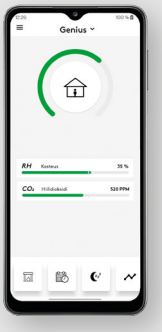
CASA R7 Genius

Technical catalogue



Available on the App Store

Get it on Google play

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Intertek
5025428

cool, temperate climate
CERTIFIED COMPONENT
Passive House Institute

QUICK FACTS

- Eco-design energy class A*
- Temperature efficiency +80%
- Humidity efficiency +80%
- 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
- Passive House Certified

UNIT TECHNICAL CONTENT	
Air flow range	HRV: 127-398 cfm | 60-188 l/s ERV: 170-398 cfm | 80-188 l/s
Dimensions, w x l x h	33,66 x 22,48 x 37,24 inch, 214 lbs (855 x 571 x 946 mm, 97 kg)
Duct outlets	4 x Ø 8 inch (203 mm)
Ecodesign energy class	A *
Ecodesign sound level	46 dB
HEX temp efficiency (EN 13141-7)	86 %
Connection power	1228 BTU/hr (360 W)
Power connection	220-240 V, 50-60 Hz, MOP 10 A
Fans	340 W, EC
Filters	MERV13 filters for supply air and for extract air
Colour	Exterior White, RAL 9016 (corresponds to NCS 0502-Y07R)

** Energy class may vary depending on the selected accessories.*

Content

Technical description

Swegon CASA R7 Genius

Top connection air handling unit that requires little space. Air handling unit with rotary heat exchanger (33.66 x 22.48 x 36.69 inch, 8 Øinch) suitable installation in smaller homes (398 cfm, 4844 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.

cool, temperate climate

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Available variants

Standard units are available in following variants:

- HRV **L** (supply air left)
- ERV **L** (supply air left)

Components

Fans

CASA R7 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

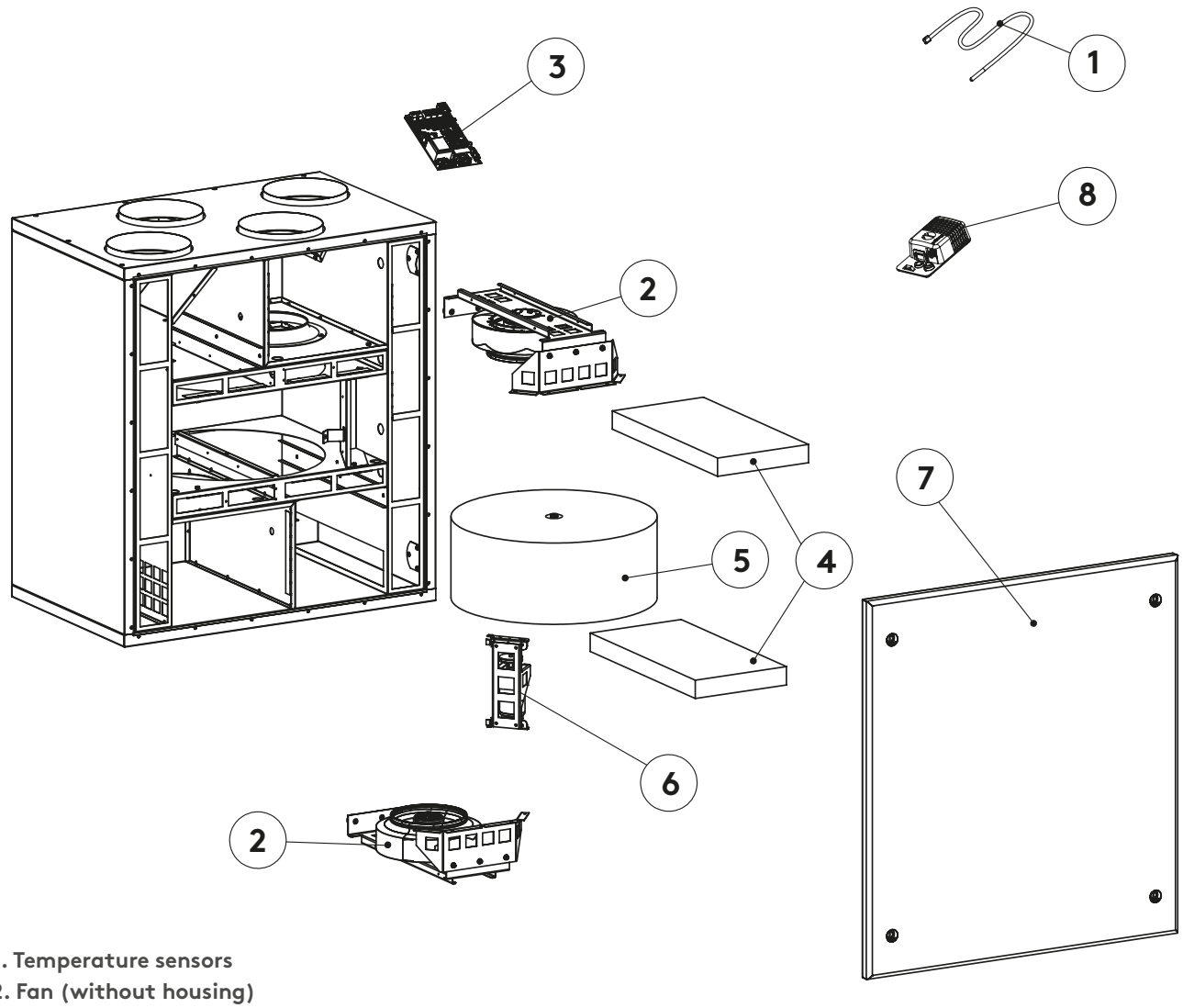
If a sensor fault is detected, an alarm is generated. If the faulted sensor is critical the ventilation unit is stopped. The ventilation unit returns to normal mode once the fault has been corrected.

