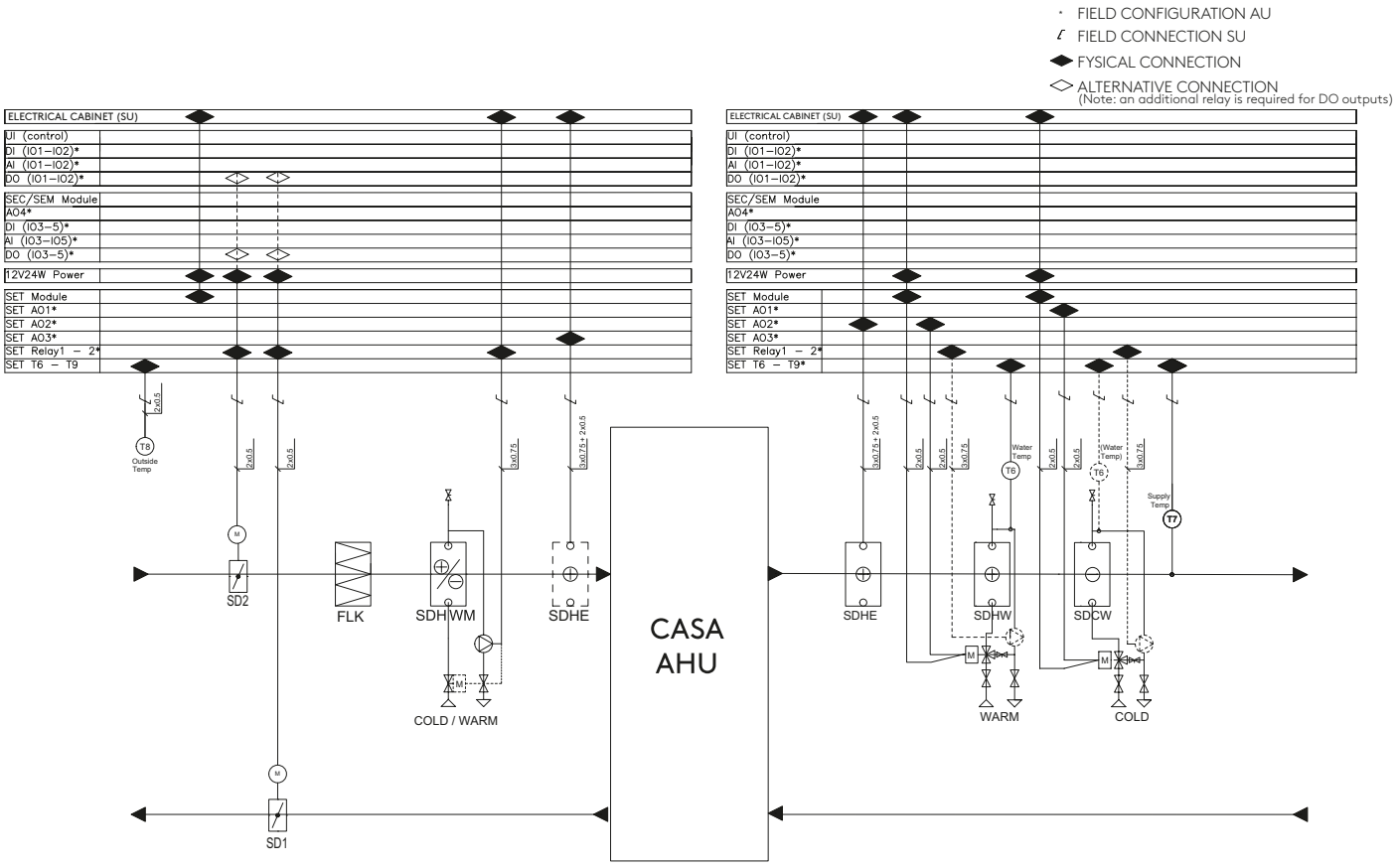
Functional diagram
R4-C



Device	Description	Modbus register
T1	Temperature sensor, outdoor air	3x6201 (0,1°C)
TSP	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 fine filter ISO ePM1 50% (F7)	Service reminder info 3x6129
Filter 2	Extract air fine filter ISO ePM1 50% (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 (500W), controlled steplessly according to demand	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

