

Swegon Home Solutions

CASA[®] R5 Smart



Installation, commissioning and maintenance instruction

R5_b_EN-t

Swegon
Home Solutions

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Als het om lucht gaat.


AUERHAAN
KLIMATECHNIK

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Installation, operation and maintenance instructions for design engineers, installation engineers and service personnel

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Important information

Qualified personnel only

Only qualified personnel should carry out installation, configuration and commissioning.

Standards and requirements

The pertinent national standards and regulations dealing with installation, configuration and commissioning must be followed if the equipment is to operate correctly.

At the www.swegonhomesolutions.com address (Toolbox > Find PDF) you will find the document "Project planning instructions for ventilation", in which power supply, sound, airflows and duct system requirements are presented.

Measurement and electrical work

If you carry out voltage tests, measure the electrical insulation resistance at various points or perform other remedial measures that could damage sensitive electronic equipment, you must first isolate the ventilation unit from the electrical supply grid.

Surge protection

Swegon recommends that all ventilation units equipped with Smart automatic control be equipped with a surge protection device.

Earth fault circuit breaker

It is not certain that an earth fault circuit breaker will operate faultlessly in combination with the ventilation unit, since the unit's regulation and control equipment can cause leakage currents. Comply with local electrical safety regulations when you install electrical equipment.

To open the ventilation unit for service

Always ensure that the ventilation unit's power supply has been isolated before you open the inspection door! Wait a few minutes before you open the inspection door on the ventilation unit so that the fans have time to stop and air heaters, if fitted, have time to cool down.

There are no components inside the electrical equipment cabinet that can be serviced by the user. Leave the servicing of these components to service personnel. Do not restart the ventilation unit before you've identified the cause of the fault and service personnel have serviced the ventilation unit.

Drying laundry

A tumbler dryer of extract air type or a drying cabinet must not be connected to the system due to the high moisture content in the air it discharges. However, we recommend the use of a condensing tumbler dryer without duct connection.

Commissioning

Do not commission the ventilation unit until all carpentry work that produces large quantities of sanding dust or other impurities has been completed.

The duct connection spigots of the ventilation unit must be covered by lids while the unit is being transported, kept in storage and mounted at its final location.

Make sure that the ventilation unit, filters and ducts are clean and that there are no loose objects in them before you commission the ventilation system.

Condensation

The surface temperature of the ventilation unit can drop down to 12 °C during periods of frost and depending on the moisture content of the air surrounding the unit, moisture may condense on the surface. Consequently, condensation should be taken into account when choosing furnishings that are to be installed in the vicinity of the ventilation unit.

NOTE! The manual's original language is Finnish.

1. General Description

The most important function of the ventilation system is to ensure clean and fresh indoor air and to remove moisture. The air in the home should be changed at a continuous and sufficient rate to ensure a pleasant indoor climate and avoid damage to building elements caused by dampness. The ventilation unit should be stopped only while service work is in progress.

1.1 Enclosure

The ventilation unit's enclosure class is IP 34 when the inspection door is closed.

1.2 Fans

The Swegon CASA R5 is equipped with energy-efficient fans with EC motors, advantageous in that their speed is variably controllable and their efficiency is high even when they operate in the lower speed range. The power supply and control cables of the fans have quick-fit connectors making the fans easily removable from the unit, if required.

The fans can be controlled in four operating modes from a Smart control panel or in three operating modes from a compatible Swegon CASA cooker hood:

- **Boost** = A large airflow is used when the ventilation requirement increases, e.g. for cooking, taking a sauna, showering or drying laundry.
- **Home** = Normal airflow. Guarantees that there is sufficient fresh indoor air in the home, and that the building construction is at its best.
- **Away** = Low airflow. Reduces power consumption when the ventilation requirement in the home is small.
- **Travelling** = Very low air flow and lower supply air temperature. Used when no one is present in the home. (Can only be selected from a Smart control panel.)

The unit's weekly timer has four programs that can switch in the various fan modes at the preset times. On the unit with electric reheating, you can also select the required temperature of the supply air. Even when the ventilation unit is being controlled with the weekly timer, it is always possible to change the fan mode from a control panel or a cooker hood.

You can select an airflow boost time of 30, 60 or 120 minutes or continuous boost from a Smart control panel. When the unit is controlled from a cooker hood, the fan's airflow boost time is 60 minutes. You can select a damper open time of 30, 60 or 120 minutes.

1.3 Filter

The ventilation unit has class F7 fine filters for the supply air and the extract air and a G3-filter for the supply air.

1.4 Heat exchanger

The ventilation unit has a rotary heat exchanger. The heat

exchanger consists of a rotor composed of aluminium foil. The structure of the foil forms a multitude of small passages through which the air flows. During the heating season, heat that is stored in the ducts on the extract air side is emitted to the cold air on the supply air side. The heat exchanger is driven by a motor of its own.

1.5 Temperature

The user sets the required value for supply air temperature, and the ventilation unit then strives to reach this temperature if possible. In general, the user sets a temperature in the 13–20 °C range. The supply air temperature should be 3–4 °C lower than the room temperature, so that the supply air will mix thoroughly with the room air. Note that a high temperature setting will also increase the consumption of electric power. The factory setting for supply air temperature is 17 °C.

If the room air option has been selected as the control mode for heating, e.g., together with an external air heater for heating/cooling, you can select room air as the control mode.

R5's intelligent summer function helps to maintain the home's indoor air comfort even during hot summer days. Very economical comfort coolness can be produced almost free of charge by utilising the difference in indoor and outdoor temperatures and the heat exchanger intelligently. The heat exchanger takes care of the cool indoor air during hot summer days and cools the incoming outdoor air. The heat exchanger stops at night and the home is cooled with fresh outdoor air. This is managed by an advanced automatic system that can be set according to the resident's requirements.

1.6 Protective functions

The heat exchanger's anti-freeze protection

R5's reliable defrosting function guarantees continuous and balanced ventilation in the home even during extreme conditions. If there is a risk of the heat exchanger in the unit freezing, the speed of the fans is changed and the heated extract air prevents freezing inside the heat exchanger.

The fans' thermal overload protection

The fans have thermal overload cut outs, which stop them if the temperature rises too high. The controller also stops the fans if a serious malfunction occurs in the ventilation unit. The protective function resets itself automatically when the temperature drops or the malfunction has been remedied.

Electric air heater

An automatic thermal overload cut-out switches off the air heater if a fault situation arises. This protective device automatically resets itself when the air heater has cooled down.

The overheating protection that requires manual resetting can be reset by pressing the push buttons located inside the ventilation unit. The location of the push buttons is marked in the illustration below. When you press the reset buttons and feel a click, the overtemperature protection (thermal overload cut out) has then been reset.

Temperature sensors

If a sensor fault is detected, the ventilation unit enters restricted mode to prevent damage to the ventilation unit. The functions related to the current sensor in question are deactivated and the ventilation unit works as well as possible. The ventilation unit's function returns to normal once the fault has been corrected.



2. Installation

2.1 Ventilation unit installation site

The temperature in the space where the unit will be installed must be more than +10 °C. The ventilation unit can be installed in a machine room, laundry room, store room, etc.

The ventilation unit should not be secured to a wall that borders to a living room or a bedroom due to the risk of noise.

During installation, arrange electric and control cables to make them easily accessible.

The ventilation unit can be mounted either on the wall with a wall mounting bracket included in the supply or on the ceiling with a ceiling mounting frame which is available as an optional extra.

The unit should be mounted as near as possible to a wall or ceiling. The space between the ventilation unit and the wall/ceiling must be insulated to prevent the transmission of sound through the wall behind the unit to the adjacent room.

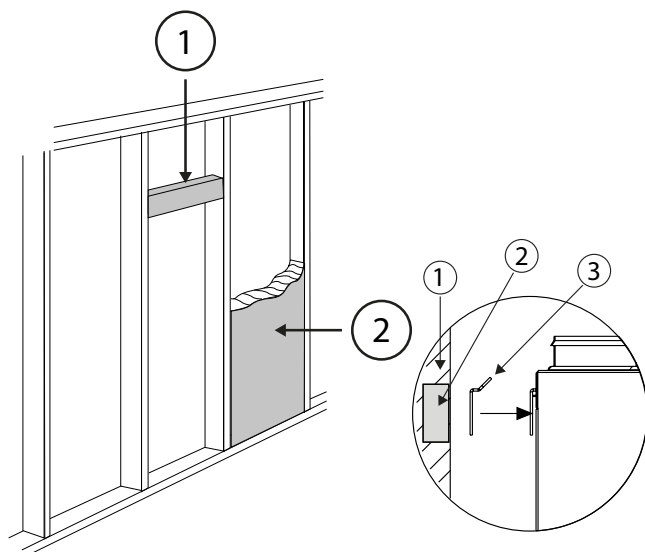
2.1.1 Wall mounting

The wall mounting bracket is supplied together with the unit.

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

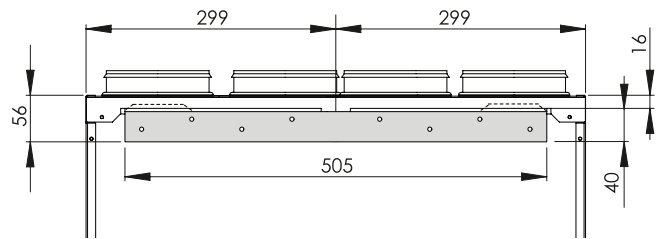
Screw the wall mounting firmly in horizontal position onto the wall where a wall stud will support the weight of the unit. Lift up the ventilation unit onto the wall mounting bracket so that the ears on the bracket engage in the corresponding notches at the top on the backside of the unit.

The ventilation unit's heat exchanger can be removed to make it easier to lift the unit. See the "Servicing" Section.