The delivery includes

- Ventilation unit
- 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 sensors
2. Fan (without housing)
3. Genius control board
4. MERV13 filters for supply air and for extract air
5. Heat exchanger
6. Rotor motor
7. Door
8. Sensor package

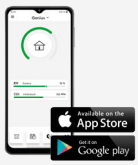
Swegon CASA Genius

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.

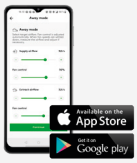
Swegon CASA control panel

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.

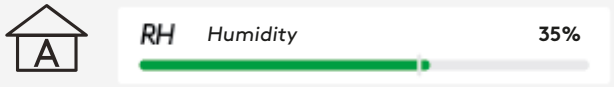
Boost
High air flow. Used if the ventilation requirement increases, for example, when cooking, taking a bath or drying laundry, or when an unusually large number of people are in the home.

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.

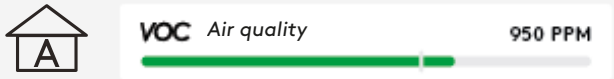
Automatic functions

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



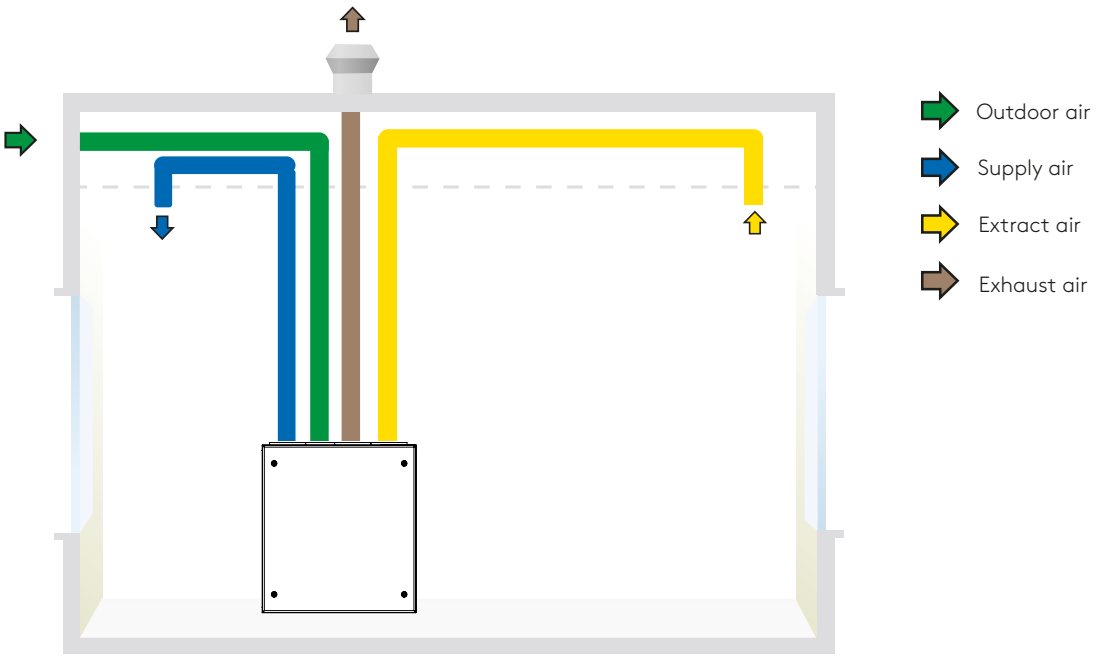
Automatic RH system included as standard
The humidity automation analyses the indoor air humidity continuously. The intelligent control utilizes heat exchanger (sorption rotor) high humidity recovery and rotor speed control to manage indoor humidity level. In addition the control boosts the ventilation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



