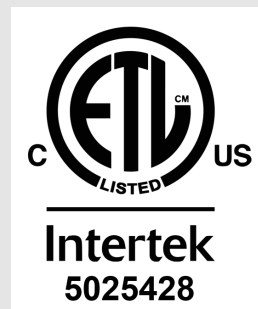


CASA R7 Genius

Technical catalogue



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.

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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

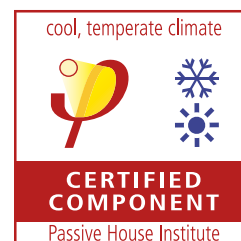
The unit is controlled steplessly with automation functions to guarantee the best indoor environmental quality. The user can select five operating modes home, away, boost, travelling and home+ by using control panel or Swegon CASA app. Operation modes can be set by defining a weekly programs on CASA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



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**. 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

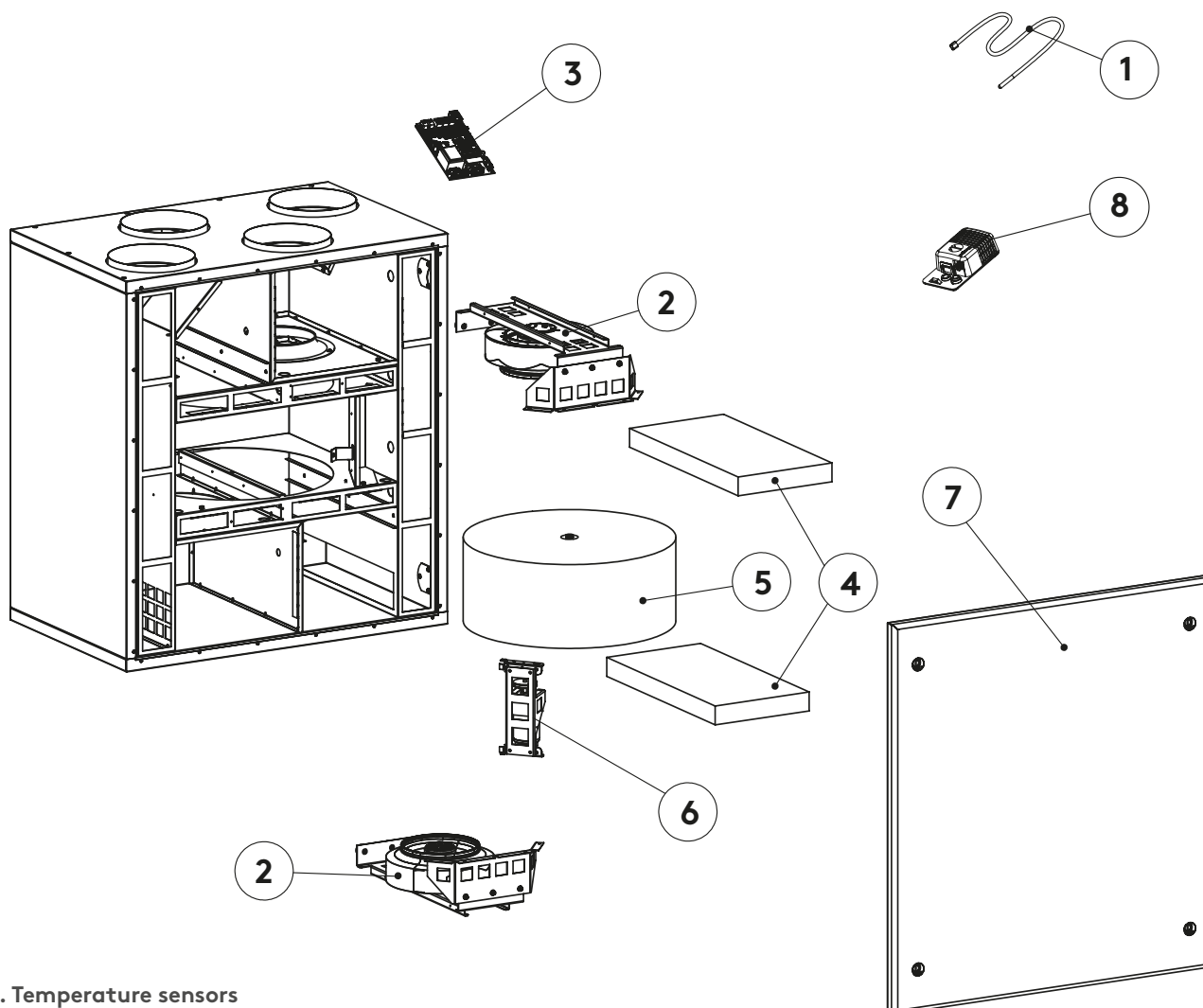
If a sensor fault is detected, an alarm is generated. If the faulted sensor is critical the ventilation unit is stopped. The ventilation unit returns to normal mode once the fault has been corrected.

