OPERATING INSTRUCTIONS

OPTIMA 270

SW 1.5

THE AIR WE BREATHE

Genvex

CONTENTS

1. INSTALLATION OF OPTIMA BASIC

1.1 Installation

The Optima Basic control panel is intended to be mounted on a flat wall.

1.2 Assembly

Find the place on the wall where you want to attach the control panel and mark the location of the screw holes. At least two screws must be used to secure the control panel to the wall. The type of wall will determine the method for drilling holes, the hole size and the correct screws for fixing the panel.

When the control panel is securely mounted on the wall, take the Optima Basic panel, which comes with a pre-installed cable, and pass this cable through the opening in the casing, as shown in the picture.

Secure the cable to the casing with a cable tie as shown to prevent the cable from being pulled out of the clamp in the display.

Please note: If the pre-installed 1.8 metre Optima Basic cable is not long enough, it is possible to replace this with a 4-core 0.25 mm2 twisted pair cable with a length of up to 50 metres.

Attach the control panel to the casing using four screws as shown in the picture.

Complete the installation by carefully snapping the plastic cover onto the casing as shown in the picture.
Please note: The control panel can installed flush with the wall using an integrated Euronorm box.

To remove the control unit, click off the plastic cover and remove the screws.

For further information about connecting the control panel to the Optima 270, refer to the electrical diagram in the installation manual.

Important information

Safety information

This appliance can be used by children aged 8 and over and by people with reduced physical, sensory or mental capabilities or lack of experience and knowledge, as long as they are supervised or have been instructed in the safe use of the appliance and understand the hazards involved. Children must not play with the appliance. Children must not clean or maintain the appliance without supervision. We reserve the right to make design or technical changes.

2. INSTALLATION OF OPTIMA TOUCH

2.1 Installation

The Optima Touch control panel is intended to be mounted on a flat wall.

2.2 Assembly

Find the place on the wall where you want to attach the control panel and mark the location of the screw holes. At least four screws must be used to secure the bracket to the wall. The type of wall will determine the method for drilling holes, the hole size and the correct screws for fixing the panel.

Once the bracket is securely mounted on the wall, take the Optima Touch display, which comes with a pre-installed cable, and carefully click the display onto the bracket. Make sure the cable is carefully routed as shown in the picture before mounting the display.

Please note: If the pre-installed 1.8 metre cable is not long enough, it is possible to replace this with a 4-core 0.25 mm2 twisted pair cable with a length of up to 50 metres.

To remove the display, gently press the plastic clip (locking mechanism) as shown in the picture.

For further information about connecting the control panel to the Optima 270, refer to the electrical diagram in the installation manual.

3. PROGRAMMING THE OPTIMA 270 CONTROL UNIT

The control system is preset from the factory, which means that the unit can be put into operation without changing the operating settings. The factory setting is a default setting that can be adapted to the operating preferences of the home in question to ensure optimal utilisation and operation of the system.

Depending on the product's configuration, it is possible to connect Optima displays directly to I/O connectors outside the product (connector labelled 'display') or directly on the printed circuit board.

The I/O interface includes terminals for connecting both Modbus Master (e.g. CTS systems) and Modbus Slave devices (e.g. district heating or fire box PCB). To expose the connectors, carefully remove the dust shield sticker.

3.1 System without display interface

3.1.1. Connect an Optima Touch display to the Optima 270 and adjust the settings as needed. Remove the Optima Touch control panel when programming is complete. The Genvex ventilation system will continue to operate according to the new parameters that have been set.

3.1.2 Use the Genvex PC tool to adjust the Optima 270 parameters. Connect a laptop to the IO interface via the Optima Basic or Touch display and use the PC as an interface for programming the Optima 270, or connect it directly to the micro-USB connector on the Optima 270 circuit board.

NB PC tools are only available to installers.

Optima Basic and Touch displays can be retrofitted to this type of installation if required.

3.2 Installation with Optima Basic display

See details in 1.0.

3.3 Installation with Optima Touch display

3.3.1. Connect an Optima Touch control unit to the Optima 270 and adjust the settings as needed.

NOTE: The Optima 270 control unit parameters can be saved on the Optima Touch for one ventilation system and transferred to a similar system by using 'EA1 Save' and 'EA2 load settings' to save and load the settings, respectively.

4. CONTROL PANEL

Optima Basic user interface

Button A:
- Press to activate/deactivate reheater (if connected)
- Press and hold to enable/ disable humidity control.

Button D:
- Press to increase the fan speed to level 3 for 30 minutes (time can be set in menu A3).

Button B:
- Press and hold for 5 seconds to reset filter timer.
- Press and hold for 10 seconds to clear any errors and reboot the system.

Indicators, LED lights
- When the LED light is on, the function is activated/on.
- When the LED light is off, the function is disabled/off.
- Flashing LED lights indicate that the function is active.

For more information on red LED alarm codes, refer to Troubleshooting in Section 6.

Button C:
- Press to change the fan speed.
- If the LED lights are off, the fans are off.

To enable to switch off the ventilation system, set menu EC9 to ON.

Optima Touch user interface – main display

Press to change fan speed
The actual speed will be shown by coloured blades indicating fan speed levels 1–4. Standby is only displayed when the EC9 menu is set to ON. Please note that there will be a delay of 3–4 minutes before the fans turn off.

Press to change the room temperature setpoint (affects the opening of summer bypass for room cooling, etc.)

If the top bar is yellow = filter alarm (display stays illuminated):
Change filter. Reset the filter alarm by pressing the bar.
If the top bar is red = alarm:
See in alarm under the 'I' button.
Grey bar = normal operation.

Information bar showing date and time. Any errors will be displayed here.

Tap to access status information, alerts and event log menu.

Press to go back to the previous menu.

Boost function: Press to increase the fan speed to level 3 for 30 minutes (time can be set in menu A3).

Press to lock the display for 5 seconds (time can be changed in menu D). The external surfaces can be wiped gently with a cloth soaked in 70% isopropyl alcohol.

Press to access the user and service menu.

5. START

5.1 Optima Touch user interface – first use

The following information will be displayed during the initial startup of the control unit for the Optima 270 ventilation, when the Optima Touch is connected to the control unit.
Wait approximately 1 minute for the initial boot sequence to complete.

Control unit software version: the actual software version of the Optima 270 control unit.

Software version, display: the actual software version of the display.

Device-ID: ID of the control unit's secure communication protocol for internet connection.