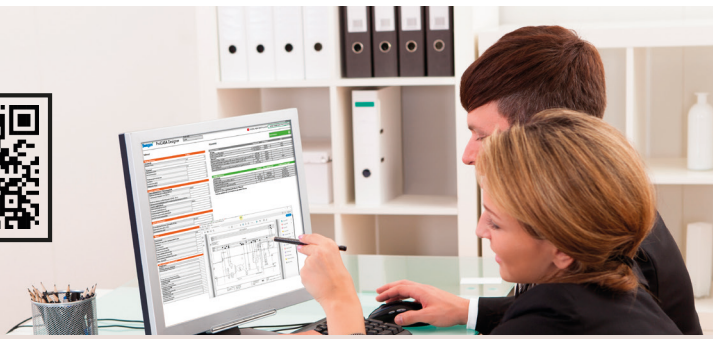
CASA R7 duct connections.

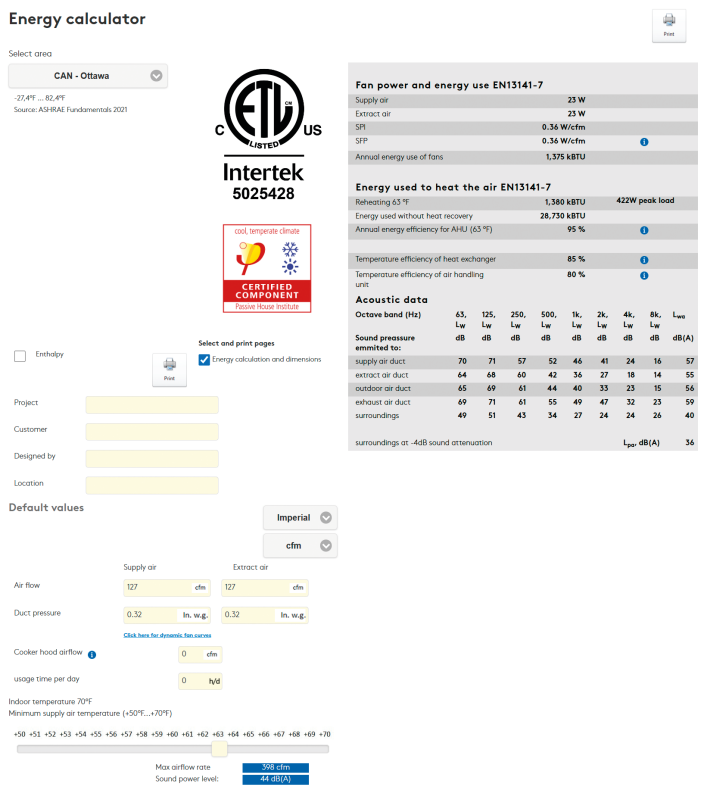
Note! Always check the correct duct sequence in the installation instructions.

