

INSTALLATION MANUAL



ECO 190 CS/CL – ECO 190 TS/TL
Mechanical ventilation with passive heat
recovery

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INSTALLATION

IMPORTANT:

When installing ECO 190 follow these instructions:

- 1) Turn off the electricity before opening the unit
- 2) Install an air tight water trap on a non-freezing location to compensate for the fan pressure.
- 3) The height of the water trap must be at least 50 mm.
- 4) Make sure that the drain flows downwards all the way from the unit.
- 5) Pour 1 liter water into the drip tray of the unit to verify that it is drained properly. Before each heating season make sure that the drain is filled with water.
- 6) If freezing of the water trap occurs, it is necessary to install a thermostat and electrical heater to prevent freezing when the temperature drops below +2 °C.
- 7) Air flow adjustments must be made on both supply and exhaust air sides before use of the machine. It is important supply and exhaust air volumes are balanced.
- 8) It is recommended to keep the ducts closed until the unit is started and the system is adjusted.

Above instructions must be followed. If the condensate drain is not made according to this instruction, Genvex can not be made responsible for any additional damages, which have nothing to do with the Genvex unit.

ECO 190 CS/CL is intended for mounting on the ceiling with special brackets, which is delivered together with the ventilation unit (see photos).

Important: ECO 190 can only be installed horizontally.

1. Position the ceiling brackets according to the size of the ventilation unit and mount with a total of 6 screws capable of taking the entire weight of the unit.
2. Slide the ventilation unit with the preinstalled flanges onto the ceiling brackets.
3. Finish the installation by installing a screw in the fixation hole to ensure that the ventilation unit cannot move out of the ceiling bracket.

ECO 190 is intended for mounting flat on a plain vibration-free surface. Standard configuration is "right", which means that supply and extract air from the house living room areas are connected to the right side of the ventilation unit (note: controller facing towards you). Stickers on the ventilation unit indicate how to connect the ductwork.

PLEASE BE AWARE that project specific models can be configured left - if so the stickers will indicate how to connect ductwork.

On a "right" configured model the condensate drain and syphon is connected to the left side of the ventilation unit (i.e. on the fresh air and discharge side of the unit). The condensate drain on the right hand side will be plugged and is not in use.

Space necessary for installation recommended is machine size including brackets + 20 cm all around the unit. 100 cm free space is recommended in front of PCB to be able to connect sensors and for service.

A minimum of 160 cm below the machine is recommended for filter extract.

Please consider space required for siphon/condensate drain when planning the installation of ECO 190.

1.



2.



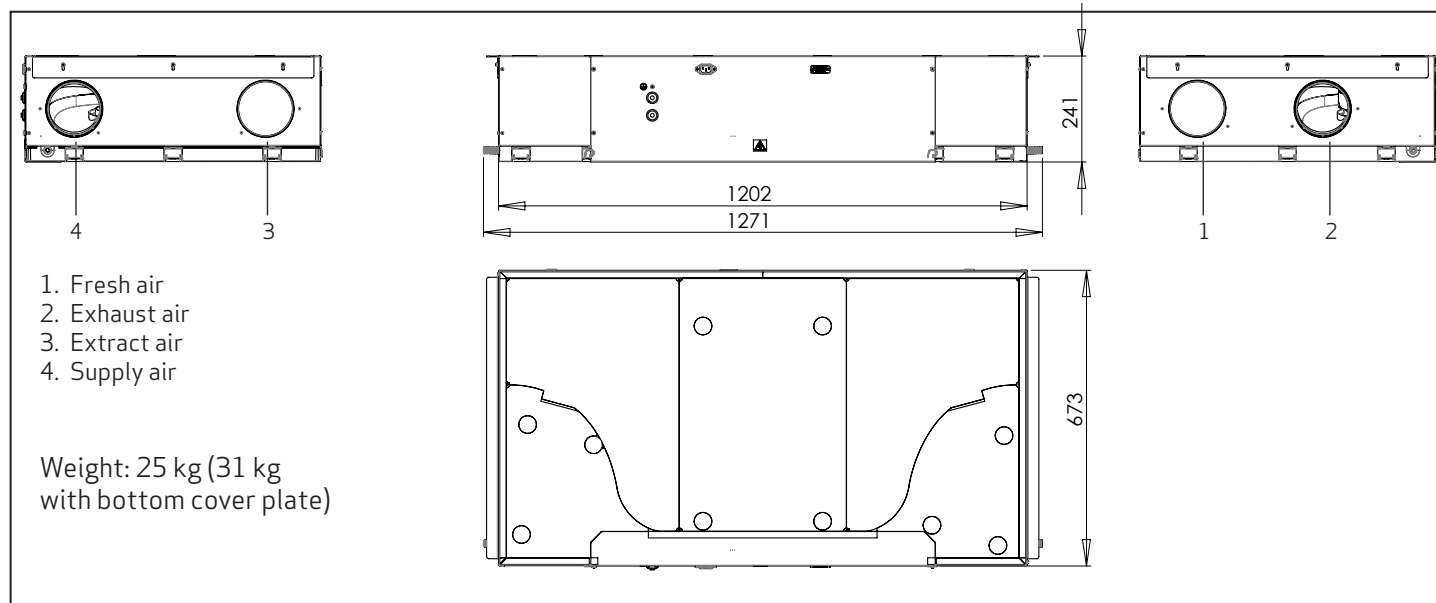
3.



Information on how to configure a "right" unit to a "left" unit on site can be acquired by contacting your Genvex sales representative.

