Ventilation system
ComfoD 180 and ComfoAir 180
Manual for the commisioning and service engineer

zehnder

always
around you

Heating | Cooling | Fresh Air | Clean Air

ComfoD / Basic

ComfoAir / Luxe

Foreword

Read this document carefully before use.

This document provides all the information required for safe and optimal installation of the ComfoD 180 and ComfoAir180. In this document they will be referred to as “the unit”.
The unit is subject to continuous development and improvement. As a result, the unit may slightly differ from the descriptions.

The following pictograms are used in this document:

Point of attention.

Risk of:
- damage to the device;
- performance of the device is compromised if instructions are not observed carefully.

Risk of personal injury for the user.

Maintenance

Questions
Please contact the supplier if you have any questions or would like to order a new document or new filters.
The contact details of the main supplier(s) can be found in the user manual.
The contact details of the manufacturer can be found in the back of this document.

The following information can be found in the user manual:

User Information
General information about the ventilation system.
Operating devices available for the unit.
Warranty and liability conditions.
EEC declaration of conformity.
How to maintain the filters of the unit.
How to maintain the valves of the ventilation system.

The following information can be found on the identification plate:

Meaning of the suffixes	
ComfoAir	Product family name.
ComfoD	The unit has a display installed as default.
180	Product type name. (Air volumes in m^3/h)
Luxe	The unit has no display.
Enthalpie	The unit has an enthalpy exchanger installed as default.
ERV	The unit has an enthalpy exchanger installed as default.
PH	The unit has a pre heater installed as default.
V	The unit has a pre heater installed as default.

Table of Contents

1 Safety

Always follow the safety regulations, warnings, comments and instructions given in this document. Personal injury or damage to the unit can arise from non-compliance with the safety regulations, warnings, comments and instructions in this document.

- Only a certified engineer may fit, connect, commission and maintain the unit unless otherwise indicated in this document;
- Installation of the unit must be carried out in accordance with the general and locally applicable construction, safety and installation instructions of the local council, electricity and water boards or other agencies;
- The unit is only suitable for a 230V 50/60Hz connection;
- The unit is only suitable for residential use and not for industrial use, such as swimming pools or saunas;
- Ensure while working on the unit that the power has been switched off and cannot be accidentally switched back on;
- Always take ESD-inhibiting measures when dealing with electronics, such as wearing an antistatic wristband;
- After using the user manual, place it back on the unit;
- It is prohibited to modify the unit or the specifications stated in this document;
- The unit cannot be opened without using tools;
- It must not be possible to touch the fans by hand, which is why ducts of at least 900 mm must be connected to the unit.

2 P-menus

The software of the unit can be customised to the users requirements by changing the values in the P-menus of the software.

The P-menus can be accessed by the display, read-out software or ComfoSense.
P-menus P1, P2 and P9 can be accessed by the user, mainly to read statuses and set time delays. The remaining P-menus P3 to P8 are intended solely for the installer.

Display

	Action on display	Reaction on Display[1]	Explanation
1	Press MENU		The main P-menus are being entered.
2	Press ▲ and ▼ simultaneously for at least 3 seconds		The main P-menus for the installer are being entered.
3	Press ▲ or ▼		The different P-menus are being displayed.
4	Press OK		The selected P-menu is being entered.
5	Press ▲ or ▼		The different sub P-menus are being displayed.
	Or press MENU		Return to the main P-menus.
6	Press OK		The selected sub P-menu is being entered.
7	Press ▲ or ▼		The value of the selected sub P-menu is being changed.[2]
8	Press OK		The change value is confirmed and returned to the sub P-menus of the selected P-menu.[2]
	Or press MENU		Old settings are restored and returned to the sub P-menus of the selected P-menu.
9	Press MENU		Return to the main P-menus.
10	Press MENU		Return to the default screen.

Read-out software

A Windows PC or laptop can be connected with a special connection cable to one of the service connectors at the bottom of the unit. The special read-out software and cable can be ordered from Zehnder.

The service connectors cannot be used at the same time. Disconnect a present ComfoSense before connecting the read-out cable.

ComfoSense

In the manual of the ComfoSense it mentions how to enter the P-menus using the ComfoSense.