1. Horizontal stud for the ventilation unit's mounting bracket
2. Acoustic insulation

1. Insulated wall
2. Horizontal stud
3. Wall mounting bracket



Wall mounting bracket's dimensions

2.1.2 Ceiling mounting

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

Fasten the ceiling mounting frame in ceiling anchor sleeves with four M8 threaded rods. The length of rods must be adjusted so that they will be positioned approx. 15-20 mm under the inner surface of the ceiling mounting frame. Install the ceiling mounting frame approx. 35-55 mm below a suspended 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.

Install the ceiling mounting frame so that the sharp points on the locking hooks point backwards.

Before you lift the ventilation unit into position, route the power supply and data cables through the ceiling mounting frame. The ventilation unit is suspended in the ceiling mounting frame so that all four locking hooks fit correctly in the openings. The locking hooks have two catches; of which the lower one is designed to support the unit to facilitate connection to the ducts. When the unit is at the correct position in relation to the duct, lift up the upper catches. The unit is firmly secured if the screw heads on the front part of the ceiling mounting frame return to their original positions. The ventilation unit can then be secured into position by screwing in the locking screws to their end positions.

2.1.3 Connection of Swegon CASA cooker hood

The compatible Swegon CASA cooker hood can be mounted so that the extract air from the cooker hood is led via a duct to the unit's extra connection and through the duct that bypasses heat recovery. The duct between the cooker hood and the ventilation unit must be installed in such a way that makes it possible to clean it.

The ventilation unit's extra duct connection can be plugged if the kitchen bypass is not used.

The ventilation unit can be controlled from the cooker hood control panel.



Important



The bypass for a kitchen is intended for use when the airflows from the cooker hood/ kitchen are boosted. The kitchen's general ventilation must take place via the extract air duct. If the general ventilation takes place continuously via the cooker hood, the supply air and extract air flows through the heat exchanger will be out of balance, and this will lower the efficiency and impair the ventilation unit's anti-freeze protection functions during the winter.

2.2 Condensate discharge

As a rule, no condensate discharge connection is needed under dry ambient conditions and in combination with a rotary heat exchanger. A certain humidity load exists in homes and a condensate discharge line should be connected to the ventilation unit, if considerable moisture is produced in the home.

Connect the discharge hose to the ventilation unit's condensate discharge connection (3/8" male threads). The condensate must be channelled to a floor drain, the water trap of a sink or the equivalent by means of a tube or a pipe having an inner diameter of at least 12 mm. The tube must not be connected directly to the sewer. The tube must not have a second water trap or be run horizontally. The damming height of the water trap should be at least 100 mm.

2.3 Ducts

Install the ventilation ducts, sound attenuators, supply air diffusers, air intake grilles and exhaust air ducts as shown in the ventilation drawings. To prevent the propagation of sound, do not install the ducts directly against structural building elements.

Insulate the ventilation ducts in order to reduce loss of heat or cooling energy and to prevent water from condensing on surfaces. In addition, it is advisable to insulate the ducts to prevent the spread of fire. **It is of greatest importance to insulate cold ducts without gaps in the insulation, so that moisture cannot condense.**



Important



Check whether the ventilation unit has been supplied in the right-hand or left-hand version to make certain that you are connecting the ventilation ducts to the correct duct connection spigots on the unit. Check the ventilation plans to make sure that the duct connections are correctly installed. See also the dimensional drawings in the Section entitled: "Technical data".

2.4 To seal around duct penetration collars

We recommend the use of a mounting frame designed for the ventilation unit (accessory) for sealing the vapour barrier in the loft ceiling beams.

It is important to preserve the tightness of the vapour barrier at the duct penetration collars. A building element penetration seal (accessory) will facilitate this. This item is available in sets of 3 pieces, for diameters: 100, 125 and 160 mm and are attached to the moisture barrier with tape.

Cut up the openings with approx. 10 mm smaller diameter than that of the ducts. Secure the mounting frame in the ceiling with screws through the holes on the sides. The plastic film of the vapour barrier should either be stretched and fastened between the mounting frame and the structural element of the building, or be taped tightly against the mounting frame.

The thickness of the insulation and the nature of the surface layer of the ventilation ducts vary depending on insulation material, climate zone and national standards in force. For this reason, Swegon does not offer any recommendations for insulation thickness. Most manufacturers of insulation material offer calculation programs for the calculation of sufficient and correct insulation.

In renovation projects, it is advisable to examine the existing ducts to determine whether they are sufficiently and correctly insulated. Insulating in the right way is necessary for the ventilation unit to operate correctly. **If the ducts are uninsulated, even across a small area, there is a high degree of risk of condensation and indirect damage.**

The supply air duct should be fitted with acoustic insulation along the stretch between the unit duct outlet and the sound attenuator, so that fan sound will not be propagated out into the room.

In general, ventilation ducts should be insulated in the following manner:

- Insulate outdoor air ducts run through warm spaces.
- Exhaust air ducts should always be insulated in accordance with national regulations. See separate project planning instructions (for example Fire resistance classification requirements).
- Insulate supply air ducts in cold spaces.
- Insulate extract air ducts in cold spaces.
- If the air inside the duct is colder than in the surroundings; the insulation should be protected by a vapour barrier.



Important



Even small gaps in the insulation impair the sound attenuation and bring about a risk of condensation and consequential damages.



Important



Before commissioning the ventilation system, check that the ventilation unit, filters and ducts are clean and that there are no loose objects inside them.

The ventilation ducts should be cleaned regularly and always when the home is renovated.

The connection of possible accessories is described in the wiring diagram in the Section entitled: "Technical data". The cables for accessories are not included in the supply.



Important



It is absolutely forbidden to operate the ventilation system during the construction period or if dust-raising work is carried out. Before installing the unit, the ducts should be blanked off with covers to prevent the entry of impurities.

2.5 Electric and control cables

A 1.5 m long cable with earthed plug-in contact is fitted to the ventilation unit for measuring the voltage. The cable extends from the top of the unit. The mains plug serves as the ventilation unit's main switch and it should be connected to an electric socket at an easily accessible spot. For power required, see the Section entitled: "Technical data".

On top of the ventilation unit are two modular cables for control of the unit. The maximum connected length of the modular cable in the system is 40 metres. If the modular cable is lengthened within some building element (such as a wall), the cable should be lengthened in a $\varnothing 20$ mm dia. tube as a precaution in case the need should arise to replace it in the future.



Important



If any further electrical wiring is required, only a qualified electrician shall be allowed to carry out this work.

The electric and control cables are located on the upper side of the ventilation unit.

Make sure that the electric cable can be connected to a wall outlet without obstruction.

When installing the unit, make sure that you provide adequate access to the connector of at least one cable, e.g. for servicing and adjusting the unit, if and when the need arises.

In multi-storey buildings, a control panel can be used as a so-called hand-held micro terminal in conjunction with service and installation work.

2.6 Installation of the Smart control panel

A maximum of two Smart control panels can be connected to the ventilation unit, with different mutual ID numbers. A 20 metre long modular cable is included to connect the control panel. Run the cable to the desired place where the panel will be mounted. A Smart control panel can be mounted up to 40 metres from the unit (using 2 x 20 metre long modular cables).

The front panel on the Smart control panel is released using a screwdriver to push the retaining clips through the holes on either side.



If several control panels are connected in chain, the middle panel's bus termination is moved to the "Open" position. The jumpers do not need to be adjusted if only one control panel is used.

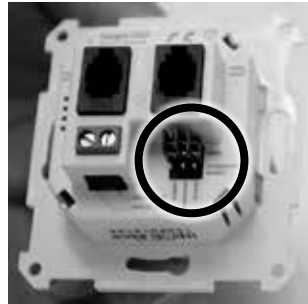
The modular cable connected to any outlet socket on the panel.



Finally, refit the front panel.



Bus termination: Terminated



Bus termination: Open

3. Commissioning

The ventilation system's settings in connection with commissioning and servicing are made from the password-protected "Settings" menu on a Smart control panel. To open the menu, enter code 1234. (The code can be changed). In conjunction with commissioning, you always need to set at least the airflow and carry out any adjustments to the Smart sensor if fitted.

◀ Settings
Fan speeds
Preheater
Re-heater
Input settings
Smart functions
Fireplace function
Smart settings
Summer cooling
Supply air limit
DDC control
Damper actuators
Sensors
Alarms
Reset factory settings
Change service code

3.1 To set the airflows

For estimated values for setting the airflows, use the sizing curves in the Section entitled: "Technical data". A qualified person should set the ventilation unit's and the ventilation equipment's airflows using appropriate measurement equipment.

As an initial value for ventilation planning, you can use the ventilation value 0.5 times the volume of the building per hour + 6 l/s supply air per person, when the unit is operating in the Home mode. (Initial values can vary in different countries.)

As guidelines in the Away fan mode, you can use 0.9 x the airflow rate in the Home mode for the extract air fan and 0.7 x the airflow rate in the Home mode for the extract air fan. Scope for boosting should be provided in accordance with regulations that apply in the relevant country.

In new homes, there is still construction moisture and the house initially requires higher ventilation in order to remove the moisture from the building. A great deal of moisture in the home manifest itself in the form of moisture on cold surfaces. We recommend that in new houses to use higher volumes of air at first to remove moisture.

All the fan modes must be preset so that the ventilation unit will operate correctly. Fill in your entered settings in the commissioning report.

It is recommended in order to improve the efficiency of the ventilation to use an automatic moisture sensor or to actively use the ventilation unit's boost speed, if there is a sauna, pool or equivalent moisture producer in the home.

Important

Set the fan speeds in accordance with national regulations when you commission the ventilation system. The system should be commissioned by a qualified person, and the airflows must not be changed on one's own responsibility, since doing so could disrupt the way the ventilation system operates.

3.1.1 Setting the fan speeds

Before you start to adjust the fan speeds, ensure that the filters are clean and that there are no foreign objects or debris inside the ventilation unit.