Functional diagram

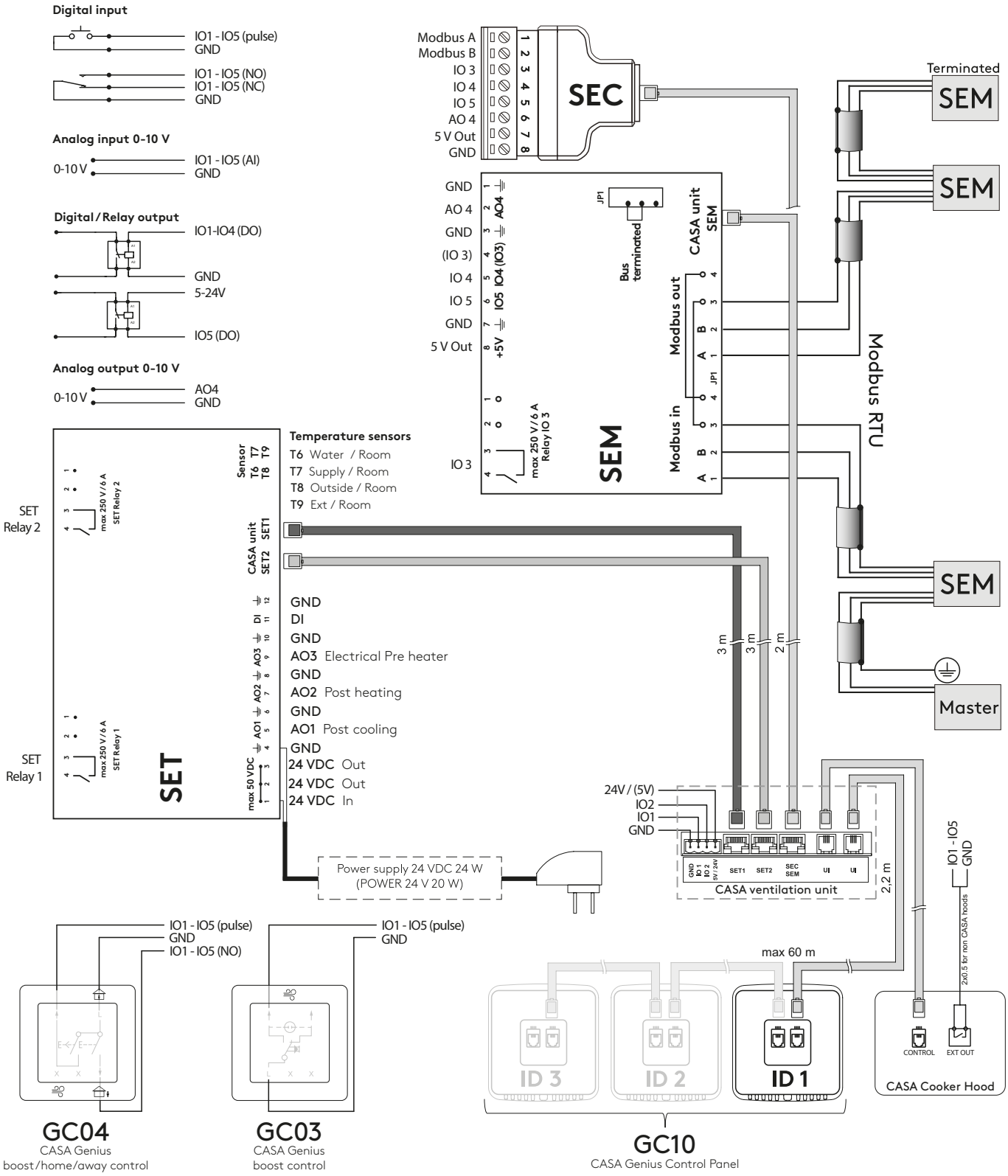
Duct actuators



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

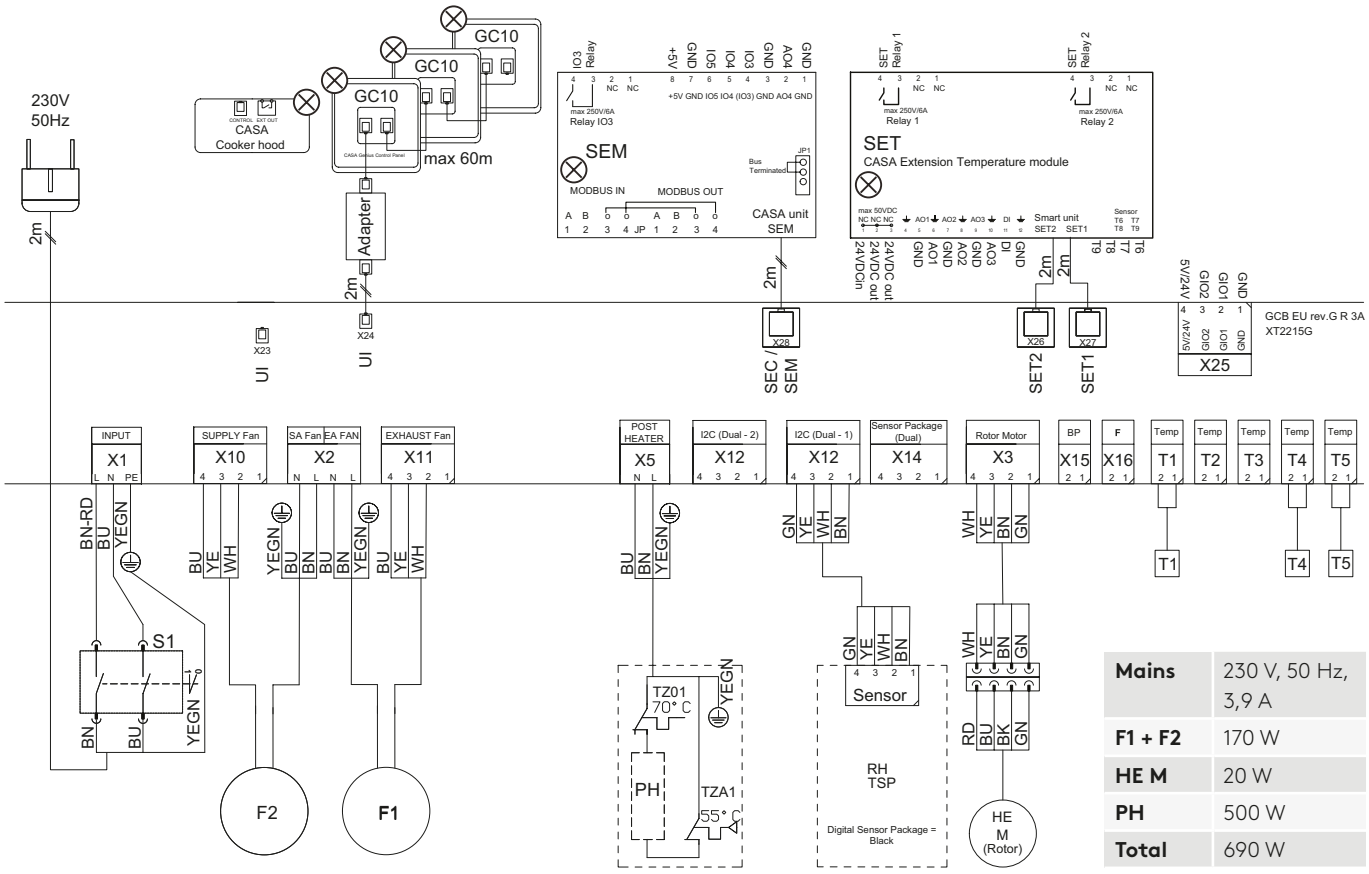
External connections
CASA Genius



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

R4-C



Mains	230 V, 50 Hz, 3,9 A
F1 + F2	170 W
HE M	20 W
PH	500 W
Total	690 W

Device	Description
T1	Temperature sensor, outdoor air
TSP	Temperature sensor, extract air
T4	Temperature sensor, supply air
T5	Temperature sensor, exhaust air
PH	Post heater (500W), 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
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