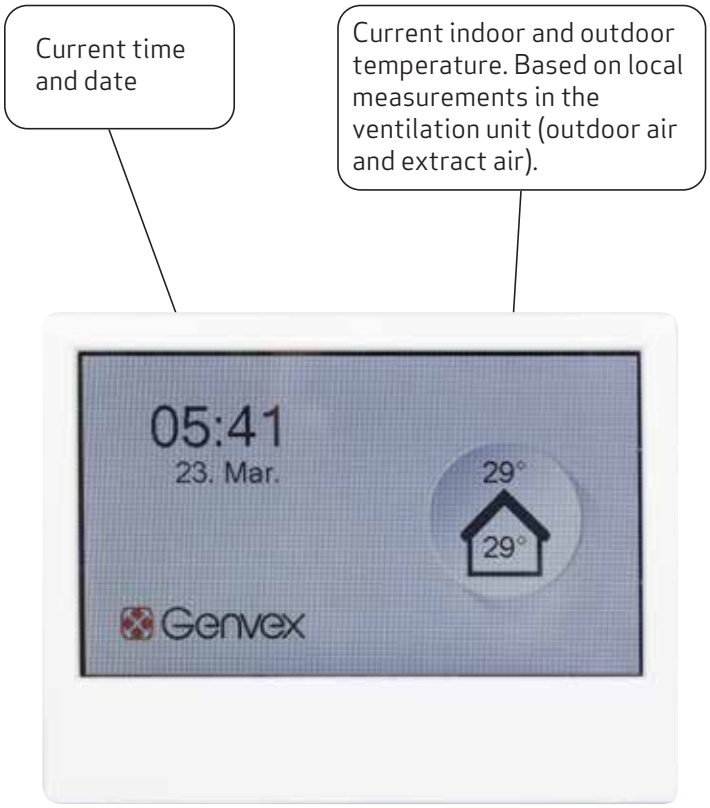
IP address: Only displayed if the ventilation unit is connected to a router via RJ45 connection.

Internet connection status: Indicates whether the internet connection is on or off. If the status indicates 'off', no connection can be made via the Genvex Connect app or remote monitoring/remote servicing.

5.2 Optima Touch user interface – screen saver

Depends on the screen saver settings in D – Display menu. The display will revert to the screen saver after 2 minutes. If D2 is set to 0, the screen saver will be permanently active. If a time is set in D2, the screen saver will change to a blank display after the set time.

To access the main menu again, gently press the display for 2 seconds until the display reactivates.



Screen saver

6. CONTROL UNIT MENU

6.1 Structure, user and service menu in Optima Touch

The structure of the user and service menu in the Optima Touch display is divided into the following sections:

A – User: main user settings

B – Scheduler: schedules for changing fan speeds and temperature settings

C – Date/Time: date and time settings on info display and for time stamping events in the log

D – Display: settings for display and access to parameters

E – Service: service menu – please note that this menu should be used primarily by technicians familiar with the operation of the machine.

7. CONTROL UNIT SETTINGS

Menu	Description	Factory setting (max./min. values)
A1 – Reheating	If a reheater is fitted in the system, you can choose whether the heater should be activated. If the setting is set to OFF, the heater will not turn on even when required. If the setting is set to ON, the heater will start as needed. This is regulated in accordance with the temperature set in point 1 of the user menu.	A1: Off (On/Off)
A2 – Humidity control	Humidity control is activated. This must be set to ON to be active.	A2: Off (On/Off)
A3 – Boost time	Set the desired time for temporarily increased fan speed, activated via the boost button on the main display.	A3: (30–1000 min) (1–120 min)
A4 – Timer levels 3 and 4 – On/Off	When the ventilation system is set to fan speed levels 3 and 4, the system will automatically revert to fan speed level 2 after the number of hours set in A5 when this setting is set to ON. If the setting is set to OFF, the system will run at level 3 or 4 until the fan speed level is changed manually.	A4: Off (On/Off)
A5 – Timer levels 3 and 4 – hours	If A4 is activated, you can specify how many hours the system should run at level 3 or 4 before it automatically reverts to level 2.	A5: 3 hours (1–9 hours)
B1 – Fan scheduler	Four separate timers can be set to change the fan speed level each day. The scheduler can be adjusted separately for each day of the week if necessary. To use the same values for all days of the week, the schedule can be copied by pressing the 'apply to all days' button.	B1: Not in use Not in use/Fan speed levels 1–4/Standby)
B2 – Temperature scheduler	Four separate timers per day can be set to adjust to a lowered nominal temperature (e.g. for earlier opening of the bypass at night during the summer). The scheduler can be adjusted separately for each day of the week if necessary. To use the same values for all days of the week, the schedule can be copied by pressing the 'apply to all days' button.	B2: Not in use Not in use/Reduced/ Normal)
B3 – Enable Scheduler	It is possible to activate/deactivate the fan schedule set in B1 and the temperature schedule set in B2.	Fan scheduler: Off (On/Off) Temperature scheduler: Off (On/Off)
B4 – Alternative Temp.	Allows you to adjust the lowered temperature setpoint selected in B2. The temperature selected here will be an offset from the temperature selected in the main menu 'requested temperature'.	B4: 0°C (-10 to +10)
C1 – Time	Setting the time (important for error handling)	-
C2 – Date	Setting the date (important for error handling)	-
C3 – Daylight Saving Time	Automatic change between Daylight Saving Time/winter time	C3: On (On / Off)

Menu	Description	Factory setting (max./min. values)
D1 – Language	The language on the display can be changed.	D1: English (English/Dansk/ Deutsch/Svenska)
D2 – Screen saver time	Idle time before the screen saver is activated. 0 = screen saver permanently on	D2: 10 min. (0–600 min)
D3 – Display lock time	Activate lock time by touching the lock symbol on the main display.	D3: 5 sec. (0–120 sec.)
D4 – Password	**Main menu, password:** Select password to lock access to main menu. If a password has been selected, the user will be prompted to enter the password the next time they try to access the main menu. To disable the password prompt, enter '0000' as the password. **Service menu, password:** Select password to lock access to the service menu. If a password has been selected, the user will be prompted to enter the password the next time they try to access the main menu. To disable the password prompt, enter '0000' as the password.	-
D5 – Firmware update	Firmware for the Optima 270 control unit and display can be updated using a micro SD card inserted into the SD card reader of the Optima Touch. To update the control unit and display, press 'start update' when the SD card containing the latest firmware has been inserted into the card reader.	-
EA – Save/Load settings	**EA1 – Save settings** Saves the settings from the Optima 270 control unit to the display. **EA2 – Load settings** Loads settings stored in EA1 and transfers data to a new Optima 270 PCB.	-
EB – Fan speed levels	**EB1 – Level 1 Supply air** Level 1 is the lowest speed, and is usually used when no one is home. Both fans can be configured independently of each other with all levels, so that the air flow is the same in the supply air and in the extract air, thus resulting in optimal operation. Specialised air measurement equipment must be used to adjust the system, which can be done without making use of the main control damper. It is not recommended to configure the air flows without the help of an expert. Incorrect configuration can lead to higher energy consumption or an unpleasant indoor climate. Setting option: between 0 and 100%. **EB2 – Level 2 Supply air** Level 2 is the system's recommended speed for an optimal indoor climate. It should be adjusted to the home's ventilation requirements. Setting option: between 0 and 100%. **EB3 – Level 3 Supply air** is typically configured for a high level of activity in the house.	EB1: 30% (0–100%) EB2: 50% (0–100%) EB3: 75% (0–100%)