◀ Fan speeds	
Commissioning mode	<input checked="" type="checkbox"/>
Away (supply)	30%
Away (exhaust)	30%
Home (supply)	50%
Home (exhaust)	50%
Boost (supply)	80%
Boost (exhaust)	80%
Max Smart boost (supply)	100%
Max Smart boost (exhaust)	100%

Choose commissioning mode from the "Fan speeds" menu, as the ventilation fans then run at the speed being set. In commissioning mode, all functions that affect the speed of the ventilation unit's fans, such as the anti-freeze protection, are disconnected.

Set the fan speeds for all operating modes (Home/Away/Boost) and the largest automatic boost, if you wish to limit the Smart functions.

Fill in your entered settings in the commissioning report.

3.2 Smart functions

Setting of Smart functions must be performed.

3.2.1 Selection of Smart functions

Select which functions are to be available from the "Smart functions" menu. When boost is selected, boosting is used on all connected sensors.

Smart functions	
Fireplace function	<input checked="" type="checkbox"/>
Travelling	<input checked="" type="checkbox"/>
Cooker hood function	<input checked="" type="checkbox"/>
Central vacuum function	<input checked="" type="checkbox"/>
Boost	<input checked="" type="checkbox"/>
Summer cooling	<input checked="" type="checkbox"/>
Heating boost	<input checked="" type="checkbox"/>
Shut down	<input checked="" type="checkbox"/>

3.2.2 Automatic Home/Away/Boost system

The function is available only on models equipped with a carbon dioxide sensor. The automatic control system controls the ventilation airflow variably according to the carbon dioxide level in the home.

This function should always be set in conjunction with commissioning.

Auto Home/Away/Boost	
A+ now	950 ppm
Home limit	900 ppm
Away limit	600 ppm
Filter time	1 min

The settings menu shows the value "A+ now" the current level of carbon dioxide. The function is set by defining the limits values Home and Away. A suitable Home limit value can be determined by reading the "A+ now" value from the menu when a normal number of people are in the home. Similarly you can determine the away limit value by reading the "A+ now" value when the property has been empty.

3.2.3 Automatic humidity system

The function is available only on models equipped with a humidity sensor. The automatic humidity system variably boosts the ventilation if necessary.

Auto humidity control	
RH now	30 %
Boost limit	5 % + RH
Full boost limit	30 %
Sauna function	<input type="checkbox"/>
Sauna boost	5 %

If necessary, the automatic humidity settings can be adjusted during operations.

3.2.4 Automatic air quality control

The function is available only on models equipped with a VOC sensor. Auto air quality control boosts the ventilation variably according to the indoor air VOC level.

This function should always be set in conjunction with commissioning.

Auto Air Quality control	
AQ now	620 ppm
Boost limit	800 ppm
Full boost limit	1400 ppm
Filter time	1 min

The settings menu shows the value "AQ now" the current VOC level. The function is set by specifying the boost limits when you want the ventilation boost to start and the value at which you want the ventilation unit to reach maximum boost. Appropriate values can be established based on the "AQ now" value shown in the menu.

3.2.5 Cooker hood function

The cooker hood function balances the ventilation when the cooker fan is used to help prevent excessive negative pressure and improves fume extraction capability of the cooker hood. The function starts automatically when the damper in a compatible cooker hood is opened and runs until the damper is closed.

Cooker hood function	
Run time	30 min
Home state Compensation	20%
Boost state Compensation cor.	0%
Allow exhaust fan slowdown	<input type="checkbox"/>

Choose to permit a speed reduction of the extract air fan when using a cooker hood whose extract air does not pass through the ventilation unit.

Enable the cooker hood function and set the Home mode's compensation value so that the airflows are kept in balance. Fine tune the boost compensation value too if necessary.

3.3 Sensor

Select which sensor you wish to use to measure the room air temperature.

Sensors	
Room air	UP1
Room air temperature	22,2°C
Room air fine tuning	0,0°C

The menu shows the temperature measured by the selected sensor. If, for example, the temperature measured by the sensor differs from the value from a temperature sensor installed in a different location in the same room, the temperature sensor can be calibrated by changing the room air fine tuning value.

3.4 Control functions with optional items of equipment

If the unit is to be controlled with optional equipment, set the switch input for this.

Input settings	
Input 1	Fireplace
Priority	1
Input 2	Hood
Priority	1
Input 3	No selected

There are three switch inputs on the ventilation unit's PCB that need to be configured. Specify which switch is connected to each input. The options are input signals from the following external switches: fireplace, travelling, central vacuum, cooker hood, boost and filter guard. You can change the relative priority of the functions if necessary.

3.5 Remote supervision (DDC)

If the ventilation unit is to be controlled via remote supervision, choose to enable remote supervision and state the function to be controlled. See a detailed description of remote control in section 7.6.3.

DDC control	
In use	<input checked="" type="checkbox"/>
Fan control	<input checked="" type="checkbox"/>
Temperature control	<input checked="" type="checkbox"/>
Emergency stop	<input checked="" type="checkbox"/>
Emergency output	<input checked="" type="checkbox"/>

3.6 Damper motors

If external duct damper motors are used, choose to enable control. The damper is then regulated to the open position when the ventilation unit is operating.

Damper actuators	
Damper actuators A	<input type="checkbox"/>
Damper actuators B	<input type="checkbox"/>

3.7 Preheater

Preheater	
In use	<input type="checkbox"/>

R3 ventilation units do not have an electronic preheater.

3.8 Re-heater (not Econo)

Re-heater	
In use	<input checked="" type="checkbox"/>

Here you select whether you wish to use the electric air heater for re-heating to heat the supply air when the heat exchanger's power is not sufficient for reaching the preset supply air temperature.

3.9 Anti-frost protection

3.10 Restore factory settings

Resets all settings made from the control panel, with the exception of the fan speeds.

3.11 Change the service code

Enter code	
[1 2 3 4]	
Accept	

This menu is used to change the code to access the setting menu.

3.12 Use

Issues with reference to the usage of the ventilation system are dealt with in the instructions for use supplied with the unit.

4. Service

4.1 Service reminder

The service reminder is activated with preset time intervals and the ⓘ symbol is displayed on the control panel's screen. As a factory setting, the service reminder is not in operation. It can be put into operation under the main menu item "Diagnostics"/"Service reminder". The recommended service interval for the ventilation unit is six months.

When servicing has been performed, the service reminder is reset from "Alarm" in the main menu.

4.2 To open the ventilation unit

Before you begin any service work, isolate the power supply voltage to the ventilation unit by pulling out its electric plug from the wall socket. Wait a few minutes before you open the inspection door of the ventilation unit so that the fans have time to stop and possible air heaters have time to cool down.

Open the inspection door by turning the two lock bolts with a screw driver for slotted screw heads.

4.3 Filter

The filters should be replaced at least every six months. The filters may need to be cleaned or replaced more often in homes where there is considerable dust or if there are many impurities in the outdoor air.

The ventilation unit must not be operated without filters. Use only filters recommended by Swegon in the ventilation unit. This is important, as filters with exactly the same appearance and size can have very different pressure losses and filter capacity. If an incorrect filter is used, it is not certain that the ventilation unit will work as designed. Check in the list of components that you have selected correct filters.

4.4 Heat exchanger

You should check the condition of the heat exchanger whenever you service the unit.

Withdraw the heat exchanger from the unit for inspection. If you want to withdraw heat exchanger completely out of the unit, you must also disconnect the quick-fit connector. The contact is located under the supply air filter. When you mount the heat exchanger back in the unit, be sure to reconnect the connector and arrange the cable where it won't become worn by moving parts in the rotary heat exchanger.

There is an opening in the front plate of the heat exchanger through which you can see the drive belt. Carefully rotate the heat exchanger rotor one revolution to inspect the condition of the drive belt. Do not damage the heat exchanger fins.

Check the condition of the brushes along the rotor periphery. Replace the brushes if they are worn.

Make sure that the passages through the heat

exchanger rotor are not clogged and clean them with running water if required. Never use cleaning agents. Inside the heat exchanger enclosure there is an electric motor that must not be exposed to dampness. **The passages of the heat exchanger should be dry before you reinstall the heat exchanger in the unit.**

4.5 Fans

The ventilation unit's fans must be checked at least once a year. The fans are located behind the protective plates, which are marked in the illustration below. Withdraw the fans from the unit for inspection. You can remove the fan from the unit by pulling them straight outwards. If you pull the fans out completely, you must also disconnect the quick-fit connector.

In particular, if the cooker hood is connected to the ventilation unit, grease and dust can accumulate on the extract air fan impeller and on the walls of the ventilation unit's fan chamber. If dirt builds up in the fans this can affect the functionality of the ventilation unit.

If necessary, clean with a soft brush. Be careful not to dislocate the impeller balancing weights. If significant amounts of dirt collect on the fan impeller cleaning should be left to a professional.

4.6 Other servicing

Clean the inner surfaces of the ventilation unit by vacuum cleaning or with a damp cloth, if needed.

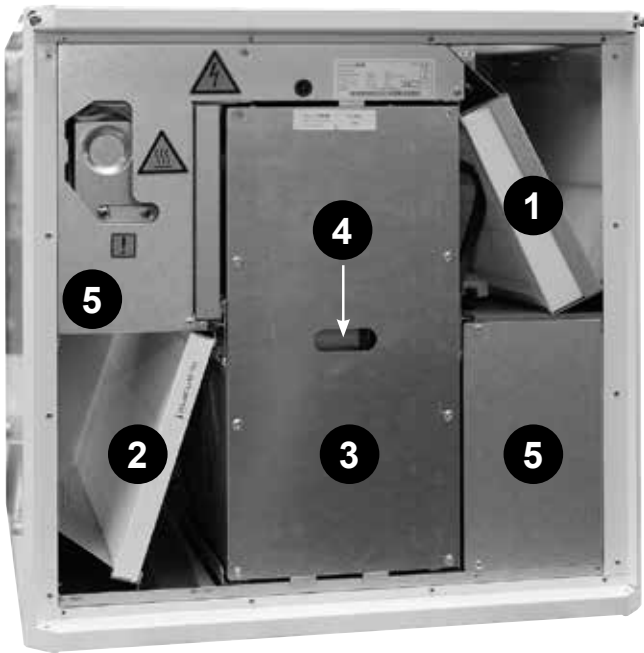
Check that the condensate discharge outlet is not clogged and check its outflow by pouring water on the bottom of the ventilation unit. The condensate discharge connection is located at the rear of the ventilation unit and is easily accessed if the heat exchanger is removed from the unit. The location of the condensate discharge connection is marked in the illustration below.