1 The displayed settings are the standard setting of the unit. This may differ from the actual setting of the unit.
2 This is not possible in a reading menu.

2.1 P- menus for the user.

Menu P1 > Status of time programmes

		Status
Submenu	**Description**	**Activated**
P11	Is menu P21 currently active?	Yes (1) / No (0)
P12	Is menu P22 currently active?	Yes (1) / No (0)
P13	Is menu P23 currently active?	Yes (1) / No (0)
P14	Is menu P24 currently active?	Yes (1) / No (0)
P15	Is menu P25 currently active?	Yes (1) / No (0)
P16	Is menu P26 currently active?	Yes (1) / No (0)
P17	Is the Summermode currently active?	Yes (1) / No (0)

Menu P9 > Status of additional programmes

		Status
Submenu	**Description**	**Activated**
P90	Open fire programme active?	Yes (1) / No (0)
P91	Bypass open?	Yes (1) / No (0)
P94	n/a	Yes (1) / No (0)
P95	Frost protection or pre heater active?	Yes (1) / No (0)
P97	Enthalpy programme active?	Yes (1) / No (0)

Menu P2 > Setting time delays

		Time delay values		
Submenu	**Description**	**Minimum**	**Maximum**	**General reset**
P21 **Only applies to systems fitted with a bathroom switch.**	Delay timer for the bathroom switch (to switch to high position). ■ 'x' minutes after operating the bathroom switch, the unit switches to the high setting.	0 Min.	15 Min.	0 Min.
P22 **Only applies to systems fitted with a bathroom switch.**	Overrun timer for the bathroom switch (to switch to normal position). ■ 'x' minutes after operating the bathroom switch, the unit switches back to the normal setting.	0 Min.	120 Min.	30 Min.
P23 **Only applies to systems fitted with a SA 1-3V, CCB, or SA 0-3V switches.**	Overrun timer for ventilation position 3 (using a hardwired position switch). ■ If ventilation setting 3 (high) is switched on briefly (< 3 sec), the unit will switch to the high setting for 'x' minutes and then automatically return to the normal setting. If any switch is operated during this lagging time the unit will instantly revert to the ventilation position as set at that time.	0 Min.	120 Min.	0 Min.
P24	Filter warning ■ 'x' weeks after cleaning or replacing the filters the "filter dirty" alert will reappear.	10 weeks	26 weeks	16 weeks
P25 **Only applies to systems fitted with an RFZ switch.**	Overrun timer for ventilation setting 3 (using ⏲). ■ After pressing ⏲ briefly (< 2 sec.), the unit will switch to the high setting for 'x' minutes and then automatically returns to the normal setting. If any switch is operated during this lagging time the unit will instantly revert to the ventilation position as set at that time.	1 Min.	20 Min.	10 Min.
P26 **Only applies to systems fitted with an RFZ switch.**	Overrun timer for ventilation setting 3 (using ⏲). ■ After pressing ⏲ continously (> 2 sec.), the unit will switch to the high setting for 'x' minutes and then automatically returns to the normal setting. If any switch is operated during this lagging time the unit will instantly revert to the ventilation position as set at that time.	1 Min.	120 Min.	30 Min.
P27 **Only applies to systems fitted with a ComfoSense.**	Time for the boost setting. ■ After turning on the PARTY TIMER on the ComfoSense, the unit will switch to the high setting for 'x' minutes and then automatically returns to the NORMAL setting. If any switch is operated during this lagging time the unit will instantly revert to the ventilation position as set at that time.	0 Min.	120 Min.	30 Min.

2.2 P-menus for the installer

Menus without a value at minimum and maximum are Reading menus.