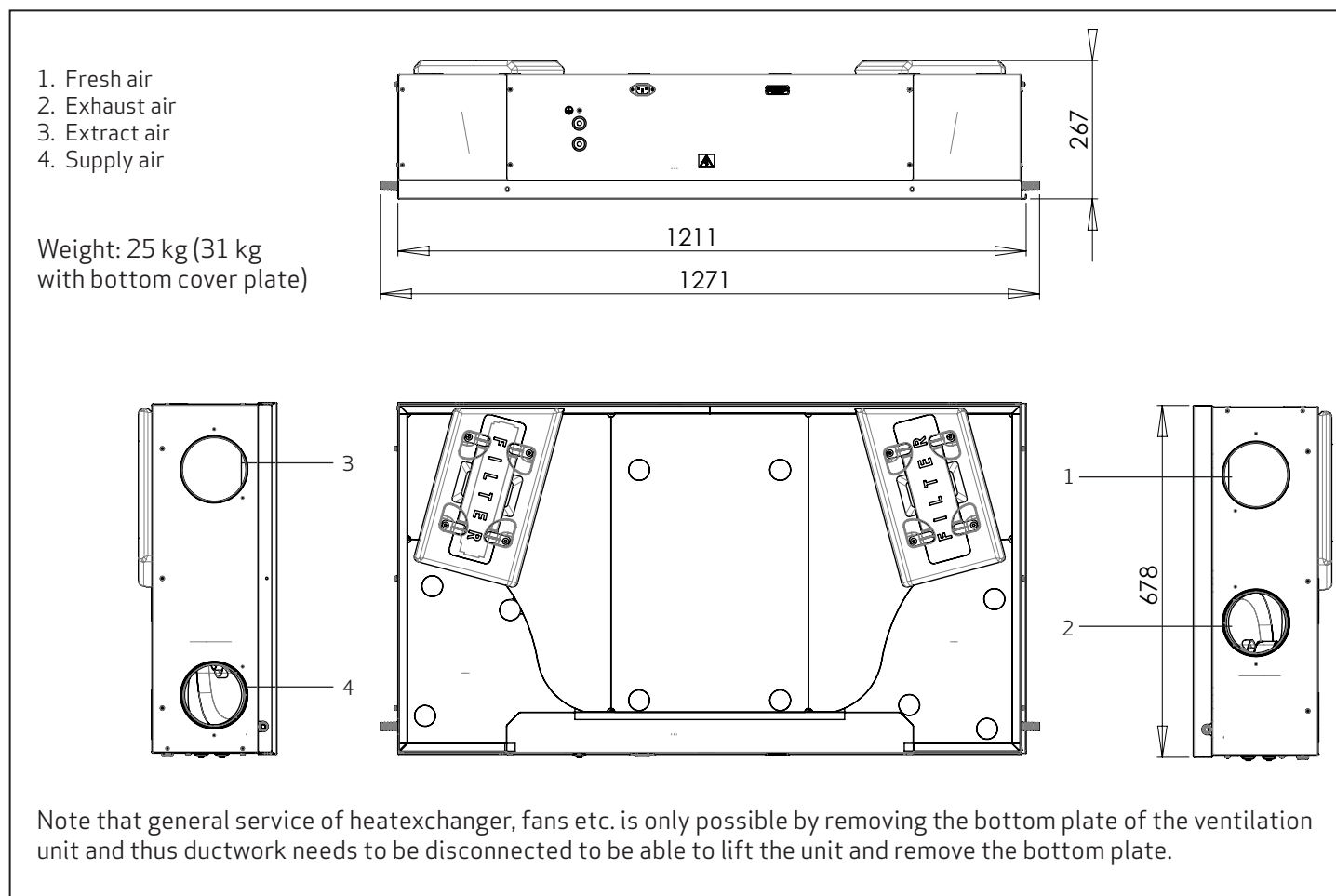
ECO 190 CS/CL

Dimensions diagram (in mm)



ECO 190 TS/TL

Dimensions diagram (in mm)



Note that the units shown above are configured as "right" models.



Duct connection

All duct connections display a yellow sticker indicating the type of ventilation duct to be connected.

Connect the supply air

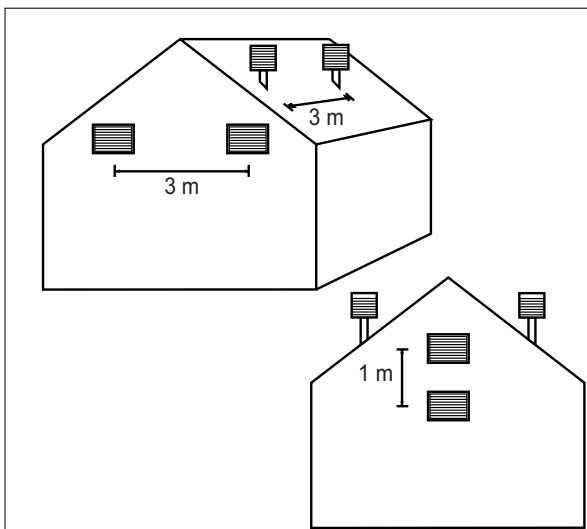
Duct system from the unit to the supply outlet in the living room

Connect the extract air

Duct system from wet rooms to the unit.

Connect the fresh air

Duct system from fresh air roof cowls/external grills from the ground collector to the unit.



Connect the exhaust air:

Duct system from unit to the escaping roof cowls/external grills.

Duct system

It is recommended that the duct system is executed in spiral ducting connected with rubber ring seal fittings in order to provide a leak-free and durable duct system.

To achieve a satisfactory low sound level from the unit, attenuators must always be fitted to the supply and extract duct system between the unit and the first supply and extract fittings.

It is recommended that air speeds in the ducts are dimensioned at sufficiently low level to prevent noise from the ductwork.

When positioning fresh air and extract roof cowls/grills, make sure the two air flows do not short circuit, causing escaping air to be drawn in again.

It is recommended that the fresh air intake is placed on the north or east side of the house to provide optimum comfort with minimum influence by heating of the sun.

Recommended minimum horizontal distance between air intake and exhaust: 3 meters.

Recommended minimum vertical distance between air intake and exhaust: 1 meter.

To connect standard galvanized steel ducts to the ECO190 ventilation unit - start by installing 4 no. male connectors in the Ø125 mm. openings in the unit (double sealing lips). Now the unit is ready for connecting ductwork directly on to the male connector.

It is recommended to install galvanized brackets to secure the male connector to the galvanized housing by using steel cutting screws.



Condensate drain

The units produce up to 6 litres of condensate per day. It is therefore important that the condensate drain is correctly executed and that the unit has a slight slope towards the floor gully/drain.

The condensate drain pipe must be air tight for example by bending a copper pipe as an siphon or using a standard siphon as illustrated..

Use an armed water hose between the drain connecting piece on the unit and the siphon and tightend it in both ends with a collar band.

From the siphon and to floor gully/drainage point a necessary slope at 1% is required.. The condensate drain must be fitted with a water trap as there is negative pressure in the chamber in which the condensate tray is mounted.

If the unit is installed in a cold loft space, the condensate drain pipe must be insulated to prevent freezing of the condensate in the pipe. However, it is recommended that the siphon is installed in a heated space below to ensure that the water in it does not freeze.

If installation problems make it impossible to secure the condensate drain pipe from freezing by insulation, it will be necessary to mount a thermostat-controlled heating tape around the condensate drain pipe.

During operation there will be an under pressure in the unit it will therefor be necessary to make sure that the siphon contains a minimum of 50 mm watercolumn.



Insulation of ducts in cold loft spaces

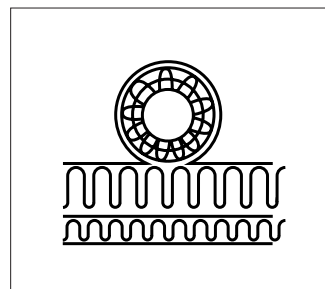
In order to exploit the unit's high heat recovery potential (efficiency), it is necessary to insulate the ducts correctly.

Supply and extract ducts

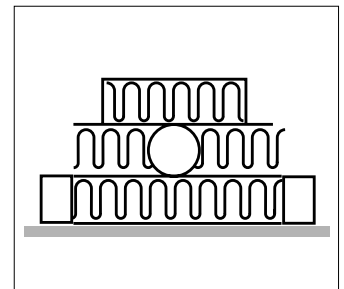
To minimise heat losses from the duct system in cold loft spaces, the supply and extract ducts must be insulated with a minimum of 100 mm insulation. If insulation form alternative A is used, it is recommended that it is executed with two layers of 50 mm Lamella mats with paper or foil externally and with staggered joints between the two layers. If the ducts are laid on the rafter foot, alternative B may be used. The insulation must always be tightly packed round the ducts.

Fresh air and escaping ducts in cold spaces

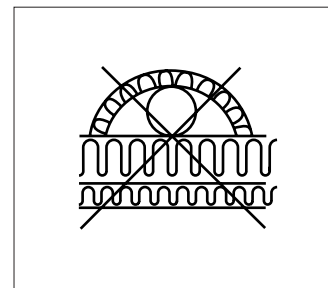
It is recommended that fresh air and escaping ducts are insulated with a minimum of 50 mm insulation. The fresh air duct is insulated to prevent warm air in the loft in summer from heating up the fresh air. Take care to seal the termination where the escaping duct is led through the roof or through the gable end, in order to avoid condensation damage.



Duct insulation, alt. A



Duct insulation, alt. B



Faulty duct insulation

Insulation of ducts in heated spaces

Supply and extract ducts

In warm loft spaces the supply and extract channels must be insulated with 50 mm insulation.

Supply and extract ducts led through heated spaces in dwellings do not require insulation.

Fresh air and exhaust ducts

In warm loft spaces and heated rooms in dwellings the fresh air and escaping ducts must be insulated with minimum 50 mm insulation. In addition the insulation must be covered externally with plastic film or aluminium foil in order to avoid condensate in the insulation.