Important



The ventilation unit must not be operated without filters! Use only filters recommended by Swegon in the ventilation unit. Find the correct filter in the Section entitled: "Technical data".



- 1. Supply air filter
- 2. Extract air filter
- 3. Heat exchanger
- 4. Heat exchanger drive belt
- 5. Guard plate



Location of the condensate discharge connection.

5. Alarms and Troubleshooting

5.1. Alarm

Any disruptions to the function of the ventilation unit are indicated by symbols on the upper row of the base display. If there is an active alarm in the system, the screen leaves its standby mode and does not enter standby mode again as long as the alarm is active. The symbol for an active alarm is **▲**. The condition that has caused the alarm is shown by the "Alarm" item on the main menu. A so-called info-alarm **ⓘ**, remains on the screen when the active fault condition ceases. The Info alarm can be reset from "Alarm" on the main menu.

Important

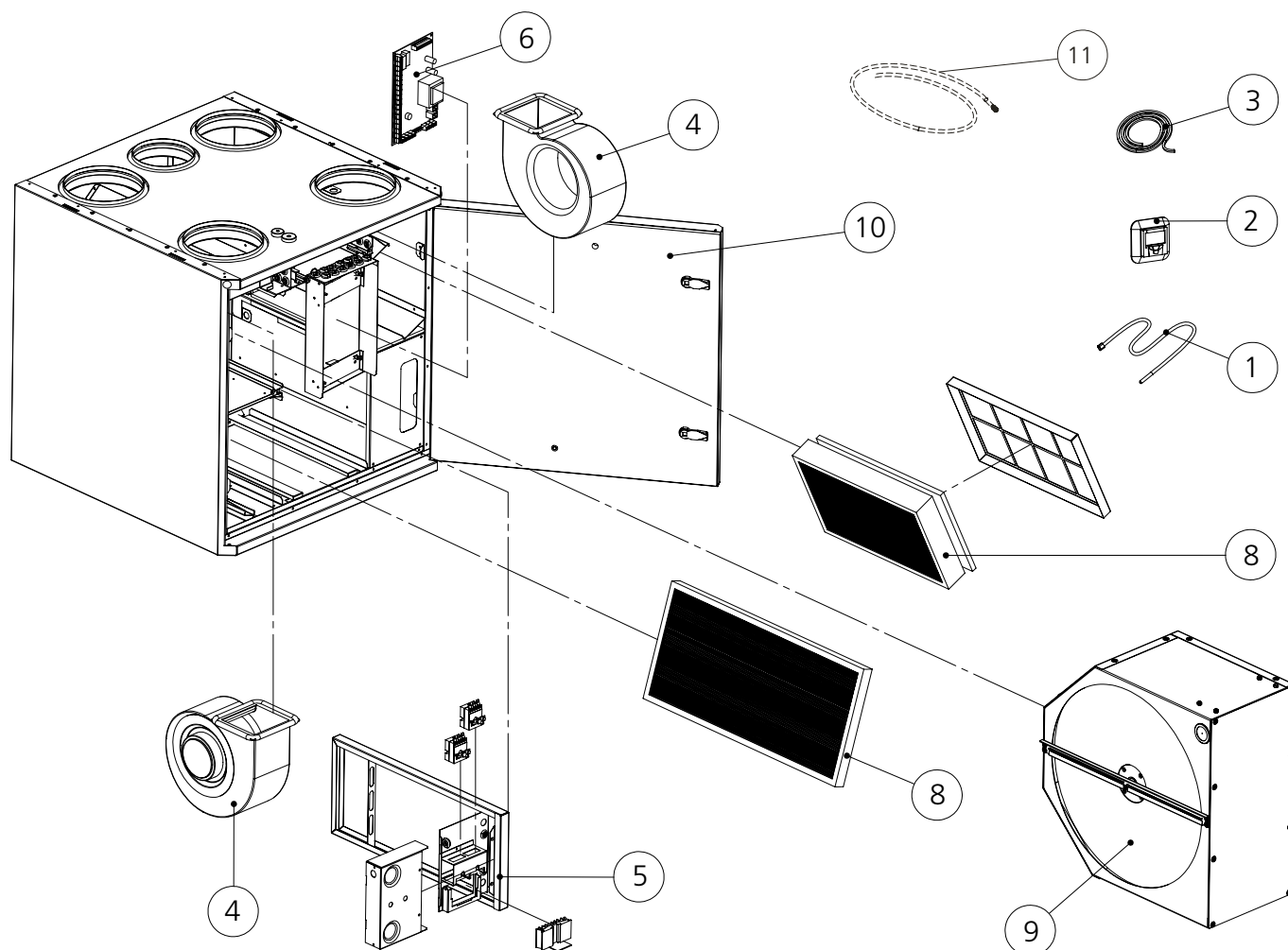
Freeze protection
During periods of cold weather, the heat exchanger is liable to freeze if the extract air is humid. A protective function then automatically reduces the speed of the supply air fan. Under such conditions, variations in the fan speed are therefore normal. Under such conditions, small amounts of ice can form at the edge of the heat exchanger.

Status	Alarm	Action
▲	T1...T8 sensor fault	Contact a service company. The ventilation unit runs in a restricted operating mode.
▲	Reheater error	Check the overheating protection. Contact a service company.
▲	Preheater error	Check the overheating protection. Contact a service company.
▲	Freeze risk water-heated air heater	Ensure that the circulation pump in the waterborne heating system is running and that the water supply to the ventilation unit's heating coil is hot enough.
▲	Fault supply air fan	Contact a service company.
▲	Fault extract air fan	Contact a service company.
▲	Contact fault	Restart the ventilation unit. Contact the service company if the error persists.
▲	External emergency stop/ fire alarm	The alarm clears automatically when the external emergency stop or the fire alarm ceases. No info alarm remains afterwards.
▲	Internal fault	Restart the ventilation unit. Contact the service company if the error persists. The ventilation unit runs in a restricted operating mode.
ⓘ	Service reminder	Service the ventilation unit and acknowledge the service reminder.
ⓘ	Filter guard	Replace the filter and reset the filter guard.

5.2 Troubleshooting:

A ventilation system is a unified whole composed of several system components all of which influence how the system operates. A malfunction in ventilation performance could be caused by any component of the ventilation system or by the way the system has been installed. If you suspect the ventilation unit is malfunctioning, go through the troubleshooting section on our website (www.swegonhomesolutions.com). If the ventilation unit is still impaired by malfunctions after the checks, contact our product support group.

