

INSTALLATION MANUAL



ECO 375

Mechanical ventilation with passive heat recovery

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INSTALLATION

IMPORTANT:

When installing the ECO 375 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.

These 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.

Dimensions drawing (in mm)

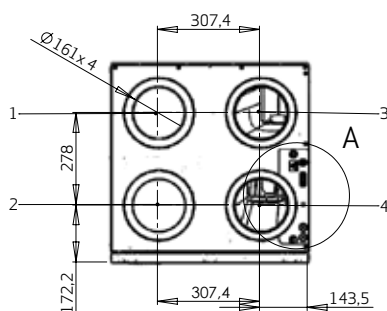
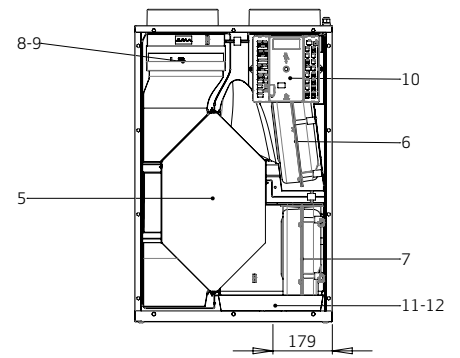
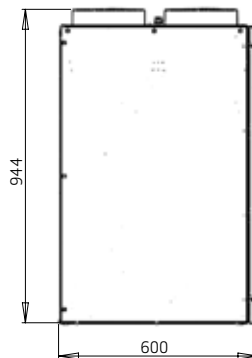
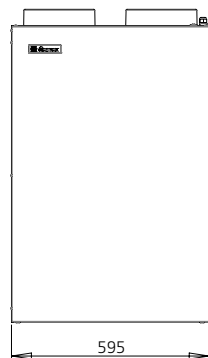
To allow access for service and maintenance, there must be a clear space of a minimum of 600 mm in front of the unit and 300 mm. below the unit (for access to condensate drain and siphon)

ECO 375 TS/TL is supplied in a vertical version (as shown below).

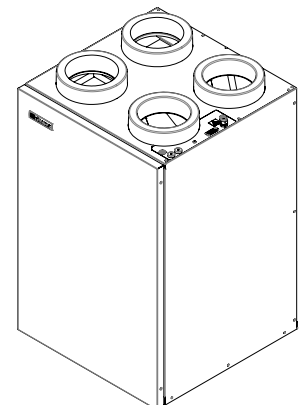
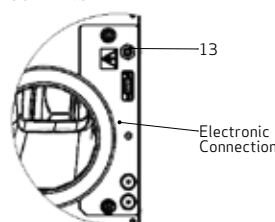
Weight: 40 kg

KVM-Genvex A/S recommends that you always carefully plan the installation location of your Genvex product in relation to the location of certain rooms. This is a technical product featuring fans and/or a heating pump which - in certain rare cases, in combination with inexpedient installation conditions - may result in dissatisfactory noise or vibration disturbances. As a main rule, we recommend that technical installations never be mounted right next to a bedroom. At the same time, we recommend that when your Genvex installation is fastened to the structure of the building, this is done to a heavy structure, e.g. concrete. Like-wise, you should also ensure that there is no transmission of noise or vibrations through materials that are in contact with the installation. If there is a risk of transmission of noise and vibrations, we recommend that you install additional vibration-damping materials and soundproof the installation room.

1. Fresh air
2. Extract air (from building)
3. Exhaust air (to outside)
4. Supply air
5. Heat exchanger
6. Supply air fan
7. Extract air fan
8. Filter fresh air
9. Filter exhaust air
10. Electrical connection
11. Condensation tray
12. Condensation drain



DETAIL A
SCALE 1:5



IMPORTANT: The ECO375 ventilation unit can only be installed vertically.

ECO 375 TS/TL is supplied with an universal wall mounting kit.

Before starting the installation of the ventilation unit. Please ensure that the wall being used for holding the ventilation unit is built capable of holding the weight of the ventilation unit. Furthermore the wall needs to be plain and in a 90 degree angle to ensure condensate water in the condensate tray to be led to drain.

Wall mounting (vertical)

1. Before fixing the mounting bracket to the wall - please ensure that the bracket is installed in the correct orientation. A small cut in the center of the bracket indicate the center/top of the ventilation unit. The cut needs to be on top of the bracket before fixing the bracket to the wall.
2. Fix the bracket to the wall using screws in all 8 mounting holes.
3. Install the ventilation unit by simply connecting the slot in the ventilation unit onto the mounting bracket.
4. When the installation unit has been securely fastened on to the mounting bracket - lock the position of the ventilation unit by inserting the locking screw in the lock hole.

1



2



3



4





Duct connection

All duct connections are marked with 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 area.

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 or the ground collector to the unit.

Connect the exhaust air

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



Optimal operation is achieved by mounting a connector piece $\varnothing 160$ mm with double sealing lips mm in each outlet of the ECO 375 TS/TL.

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 drain gully.

A standard $\varnothing 32$ mm plumbers siphon can be connected directly on to the ventilation unit.

From the siphon and to the drain gully there must be a necessary slope at 1%.

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 round the condensate drain pipe.



During operating there will be an underpressure in the unit it will therefore be necessary to install a watertrap/siphon with a minimum of 50 mm watercolumn



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.