Menu P3 > Setting ventilation programmes

		Ventilation programme values		
Submenu	**Description**	**Minimum**	**Maximum**	**General Reset**
P30	Setting the capacity (in %) of the exhaust fan in ABSENT POSITION.	0% or 15%	97%	nL / HL 15% / 15%
P31	Setting the capacity (in %) of the exhaust fan in LOW POSITION.	16%	98%	nL / HL 35% / 40%
P32	Setting the capacity (in %) of the exhaust fan in MEDIUM POSITION.	17%	99%	nL / HL 50% / 70%
P33	Setting the capacity (in %) of the exhaust fan to HIGH POSITION.	18%	100%	nL / HL 70% / 90%
P34	Setting the capacity (in %) of the supply fan to ABSENT POSITION.	0% or 15%	97%	nL / HL 15% / 15%
P35	Setting the capacity (in %) of the supply fan in LOW POSITION.	16%	98%	nL / HL 35% / 40%
P36	Setting the capacity (in %) of the supply fan in MEDIUM POSITION.	17%	99%	nL / HL 50% / 70%
P37	Setting the capacity (in %) of the supply fan in HIGH POSITION.	18%	100%	nL / HL 70% / 90%
P38	Current capacity (in %) of the exhaust fan.	-	-	Current %
P39	Current capacity (in %) of the supply fan.	-	-	Current %

Menu P4 > Reading the temperatures

		Temperature values		
Submenu	**Description**	**Minimum**	**Maximum**	**General Reset**
P41	Comfort temperature	12 °C	28 °C	20 °C
P45	Current value of T1 (= outside air temperature)	-	-	Current °C
P46	Current value of T2 (= supply air temperature)	-	-	Current °C
P47	Current value of T3 (= return air temperature)	-	-	Current °C
P48	Current value of T4 (= exhaust air temperature)	-	-	Current °C

Menu P5 >Setting additional programmes

		Additional programme values		
Submenu	**Description**	**Minimum**	**Maximum**	**General Reset**
P50	Activation of the open fire programme.	0 (= No)	1 (= Yes)	0
P51	Confirming the presence of a pre heater	0 (= No)	1 (= Yes)	0
	Only change if a pre heater is installed afterwards or a general reset is given.			
P52	Setting the pre heater programme. ■ 0; Extreme protection; ■ 1; High protection; ■ 2; Nominal protection; ■ 3; Economy.	0	3	2
	In extreme protection mode the pre heater is switched on soonest; this level offers the best guarantee of balanced ventilation. Vice versa, in economy mode the pre heater switches on at the last possible moment; balanced ventilation is not guaranteed in this mode.			
P54	Confirming the presence of a bypass.	0 (= No)	1 (= Yes)	1
	The standard ComfoAir configuration includes a bypass. Therefore, leave the value at '1'.			
P56	Setting the required air volume in the house. ■ nL: "normal air volume"; ■ HL: "high air volume".	nL	HL	HL
	Setting the air volume is the starting point for programming the air specifications and setting the fans.			
P58	n/a	0	1	0

		Additional programme values		
Submenu	**Description**	**Minimum**	**Maximum**	**General Reset**
P59	Confirming the presence of an enthalpy exchanger. ■ 0; Enthalpy exchanger not fitted; ■ 1; n/a; ■ 2; Enthalpy exchanger without RH sensor.	0 (= No)	2 (= Yes)	0
	Ensure the condensation drain is sealed. **If an enthalpy exchanger without a sensor is selected, then the safety programme will not be activated and malfunction alerts EA1 & EA2 will never occur.**			

Menu P6 > Setting additional programmes

		Additional programme values		
Submenu	**Description**	**Minimum**	**Maximum**	**General Reset**
P60	Confirming the presence of a sub-soil heat exchanger. ■ 0; Sub-soil heat exchanger not fitted; ■ 1; n/a; ■ 3; Sub-soil heat exchanger unregulated.	0 (= No)	3 (= Yes)	0

Menu P7 > Reading malfunctions (and system information)