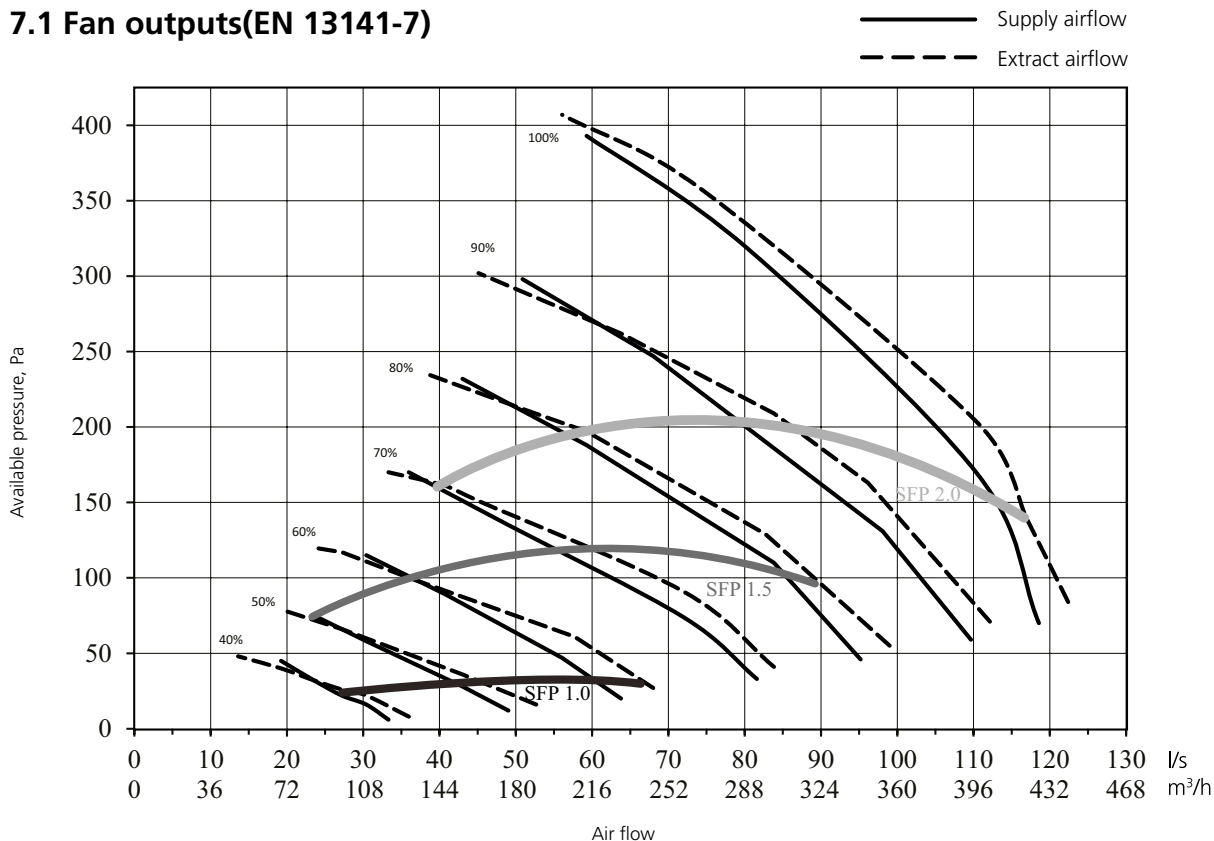
6. List of components



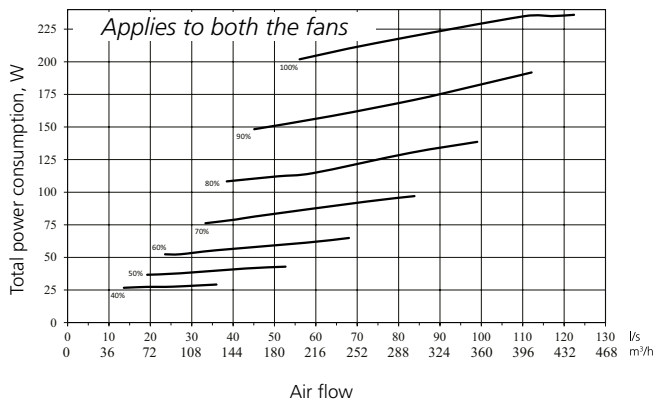
1. Temperature sensor
2. Smart control panel: SC10
3. Modular cable, 20 m: PMK20
4. Fan (R Model): PEC119R
4. Fan (L Model): PEC119L
5. Reheating cassette: 10212RVM
6. EC circuit card: 603010
7. Door contact: 60542
8. Set of filters: 10212RSS
9. Rotor package (R Model): RP120R
9. Rotor package (L Model): RP120L
10. Door: DR120RL
11. Condensate discharge tube: 502103

7. Technical data

7.1 Fan outputs(EN 13141-7)



Power consumption



Important

For the heat exchanger to operate correctly, the Home mode extract airflow must be at least 35 l/s.

7.2 Outputs of the components

	R5	R5 with reheating
Connection	230 V, 50 Hz, 1.0 A	230 V, 50 Hz, 3.2 A
Fans	210 W	210 W
Heat exchanger motor	10 W	10 W
Air heater, reheating	-	800 W
Total output	230 W	1030 W

7.3 Acoustic data

Sound emitted to supply air duct

Fan setting %	Sound power level broken down into octave bands, $L_{\text{wokt'}}$ dB								Total assessed sound power level $L_{\text{WA'}}$ dB(A)
	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz	8,000 Hz	
54	67	60	55	50	48	42	36	22	54
57	67	63	57	52	51	45	39	27	56
60	67	63	58	53	52	46	41	29	57
63	67	65	60	54	53	48	43	32	58
67	71	66	61	56	55	50	45	35	60
71	72	68	62	57	56	52	46	36	61
76	74	70	64	59	57	54	48	38	63
81	75	71	65	59	57	54	48	40	64
87	77	73	67	61	59	56	50	42	65
100	78	75	69	63	60	58	52	44	67

Sound emitted to extract air duct

Fan setting %	Sound power level broken down into octave bands, $L_{\text{wokt'}}$ dB								Total assessed sound power level $L_{\text{WA'}}$ dB(A)
	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz	8,000 Hz	
54	64	46	48	43	37	33	23	8	45
57	64	48	49	45	38	34	24	9	46
60	62	58	51	46	39	35	26	11	49
63	64	61	51	48	40	36	27	13	50
67	63	63	53	49	41	38	29	15	52
71	63	63	55	50	43	40	31	17	53
76	66	66	56	52	44	41	32	19	55
81	63	66	57	54	45	42	33	20	55
87	66	68	58	55	46	43	35	22	57
100	66	68	59	55	46	43	35	22	57

Sound emitted to kitchen bypass duct

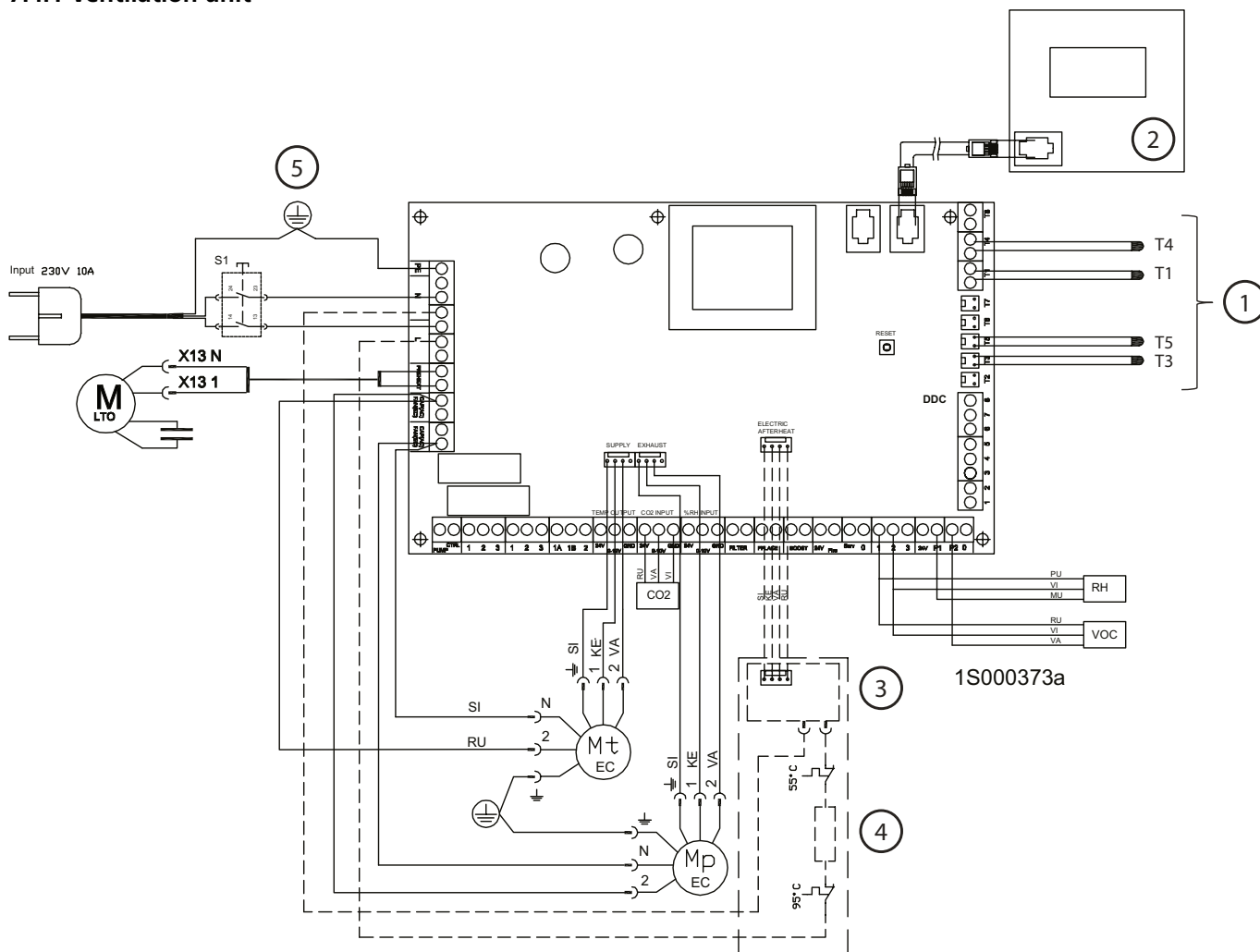
Fan setting %	Sound power level broken down into octave bands, $L_{\text{wokt'}}$ dB								Total assessed sound power level $L_{\text{WA'}}$ dB(A)
	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz	8,000 Hz	
54	63	-	49	44	33	31	25	13	45
57	65	-	51	45	34	32	27	15	47
60	63	53	53	46	35	33	28	17	48
63	59	47	53	47	37	35	30	18	48
67	61	59	55	48	37	36	31	20	50
71	64	57	56	49	39	37	32	22	51
76	69	59	57	51	40	39	34	24	53
81	68	61	59	52	41	40	36	26	54
87	66	64	60	52	43	41	37	27	55
100	67	65	61	53	43	42	38	29	56

Sound emitted to the surroundings

Fan setting %	Sound power level broken down into octave bands, L_{wokr} dB								Total assessed sound power level L_{WA} dB(A)	Sound absorption $L_{p10(a)}$ 10 m ² , dB(A)
	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz	8,000 Hz		
54	44	46	37	28	23	12	-	-	30	26
57	46	46	38	29	24	13	-	-	35	31
60	46	46	39	30	25	14	-	-	35	31
63	44	47	40	30	26	14	-	-	36	35
67	45	47	42	33	28	17	-	-	37	33
71	44	48	43	34	29	19	10	-	38	34
76	46	49	44	34	29	20	11	-	39	35
81	47	50	45	36	32	21	12	-	40	36
87	49	52	46	37	33	22	14	-	42	38
100	51	54	48	39	34	24	15	-	43	39