The delivery includes

- Ventilation unit
- 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).



Flat touch screen

Mobile app

Available on the
App Store

Get it on
Google play

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

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.



CO₂ 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

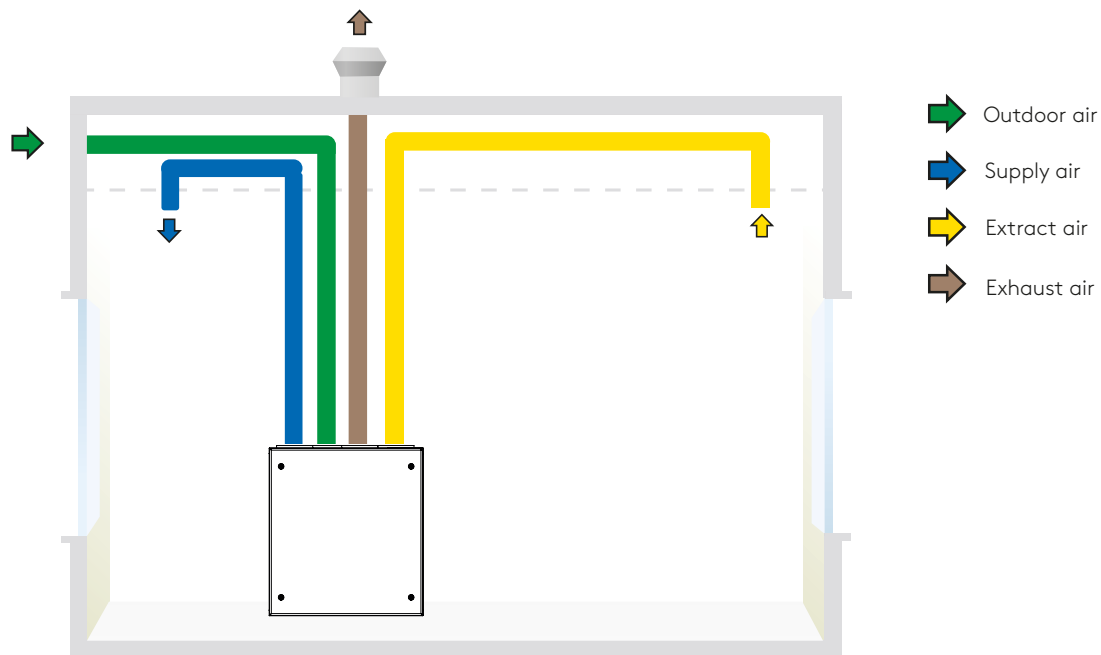


Automatic VOC system as optional equipment

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



Design data



CASA R7 duct connections.