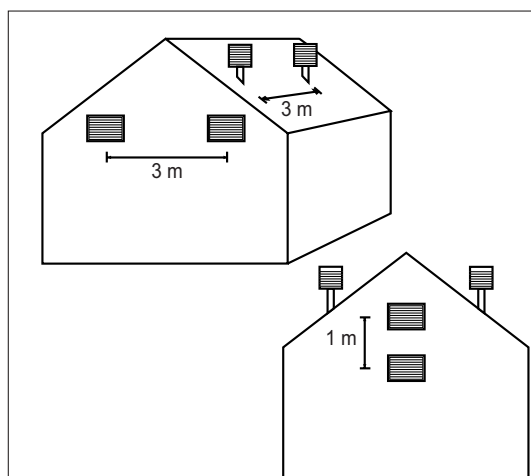
It is recommended that air speeds in the ducts are dimensioned at sufficiently low level to prevent noise from the ductwork.

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.



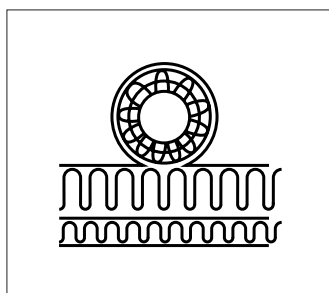
Insulation of ducts in cold loft spaces

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

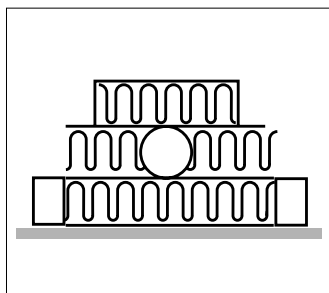
Genvex recommends as follows:

Supply and extract ducts

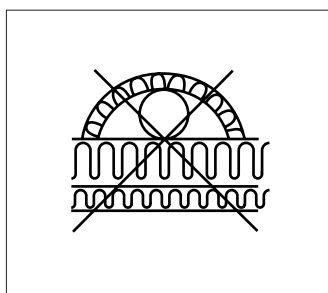
To minimise heat losses from the duct system in cold loft spaces, the supply and extract ducts must be insulated with a minimum of 100 mm insulation. If insulation form alternative A is used, it is recommended that it is executed with two layers of 50 mm lamella mats with paper or foil externally and 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.



Duct insulation, alt. A



Duct insulation, alt. B



Faulty duct insulation

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.

Refer to your local distributor for guidance on national insulation directives.

Insulation of ducts in heated spaces

Genvex recommends as follows:

Supply and extract ducts

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

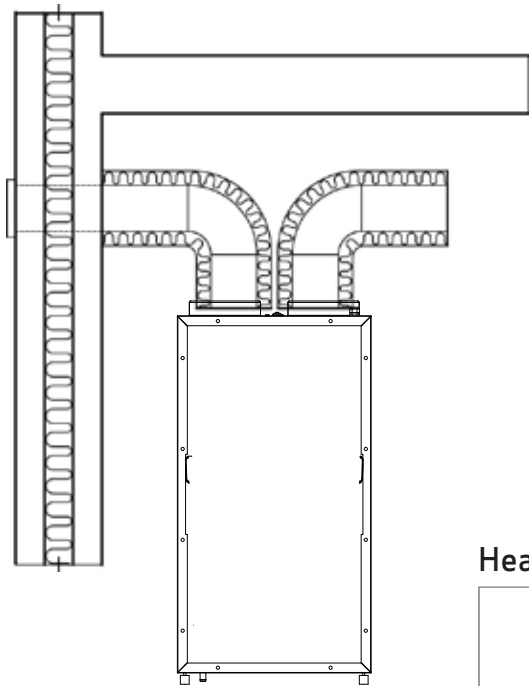
Supply and extract air ducts led through heated spaces in dwellings do not require insulation. If the supply air duct has cooling, bypass or earth heat exchanger installed it must be insulated.

Fresh air and exhaust ducts

In warm loft spaces and warm rooms in dwellings the fresh and exhaust air 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.

We recommend an insulation of 100 mm on the fresh air duct when installing a earth heat exchanger.

Refer to your local distributor for guidance on national insulation directives.



Reheating of supply air

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

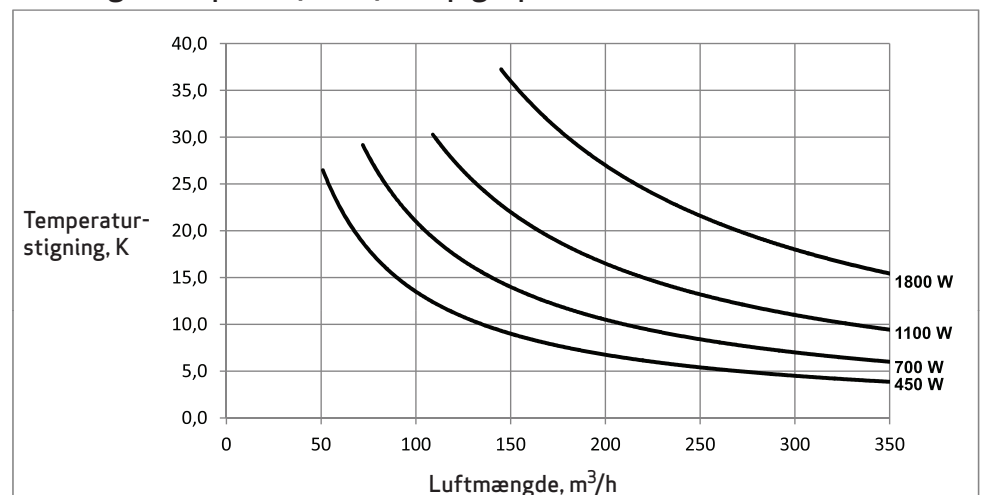
The sensor for controlling the electrical heating surface is mounted in the supply air channel approx. 500 mm downstream of the electrical reheating surface in order not to be affected by the radiant heat from the heating element.