Menu	Description	Factory setting (max./ min. values)
EB – Fan speed levels	**EB4 – Level 4 Supply air** is typically configured at 100% airflow for rapid air exchange throughout the house. Remember that a higher air exchange rate increases energy consumption. **EB5 – Level 1 Extract air** The fan speed is regulated to match the amount of supply air at level 1. **EB6 – Level 2 Extract air** The fan speed is regulated to match the amount of supply air at level 2. **EB7 – Level 3 Extract air** The fan speed is regulated to match the amount of supply air at level 3. **EB8 – Level 4 Extract air** The fan speed is regulated to match the amount of supply air at level 4. **EB9 – Fan mode** Use % if no built-in airflow sensors are connected. Fan speed inputs EB1 to EB9 will be based on the % of maximum capacity. Select m^3/h as the setting for constant air flow control. *Note that this requires built-in airflow sensors in the system.* *Be aware that using this function without airflow sensors will lead to incorrect volume flows in the system.* *Please note that the fans will automatically adapt to an increased drop in pressure (e.g. clogged filters) to maintain a constant air flow – in this case, increased fan power consumption can be expected.* *When selecting m^3/h, EB1 to EB9 will automatically allow direct setting of the desired air volume in m^3/h. Please note that m^3/h setpoints must match the capacity of the ventilation system. When using m^3/h regulation, 1% corresponds to 10 m^3/h (in general for all parameter settings related to fan operation).* **EB10 – RPM alarm** **Off** = Fan RPM feedback is not actively used. **On** = If RPM feedback from the fans reaches 0 RPM and the fan is expected to run, the ventilation system will shut down and display an alarm. **EB11 – Reset RPM alarm** Enable this feature to reset the RPM alarm when the issue has been resolved.	EB4: 100% (0–100%) EB5: 30% (0–100%) EB6: 50% (0–100%) EB7: 75% (0–100%) EB8: 100% (0–100%) EB9: % (%/m^3/h) EB10: On (On/Off) EB11: Off (On/Off)
EC – Regulator	**EC1 – Frost protection** **Off** = No active frost protection.	EC1: Fan Reduc. (Off/Fan Reduc./Rotor Reduc./Fan+Rotor)

Menu	Description	Factory setting (max./ min. values)
EC – Regulator	**Fan Reduc.** = The fan speed for supply air is gradually reduced to keep the temperature sensor in the exhaust (T4) at the EC2 setpoint. **Rotor Reduc.** = Rotary heat exchanger speed is gradually reduced to keep the exhaust temperature sensor (T4) at the EC2 setpoint. The de-icing process starts automatically, depending on the measured indoor humidity and outdoor air temperature. Minimum rotor speed in de-icing mode = 1 RPM. **Fan+Rotor** = Rotary heat exchanger speed is gradually reduced to keep the exhaust temperature sensor (T4) at the EC2 setpoint. The de-icing process starts automatically, depending on the measured indoor humidity and outdoor air temperature. Minimum rotor speed in de-icing mode = 1 RPM. If the EC2 setpoint is not reached in time, reducing the supply air fan speed will help to achieve this. **EC2 – Frost reduction** Adjustable setpoint for frost protection strategy EC1 **EC3 – Regulation method** **T1 Supply air** = Airborne climate control is based on the supply air sensor. **T7 Extract air** = Airborne climate control is based on the temperature sensor for the extract air sensor. **EC4 – 0-10V output mode** **Bypass** = 0–10 volt output L11 can be adjusted to control the 0–10 volt bypass motor. **Rotor** = 0–10 volt output L11 can be adjusted to control the rotary heat exchanger. **Water valve** = 0–10 volt output L11 can be adjusted to control a water-based reheater. **EC5 – Auxiliary relay H17** Setpoint Function **0** The relay is off. **1** The relay is on when the system is running. This can be used to e.g. open and close outdoor air and exhaust air dampers. **2** The relay is switched on when extra heat is required, or when the circulation pump must run when heating with water reheat is required. **3** The relay is on when the 'Change filter' alert is active. This can be used to activate an external alert. **4** The relay is on when cooling is required. **5** The relay is switched on if one of the following two conditions is met: • The outdoor temperature, sensor T9, is lower than the set value in EC8 (frost protection temperature, typically set to 5°C). • The outdoor temperature, sensor T9, is >15°C and the room temperature is > setpoint +1°C.	EC2: +3 (-10 to +10) EC3: T7 Extract air (T1 Supply air/T7 Extract air) EC4: Rotor (Water valve/Rotor/ Bypass) EC5: 0 (0–6)

Menu	Description	Factory setting (max./ min. values)
EC – Regulator	6 The relay will be on when terminal L1 is shorted/activated (e.g. by connecting a kitchen cooker hood to the ventilation unit). This function can be used to activate a damper, which reduces the airflow to the rest of the house and focuses the extract air through the hood. **EC6 – Regulation water** If a water reheater with motor valve is installed in the system, it may be necessary to change the regulation time. The shorter the regulation time, the faster the motor valve will regulate. **EC7 – Water frost protect** If a water reheater with motor valve is installed in the system, a frost protection sensor must be installed on the water reheater and the setpoint must be set to ON. If no frost protection sensor is installed, the setpoint must be set to OFF. **EC8 – Water frost temp.** If frost protection in EC7 is set to ON, the frost protection temperature must be set to the temperature at which the system should stop, and the motor valve must open fully for hot water flow. **EC9 – System stop** Allows you to choose whether it is possible to stop the system by selecting 'standby' under the settings for fan speed. If the setpoint is set to OFF, the system cannot be turned off. If 'On' is then selected, 'standby' will be displayed in the fan speed selector on the main display. **EC10 – Right/left model** **Right** = The ventilation system designed as a right-facing model (only for counter-flow heat exchanger units and right-facing rotor version). **Left** = The ventilation system designed as a left-facing model (only for counter-flow heat exchanger units). **Rotor left** = The ventilation system designed as a left-facing model (applies only to units with a rotary heat exchanger). Note that this setting should only be changed by the installer, as there is a risk of disrupting the machine's functions if an incorrect setting is used. **EC11 – Factory reset** **Reset -Fans** = Resets all control unit values (except fan speeds) to factory settings. **Reset all** = Resets all control unit values to factory settings. **EC12 – Model Type** 0 = Basic setup 1 = T3=T1 ; T7=T4 Setpoint 1 is used for ventilation systems with a double integrated temperature sensor in the heat exchanger to ensure an accurate temperature is indicated during active bypass	EC6: 20 sec. (1 sec. to 250 sec.) EC7: Off (On/Off) EC8: 5°C (0–10°C) EC9: Off (On/Off) EC10: Right (Right/Left/Rotor Left) EC11: Off (Off/Reset -Fans/ Reset all) EC12: 0 (0/1)