Reheating of the supply air

As the countercurrent heat exchanger cannot recuperate all the heat from the extract air to the supply air, the supply air will be 1°-5° C colder than the room temperature. If this is not tolerable it is possible to mount a water or electric reheater, that heats the air up to the room temperature.

Water reheater

As the counter current heat exchanger cannot extract all the heat from the extract air and supply it to the supply air, the supply air will be about 1-4°C colder than the room temperature in the dwelling for the whole winter season. If this lower supply temperature is insupportable during cold periods, a water-based or electrical reheating surface can be mounted for reheating the supply air up to room temperature.

Water-based reheating surface

To protect the water-based reheating surface from frost burst, a frost protection thermostat must be fitted to the unit and the surface insulated. The frost protection thermostat sensor is mounted behind the fins of the water-based reheating surface. The sensor for controlling the motor valve is mounted in the supply air channels approx. 500 mm downstream of the water-based reheating surface in order not to be affected by the radiant heat from the heating element. The water supply to the water-based reheating surface must be executed by an authorised plumbing and heating engineer.

Electrical reheating surface

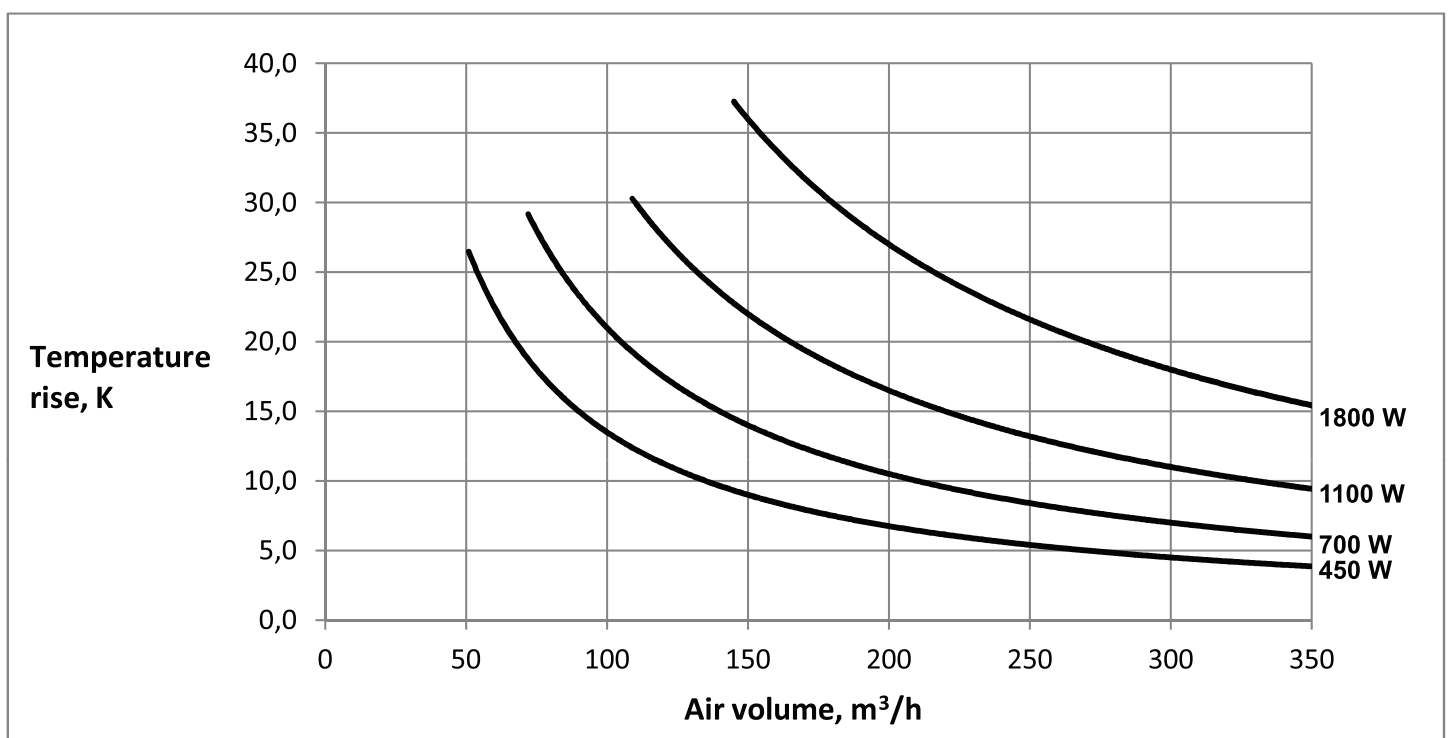
The sensor for controlling the electrical heating surface is mounted in the supply air channel approx. 500 mm downstream of the electrical reheating surface in order not to be affected by the radiant heat from the heating element.

Electrical preheater

At outdoor temperatures below 0 °C it is recommended to install an electrical preheater to prevent the counterflow heatexchanger from ice building. The sensor for controlling the electrical preheater needs to be installed in the fresh air duct 500 mm. upstream of the electrical preheater.

Note - when using the modulating preheater, the existing fresh air temperature sensor in the ventilation unit can be used to control the preheater (no extra temperature sensor is required).

Heating coil - power/flow/temp graph





Electrical installation

The electrical connection must be carried out by an authorised electrical installer. See the electrical diagrams at page 14-18.

The cable between the unit and the control panel is a 4-conductor 0.25 mm² cable with a maximum length of 50 m. when using the Optima 250/251 design panel.

When connecting the Optima 100 design or Opus panel to OPT260 the conductor needs to be 8 wire x 0.25 mm² with a maximum length of 10 m.



Inspection and initial adjustment of appliance

To achieve optimum operation of the unit it must be initially adjusted with air measuring equipment.

To start up the unit before adjustment, do as follows:

Before starting up the unit:

- 1: Check that the Genvex unit is correctly mounted and that all ducts are insulated as required.
- 2: Check that hatches can be opened so that service and maintenance on the unit can be carried out.
- 3: Check that filters are clean (may be dirty from installation work).
- 4: Check that the condensate drain is correctly mounted with water trap and is protected from freezing..
- 5: Set all supply valves such that the valve closest to the unit is opened three turns from closed position, while the furthest is open eight turns from closed position. Open the intermediate valves by 4-7 turns depending on how far they are from the unit.
- 6: If a reheating surface has been mounted on the unit, set the supply temperature to 0-3°C below the room temperature in the dwelling.

The unit can now be started up and be allowed to run until initial adjustment with air measurement equipment has taken place.

Optimum initial adjustment of plant

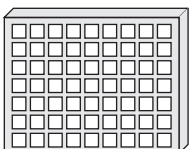
Air measuring equipment is used.

Before starting initial adjustment, check that the 6 points in the inspection and initial adjustment section have been carried out. Then start up the unit:

Set the initial basic ventilation value, which is speed 2. To reduce energy consumption as much as possible, first adjust the main air volumes to the desired air volume by changing the voltage outlet on the transformer.

Then adjust the supply and extract valves with air measuring equipment (Remember when performing initial adjustment of the valves to lock them and to turn the guide plate in the supply valves so the air blows in the right direction).

Then check the main air volumes again and fine-adjust the main air volumes by using the fresh air and extract air valves (remember to lock the position of the valves after initial adjustment).



- G4 = Standard filter
(Coarse filter class G4)
- F5 = Fine filter (Fine filter class F5)
- F7 = Pollen filter (Fine filter class F7)

Maintenance of ventilation unit

Filters

When the filter timer reaches the set value for filter change, "Alarm!" will show in the screen saver and "Chg. filter" will flash. This means that it is time to clean/change the filters.