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 diagram at page 13 and 14.

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:

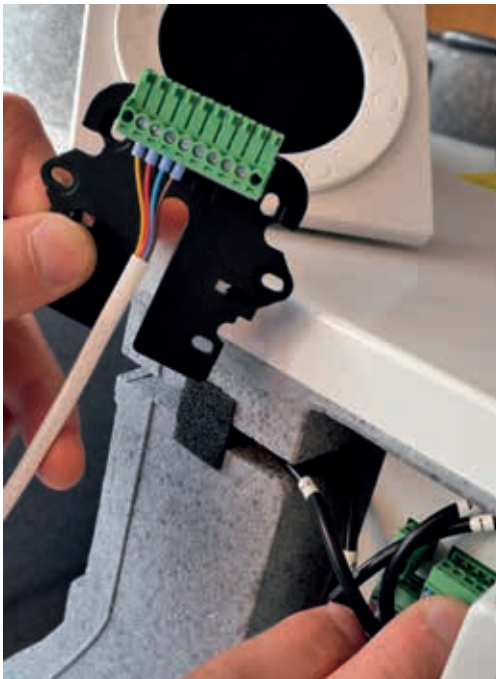
- 1: Check that the Genvex unit is correctly mounted and that all ducts are insulated as required.
- 2: Check that hatches can be opened so that service and maintenance on the unit can be carried out.
- 3: Check that filters are clean (may be dirty from installation work).
- 4: Check that the condensate drain is correctly mounted with water trap and is protected from freezing. Pour 1 litre water into the condensate tray and make sure it can run unhindered through the condensate drain pipe.
- 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.

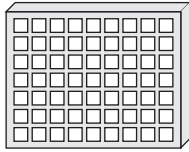
The unit can now be started up and be allowed to run until initial adjustment with air measurement equipment has taken place.

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:






- G4 = Standard filter (coarse filter class G4)
- F7 = Pollen filter (fine filter class F7)
- M5 = Fine Filter (fine filter class M5)



Maintenance of ventilation unit


 Turn off the electricity for the unit before opening it.

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 falls to 5°C, check the condensate drain for blockage by dirt and check that there is water in the water trap.

Pour 1 litre water into the condensate tray and make sure it can run off without problems. If the condensate drain does not work, this could lead to water damage in the dwelling.

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.

When taking out the heatexchanger – please be carefull not to touch the lamellars ,as these are very fragile. Broken lamellars will result in lower heat recovery rates and higher pressure drop through the heat exchanger.



Fans

Check the two fan wheels for dirt. If they are dirty they may be cleaned with a brush, bottle washer etc. Remember to disconnect the power supply to the ventilation unit.

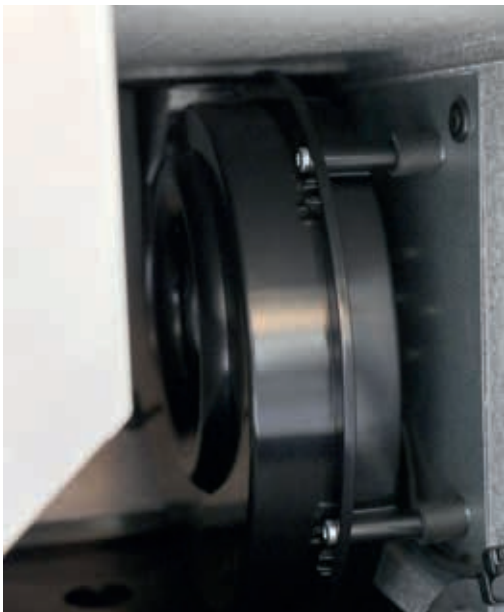
By demounting the front it is important to remove the filters before the front is removed.