Menu	Description	Factory setting (max./min. values)
EC – Regulator	**EC13 – Output H3 selection** H3 Operating modes **Preheat =** R1 released for operation as preheater (activated via EC1) **Reheat =** R1 released for operation as reheater (activated via A1) **Always on =** R1 is switched on as operating relay, independent of EC1 and A1	EC13: Preheat (Preheat/Reheat/ Always on)
ED – Electric heating	**ED1 – preheat** **Off = preheater disabled** **T3 outdoor air =** Electric preheater controlled by the temperature sensor for outdoor air (T3). **T4 Exhaust =** Electric preheater controlled by the temperature sensor in the exhaust (T4).	ED1: Off (off/T3 outdoor air/ t4 Exhaust)
	ED2 – Preheating temperature Temperature setpoint, frost protection preheater – see menu EC1 for reference temperature sensor	ED2: +3°C (-15 to +10°C)
	ED3 – Preheat PI P P band for PI control unit for the electrical modulating preheater. The P band controls the amplification of the control unit after a deviation from the setpoint (accelerator).	ED3: 5 (1–255)
	ED4 – Preheat PI I I band for PI control unit for the electrically modulating reheater. This function controls how quickly the control unit adapts to a deviation from the setpoint (brake).	ED4: 200 (1–255)
	ED5 – Preheat reg. The preheat cycle function works as follows: E.g. necessary output 50% and cycle = 60 sec. means that the regulator turns on the preheater for 30 seconds and turns it off for 30 seconds. Please note: Please refer to your country-specific restrictions when customising this feature. The modulating preheater function refers to the value set in setpoint EC1. The preheater will aim to maintain a stable outdoor air temperature according to this setpoint. When the modulating preheater is used, the existing outdoor air temperature sensor (T3) built into the ventilation unit can be used as a reference. No additional temperature sensor is required.	ED5: 40 sec. (10–120 sec.)
	ED6 – Reheat offset Offsetting of reheater with reference to the setpoint for the requested temperature. E.g. requested temperature = 20°C Offset value = 2, the reheater will aim to maintain a supply air temperature of 18°C.	ED6: –2°C (-10 to +10°C)
	ED7 – Reheat PI P P band for PI control unit for the electrically modulating reheater. The P band controls the amplification of the control unit after a deviation from the setpoint (accelerator).	ED7: 5 (1–255)
	ED8 – Reheat PI I I band for PI control unit for the electrically modulating preheater. The function controls how fast the control unit adapts to a deviation from the setpoint (brake).	ED8: 200 (1–255)

Menu	Description	Factory setting (max./ min. values)
ED – Electric heating	**ED9 – Reheat Reg** The reheater function works as follows: E.g. necessary output 50% and cycle = 60 sec. means that the control unit turns on the reheater for 30 seconds and turns it off for 30 seconds. Please note: Please refer to your country-specific restrictions when customising this feature. The modulating reheater function refers to the value adjusted in the selected temperature and selected sensor for the control (see EC3). To allow the reheater to work, set the setpoint A1 to On. The reheater will aim to maintain a stable temperature in the supply air according to this setpoint. When using the modulating reheater, it is necessary to replace the supply air temperature sensor (T1) in the ventilation unit with a new temperature sensor installed upstream of the reheater. **ED10 – Regulation elec. time** If an on/off reheater is installed on output H3, the regulation time may need to be adjusted. The regulation time indicates the minimum pause between on/off cycles of the heating surface.	ED9: 40 sec. (10–120 sec.) ED10: 3 min. (1–30 min)
EE – Bypass	**EE1 – Bypass open offset** The temperature at which the bypass should be 100% open can be set here. A temperature difference can be set here, which means that if you want the bypass to be 100% open at e.g. 23°C and if the set temperature is 20°C, this menu item must be set to 3°C. ***The bypass will open provided that:*** 1. The extract air temperature T7 is higher than the outdoor air temperature T3. 2. The outdoor air temperature is above the set temperature in menu EE2 (desired temp – EE2) = 21 – 4 = 17°C outdoor air. **Units with modulating bypass** If the temperature rises to 0.5°C above the desired temperature, the bypass damper will start to open. The bypass is 100% open when the temperature reaches the 'requested temperature' setpoint + the temperature difference set in this menu item. To ensure an even opening of the bypass, the temperature at which the bypass opens completely must be set to approx. 3°C above the desired temperature. **Units with on/off bypass** The bypass opens when the temperature reaches the desired temperature + the temperature difference set in this menu item. **EE2 – Turn off bypass** To prevent the bypass damper from opening at low outside air temperature and blowing cold, unheated air into the home, use this function to configure the minimum outdoor air temperature at which the damper should be closed. The value is an expression of the largest difference that must exist between the desired temperature and the lowest outdoor air temperature (offset). Setting options: Between 0 and 20°C. If 0°C is selected, the function will be deactivated and there will be no limit for the lowest outdoor temperature.	EE1: 3°C (1–10°C) EE2: 4°C (0–20°C)

Menu	Description	Factory setting (max./ min. values)
EE – Bypass	**EE3 – Forced speed** In this menu, the desired forced, stepped fan speeds can be selected when the bypass opens for night cooling and when the setpoint in EE4 is exceeded. **EE4 – Forced temp.** Offset value setpoint for enabling forced fan speed, e.g. when bypass is open for night cooling (fan speed increased by the value set in EE3). *Requested temperature 20°C* *EE1 = 3°C* *Bypass opens at 23.1°C.* *EE4 = 3°C* *Increase in fan speed at 26.1°C* **EE5 – Bypass Time min on** Bypass will be open to at least the set value.	EE3: 0% (0–100%) EE4: 3°C (0–5°C) EE5: 5 min. (0–60 min)
EF – Filter	**EF1 – Filter reset** Select this option to reset the filter timer to 0 days. The current counter value will show days since the last filter reset. **EF2 – Filter timer** Setpoint for adjusting the number of months until the filter alert is activated. 0 months = filter timer disabled **EF3 – Filter/stop** To ensure that the filters are changed when the filter change alert is active, the setpoint can be set to ON. The system will then stop automatically after 14 days if the filters have not been replaced in the meantime. If this precaution is not required, the setpoint can be set to OFF and the system will continue to run.	EF1: Reset filter EF2: 3 months (0–12 months) EF3: Off (On/Off)
EG – Humidity control	**EG1-Humidity max Temp.** Setting the end point for outdoor temperature compensation (T3), see the X-axis on the graph. If 0 is selected – outdoor temperature compensation is deactivated and the set value under EG2 is maintained as a constant setpoint. **EG2 – Humidity max. value** Sets the endpoint for outdoor temperature compensation, see the Y-axis on the graph (desired max. humidity value). **EG3 – Humidity fan speed** Determines how much the fan speed can vary relative to the desired fan speed. Examples: Setpoint, fan speed level 2 (EB2 / EB6) = ± 15%. Please note: If EB9 is set to constant volume flow control (m^3/h), then the EG3 setting will correspond to setpoint x 10 = influence in m^3/h e.g. EG3=5 corresponds to the permitted variation in the air volume of up to 5 x 10 = 50 m^3/h	EG1: 15°C (0–25°C) EG2: 60% (35–85%) EG3: 15% (5–30%)