Switch the unit off on the switch on the control panel or the switch on the electrical panel. Open the front doors and remove the filters. When the filters have been cleaned/replaced, close the front doors and reset the filter alarm by holding down the button below the filter symbol, until "Alarm!"; "Chg. Filter" and the exclamation mark disappears in the filter symbol. The unit reverts to normal operation.

If the wish is another time interval this can be adjusted in the user menu.



Do not vacuum or clean at high air pressure. It will damage the filter!

Condensate drain

When changing the filter in August/September, before outside temperatures fall to 5°C, check the condensate drain for blockage by dirt and check that there is water in the water trap.

Countercurrent heat exchanger

Inspect the countercurrent heat exchanger. If it is dirty, remove it and wash in warm soapy water and then rinse, possibly in the bathroom using the shower head.



Careful handling of the heat exchanger plates is required. They have sharp edges and must not be damaged.

Fans

Check the two fan wheels for dirt. If they are dirty they may be cleaned with a brush, bottle washer etc.

Supply and extract valves

Clean the valves by wiping with a dry cloth. Make sure the valve does not rotate, causing a change in the air volume.

Important: When reinstalling the front plate to the ventilation unit please make sure not to use electrical tools for tightening the bolts as this could possibly result in damage to the threaded connections.

Gently tighten all the front plate bolts until the front plate is securely fixed to the ventilation unit cabinet.

TROUBLESHOOTING

Safety thermostat in electrical heater (optional equipment)

If an error occurs on an electrical heater, the safety thermostat will disconnect.

The heater is equipped with a fire thermostat that automatically cuts off the power supply, if the temperature exceeds 80 °C. If the temperature decreases, the heater automatically re-engages.

As an additional security there is a built-in thermal cut-out, which disengages if the temperature exceeds 110 °C. Reengaging must be done manually.

Does not apply to PTC electrical heaters.

The system is not running

Unit stopped

Possible error

- Fuse in main board has blown, no power to unit.
- One of the fuses on the circuit board of the unit is blown.
- Loose wire, no power to unit.
- Loose wire between unit and control panel.
- Faulty or incorrectly set week program.
- Filter timer has switched the system off.
- Condensed water is leaking from the unit
- Possible error:
 - Condensation outlet blocked by dirt.
 - The condensation outlet is not adequately protected against freezing at low outdoor temperatures.

Air faults

No supply air

Possible error

- Faulty supply air fan
- Clogged supply air filter
- Clogged fresh air grill due to dirt and leaves during the fall and snow and ice during the winter.
- Fuse on the circuit board is blown.
- The unit is in defrost mode (supply air fan stops)
- Incorrect value set in User menu item 2.

No extract air

Possible error

- Faulty extract air fan
- Clogged extract air filter
- Fuse on the circuit board is blown

Cold supply air

Possible error

- Clogged heat changer
- Faulty extract air fan
- Clogged extract air filter
- Electrical reheater is disconnected at the over heating thermostat (only units with electrical reheater installed)
- Air in the heating pipes, faulty thermostat / motorvalve, incorrect setting of control panel.

Within the guarantee period (0-2 years)

The installer from whom you have bought the system.

After the guarantee period (2 years ->)

The installer from whom you have bought the system or the Genvex service department (+45 7353 2765).

Before calling, please write down the data from the inscription plate (silver plate on the unit).

Alarms

Filter timer

The control has a filter timer to guarantee that the filter is changed and that optimal operation is established. When the timer reaches the set value, "Chg. filter" will flash in the display until the filters have been changed.

When the filters have been changed, the button for the filter symbol must be held down until "Alarm!"; "Chg. Filter" and the exclamation mark disappears and the unit reverts to normal operation.

Com error

This error appears when there is no communication between the display and control. Check that the wiring is correct on terminals 21 to 24.

21	Signal
22	Signal
23	10 Volt
24	0 Volt

Frost protection error

This error message will be displayed if a water reheater is fitted to the system and the temperature of the water reheater is too low, causing a danger of frost burst. The control will stop the system and open the motoroperated valve to keep the heater warm.

OPTIONS FOR ECO 190 VENTILATION UNIT

(available upon request from Genvex)

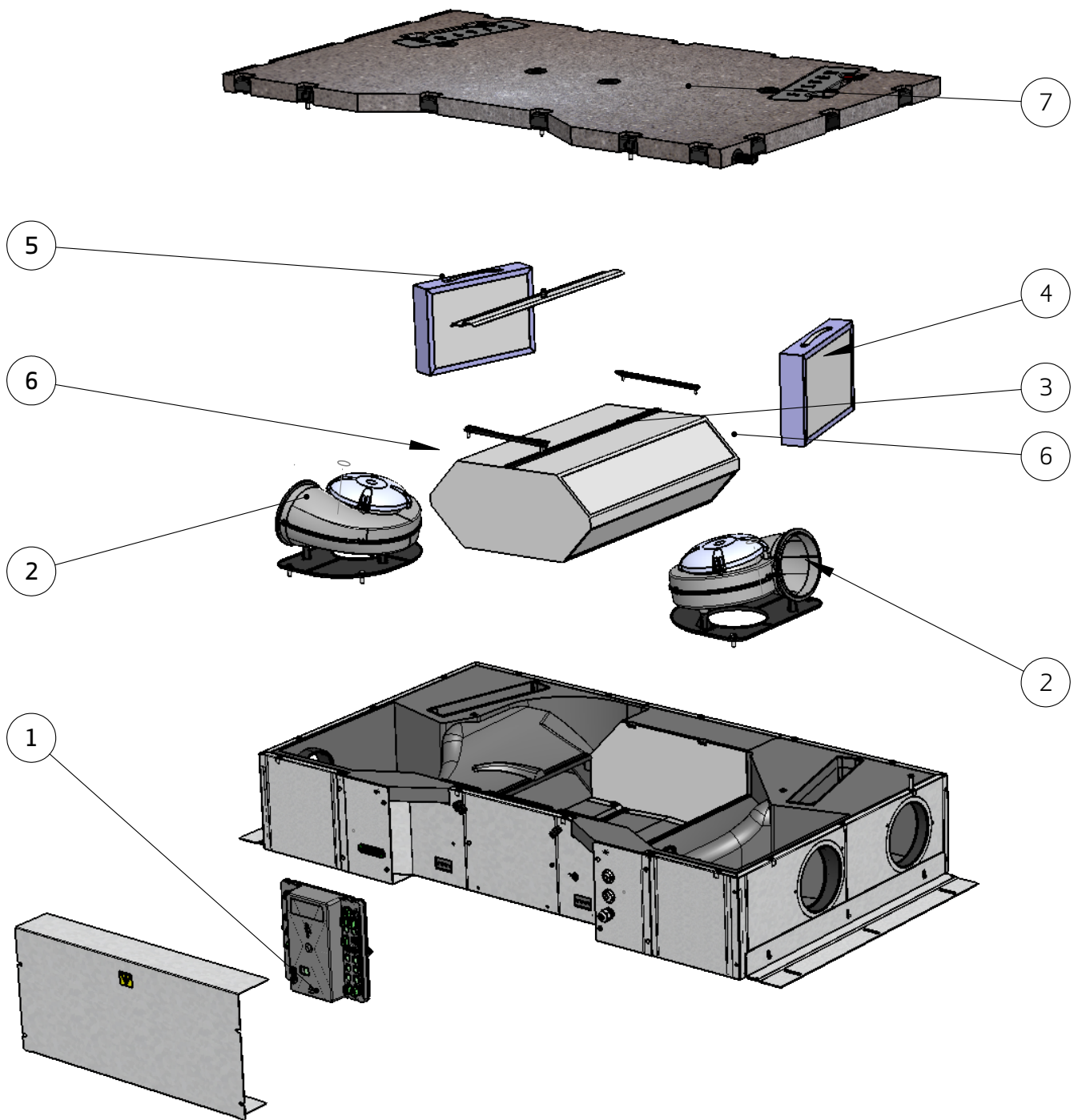


Condensate safety float switch - to be wired to "external start/stop" on main PCB for automatic shut down of ventilation unit if condensate drain is blocked.