Installation site

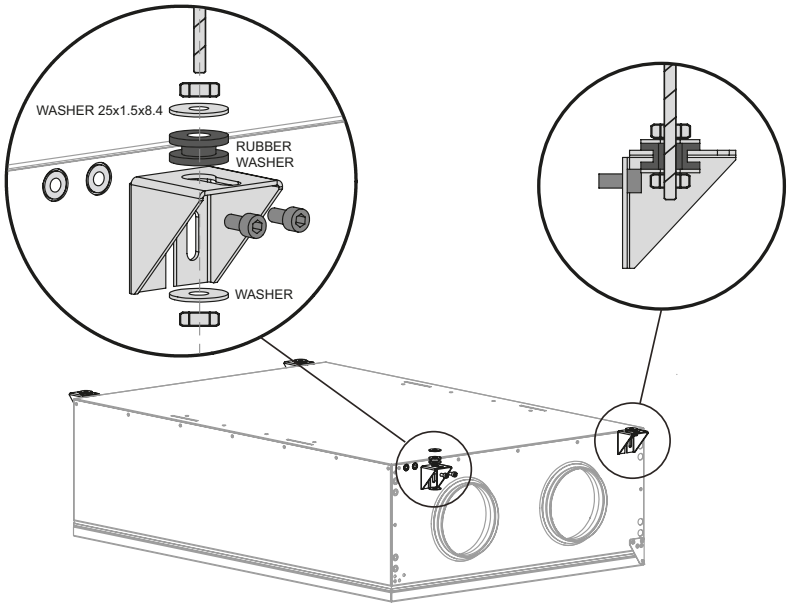
The temperature in the space where the unit will be installed must be more than +10 °C. Due to the risk of disruptive noise, the ventilation unit should not be installed on the wall towards the living room or bedroom.

Ceiling mounting

The low installation height (296 mm) gives an opportunity for installation embedded in the lower ceiling.

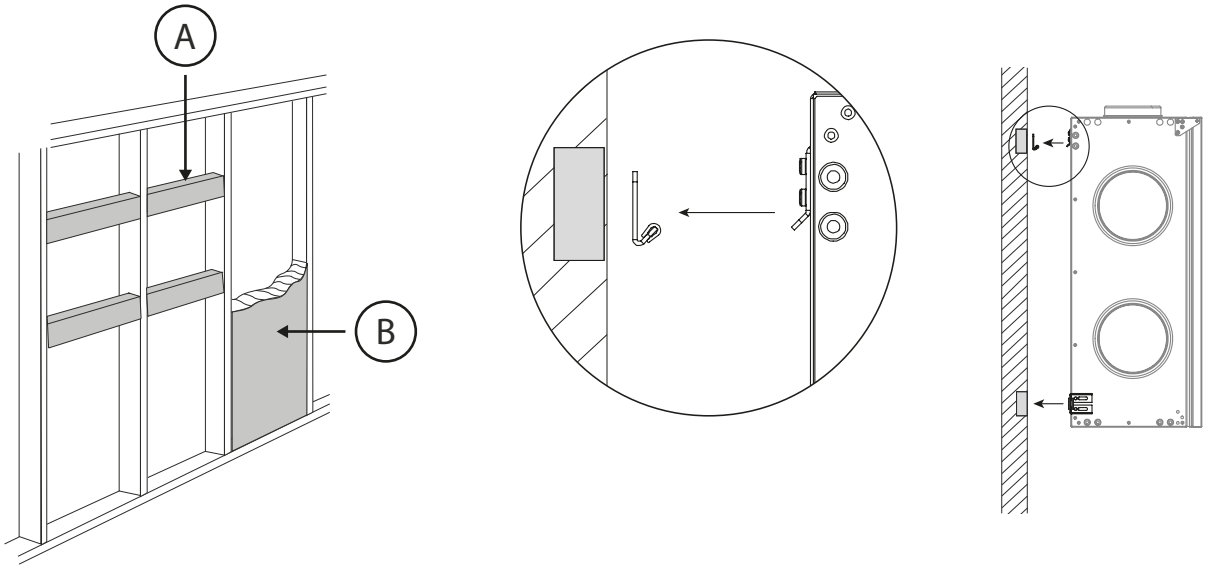
The unit can be mounted on the ceiling using the mounting brackets included in the delivery. The mounting angles should be attached to the unit with the bolts included in the delivery.