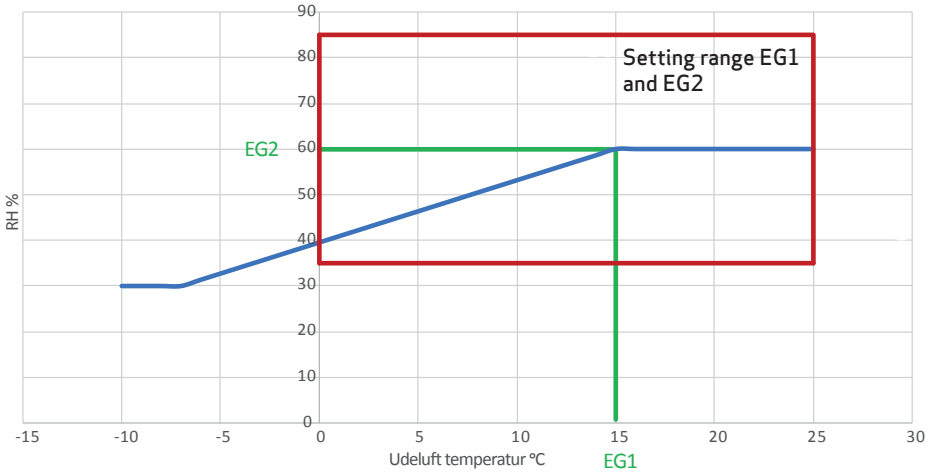
Menu	Description	Factory setting (max./ min. values)
EG – Humidity control	**EG4 – Humidity reg. frequency** Setting the desired frequency for how often the fan speed can be changed. The function is defined as 1% per unit of time. When humidity control is activated, the current humidity is continuously measured via the integrated humidity sensor in the ventilation system, located in the extract air duct.	EG4: 10 min. (1–60 min)
EH – Rotor	**EH1 – Rotor speed (rpm)** The setpoint for the minimum speed of the rotary heat exchanger (revolutions per minute). Be aware that a reduction in the RPM value may reduce the heat recovery rate but increase the control range for moisture recovery. These values should be adjusted by an installer.	EH1: 3 RPM (0–25 RPM)
	EH2 – Rotor stop °C Offset setpoint for temperature where heat recovery with a rotary heat exchanger is stopped. E.g. *setpoint: temperature 20°C* *EH2 = 2* *Rotary heat exchanger stops when outdoor air temperature T3 is 20-2 = 18°C.* *This feature will save energy for the rotor motor when there is limited opportunity to recover energy.*	EH2: 2°C (0–10°C)
	EH3 – Max deicing min. Setpoint in minutes for the maximum time that can be spent de-icing the rotary heat exchanger. If the time limit is exceeded, the rotary heat exchanger will return to normal operation.	EH3: (30–1000 min) (1–120 min)
	EH4 – Deicing pause Setpoint in hours corresponding to the minimum time interval between de-icing cycles.	EH4: 4 hours (1–8 hours)
EI – Demand control	**EI1 – CO_2 control** **On** = Activates external sensors for demand control (if available). **Off** = No external sensors available for demand control.	EI1: Off (On/Off)
	EI2 – CO_2 setpoint Setpoint for the desired CO_2 level in PPM. If the CO_2 level rises above the setpoint, the fan will increase the speed incrementally to keep the CO_2 level at the setpoint.	EI2: 800 PPM (400–2000 PPM)
	EI3 – CO_2 level 4 time Setpoint in minutes for the time between incremental increases/ decreases in fan speed according to CO_2 level (see setpoint EI2)	EI3: (30–1000 min) (0–1000 min)
	EI4 – Number of Rf CO_2 sensors Select the number of wireless CO_2 sensors connected. Make sure the dip switches in the CO_2 sensors are set correctly according to the separate documentation.	EI4: 0 (0–4)

Menu	Description	Factory setting (max./ min. values)
EJ – Fire control	**EJ1 – Number of fire dampers** Setpoint for the number of fire dampers connected to the system that should be monitored. **0** = Fire control system inactive **1–4** = Number of dampers connected **EJ2 – Fire test/Reset** **Off** = Automatic mode, damper will be tested once per month according to the schedule. **Test** = Test system now. This function starts a forced function test of the fire damper and the result is shown on the display (NB: There will be a delay of up to 240 seconds from the start of the test to completion). **Reset** = Reset fire alarm. In case of any errors during the damper test or in the damper/smoke detector or a lack of feedback, the ventilation system will shut down and the display will show an alarm symbol. Restarting the device requires a fire auto reset. **EJ3 – Fire test, date** Schedule when the automatic monthly test of fire/smoke dampers is performed. **EJ4 – Fire test hour** Schedule when the automatic fire/smoke damper test is performed.	EJ1: 0 (0–4) EJ2: Off (Off/Test/Reset) EJ3: 1 (1–31 days) EJ4: 0 (0–23 hours)
EK – District heating control	PLEASE NOTE: If no external outdoor temperature sensor is connected to the control unit, the built-in outdoor air temperature sensor in the ventilation system is used as a reference in calculating temperature setpoints for weather compensation. **EK1 – District heating mode** **Off** = No external heating circuit connected. **Floor** = Floor circuit connected. **Heater** = Heater circuit connected. **EK2 – Outdoor compensation at -12°C** Setpoint for supply temperature at -12°C outdoor temperature. **EK3 – Outdoor compensation at 20°C** Setpoint for outdoor temperature when the supply temperature is 20°C. An outdoor air temperature that exceeds the setpoint in EK3 will close the heating circuit (summer stop). **EK4 – Offset of compensation curve** Setpoint in °C at which the heat compensation curve set in EK5 will have the greatest influence. **EK5 – Compensation curve** The heating curve can be increased in increments of 0–5°C with a maximum influence according to the value set in EK4.	EK1: Off (Off/Floor/Heater) EK2: 45°C (20–90°C) EK3: 20°C (15–25°C) EK4: 2°C (-10 to +10°C) EK5: 2°C (0–5°C)