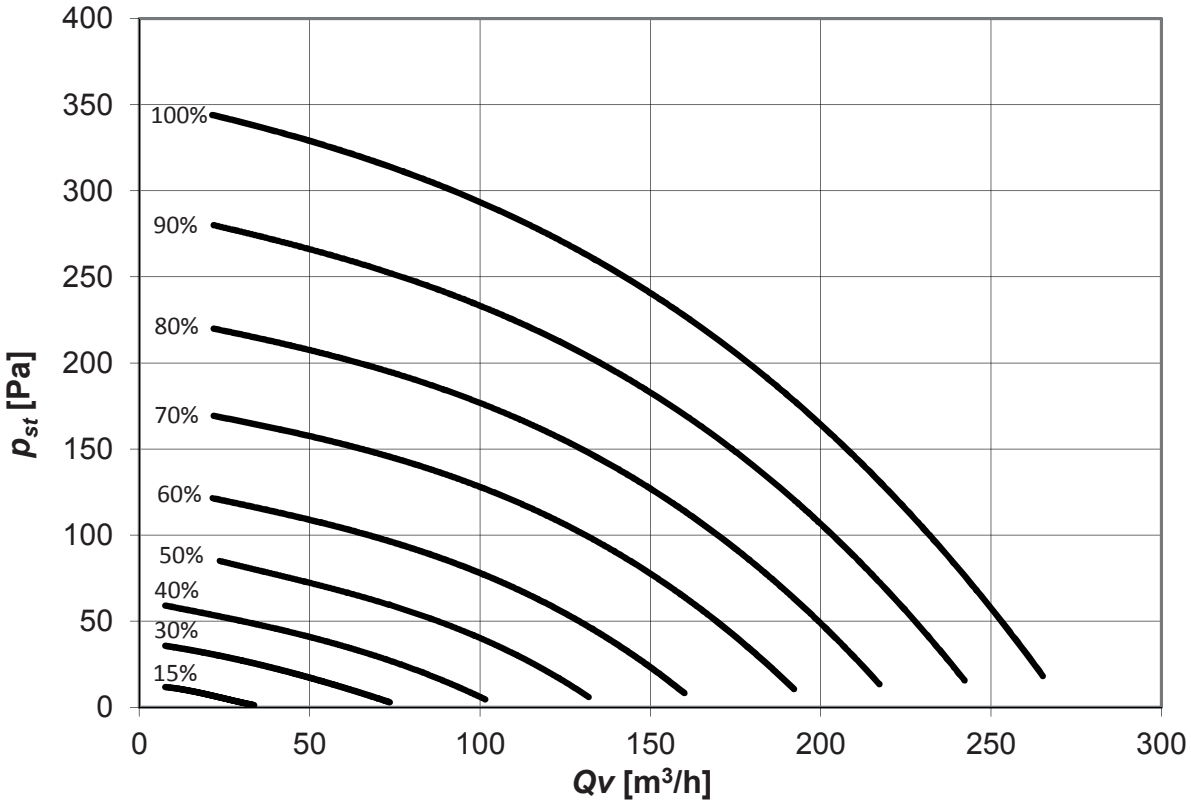
		(Malfunction) information values		
Submenu	**Description**	**Minimum**	**Maximum**	**General Reset**
P70	Current software version.	Version number of the software (without “v”)		
P71	Most recent malfunction.	Code in accordance with alarm and malfunction alert		
P72	Malfunction before the most recent one.	Code in accordance with alarm and malfunction alert		
P73	Malfunction before the most recent two.	Code in accordance with alarm and malfunction alert		
P74	Resetting malfunction(s). ■ Set value to ‘1’ and press “OK” on the display; ■ Set value to '1' and press "OK" on the ComfoSense panel.	0	1 (= activate)	0
P75	General reset. ■ Set value to ‘1’ and press “OK” on the display for at least 5 seconds to carry out a general reset; ■ Set value to '1' and press “OK” on the ComfoSense panel to carry out a general reset. All original software settings are restored following a general reset.	0	1 (= activate)	0
	After a general reset, the ComfoAir will ask you to reset the “nL / HL” (see submenu P56). **Following a general reset, all settings and programmes need to be checked and set to the right value.**			
P76	Self-testing the ComfoAir	0	1 (= activate)	0
	■ **The display’s green LEDs light up one by one;** ■ **The ComfoAir will run at maximum Rotations Per Minute (RPM);** ■ **The bypass valve will open and close;** ■ **The pre heater valve will open and close after the bypass has closed (If a pre heater is fitted).**			
P77	Resetting filter dirty counter	0	1 (= activate)	0
	This resets the counter that triggers a dirty filter alert on the ComfoAir. **This allows the filter to be cleaned or replaced before the dirty filter alert appears.**			

Menu P8 > n/a

		Analogue input values		
Submenu	Description	Minimum	Maximum	General Reset
850	n/a	0	1	0
851	n/a	0	1	0
852	n/a	0	100	50
853	n/a	0	99	0
854	n/a	0	100	100
855	n/a	0	1	0
856	n/a	0	100	-