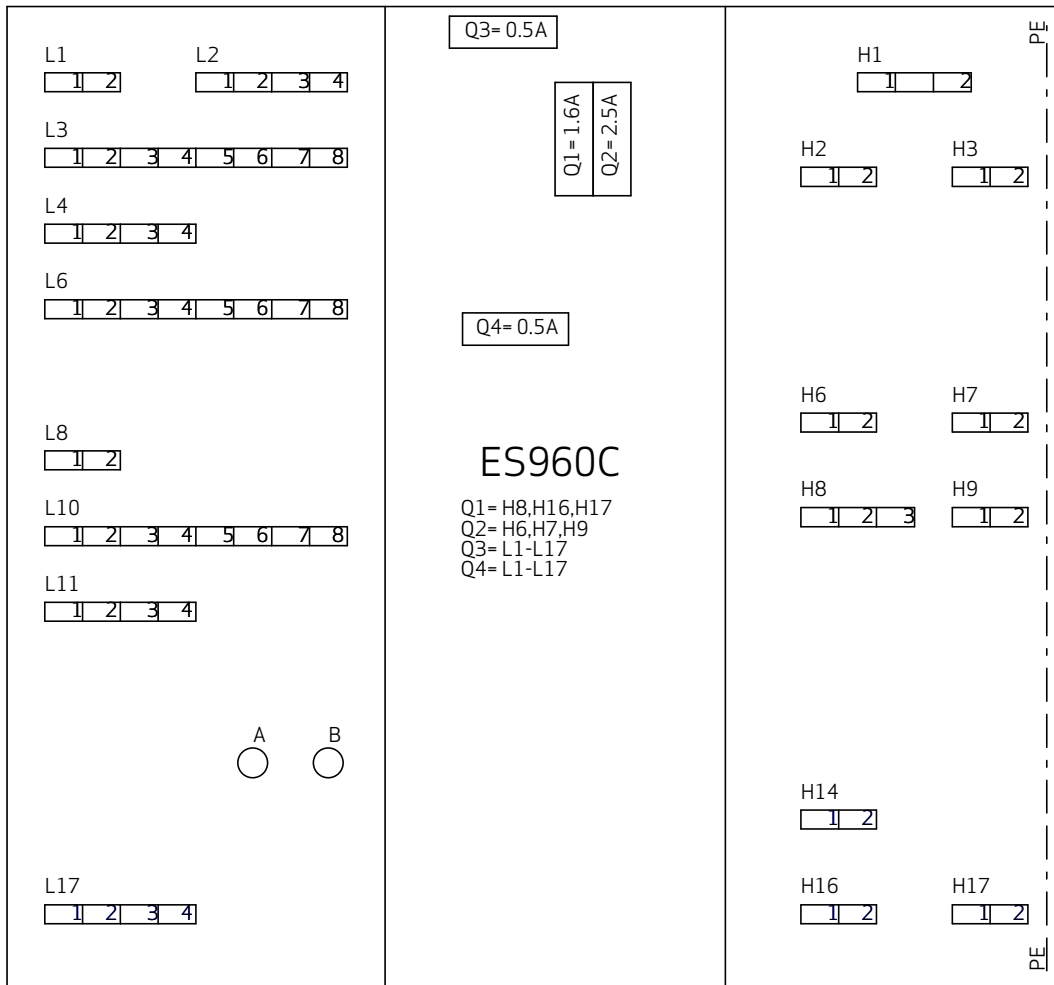
Bottom galvanized steel plate for ECO190C - for a smooth finish of the ECO 190C bottom (available also in white RAL 9016).

SPARE PARTS



	Item #	Description
1.	042478	Optima 251 controller
2.	069300	CS fan complete/069323 CL fan complete
3.	069344	Heat exchanger, aluminium/069345 Heat exchanger, PET
4.	069372	Filter F7
5.	069370	Filter F4
6.	069349	Sealing
7.	069382	Baseplate EPS complete

ELECTRICAL DIAGRAM - OPT251

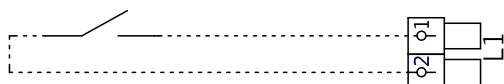


A = LED Flash - Power on
 B = LED Flash - Communication to Optima Display
 Q = Fuse

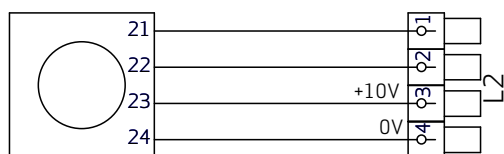
L1 = Potential free input for optional:
 Humidistat, Extractor hood ,CO2
 L2 = Optima Display
 L3 = Sensors T1,T3,T4,T7
 L4 = Humidity sensor P1
 L6 = Sensors T8,T9
 L8 = External stop
 L10 = Modulating Pre / Reheating
 L11 = 0-10V Motorvalve Reheating
 0-10V Belimo LM230ASR bypass
 L17 = 0-10V extract air fan and
 0-10V supply air fan

H1 = Mains connection 230 VAC
 H2 = (R2) Electric Reheater 230VAC
 H3 = (R3) Electric Preheater 230VAC
 H2,H3 = Max. load total 1800W
 H6 = (R10) Motorvalve Reheating,
 Belimo LM230ASR 230VAC
 H7 = (R10) Fan, extract air 230VAC
 H8 = (R12) Saia-UCK ON/OFF Bypass 2x230VAC
 H9 = (R10) Fan, supply air 230VAC
 H14 = (R6) Belimo CM230-F-R ON/OFF Bypass 230VAC
 H16 = (R8) Belimo CM230-F-R ON/OFF Bypass 230VAC
 H17 = (R9) AUX relay 230VAC