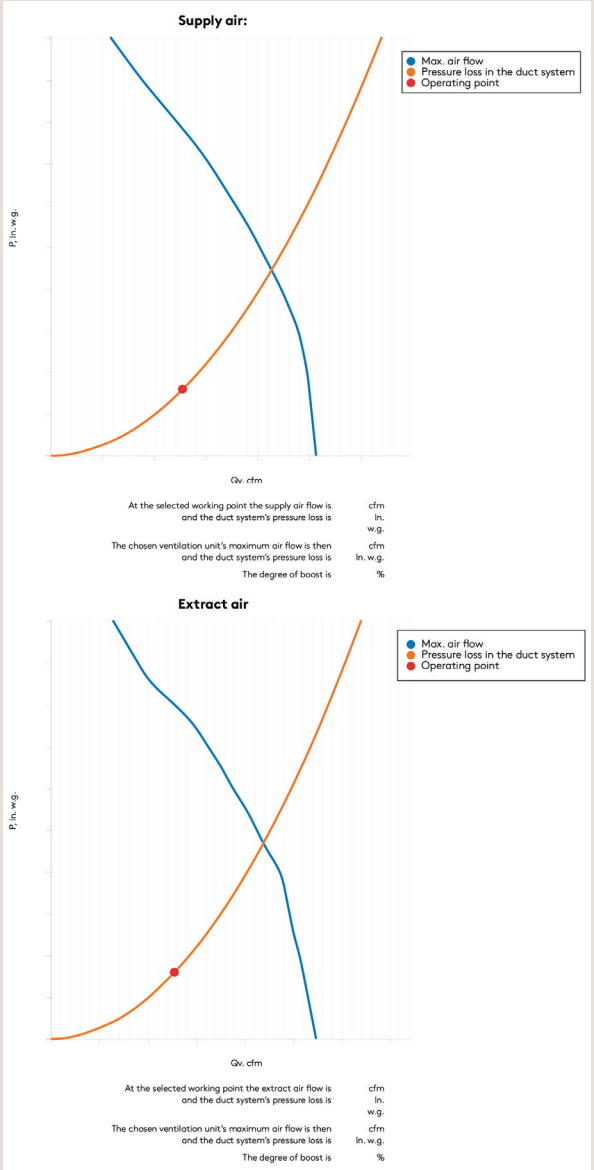
ProCASA®

Energy calculation, functional diagram and acoustic data on ProCASA.