Supply and extract valves

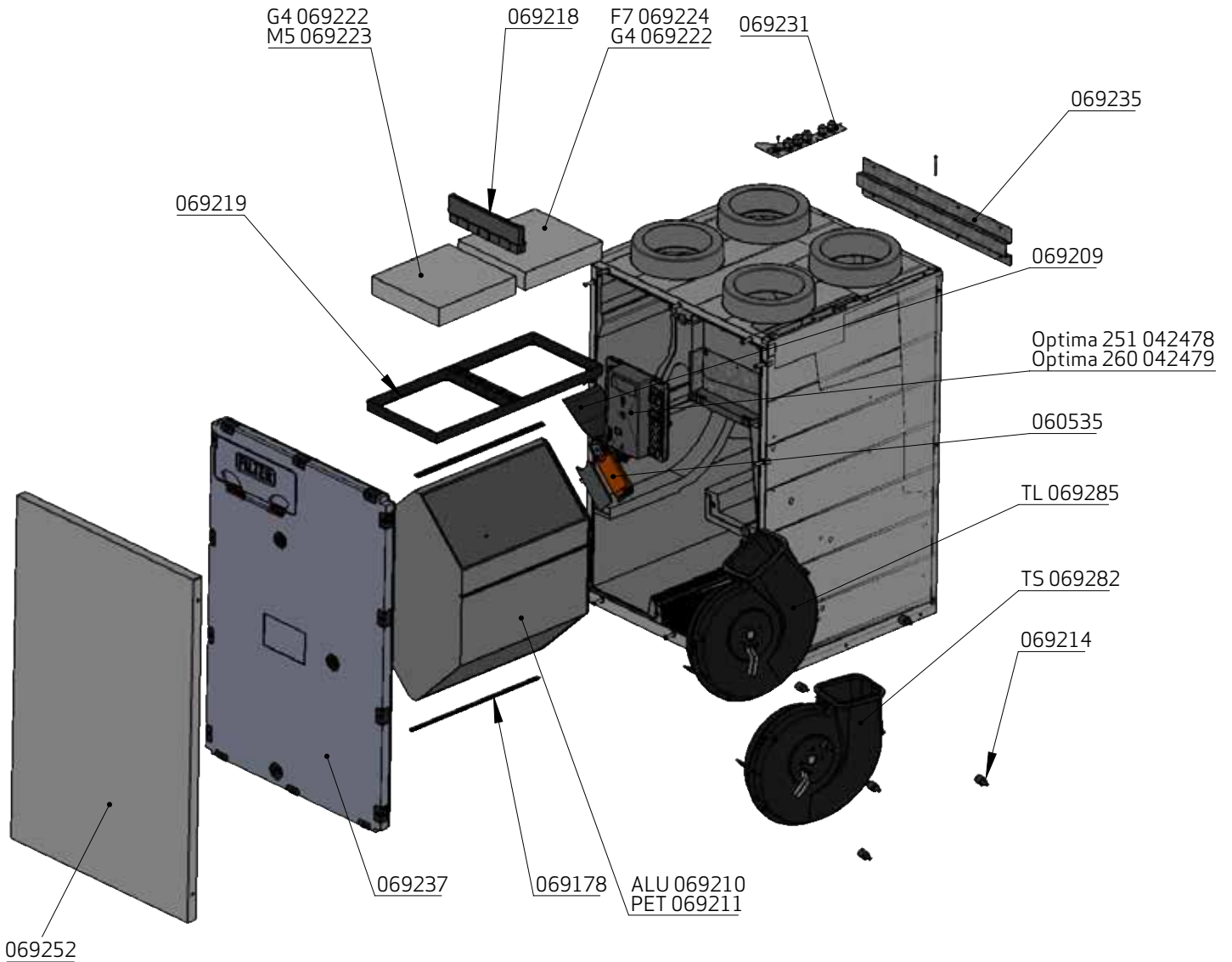
Clean the valves by wiping with a dry cloth. Make sure the valve does not rotate, causing a change in the air volume.

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 alle the frontplate bolts untill the frontplate is securely fixed to the ventilation unit cabinet.



SPARE PARTS



Item	Description
069209	Bypass damper
069282	TS Fan complete
069285	TL Fan complete
069221	gasket kit 1
069178	gasket kit 2
069235	Mounting bracket with screw
069252	Front Plate RAL9016
069231	Top plate cover for electronics
069214	Fan vibrationdampers
069148	Heatexchanger Aluminium

Item	Description
069211	Heatexchanger PET (Plastic)
042478	OPT251 controller complete with casing
042479	OPT260 controller complete with casing
069219	Filterframe
069218	Gasket / Sealing kit
069222	G4 Filter
069223	M5 Filter
069224	F7 Filter
069237	EPS frontplate

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 50 °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 100 °C. Re-engaging 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

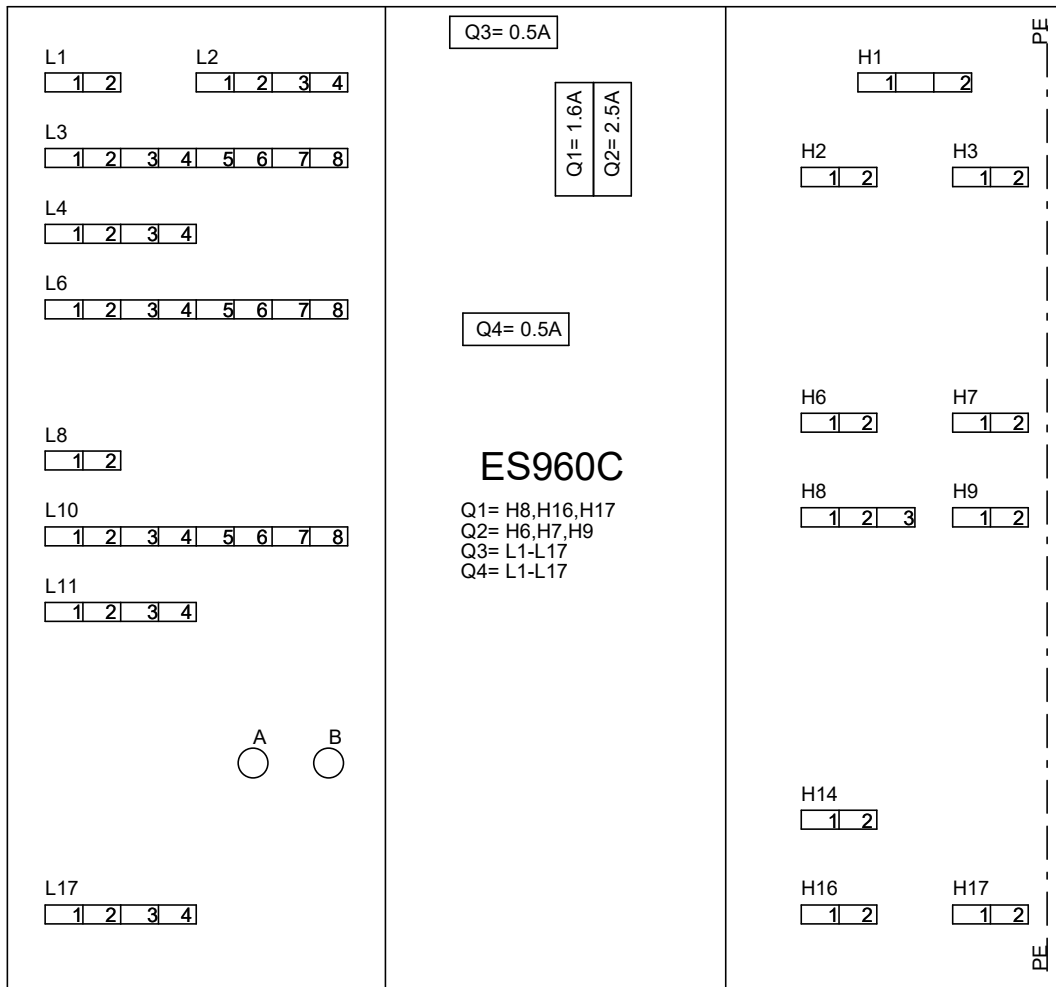
This error appears when there is no communication between the display and control. Check that the wiring is correct on terminals 21 to 24.