Potential free input
for optional:
Humidistat,
Extractor hood,
CO2



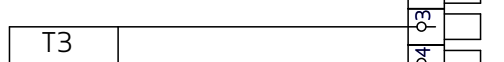
Optima Design



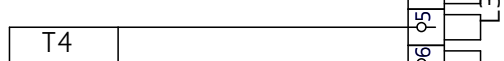
Sensor, supply air



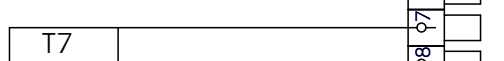
Sensor, fresh air



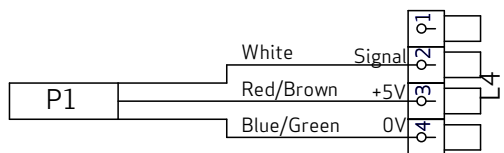
Sensor, exhaust air



Sensor, extract air



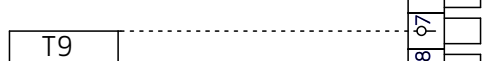
Humidity sensor



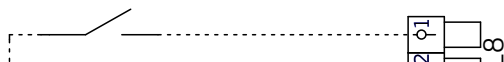
Sensor Frost



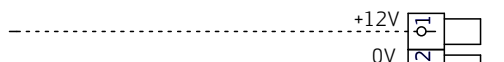
Sensor Option



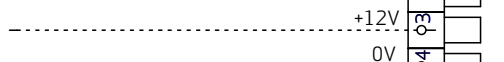
External stop



Modulating
Preheating



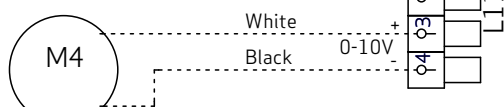
Modulating
Reheating



Control signal
Motorvalve
Reheating



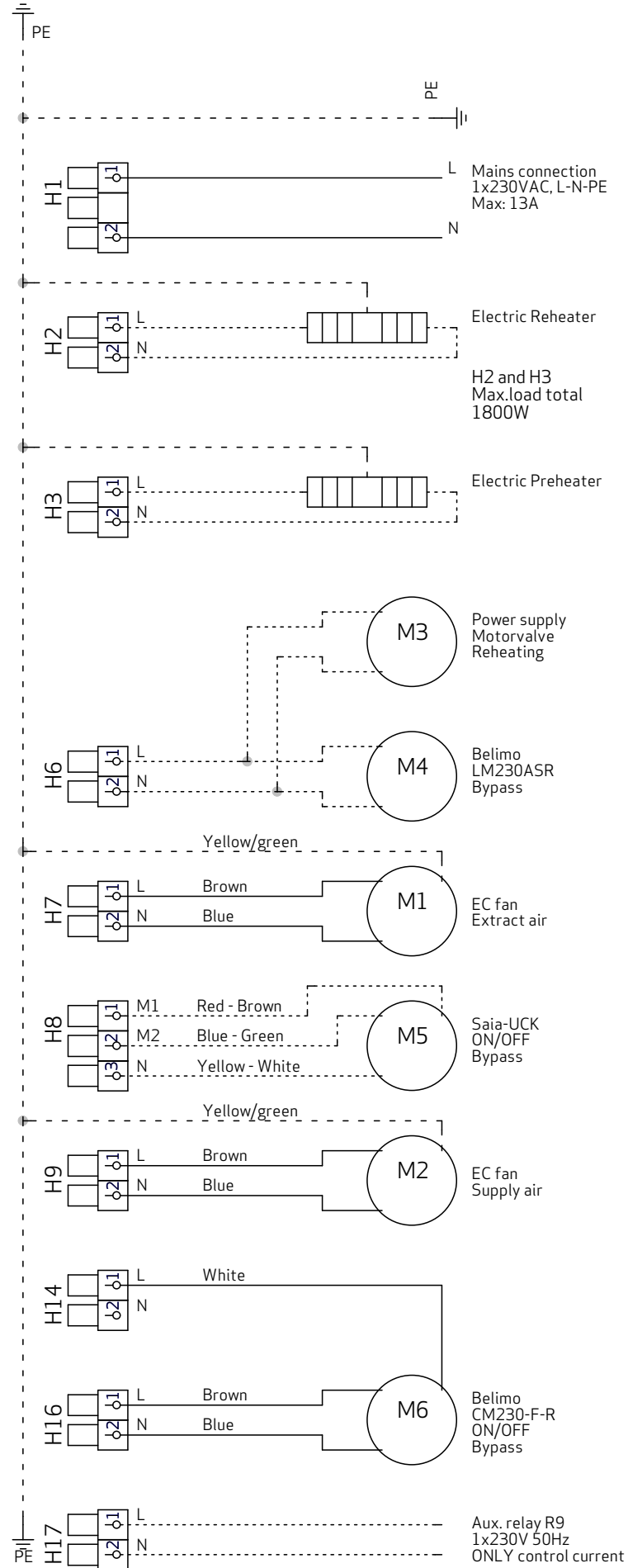
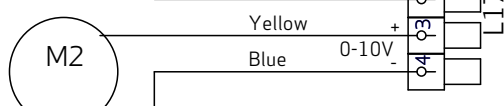
Belimo
LM230ASR
Bypass