procasa.swegon.com







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

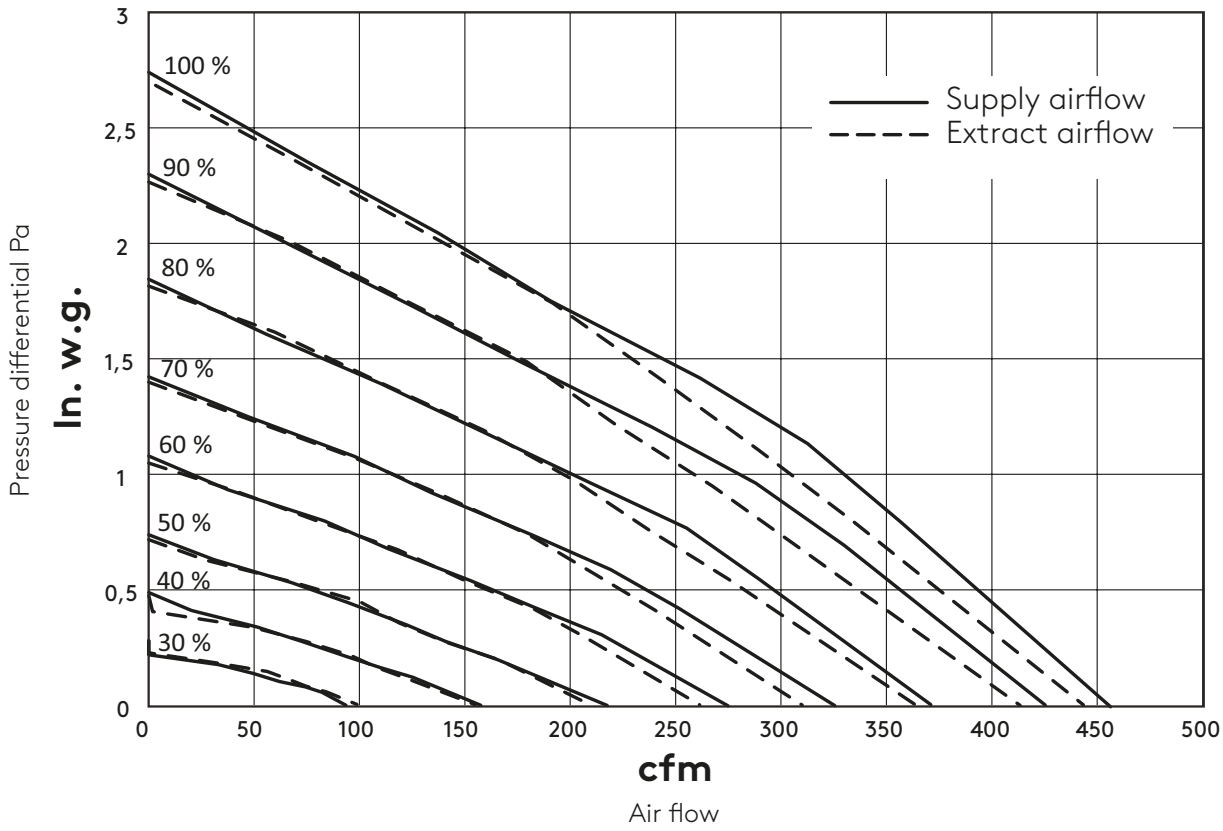
Air flows

Air Flows EN 13141-4

R7

Supply airflow

Extract airflow

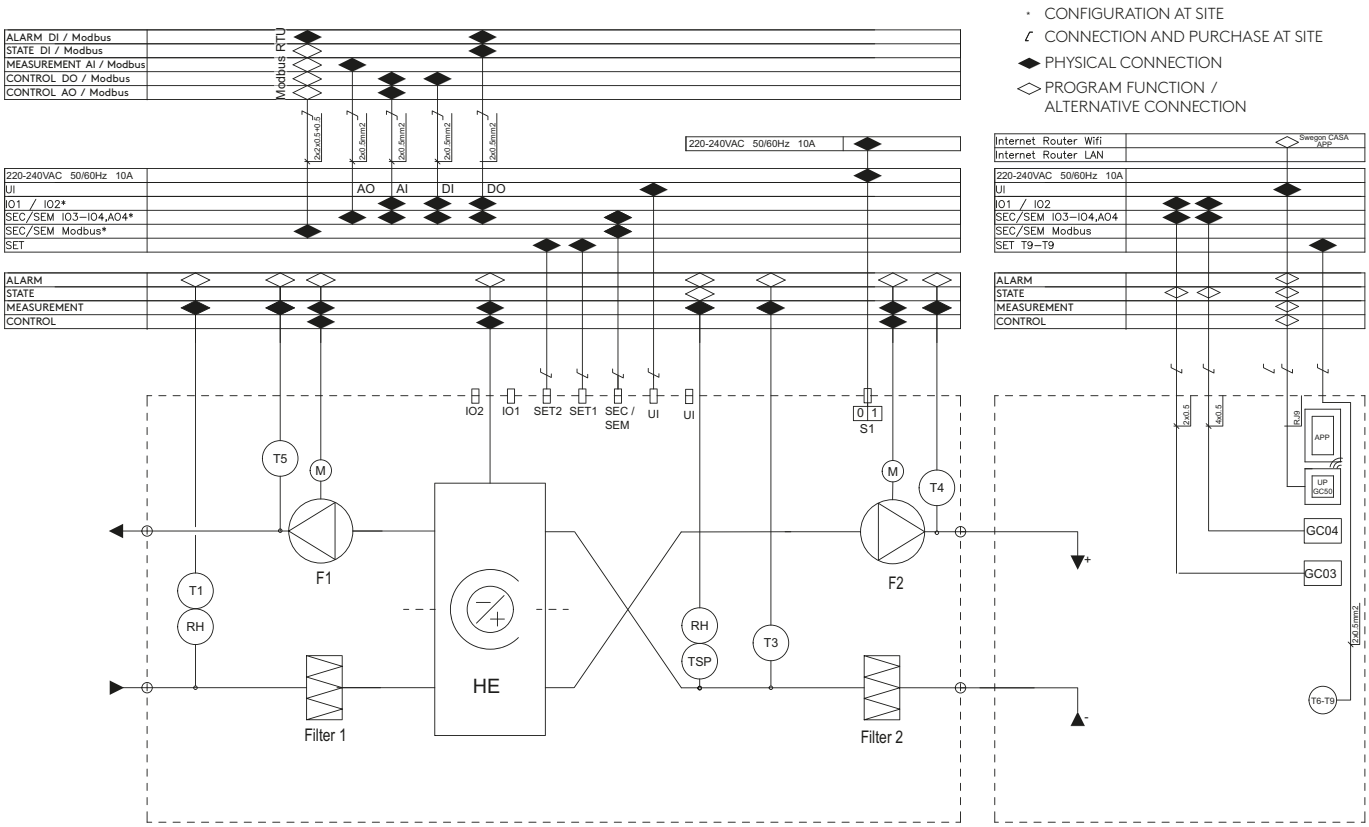


Considerable in dimensioning

The boost margin must be at least 30%

Functional diagram

Functional diagram
R7

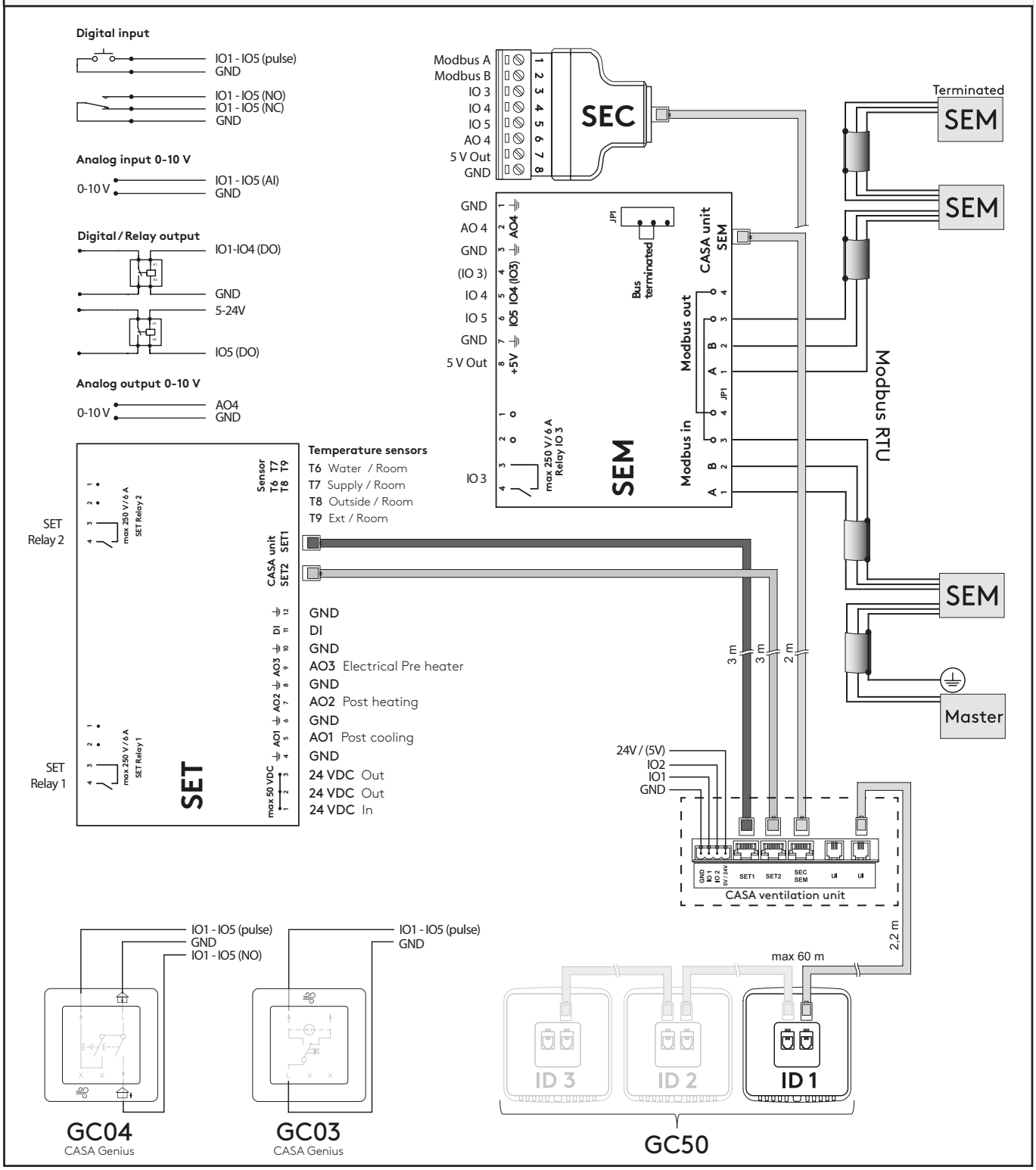


Device	Description	Modbus registers
T1	Temperature sensor, outdoor air	3x6201
T2	Temperature sensor, extract air	3x6204
T4	Temperature sensor, supply air	3x6203
T5	Temperature sensor, exhaust air	3x6205
Filter 1	Fresh air fine filter MERV13	Service reminder info 3x6129
Filter 2	Extract air fine filter 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