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 motor-operated valve to keep the heater warm.

ELECTRICAL DIAGRAM - OPT251

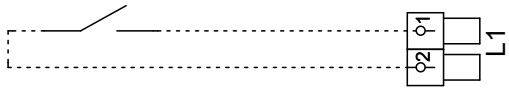


A = LED Flash - Power on
 B = LED Flash - Communication to Optima Display
 Q = Fuse

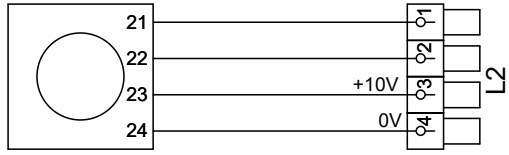
L1 = Potential free input for optional:
 Humidistat, Extractor hood ,CO2
 L2 = Optima Display
 L3 = Sensors T1,T3,T4,T7
 L4 = Humidity sensor P1
 = Demand CTRL B1
 L6 = Sensors T8,T9
 L8 = External stop
 L10 = Modulating Pre / Reheating
 L11 = 0-10V Motorvalve Reheating
 0-10V Belimo LM230ASR bypass
 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

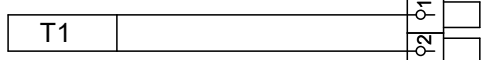
Potential free input
for optional:
Humidistat,
Extractor hood,
CO2