Menu	Description	Factory setting (max./ min. values)
EK – District heating control	**EK6 – Max. supply temperature** The supply temperature will be limited to a maximum of 45°C if floor is chosen in EK1. The supply temperature will be limited to 90°C if heater heating is selected in EK1. **EK7 – Valve time (sec.)** Time from 3-point control valve fully closed to fully open (depends on actuator and valve stem configuration). For more information refer to the valve supplier's manual. **EK8 – Max. return temperature** If the maximum return temperature exceeds the temperature setpoint, the valve will close incrementally until the return temperature reaches the setpoint. **EK9 – Neutral zone** Hysteresis for temperature control via PID. **EK10 – Heat PI P** PI control unit P-band. By increasing this value, the control unit will aim to reach the setpoint temperature faster (with the risk of exceeding the setpoint). **EK11 – Heat PI I (x 10)** PI control unit I-band. By increasing this value, the control unit will aim to reduce overshoot/ offset of temperatures (with the risk of slowing down the control unit). **EK12 – Heat reg. time** The regulation time of the PI control unit. Increasing this value will slow the control unit down, increasing the interval between recalculation of the valve position.	EK6: 45°C (20–65°C) EK7: 150 sec. (1–255 sec.) EK8: 50°C (25–70°C) EK9: 1°C (0–10°C) EK10: 20 (0–255) EK11: 50 (0–255) EK12: 5 sec. (1–120 sec.)
EL – Modbus	**EL1 – Modbus address** Modbus slave address for the device. **EL2 – Modbus baud rate** Choose either 9600 or 19200 baud, depending on the type of application. **EL3 – Modbus parity** Select even or odd depending on the type of application. **EL4 – Modbus modify** 0 = writing to modbus setpoints not allowed 1 = writing to modbus setpoints limited 2 = writing to modbus setpoints full access	EL1: 1 (1–247) EL2: 9600 baud (9600/19200 baud) EL3: Even (None/Even/Odd) EL4: 1 (0/1/2)
EM – Manual Override	Enter password to open relay test program (for installers only).	
OEM	Enter password to open the OEM program (for installers only).	

8. FURTHER EXPLANATIONS OF HUMIDITY AND DISTRICT HEATING CONTROL

8.1 Explanation of humidity control



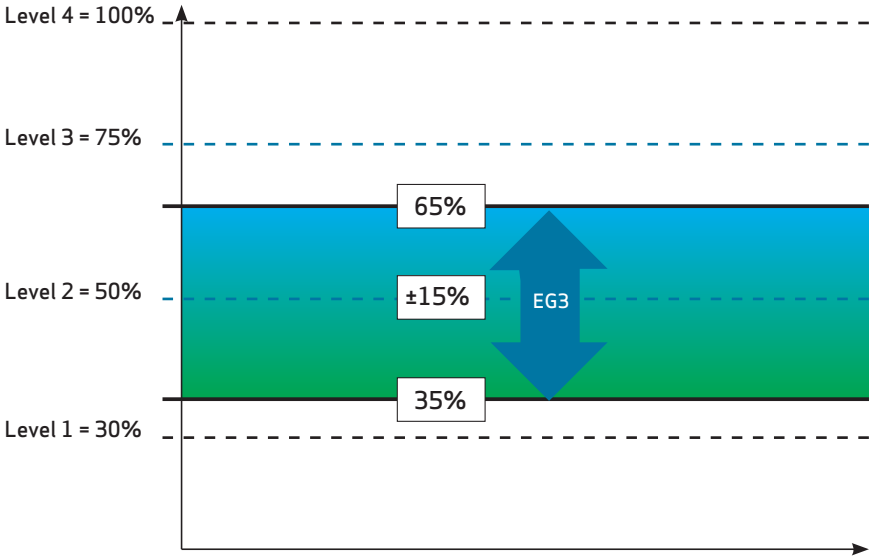
Example 1:
At an outdoor air temperature of 10°C, the RH control aims for 53% humidity, as measured in the extract air.

Example 2:
At an outdoor air temperature of 20°C, the RH control aims for 60% humidity, as measured in the extract air.

EG1 and EG2 are used to change the characteristics of the humidity control values by shifting the compensation curve (indicated by the green line on the graph).

Note: If EG1=0°C, outdoor temperature compensation is deactivated and the system will regulate according to a constant humidity level in accordance with EG2.

Remember to adapt EG2 to a suitable humidity level so that there is no risk of damp surfaces in the home in winter.

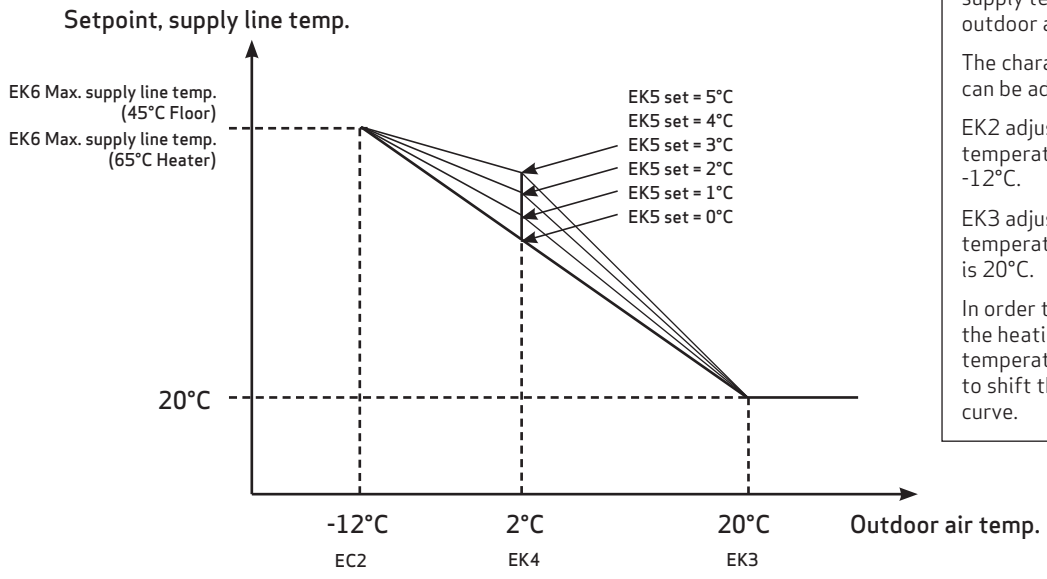


Example:
Setpoint = ± 15% (EG3)
With a desired fan speed of 2, set to 50%, speed may
range from 35% to 65%.