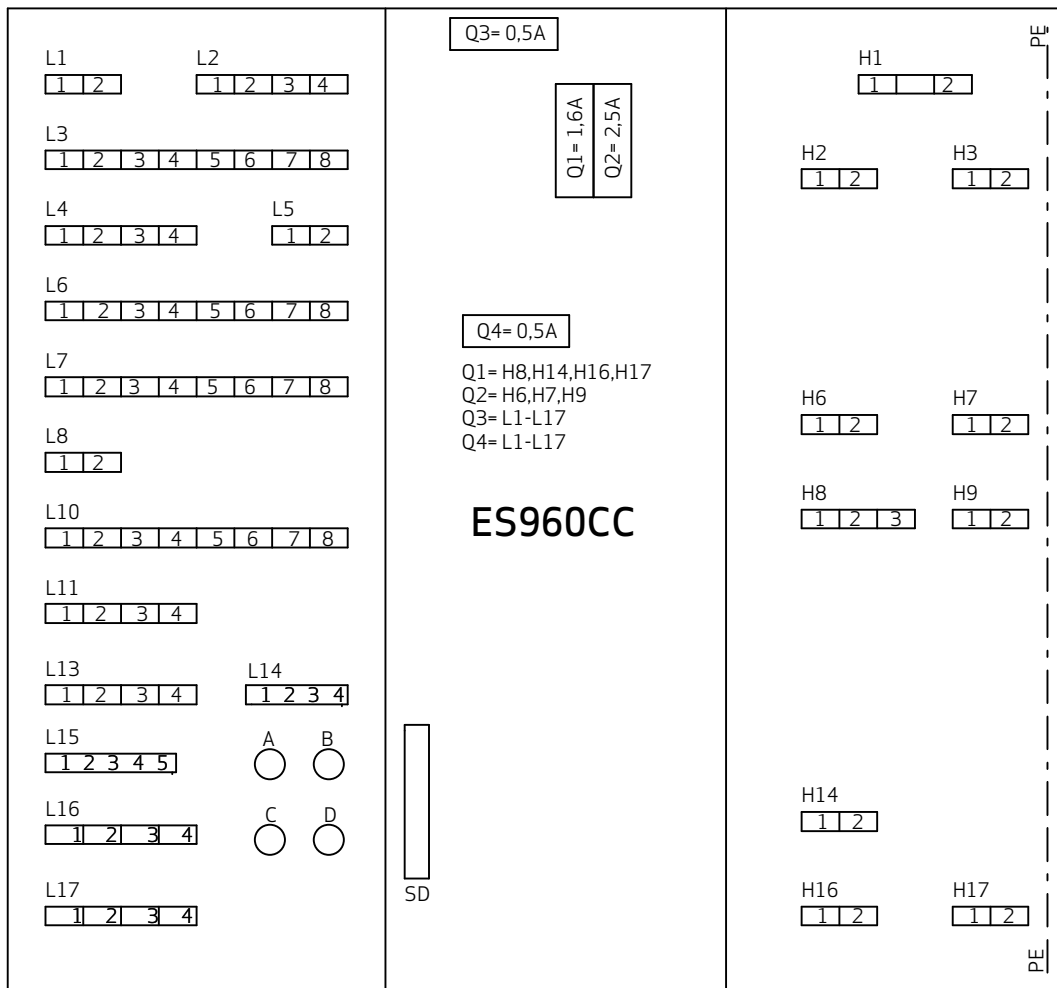
EC fan
Extract air



EC fan
Supply air



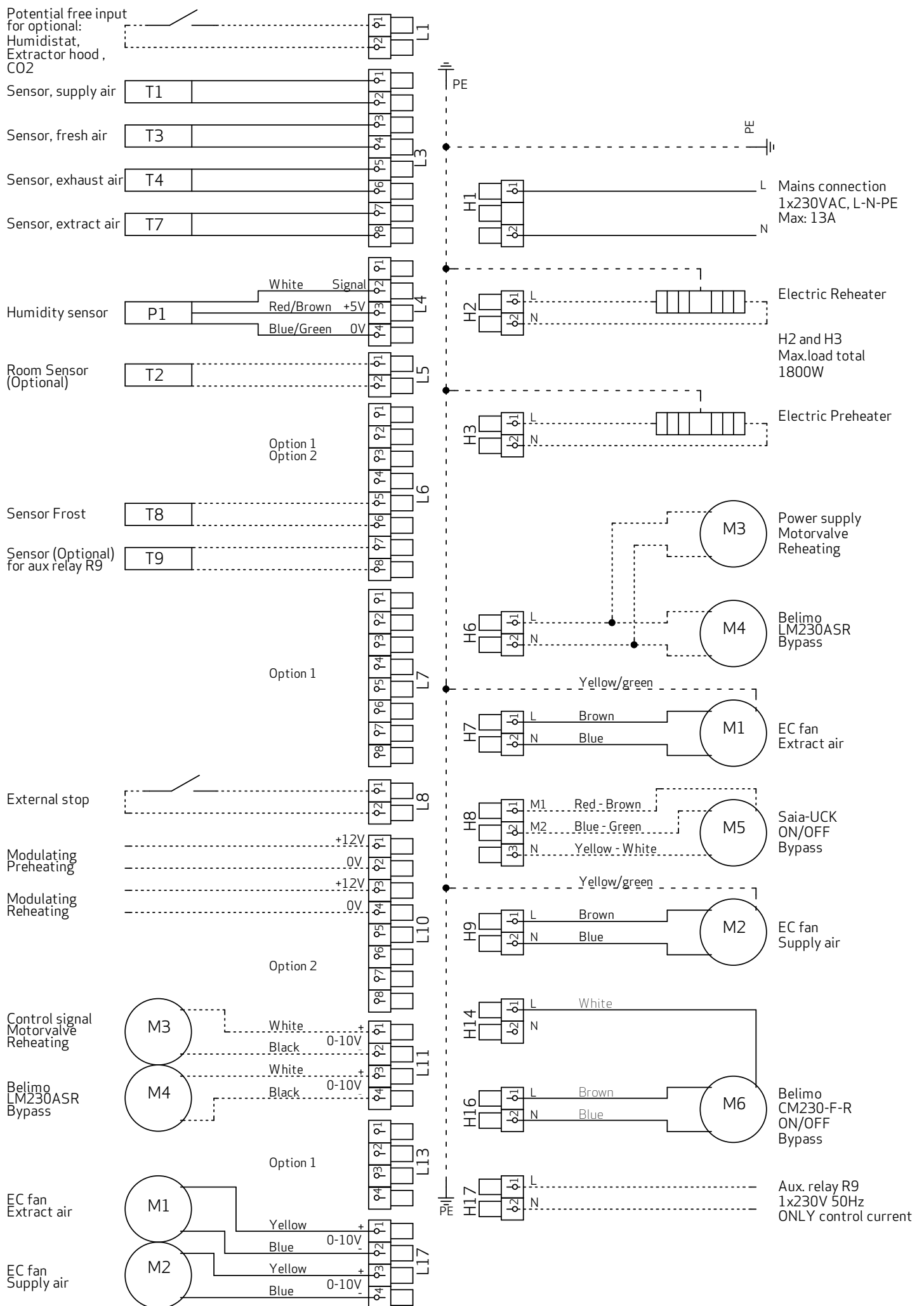
ELECTRICAL DIAGRAM - OPT260



A = LED Flash - Power on
 B = LED Flash - Startup
 D = LED Flash - Loads the program from sd card
 Q = Fuse

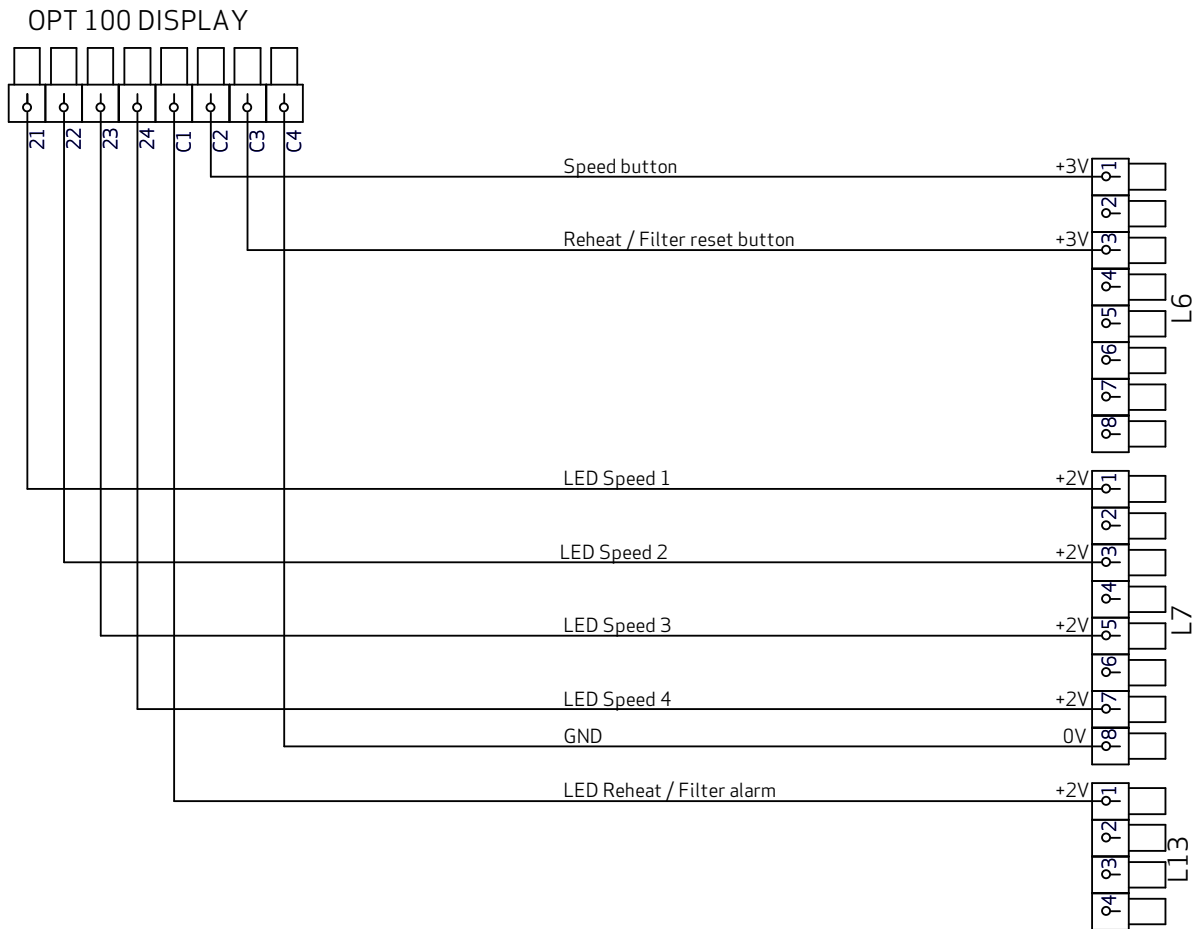
L1 = Potential free input for optional:
 Humidistat, Extractor hood, CO2
 L3 = Sensors T1, T3, T4, T7
 L4 = Humidity sensor P1
 L5 = Room sensor T2 (optional)
 L6 = Option 1 & 2, Sensors T8, T9
 L7 = Option 1
 L8 = External stop
 L10 = Modulating Pre / Reheating & Option 2
 L11 = 0-10V Motorvalve Reheating
 0-10V Belimo LM230ASR bypass
 L13 = Option 1
 L14 = Data logger socket
 L15 = Programming socket
 L16 = Modbus
 L17 = 0-10V extract air fan and
 0-10V supply air fan