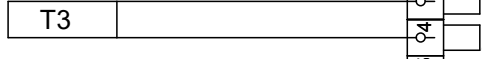
Optima Design



Sensor, supply air



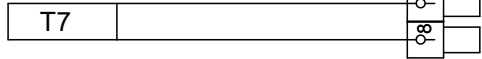
Sensor, fresh air



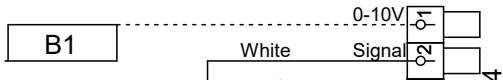
Sensor, exhaust air



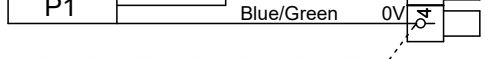
Sensor, extract air



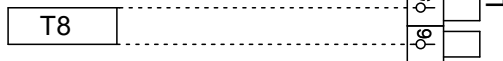
Demand CTRL B1



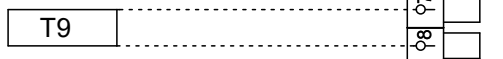
Humidity sensor P1



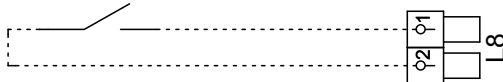
Sensor Frost



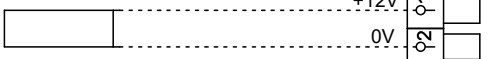
Sensor Option



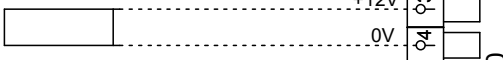
External stop



Modulating
Preheating



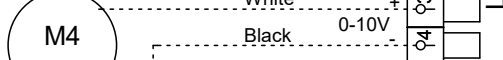
Modulating
Reheating



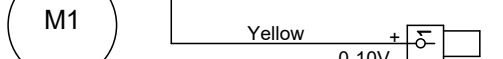
Control signal
Motorvalve
Reheating