Humidity control is only available at fan speed level 2 and will be automatically disabled at any other fan speed level.

Speed regulation is ±1% every 10 minutes. (Factory setting, EG4).

8.2 Explanation of district heating control



The district heating control system automatically adjusts the heating system's supply temperature according to the outdoor air temperature.

The characteristics of the heating curve can be adjusted via EK2 and EK3.

EK2 adjusts the desired supply temperature at an outdoor temperature of -12°C.

EK3 adjusts the desired outdoor temperature when the supply temperature is 20°C.

In order to increase the heating capacity of the heating system at a specific outdoor temperature, EK4 and EK5 can be used to shift the characteristics of the heating curve.

8.3 Schedule for setpoints

Optima 270			
Main menu/submenu	**Factory settings**	**Setting range**	**Form for user settings**
A – User			
A1 – Reheating	Off	On/Off	
A2 – Humidity control	Off	On/Off	
A3 – Boost time	(30–1000 min)	1–120 min.	
A4 – Timer levels 3 and 4	Off	On/Off	
A5 – Timer levels 3 and 4	3 hours	1–9 hours	
B – Scheduler			
B1 – Fan scheduler	Not in use	Not in use/Levels 1–4	
B2 – Temperature scheduler	Not in use	Not in use/Reduced/Normal	
B3 – Enable Scheduler	Off	On/Off	
B4 – Alternative Temp.	0.0°C	-10°C to +10°C	
C – Date/Time			
C1 – Time			
C2 – Date			
C3 – Daylight Saving Time	On	On/Off	
D – Display			
D1 – Language	English	English/Dansk/Deutsch/Svenska	
D2 – Screen saver time	10 min.	0–600 min.	
D3 – Display lock time	5 sec.	0–120 sec.	
D4 – Password	0000	0000-9999	
D5 – Firmware update			
EA – Save/Load settings			
EA1 – Save settings			
EA2 – Load settings			
EB – Fan speed levels			
EB1 – Level 1 Supply air	30%	0–100%	
EB2 – Level 2 Supply air	50%	0–100%	
EB3 – Level 3 Supply air	75%	0–100%	
EB4 – Level 4 Supply air	100%	0–100%	
EB5 – Level 1 Extract air	30%	0–100%	
EB6 – Level 2 Extract air	50%	0–100%	
EB7 – Level 3 Extract air	75%	0–100%	
EB8 – Level 4 Extract air	100%	0–100%	
EB9 – Fan mode	%	%/m3/h	
EB10 – RPM alarm	On	On/Off	
EB11 – Reset RPM alarm	Off	On/Off	

Optima 270			
Main menu/submenu	**Factory settings**	**Setting range**	**Form for user settings**
EC – Regulator			
EC1 – Frost protection	Fan Reduc.	Off/T3 Outdoor air/T4 Exhaust/Fan Reduc./Rotor Reduc./Fan+Rotor	
EC2 – Frost reduction	+3°C	-10°C to +10°C	
EC3 – Regulation method	T7 Extract air	T1 Supply air/T7 Extract air	
EC4 – 0-10V output mode	Rotor	Water valve/Rotor/Bypass	
EC5 – Auxiliary relay H17	0	0–6	
EC6 – Regulation water	20 sec.	1–250 sec.	
EC7 – Water frost protect	Off	On/Off	
EC8 – Water frost temp.	5°C	0–10°C	
EC9 – System stop	Off	On/Off	
EC10 – Right/Left model	Right	Right/Left/Rotor Left	
EC11 – Factory Reset	Off	Off/Reset – Fan/Reset all	
EC12 – Model Type	0	0–9999	
EC13 – Output H3 selection	Preheat	Preheat/Reheat/Always on	
ED – Electric heating			
ED1 – Preheat	Off	Off/T3 outdoor air/T4 exhaust	
ED2 – Preheating temperature	+3°C	-15°C to +10°C	
ED3 – Preheat PI P	5	1–255	
ED4 – Preheat PI I	200	1–255	
ED5 – Preheat reg.	40 sec.	10–120 sec.	
ED6 – Reheat offset	-2°C	-10°C to +10°C	
ED7 – Reheat PI P	5	1–255	
ED8 – Reheat PI I	200	1–255	
ED9 – Reheat Reg	40 sec.	10–120 sec.	
ED10 – Regulation elec. time	3 min.	1–30 min.	
EE – Bypass			
EE1 – Bypass open offset	3°C	1–10°C	
EE2 – Turn off bypass	4°C	0–20°C	
EE3 – Forced speed	0%	0–100%	
EE4 – Forced temp.	3°C	0–5°C	
EE5 – Bypass Time min on	5 min.	0–60 min.	
EF – Filter			
EF1 – Filter reset			
EF2 – Filter timer	3 months	0–12 months	
EF3 – Filter/stop	Off	On/Off	
EG – Humidity control			
EG1-Humidity max Temp.	15°C	0–25°C	
EG2 – Humidity max. value	60%	35–85%	
EG3 – Humidity fan speed	15%	5–30%	
EG4 – Humidity reg. frequency	10 min.	1–60 min.	

Optima 270			
Main menu/submenu	**Factory settings**	**Setting range**	**Form for user settings**
EH – Rotor			
EH1 – Rotor speed (rpm)	3 RPM	0–25 RPM	
EH2 – Rotor stop °C	2°C	0–10°C	
EH3 – Max deicing min.	(30–1000 min)	1–120 min.	
EH4 – Deicing pause	4 hours	1–8 hours	
EI – Demand control			
EI1 – CO_2 control	Off	On/Off	
EI2 – CO_2 setpoint	800 PPM	400–2000 PPM	
EI3 – CO_2 level 4 time	(30–1000 min)	0–1000 min.	
EI4 – Number of Rf CO_2 sensors	0	0–4	
EJ – Fire control			
EJ1 – Number of fire dampers	0	0–4 pcs	
EJ2 – Fire Test/Reset	Off	Off/Test/Reset	
EJ3 – Fire test, date	1	1–31 days	
EJ4 – Fire test hour	0	0–23 hours	
EK – District heating control			
EK1 – District heating mode	Off	Off/Floor/Heater	
EK2 – Outdoor temp comp. -12°C	45°C	20–90°C	
EK3 – Outdoor temp comp. 20°C	20°C	15–25°C	
EK4 – Comp. curve offset	2°C	-10°C to +10°C	
EK5 – Compensation curve	2°C	0–5°C	
EK6 – Max flow temp.	45°C	20–65°C	
EK7 – Valve time (sec.)	150 sec.	1–255 sec.	
EK8 – Max. return temp.	50°C	25–70°C	
EK9 – Neutral zone	1°C	0–10°C	
EK10 – Heat PI P	20	0–255	
EK11 – Heat PI I (x10)	50	0–255	
EK12 – Heat Reg. time	5 sec.	1–120 sec.	
EL – Modbus			
EL1 – Modbus address	20	1–247	
EL2 – Modbus baud rate	19200 baud	9600/19200 baud	
EL3 – Modbus parity	Even	None/Even/Odd	
EL4 – Modbus modify	1	0, 1, 2	
EM – Manual Override			
OEM			

9. MAINTENANCE

9.1 Replacing the filters

When the filter alert is displayed, the filters must be replaced.
Stop the system using the switch for the unit or with the switch on the terminal block. Open the front cover/filter drawers and remove the filters. The filter timer resets once the filters have been replaced. The time interval for cleaning/replacing the filters can be adjusted in the operating menu.
Based on normal environmental conditions with clean air, it is recommended to change the filter every six months to ensure optimal working conditions.