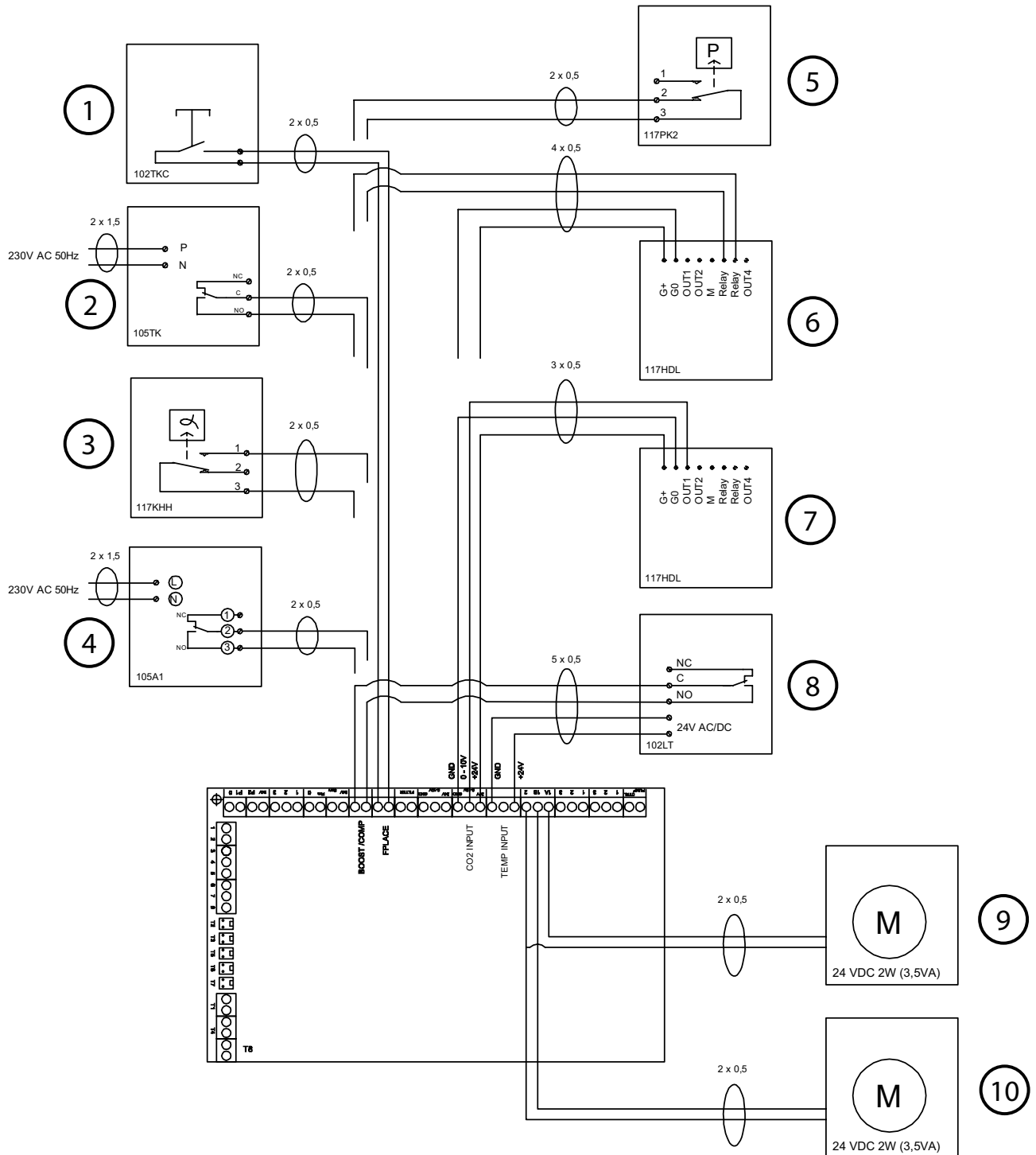
7.4 Electrical wiring diagram

7.4.1 Ventilation unit



1. Temperature sensor, see the Control diagram
2. Smart-control panel (accessories)
3. Triac controller
4. Air heater, reheating, 800 W (accessory)
5. Door contact

7.4.2 Control functions with accessories



1. Fireplace switch
2. Boost timer
3. Humidity sensor
4. Timer
5. Compensation for negative pressure
6. CO₂ sensor with relay
7. CO₂ sensor
8. Occupancy detector
9. Damper actuator for duct damper – A outdoor air duct*
10. Damper actuator for duct damper – B exhaust air duct*

*) The use of the duct damper should be judged on the basis of the specific case. The use of the duct damper is recommended at least in the outdoor air duct, especially on the Econo models.

There are three switch inputs on the ventilation unit's PCB that need to be configured. Switch inputs are selected from the Settings menu.

7.4.3 Supervision (DDC)

- The functions of wiring terminals 2-5 can be activated/deactivated from the control panel service menu.
- the status outputs (terminals 6 and 7) can always be used.

8: 0 V (GND)

7: The supply air temperature actual value: 0-10 V DC (corresponds to 10–30 °C)

6: Operating Status fan speed 0–10 VDC

0 V = Unit stopped

2 V = Travelling

4 V = Away

6 V = Home

8 V = Boost

10 V = Cooling

5: The supply air temperature 0-10 V DC control (corresponds to 10–30 °C)

4: Fan speed control 0–10 VDC

DDC not in use = 0–1 VDC

Away = 1–2.9 VDC

Home = 3–4.9 VDC

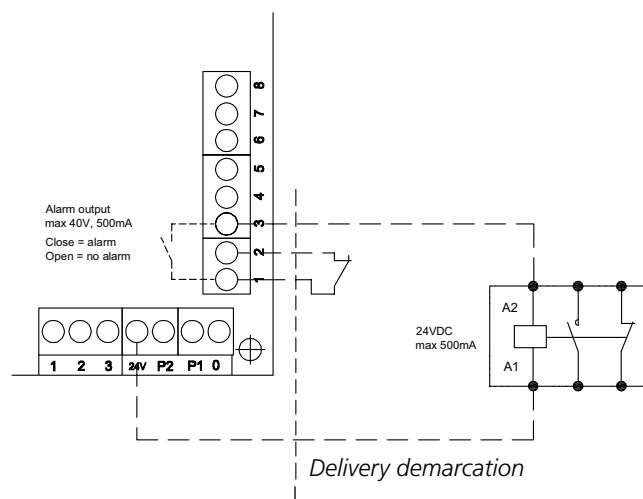
Boost = 5–6.9 VDC

Refresh = 7–10 VDC

3: Alarms – signal from the ventilation unit (earthed contact)*

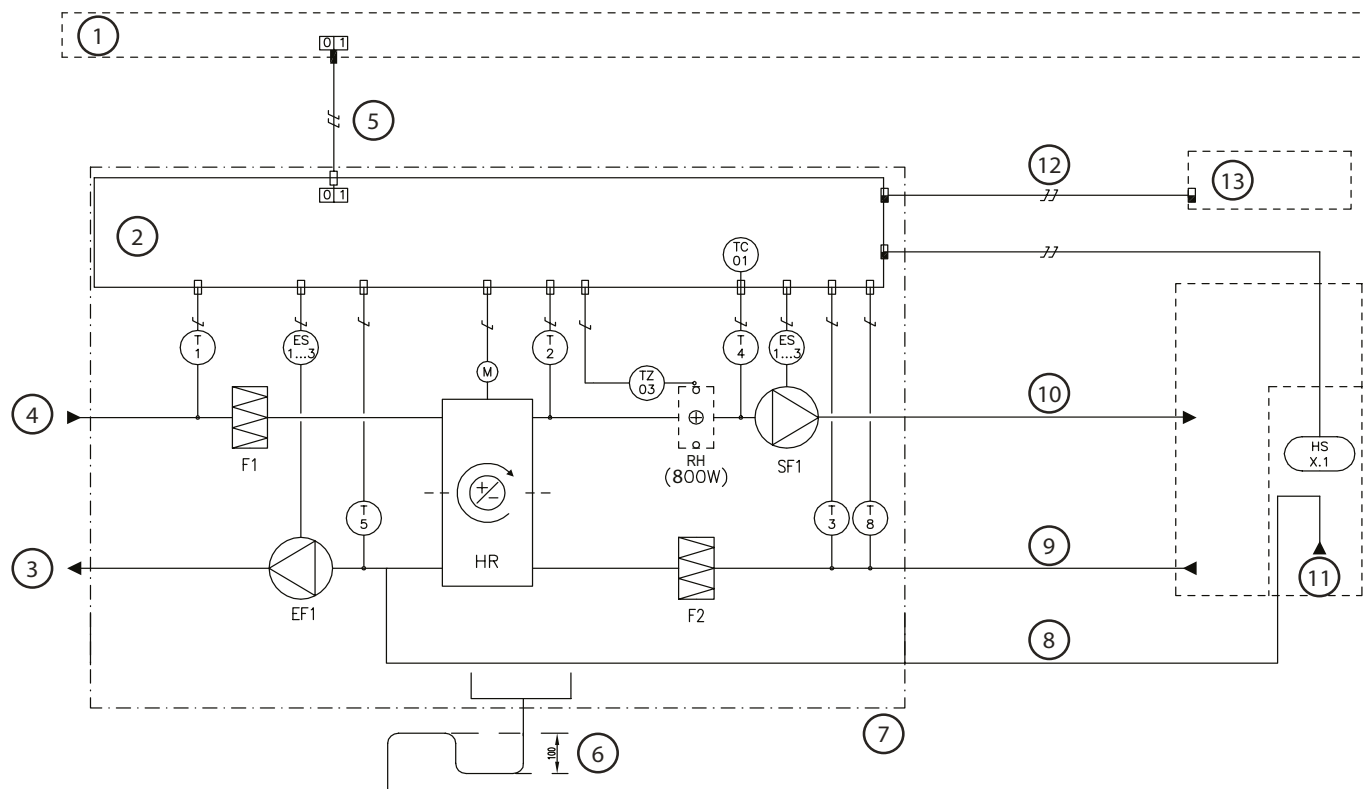
2: Emergency stop/fire alarm (if contact between terminals 1–2 is broken, the ventilation unit will stop)*

1: 0 V (GND)