H1 = Mains connection 230 VAC
 H2 = (R2) Electric Reheater 230VAC
 H3 = (R3) Electric Preheater 230VAC
 H2, H3 = Max. load total 1800W
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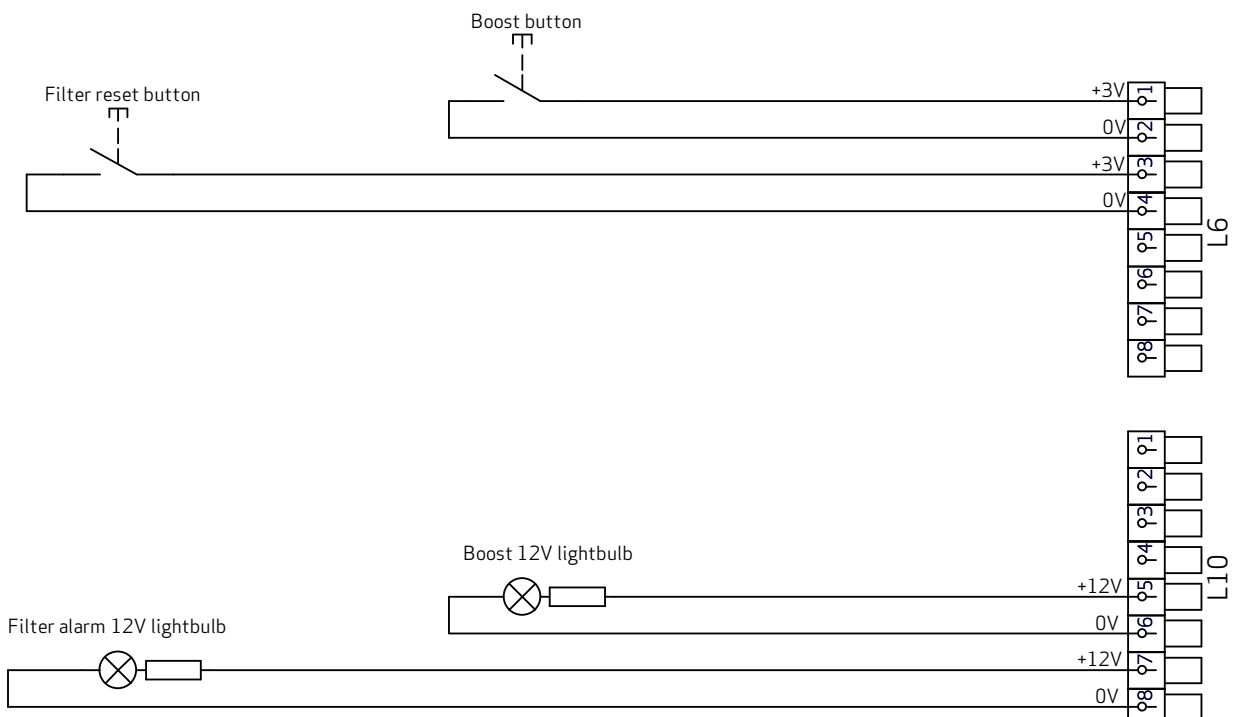
Option 1

Connection for OPT 100 / OPUS control panel



Option 2

Connection for boost button and filter reset button



DECLARATION OF CONFORMITY



EF - Overensstemmelseserklæring
EC - Declaration of Conformity
EG - Konformitätserklärung



A. Fabrikant :
Manufacturer :
Hersteller :

Genvex A/S
Sverigesvej 6
DK-6100 Haderslev
+45 73 53 27 00
Salg@genvex.dk
www.genvex.dk

Erklærer hermed, at følgende produkt / hereby certifies that the following product / bestätigt, da das nachfolgend bezeichnete Gerät:

B. Benævnelse : **ECO 190 CS; CL; TS; TL Ventilation Passiv**
Type : **ECO 190 CS CL; TS; TL Ventilation Passive**
Typ: : **ECO 190 CS; CL; TS; TL Ventilation Passive**

Ved forudsætning af at Genvex's montageanvisninger er fulgt / on the assumption that the mounting instructions from Genvex have been followed / bei Voraussetzung dass die Montageanweisungen von Genvex gefolgt wurden.

Er fremstillet i overensstemmelse med / is made according to / über Einstimmung von nachfolgend bezeichnete EG-Sicherheitsstandards hergestellt:

Directive:

- | | |
|----------------------------------|-------------------------------|
| a) Machinery | 2006/42/EC 15. March 2006 |
| b) Low Voltage | 2006/95/EU 12. December 2006 |
| c) Electromagnetic Compatibility | 2004/108/EC 15. December 2004 |
| d) Radio/Telecommunication | 99/5/EC 9. March 1999 |
| e) RoHS | 2011/65/EU 8. June 2011 |
| f) ECO Design / ERP | No. 1253/2014 |

Departmental Order.

- a) No. 797 17. august 2009
- b) LBK nr. 823 af 3. juli 2007
- c) No. 743 af 23. september 1999
- d) AT No. 612 af 25. juni 2008.

DS/EN

- a) 60335-1-A13-A14 General requirements
- b) 60335-2-40 Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers
- c) 55014-1 Electromagnetic compatibility Part 1: Emission
- d) 55014-2 Electromagnetic compatibility Part 2: Immunity


Virksomhed:
Company:
Firma:


Genvex A/S
Sverigesvej 6
DK-6100 Haderslev

Sted og dato:
Place and date:
Ort und Datum:

Haderslev,
01-03-2016

Underskrift:
Signature:
Unterschrift:

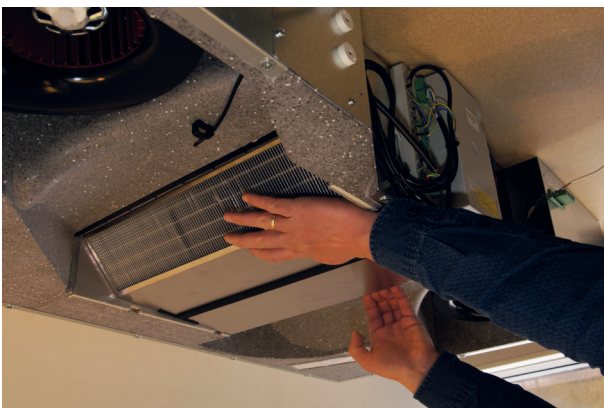
Torben Thomsen

(R&D Manager)

Kim Just Hansen

(QA Manager)

DISASSEMBLY INSTRUCTIONS



Remove fans



Remove heat exchanger



Remove condensate drain switch



Remove bypass actuator

THE AIR WE BREATHE

All
Genvex
systems are
rated with
energy label
A

The original Genvex units are assembled by skilled and experienced technicians and have a lifetime that in many cases is measured in decades. The units are approved by all applicable standards and are easy to operate and service. Last – but not least – all Genvex systems are developed with focus on compact dimensions and ease of installation and can be integrated discreetly in all types of homes.

We are part of the NIBE Group – a family of companies that specialize in supplying hot water, heating and home comfort to homeowners worldwide.



Genvex – The original Danish Ventilation System

Genvex is a genuine Danish original. We invented the ventilation system more than 40 years ago, and we are still ahead of the pack when it comes to development and production of the strongest and most durable ventilation system.

Our unit is working in thousands of homes providing fresh clean air – free of pollen, dust and harmful particles. This helps to strengthen the health of the house and to make the indoor environment healthy and comfortable for lots of families. At the same time, our system is an important element when it comes to saving energy in homes and in society as a whole – in fact you can recover up to 95% of the heat energy with a Genvex system.

Please visit www.genvex.dk to see a list of our distributors