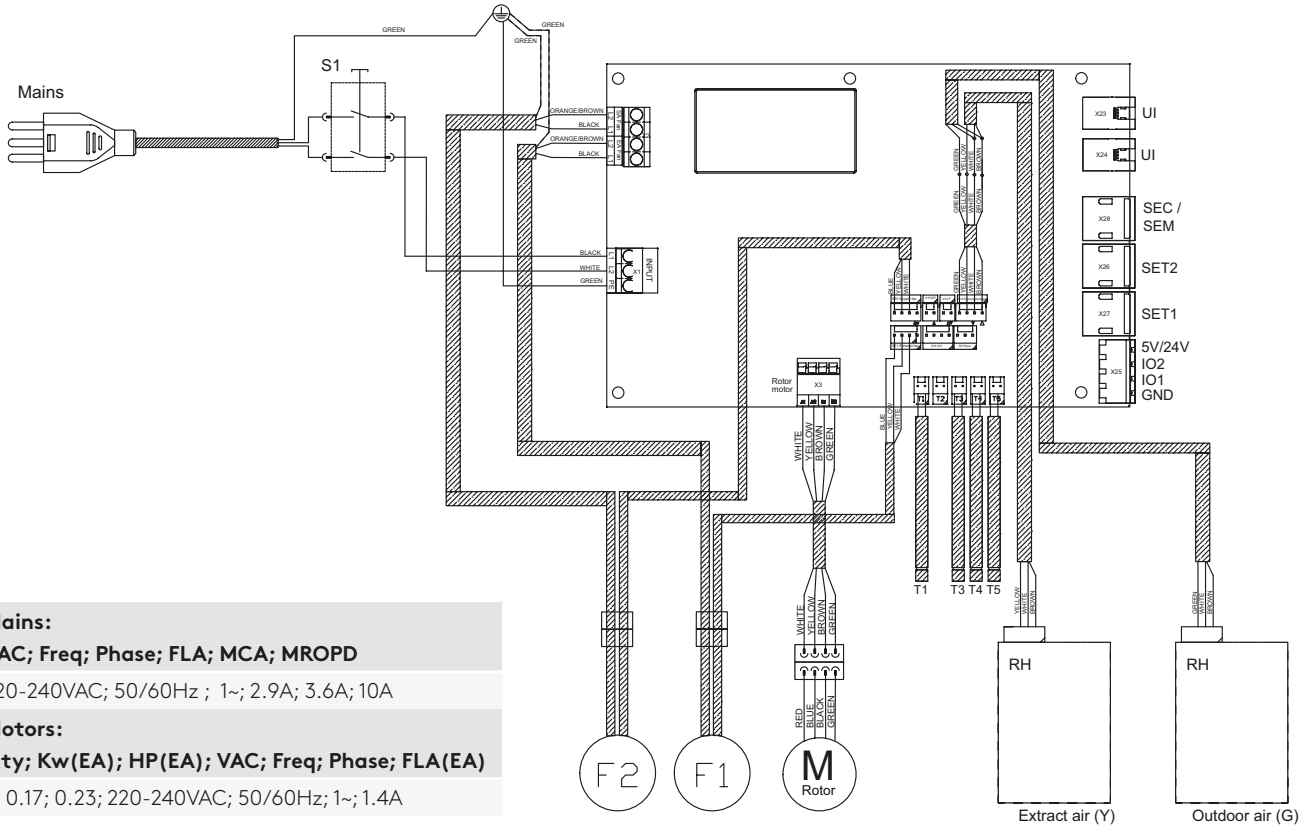


SEC IO extension cable with Modbus RTU
SEM IO extension module with relay and Modbus RTU (input and output connections)
SET IO extension module for control of external accessories

Electrical wiring diagram

Electrical wiring diagram

R7



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

220-240VAC; 50/60Hz ; 1~; 2.9A; 3.6A; 10A

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

2; 0.17; 0.23; 220-240VAC; 50/60Hz; 1~; 1.4A

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

Ventilation unit installation site

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

The ventilation unit can be installed in machine room, store room, etc.

Mounting on the floor

The unit should be installed on the floor. The device is heavy. Make sure that the mounting base will withstand its weight.