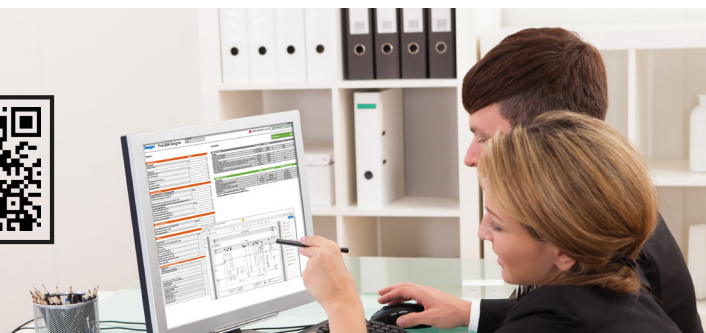
Note! Always check the correct duct sequence in the installation instructions.



ProCASA®

Energy calculation, functional diagram and acoustic data on ProCASA.

procasa.swegon.com



Energy calculator

Select area
CAN - Ottawa

37.4°N - 82.4°W
Source: ASHRAE Fundamentals 2001

ETL LISTED US
Intertek 5025428
cool, temperate climate
CERTIFIED COMPONENT
Passive House Institute

☐ Exhaust

Select and print pages
☒ Energy calculation and dimensions

Project
Customer
Designed by
Location

Default values
Imperial
cfm

Air flow
Supply air: 127 cfm
Extract air: 127 cfm

Duct pressure
0.32 in. w.g. 0.32 in. w.g.

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: 520 cfm
Sound power level: 44 dB(A)

Fan power and energy use EN13141-7

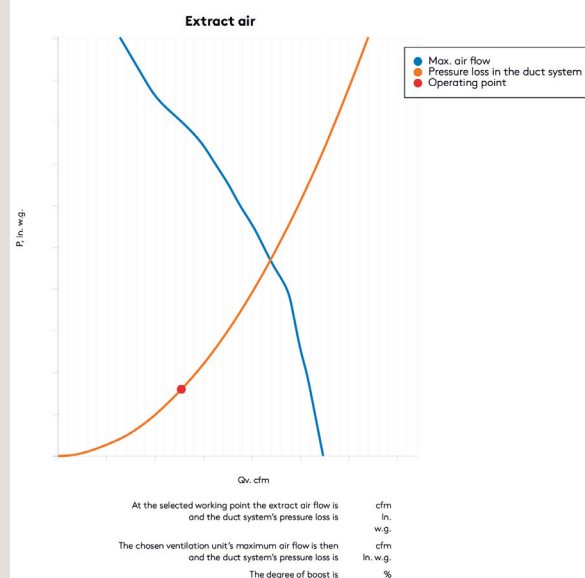
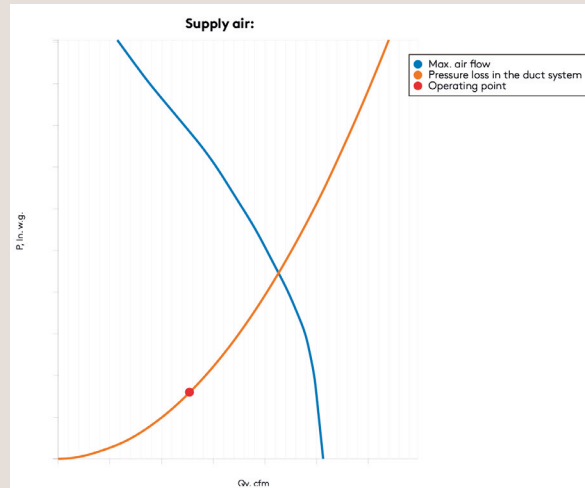
Supply air	23 W
Extract air	23 W
SFP	0.34 W/cfm
SFP	0.34 W/cfm
Annual energy use of fans	1.375 kWh

Energy used to heat the air EN13141-7

Reheating 63 °F	1,380 kWh	42W peak load
Energy used without heat recovery	28,730 kWh	
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	125	250	500	1k	2k	4k	8k	L _w
	L _w	L _w	L _w	L _w	L _w	L _w	L _w	L _w	L _w
	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								



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.