*) Connection of the alarm/emergency stop

7.5 Control diagram



1: Group electrical distribution box | 2: Electrical equipment cubicle | 3: Exhaust air | 4: Outdoor air | 5: Power supply: 230 V, 10 A with plug-in connection | 6: The damming height of the water trap, 100 mm | 7: Supply demarcation of the ventilation unit | 8: Extraction from cooker hood, bypasses the heat exchanger | 9: General ventilation | 10: Supply air | 11: Cooker hood | 12: Modular cables with RJ9-connectors | 13: Control panel

SYMBOL	DESIGNATION	EXPLANATION
T1	TEMPERATURE SENSOR	Temperature sensor, outdoor air
T2	TEMPERATURE SENSOR	Temperature sensor, supply air
T3	TEMPERATURE SENSOR	Temperature sensor, extract air
T4	TEMPERATURE SENSOR	Temperature sensor, supply air
T5	TEMPERATURE SENSOR	Temperature sensor, exhaust air
T6	TEMPERATURE SENSOR	Overheating sensor in the air heater
T8	TEMPERATURE SENSOR	Temperature sensor for room air
TC01	THERMOSTAT	Overheating protection, air heater
TZ03	OVERHEATING PROTECTION	Overheating protection, air heater
HSx.1	CONTACT	Contact, timer for the cooker hood damper
F1	FILTER	Supply air filter
F2	FILTER	Extract air filter
HR	HEAT EXCHANGER	Rotary heat exchanger
SF1	FAN	Supply air fan
EF1	FAN	Extract air fan
RH	REHEATING	Supply air heating, accessory

DESCRIPTION OF THE FUNCTIONS

CONTROL FUNCTIONS:

The ventilation unit can be operated from a separate Smart control panel or a Swegon CASA cooker hood.

When the ventilation unit is controlled from the cooker hood in the Home/Away/Boost modes and for local extraction, the time can be set to 30, 60 or 120 minutes. The supply air temperature is controlled from the Smart control panel. When necessary, the reheating function can also be switched off from the control panel.

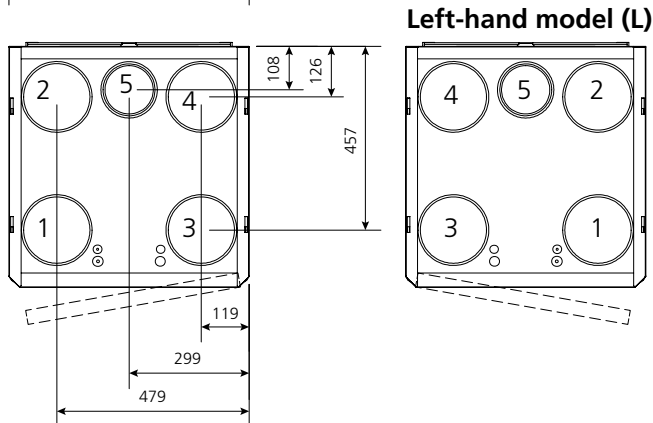
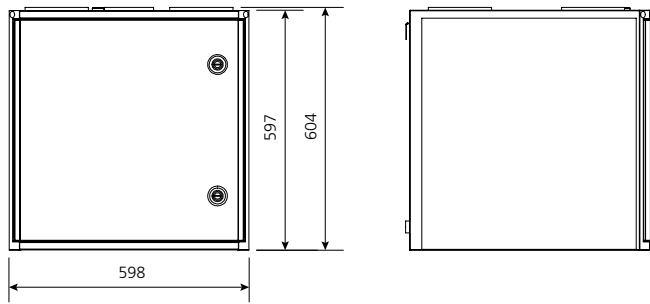
- Overheating protection for the reheating air heater: The air heater is equipped with a TC01 automatic thermostat with manual reset (preset limit value: 90 °C) as protection against overheating.
- The fans have automatic overtemperature protective devices.

REMEDIAL MEASURES TO TAKE IF THE SAFETY EQUIPMENT TRIPS:

- If an overheating protection with manual reset trips, locate and correct the fault; then press the reset button inside the ventilation unit.
- The automatic overheating protections of the fans will reset themselves when the temperature has dropped below the setting value.

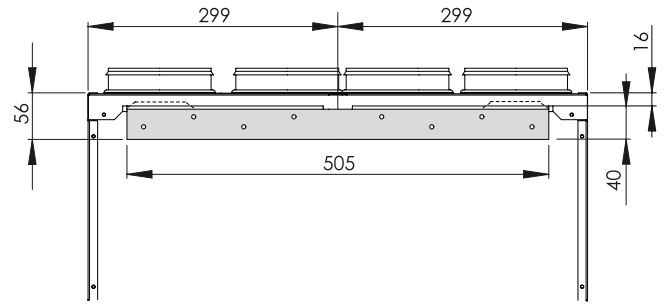
7.6 Dimensions

Swegon CASA R5 R

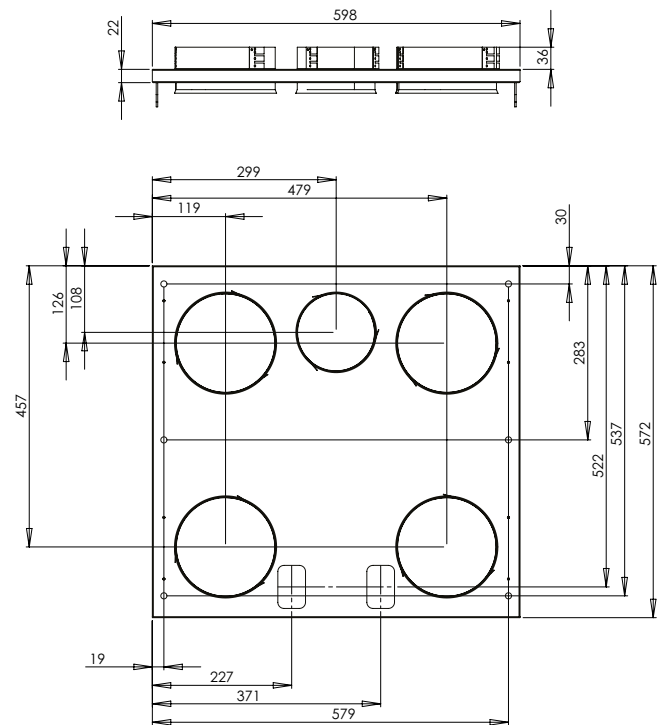


Duct connections				
1	2	3	4	5
Supply air Ø 160	Extract air Ø 160	Outdoor air Ø 160	Exhaust air Ø 160	Extract air from the cooker hood Ø 125

Wall mounting bracket



Ceiling mounting frame



7.7 Weights

Ventilation unit: 78 kg.

7.8 Ventilation unit codes

- R5 Smart R R05VR00S01
- R5 Smart L R05VL00S01
- R5 Smart R with electric reheating R05VR08S01
- R5 Smart L with electric reheating R05VL08S01
- R5 Smart R reheating + RH-control R05VR08S01H
- R5 Smart L reheating + RH-control R05VL08S01H
- R5 Smart R reheating + RH- and CO² control R05VR08S01C
- R5 Smart L reheating + RH- and CO² control R05VL08S01C
- R5 Smart R reheating + RH- and VOC control R05VR08S01V
- R5 Smart L reheating + RH- and VOC control R05VL08S01V

7.9 Accessories for installation

- Mounting frame with vapour barrier (R/L): 10212YP
- Ceiling mounting frame (R/L): 10212KA
- Set of filters (G3 +2 pcs. F7): 10212RSS
- Inspection door: DR120RL
- Smart control panel: SC10

8. Commissioning form

Function	Factory setting	Setting value
Fan speeds		
Away, supply air fan	50 %	
Away, extract air fan	50 %	
Home, supply air fan	60 %	
Home, extract air fan	60 %	
Boost, supply air fan	70 %	
Boost, extract air fan	70 %	
Maximum automatic boost, supply air fan	100 %	
Maximum automatic boost, extract air fan	100 %	
Smart settings		
Cooling, supply air fan	80 %	
RH, boost limit	5 %	
RH, full boost	30 %	
A+, Home limit	900 ppm	
A+, Away limit	600 ppm	
AQ, boost limit	800 ppm	
AQ maximum boost	1,400 ppm	
Fireplace function, difference in fan speed	20 %	
Cooker hood function, compensation (home)	20 %	
Cooker hood function, compensation (boost change)	0 %	
Central vacuum cleaner function, compensation	20 %	

Airflows NOTE! All the fan modes should be preset.	Project planning values	Setting value
Supply air, total	l/s m³/h	l/s m³/h
Away		
Home		
Boosting		
Extract air, total	l/s m³/h	l/s m³/h
Away		
Home		
Boosting		

Ventilation unit data | Write down the data on the ventilation unit identification plate for reference when the need arises to contact a service company.

Preset by:	Date:

Warranty Conditions

WARRANTOR

Swegon ILTO Oy
Asessorinkatu 10, FI-20780 Kaarina, Finland.

WARRANTY PERIOD

The product has a two (2) year warranty as from the date of purchase.

SCOPE OF THE WARRANTY

The warranty covers defects that have arisen during the warranty period, which have been reported to the manufacturer, or been declared by the warrantor or a representative of the warrantor, and which refers to design, manufacture or material defects as well as consequential defects that have arisen on the product itself. The above mentioned defects are to be cleared by putting the product in working order.

GENERAL WARRANTY LIMITATIONS

The warrantor's warranty liability is limited in accordance with these warranty conditions and the warranty does not cover damages to property or personal injury. The warrantor is not bound to comply with verbal promises in addition to this warranty agreement.

LIMITATIONS ON WARRANTY LIABILITY

This warranty is granted on condition that the product is used in a normal way or under comparable circumstances for the intended purpose, and that the instructions for use have been observed.