The unit is attached to the ceiling anchors with four M8 threaded rods. Use the washers and anti-vibration rubbers included in the delivery as shown in the drawing.



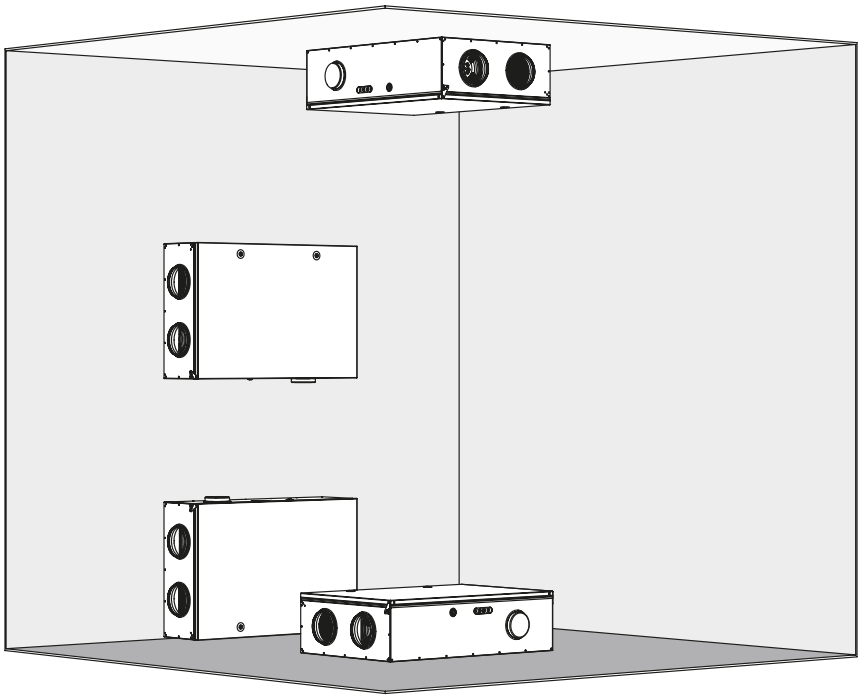
Wall mounting

Can also be mounted on a wall. The wall mounting bracket is accessory R04CWMB.



Allowed installation options

The unit can be installed in the positions shown in the drawing.



Product codes

R4-C

Product	Part No.	GTIN
CASA R4-C Genius L 500W RH	R04CL05G00H	6430080090037
CASA R4-C Genius L 500W RH+CO2	R04CL05G00C	6430080091409
CASA R4-C Genius R 500W RH	R04CR05G00H	6430080090044
CASA R4-C Genius R 500W RH+CO2	R04CR05G00C	6430080091416

Accessories

Product	Part No.	GTIN
GC10 CASA Genius control panel and WiFi	GC10	6430080090846
Modbus connection module	SEM	6415879067346
Connection cable (configurable I/O) for Genius ventilation units	SEC	6415879067353
R4-C white roof mounting frame	R04CFRAME	6430080090051
R4-C wall mounting bracket, for horizontal wall mounting	R04CWMB	6430080090938
CASA Genius boost/home/away button control	GC04	6430080090013
R4-C Filter set ePM1 50% filter 2 pcs	R04CFS	6430080090952

CASA Genius – 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
CASA Genius boost control button	GC03	6430080091119

Building automation	Part no.	GTIN
Modbus connection module with electrical box	SEMIO	6430080091348
Modbus connection module for DIN rail	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	GRHCO2	6430080091454
RH + CO2 + VOC automation	GRHCV	6430080091461

Waterborne air coolers	Part no.	GTIN
Cooling coil package Ø160	SDCW160	6415879068053

Waterborne air heaters	Part no.	GTIN
Heating coil package Ø160	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 Ø160	SDHE160-1T	6415879067247
Prefilter box Ø160 mm, G4	FLK16	6415879067483

Duct mounted shut-off dampers	Part no.	GTIN
Damper Ø160 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
Shaped condensation insulation for the ducts, straight section, Ø125 mm, L1000	9000476	6415879070049
Shaped condensation insulation for the ducts, elbow 90, Ø125	9000480	6415879070056
Splicing tape	9000483	6415879070070

Feel good **inside**

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