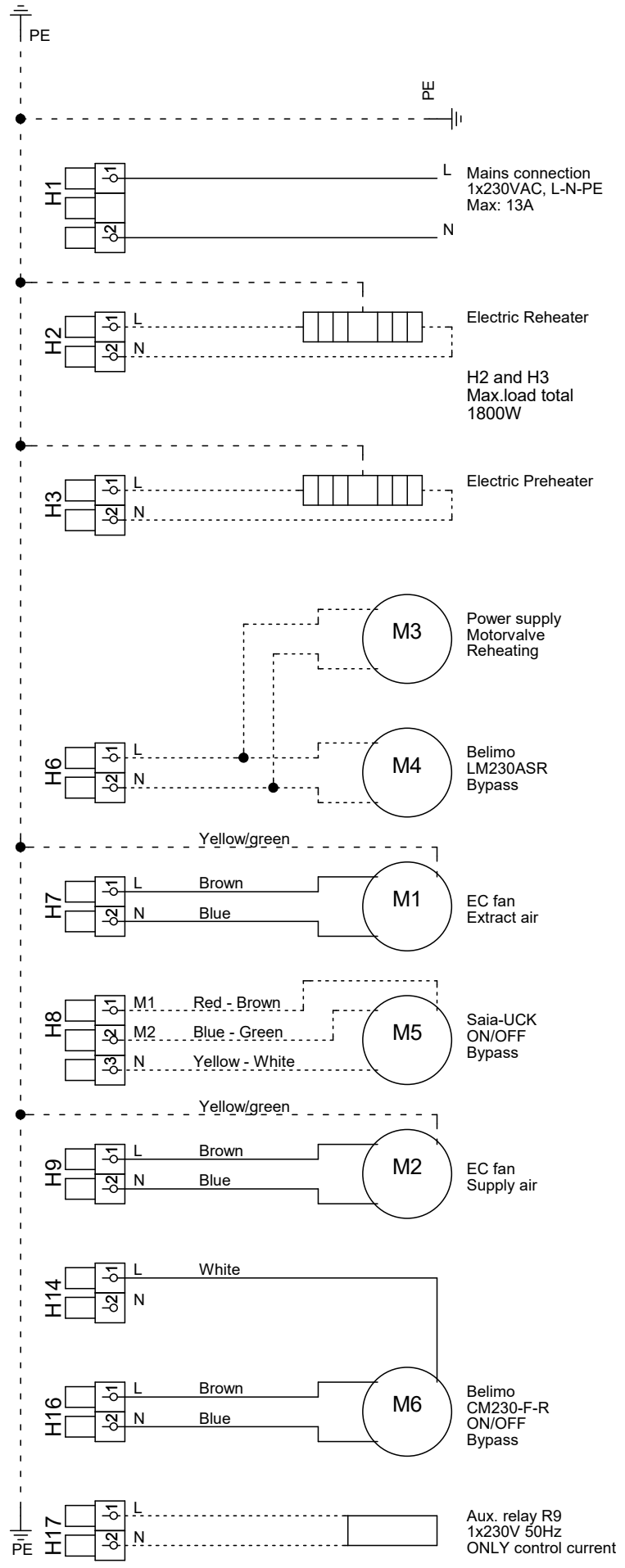
Belimo
LM230ASR
Bypass



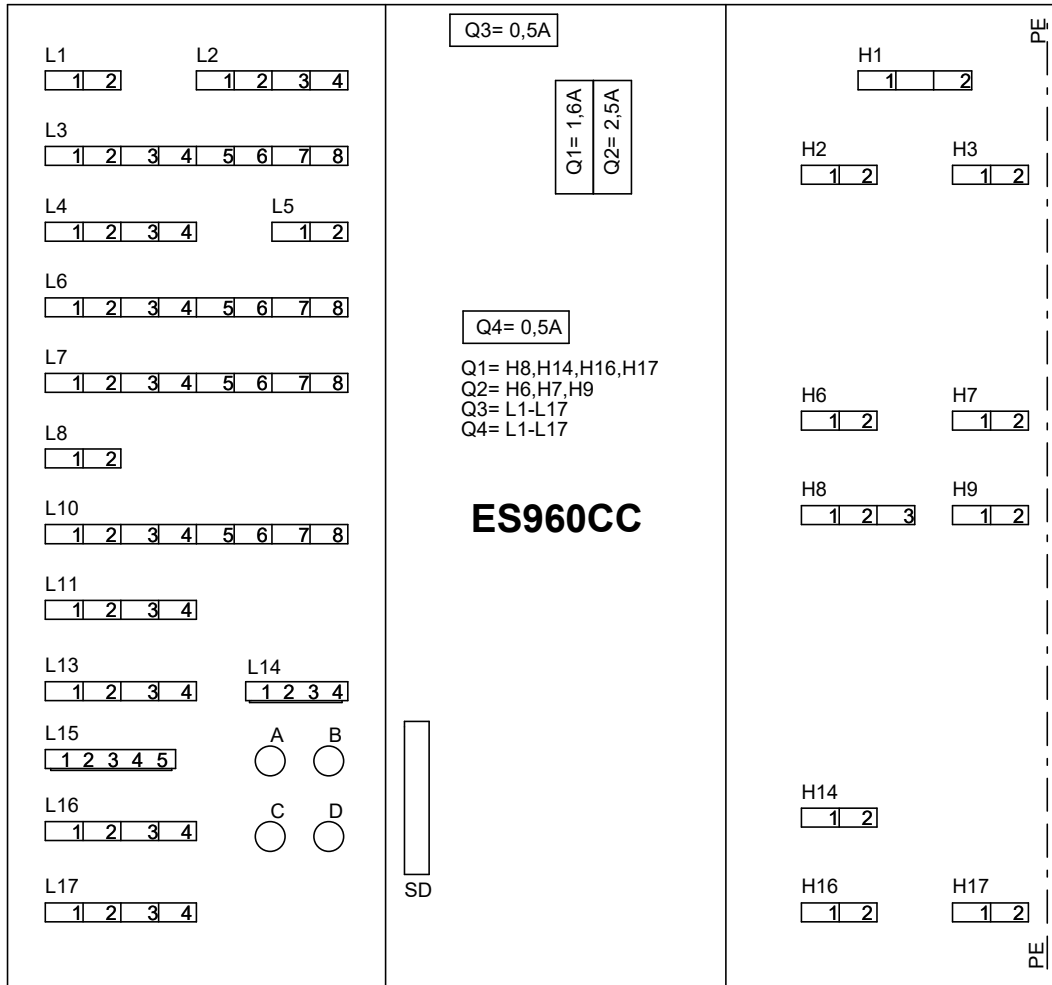
EC fan
Extract air



EC fan
Supply air



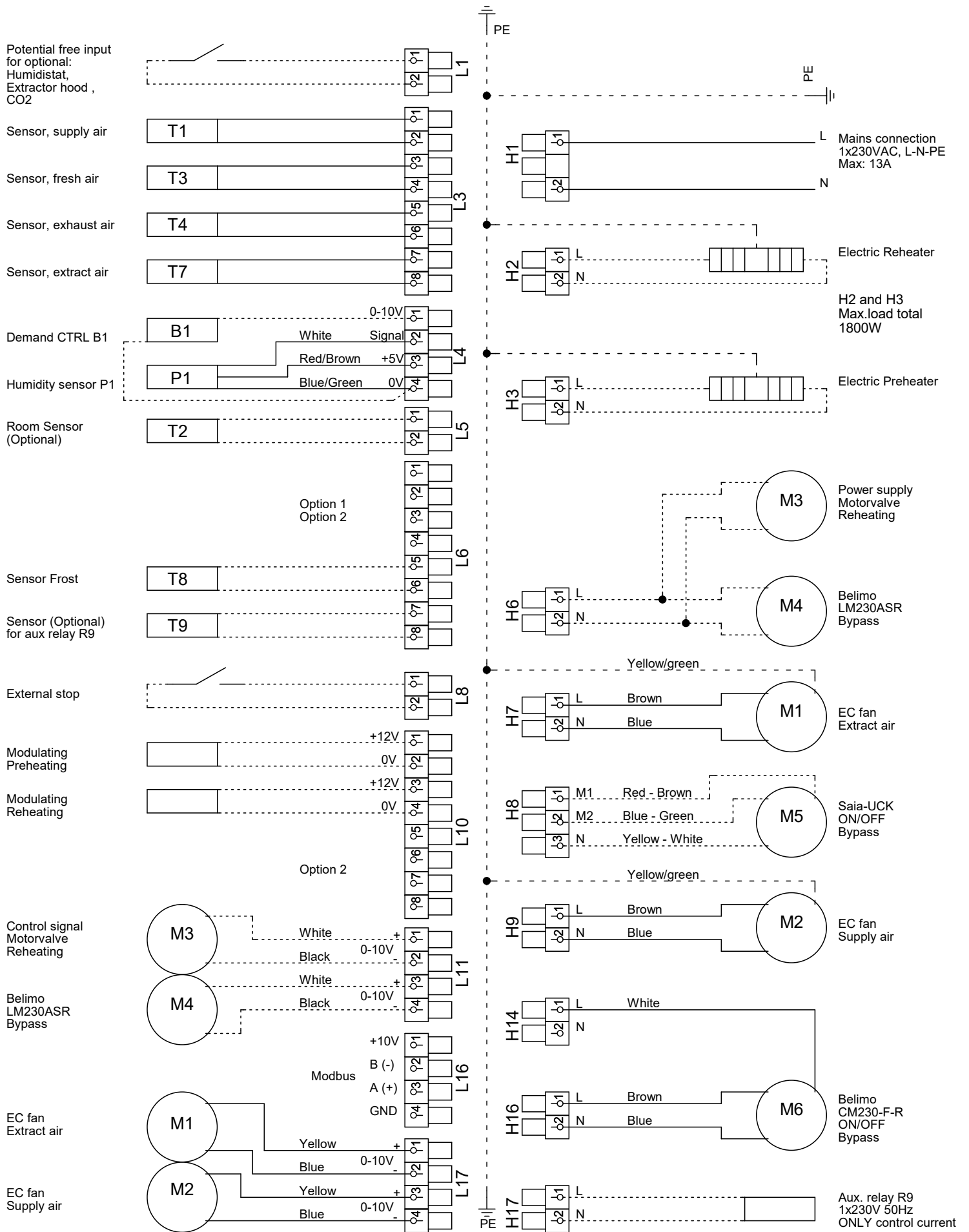
ELECTRICAL DIAGRAM - OPT260



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

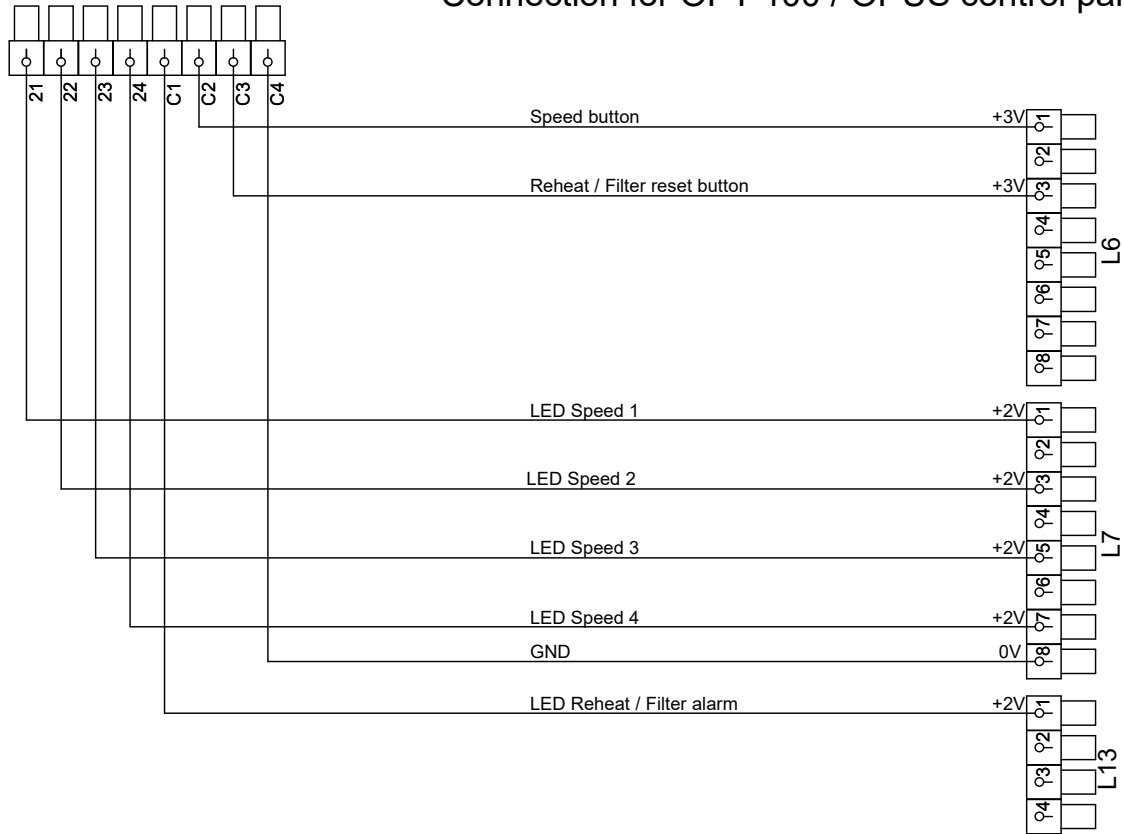
- L1 = Potential free input for optional:
Humidistat, Extractor hood ,CO2
- L2 = Optima Design (option 3)
- L3 = Sensors T1,T3,T4,T7
- L4 = Humidity sensor P1
= Demand CTRL B1
- L5 = Room sensor T2 (optional)
- L6 = Option 1 & 2, Sensors T8,T9
- L7 = Option 1
- L8 = External stop
- L10 = Modulating Pre / 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
- 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