Vacuuming or using compressed air on the filters is not recommended.

Recommended filters to use: Original Genvex filters, Coarse/G4 = Standard filter (typically used on the extract air side); ePM10/F5 = Fine filter; ePM1/F7 = Pollen filter (typically used on the outdoor air side).

Please note that the recommended annual service of the ventilation system's internal components should be carried out by an installer as listed below.

Condensate drain
When changing the filter in August/September, before the outdoor temperature drops to 5°C, check that the condensate drain is not blocked by dirt and ensure that there is water in the trap. Pour 1 litre of water into the condensate tray and make sure it drains away without any issue. A condensate drain that does not function properly can lead to water damage in the home.

Heat exchanger
Check the heat exchanger every year. If it is dirty, remove it and: – Aluminium exchanger: Wash in lukewarm soapy water and rinse using a showerhead if necessary. – Plastic exchanger: Do not clean with solvents – only use clean water and carefully remove dust from suction surfaces with a regular vacuum cleaner.

Fans
Inspect the two fans for dirt every year. If they are dirty, they can be cleaned with a brush, bottle cleaner, etc. Valves for supply air and extract air: The valves can be cleaned by wiping them with a dry cloth. Be careful not to rotate the valves so that the air volume changes.

9.2 Dismantling/taking the system out of operation

It is generally recommended to maintain a constant flow of air through the ventilation system to prevent condensation in the ducts.

If the system is to be taken out of operation, the ducts must be removed to avoid condensation in the system and in the ducts.

If the ventilation system is taken out of operation for shorter periods of time – it is recommended to close all supply air and extract air valves.

10. TROUBLESHOOTING

10.1 Safety thermostat in electric heater (optional)

If there is an error in an electric heater, the safety thermostat will be disconnected. The heater is equipped with overheating protection that automatically cuts the power off if the temperature exceeds 50°C.

If the temperature drops, the heater automatically reconnects. As an additional safety feature, there is a built-in thermal fuse that switches off if the temperature exceeds 100°C. Subsequent connections must be made manually.

Does not apply to PTC electric heaters.

The system is not running. Device stopped
Possible error
- Fuse in the main board is blown, no power to the device.
- One of the fuses on the unit's circuit board has blown.
- Loose wire, no power to unit.
- Loose wire between the unit and the control panel.
- Defective or incorrectly set weekly program.
- Filter timer has turned off the system.

Condensation runs out of the unit
Possible error:
- Condensate drain blocked by dirt.
- The condensate drain is not sufficiently protected against freezing at low outdoor temperatures.
  - If EB10 = On, the fans must be checked to ensure they are operating. If the fans are expected to run and the RPM counter = 0, the ventilation unit will shut down and display an alert.
  - Leaky junction – possibly cracked by frost

No supply air
Possible error
- Defective supply air fan
- Clogged supply air filter
- Outdoor air grill clogged by dirt and leaves during autumn or snow and ice in winter.
- The fuse on the circuit board has blown.
- The unit is in defrost mode (supply air fan stops).

No extract air
Possible error
- Defective extractor fan.
- Clogged exhaust filter.
- The fuse on the printed circuit board has blown.

Cold supply air
Possible error
- Clogged heat exchanger.
- Defective extractor fan.
- Clogged exhaust filter.
- Electrical reheater disconnected by superheating thermostat (only units with electrical reheater installed).
- Air in the heating pipes, defective thermostat/motor valve, wrong setting in the control panel.

Fan unintentionally runs at full speed
Check that EB9 is not set to m3/h when no flow sensors are installed. Make sure EB9 is set to %.
If flow sensors are installed in the product, check that the duct system is not blocked and that the pressure drop is sufficiently low (the ventilation unit is not able to reach the setpoint).

10.2 Error codes

Error messages will be displayed in plain text on the Optima Touch display. When using only the I/O connector PCB and Optima Basic display, LED 2 will flash red with the error messages.

Refer to the table below to identify errors.

LED 1: Online
Green light on = internet connection ok
Green light off = no internet connection

LED 2: Alarm

1 flash	=	Stop controller – check the guard if fitted and the condensate drain
2 flashes	=	Temperature sensor and humidity sensor errors
3 flashes	=	Filter alarm
4 flashes	=	Fan failure – check the fan, the RPM feedback signal is 0
5 flashes	=	Water frost error
6 flashes	=	Fire error/on test
7 flashes	=	Fire error – Damper 1
8 flashes	=	Fire error – Damper 2
9 flashes	=	Fire error – Box 1
10 flashes	=	Fire error – Damper 3
11 flashes	=	Fire error – Damper 4
12 flashes	=	Fire failure – Box 2
13 flashes	=	Rotor alarm – indicates high exhaust temperature and inefficient heat recovery. Check the drive belt and air balance.

Rotary heat exchanger, operating status
While the rotary heat exchanger is in operation, the following operating modes can be read on the control unit in the Info/Operation status menu:
Rotor status = 0 (Rotary heat exchanger not activated in menu EC4)

Rotor status = 1 (Rotor stopped due to temperature conditions, indoor/outdoor temperatures too close to each other)

Rotor status = 2 (Rotor running for heat recovery)

Rotor status = 3 (Rotor running due to active cooling recovery mode, indoor temperature is colder than outdoor temperature or cooling active with limitation of minimum supply air temperature)

Rotor status = 4 (Defrosting mode, rotor speed reduced due to defrosting of rotary heat exchanger)

THE AIR WE BREATHE

All Genvex systems are rated with energy label A

As of January 1, 2025, METRO THERM has merged with KVM-Genvex A/S into a single entity under the shared name METRO THERM A/S.

The three well-known brands – METRO THERM, Genvex and KVM-Conheat – will continue as before, as is also the case for our production and administration sites, which will continue unchanged at our facilities in Helsinge and Haderslev.

The merger is a natural progression of our strong collaboration and a strategic decision to strengthen our position as one of Northern Europe's leading suppliers of heating, hot water, and ventilation solutions.

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

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