3 Commissioning

3.1 Programming air specifications



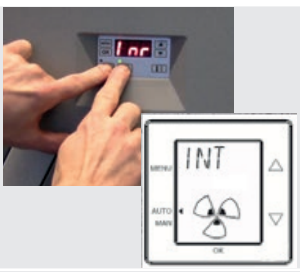
The unit has been programmed with two sets of standard ventilation settings. These sets can be chosen in menu P56. When a general reset is given the menu will be set to the HL ventilation settings. From the factory the unit will be delivered with the nL ventilation settings.

In menu P3 the pre-programmed ventilation settings can be altered. The supply fan and the exhaust fan can be set independently for all 4 ventilation settings.

The absent setting cannot be chosen with a normal 3 position switch. For this the unit would need a ComfoSense.

Default settings air volume		
	nL	HL
Absent Setting	15%	15%
Low Setting	35%	40%
Medium Setting	50%	70%
High Setting	70%	90%

Follow this procedure to determine which settings the installation needs:

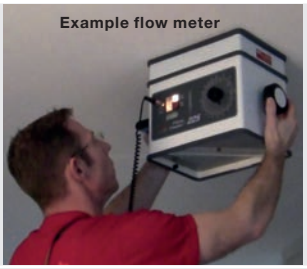
1	2	3
		
Close all windows and doors. **When the property is being occupied make sure the air ducts are clean before programming the air specifications.**	Open all valves and grilles fully.	Set the unit in programming mode. ■ Display: Press simultaneously for at least 3 seconds on: ⌂ and ⌂ until "Inr" appears on the display; ■ ComfoSense: Activate INIT menu. **In programming mode, the bypass valve is always closed. After 30 minutes, the unit automatically terminates the programming mode.**

4 Example graphic

Set menu P33 (exhaust 3) and P37 (supply 3) to the expected percentage.

Use the graphic of the air specifications (see beginning of this chapter) to determine the expected percentage.
If the resistance of the system is unknown use 150Pa.

5 Example flow meter



Measure the air flows of all valves with a flow meter.
Note them all down.

6 Example graphic

Set menu P33 (exhaust 3) and P37 (supply 3) to the correct percentage.

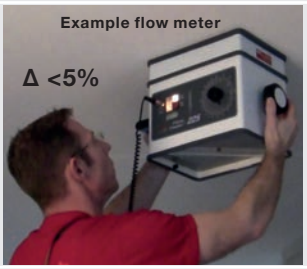
Set the needed values 5% above the building regulation code to overcome the resistance from the valves when these are set to the right position. The deviation may therefore be +5% to +10% of the building code.

Explanation point 6

7 Example valve

Regulate the valves and grilles to the required flow per room.

8 Example flow meter



Measure the air flows of all valves with a flow meter.
Note them all down.

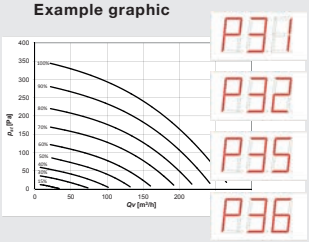
Check if the total supply air does not deviate more than 5% from the total exaust air.

If the deviation is too great go back to step 6.

P33 (exhaust 3):
Add all the measurements of the exhaust valves together. Determine the deviation to the expected setting.

P37 (supply 3):
Add all the measurements of the supply valves together.
Determine the deviation to the expected setting.

9 Example graphic

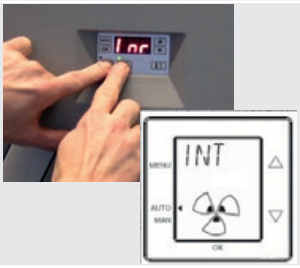


Set menu P31 (exhaust 1), P32 (exhaust 2), P35 (supply 1) and P36 (supply 2) to the correct percentage.

We advise to use the following ratio:

- **Position 1 > 30% of the building regulation code;**
- **Position 2 > 60% of the building regulation code;**
- **Position 3 > 100% of the building regulation code.**

10



Switch off the programming mode:

- Display:
  Press simultaneously for at least 3 seconds on [ ] and [ ] until “Inr” disappears off the display.
- ComfoSense:
  Deactivate INIT menu.