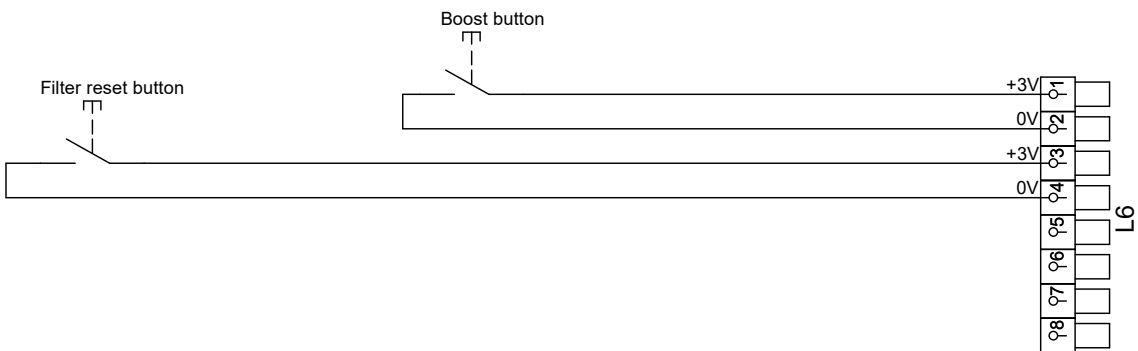
OPT 100/OPUS DISPLAY

Connection for OPT 100 / OPUS control panel

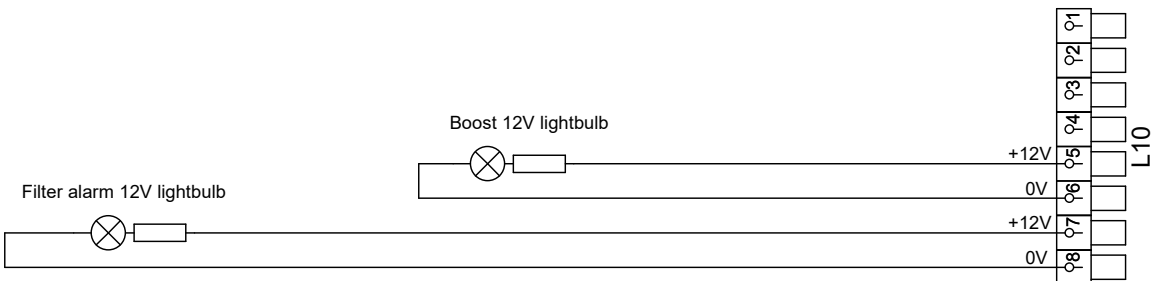


Option 1

Connection for boost button and filter reset button



Option 2



Connection for Optima Design



Option 3

DECLARATION OF CONFORMITY

Declaration of conformity can be downloaded at www.genvex.com.

DISASSEMBLY INSTRUCTIONS



Remove filters



Remove counterflow heat exchanger



Remove fan



Remove bypass actuator

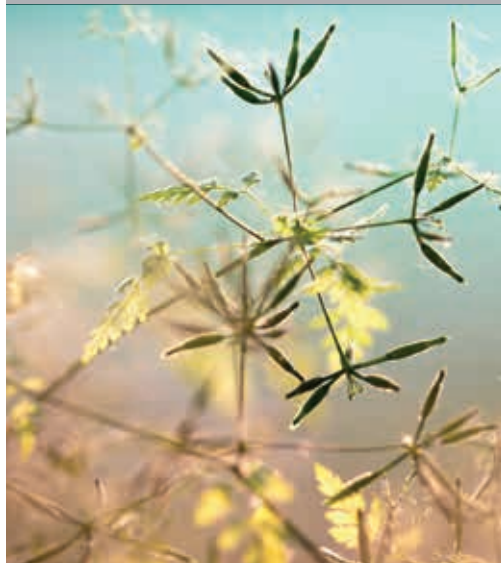
THE AIR WE BREATHE

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.com to see a list of our distributors