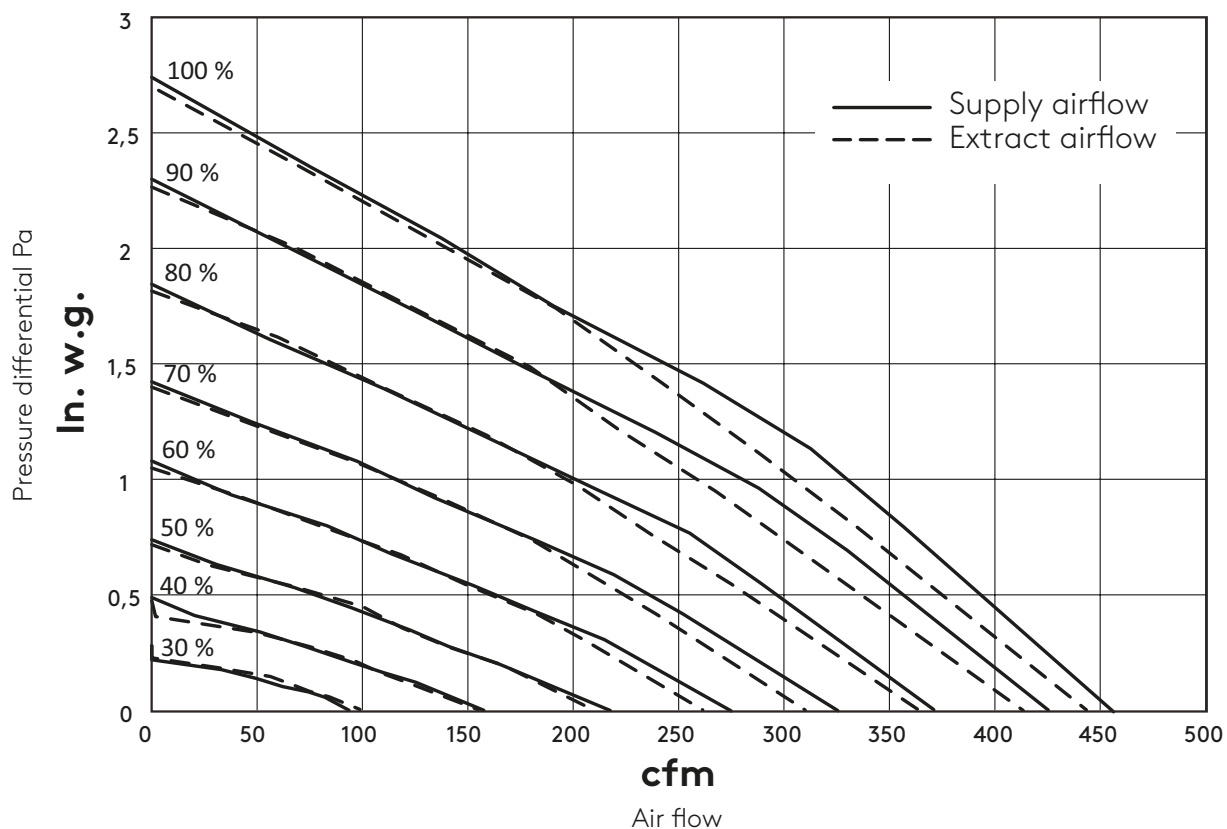
www.magicloud.com

Air flows

Air Flows EN 13141-4

R7

— Supply airflow
 - - - Extract airflow

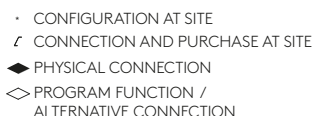


Considerable in dimensioning

The boost margin must be at least 30%



R7





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.