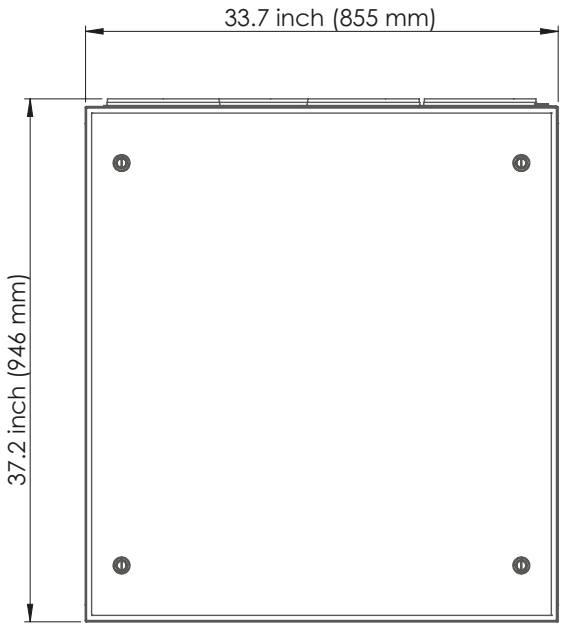
The rear edge of the unit must be at least 50 mm off the wall. Free space in front of the maintenance door of the unit must be at least 1200 mm.

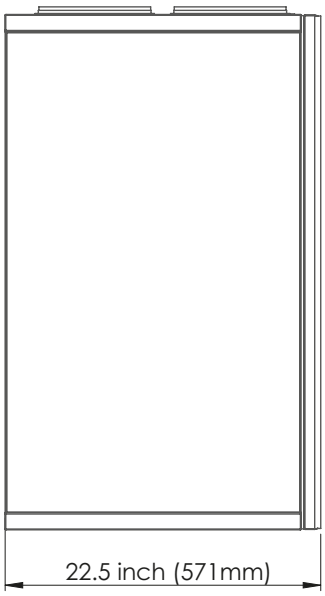
Dimensions and weight

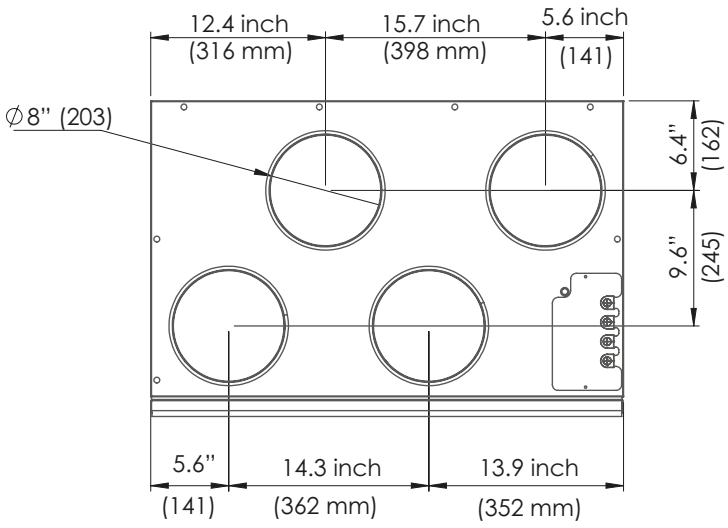
Dimensions

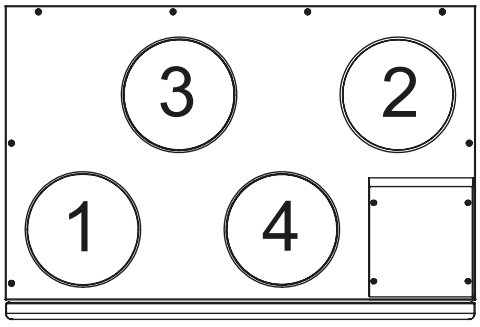
R7

Weight of the unit: **214 lbs (97 kg)**









1. Supply air
2. Extract air
3. Outdoor air
4. Exhaust air

Product codes

R7

Product	Product code
CASA R7 Genius L ex.el RH NA (HRV)	R07VL00G0NH
CASA R7 Genius L ex.el RH NA Sorption (ERV)	R07VL00G0NHAS

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.
Building automation, Modbus	SEM
I/O connection	SEC
Connection for heaters & cooling units	SET

Feel good **inside**

Swegon