The warranty does not cover defects that have been caused by the following:

- Transport of the product.
- Careless use or overloading the product.
- Failure to follow the instructions dealing with installation, operation, maintenance and care.
- Incorrect installation of the product or incorrect location at the place where it is used.
- Circumstances which are not the fault of the warrantor, such as excessive variations in voltage, damage by lightning and fire or other accidents.
- Repairs, maintenance or design modifications that have been done by unauthorized parties.
- Neither does the warranty cover insignificant defects from an operational standpoint such as scratches on surfaces.
- Parts, which through handling or normal wear are exposed to a greater than normal risk of failure, such as lamps, glass, porcelain, paper and plastic parts as well as fuses are not covered by the guarantee.
- The warranty does not cover settings, information about usage, care, service or cleaning which is normally described in the instructions for use or the work required to rectify faults caused by the user neglecting the warning or installation instructions, or investigation of such.

CHARGES DURING THE WARRANTY PERIOD

The authorized service partner will not charge the client for repairs, replaced parts, repair work, transport or travelling expenses necessary for carrying out the repair work that are within the scope of the warranty.

This however assumes the following:



- The defective parts are handed over to the authorized service partner.
- that the repair begins and the work is carried out during normal working hours. The authorized service partner has the right to charge the client for extra costs for urgent repairs, or repairs carried out outside of normal working hours. However if the defects may cause a health risk or substantial economic losses, the defects will be repaired immediately without extra charge.
- A service vehicle or public means of transportation that follows a timetable (boats, planes or snow vehicles are not considered public means of transportation) can be used in conjunction with the repair of the product or replacement of defective parts.
- The costs for dismantling and installation of equipment, which is securely mounted to the place where it is used, cannot be considered as being abnormal.

REMEDIAL MEASURES WHEN A DEFECT HAS BEEN DISCOVERED

If a defect is discovered during the warranty period, the client must without delay report the defect to the dealer or to an authorized service partner (www.swegon.com/casa). Specify which product has a defect (product model, type designation on the warranty card or on the product identification plate, serial number); describe the type of defect as accurately as possible, and the circumstances under which the defect has arisen. If there is risk that the fault may have consequential impact on the environment, the ventilation unit must be switched off immediately.

A prerequisite for valid warranty liability is that the manufacturer or a representative of the manufacturer is given opportunity to inspect the defects reported in the warranty claim before the repair work begins. A prerequisite for repair under warranty is also that the client, in a satisfactory manner, can prove that the warranty is valid (= written receipt of purchase). After the warranty period has expired, warranty claims, which have not been submitted in writing prior to the expiration date of the warranty period, are not valid.

Swegon ILTO Oy, Asessorinkatu 10, FIN-20780 S:t Karins, www.swegon.com, casa.takuu@swegon.fi

**Important**

The supply airflow must be 2–10 % lower than the extract airflow.

**Important**

Remember to explain the use of the item of optional equipment and how to service it to the user/caretaker!

EC Declaration of Conformity

We at:

Swegon ILTO Oy
Asessorinkatu 10
20780 Kaarina
FINLAND

hereby affirm that
the Swegon CASA Smart ventilation units
comply with the following EC Directives:

Machinery Directive (2006/42/EC)
Low Voltage Directive (2006/95/EC)
EMC Directive (2004/108/EC)

and that the following harmonised standards have been applied:

EN 60335-1:2002 +A1:2004 +A11:2004 +A12:2006 +A13:2008 +A14:2010 +A15:2011 +A2:2006
EN 60204-1:2006 +A1:2009
EN 60034-5:2001 +A1:2007
EN 55014-1:2006 +A1:2009 +A2:2013
EN 55014-2:1997 +A1:2001 +A2:2008
EN 61000-3-2:2006 +A1:2009 +A2:2009
EN 61000-3-3:2008

Person authorised to compile the technical documentation:

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E-mail: lars.norrdal@ilto.fi

Date: S:t Karins 26.3.2015

Signature:

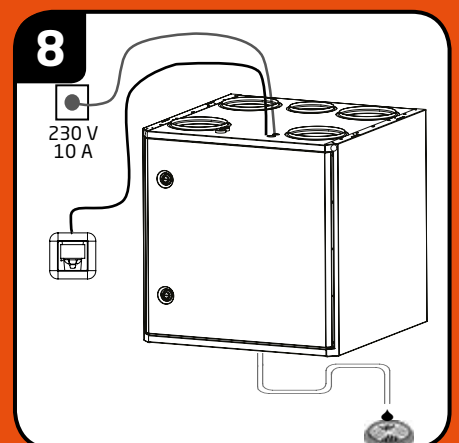
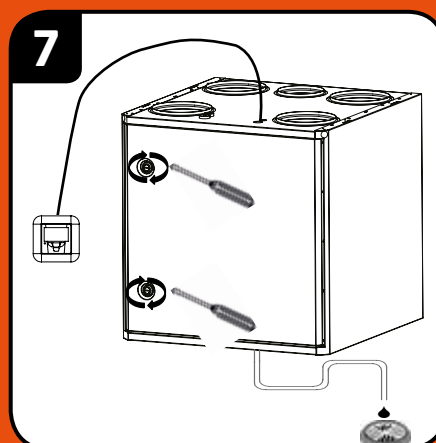
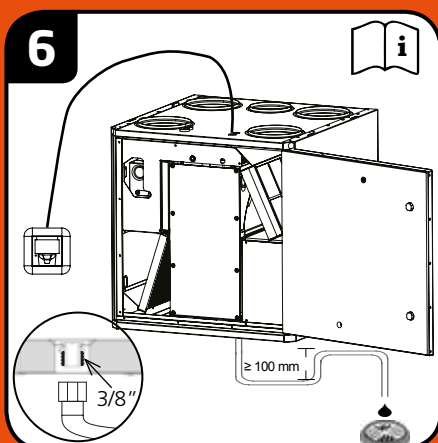
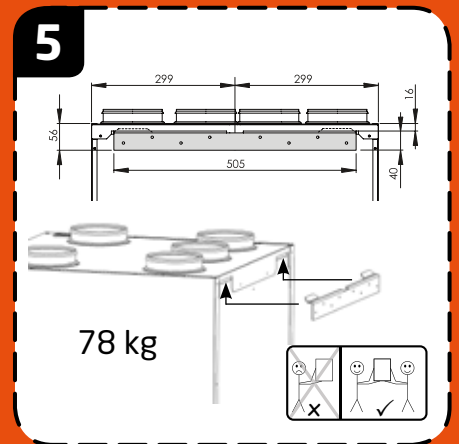
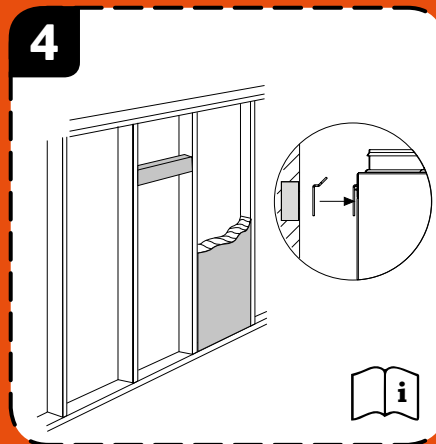
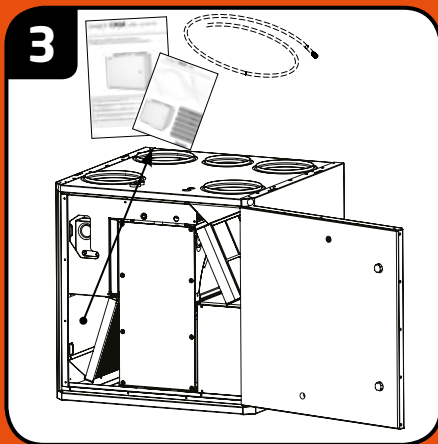
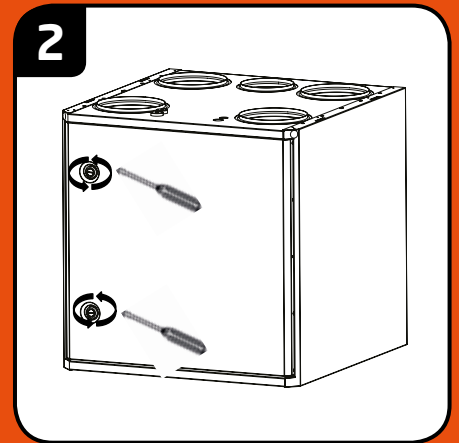
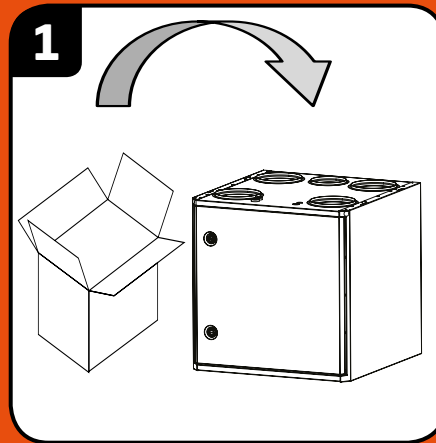


Peter Stenström
CEO
Swegon ILTO Oy

NOTE! The document's original language is English.

Quick Guide

Swegon
Home Solutions



Suomenkielinen Asennus-, käyttöönotto- ja huolto-ohje

löytyy osoitteesta www.swegonhomesolutions.fi (Työkalut > Etsi PDF-tiedosto "R5")

En svenskspråkig Installations-, drifttagnings- och underhållsanvisning

finns på adressen www.swegonhomesolutions.se (Toolbox > Hitta PDF "R5")

En norskspråklig Installasjons-, igangkjørings- og vedlikeholdsveiledning

finnes på adressen www.swegonhomesolutions.no (Toolbox > Finn PDF "R5")

Weitere Sprachversionen der Installations-, Inbetriebnahme- und Wartungsanleitung

finden Sie unter www.swegonhomesolutions.de (Toolbox > PDF-Suchmaschine „R5“).