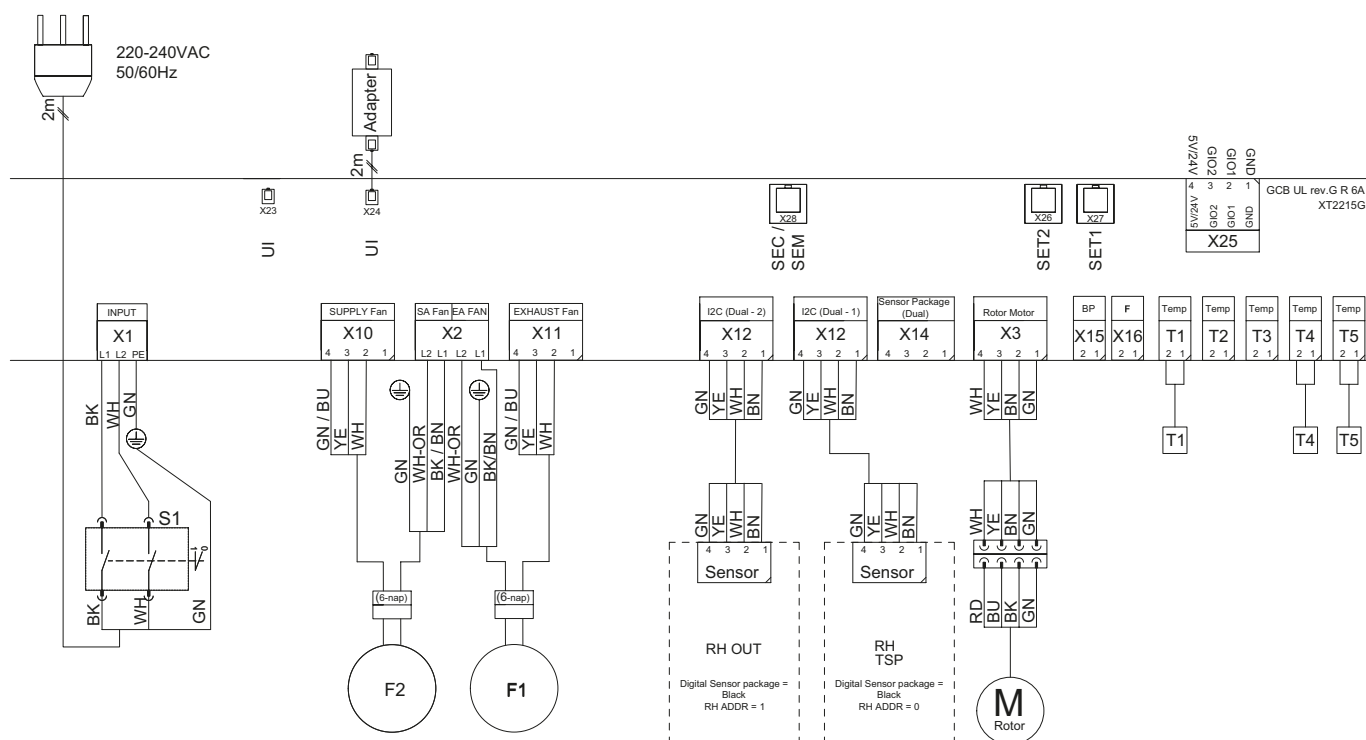
SEC	IO extension cable with Modbus RTU
SEM	IO extension module with relay and Modbus RTU (input and output connections)
SET	IO extension module for control of external accessories



Electrical wiring diagram

Electrical wiring diagram

R7





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.

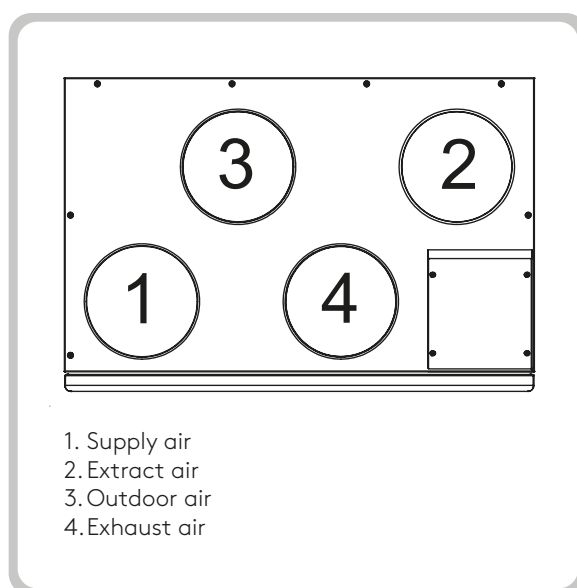
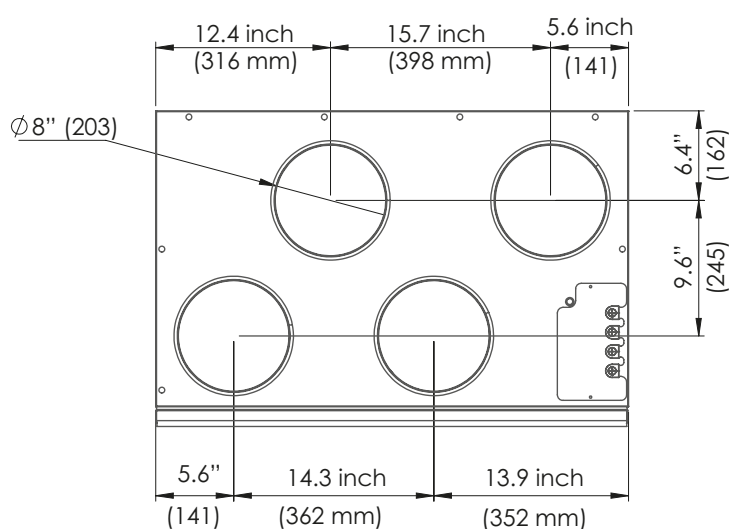
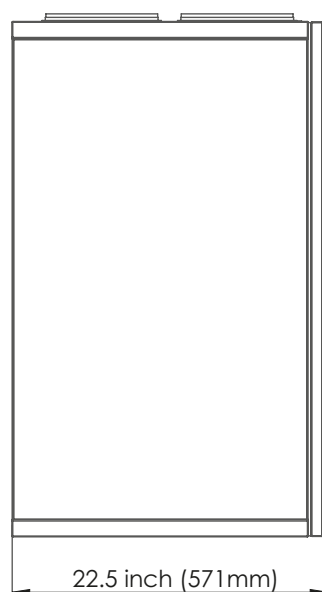
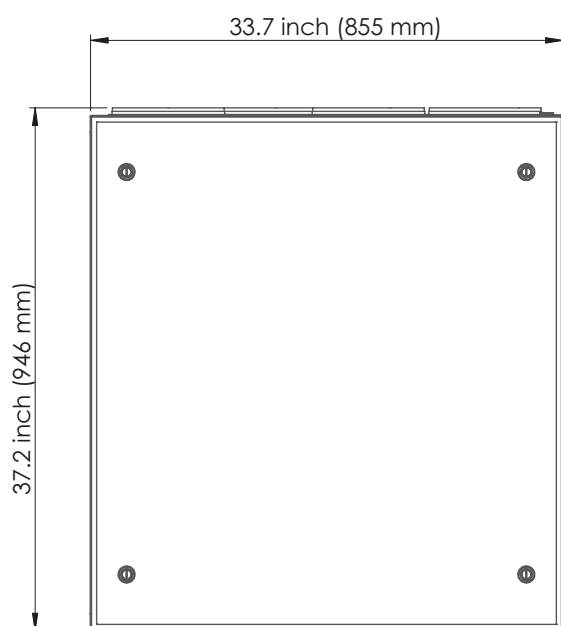


Dimensions and weight

Dimensions

R7

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



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**