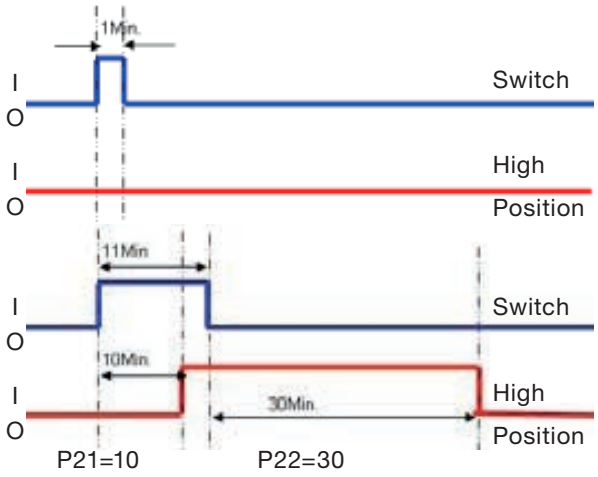
11 Example report

Fill in the installation/test report in the back of the user manual.

3.2 Time delays

In menu P2 several time delays can be programmed.

3.2.1 Bathroom switch (P21 and P22)



The bathroom switch has two time delays: one delay timer and one overrun timer.

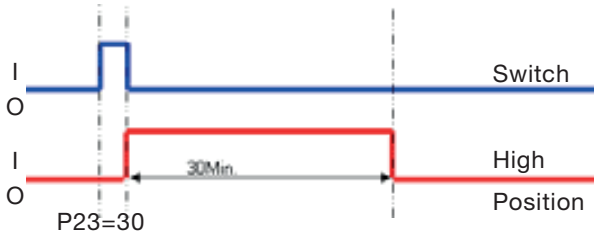
Delay timer (P21)
As long as the delay timer is running the high position will not turn on.
If the bathroom switch is turned off in this period the overrun timer will not start.

The delay timer can be set in menu P21. The default setting is 0 minutes. The timer can be set from 0 minutes to 15 minutes or every minute in-between.

Overrun timer (P22)
As long as the overrun timer is running the high position will not turn off.
This can be bypassed by choosing a different ventilation setting with a position switch.

The overrun timer can be set in menu P22. The default setting is 30 minutes. The timer can be set from 0 minutes to 120 minutes or every minute in-between.

3.2.2 SA 1-3V / SA 0-3V / CCB: Wired position switch (P23)



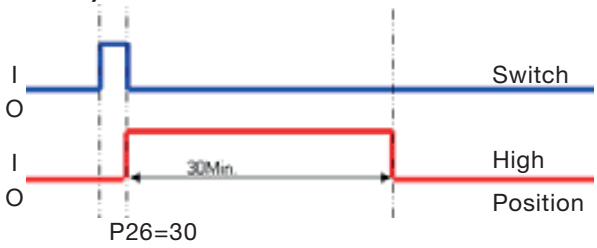
The wired position switch has one overrun timer which can be set in menu P23.

As long as the overrun timer is running the ventilation setting will remain in the High position.
This can be bypassed by choosing a different ventilation setting with a position switch.

After the overrun timer is finished the ventilation setting will automatically return to the set value.

The default setting is 0 minutes. The timer can be set from 0 minutes to 120 minutes or every minute in-between.

3.2.3 RFZ: Wireless position switch (P25 and P26)



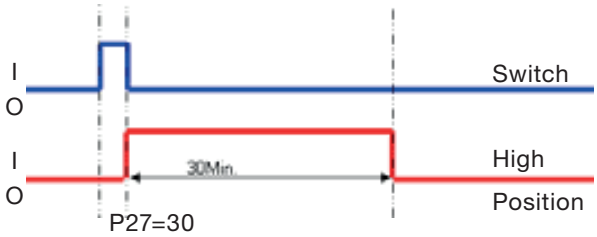
The wireless position switch has two overrun timer which can be set in menu P25 and menu P26.

As long as the overrun timer is running the ventilation setting will remain in the High position.
This can be bypassed by choosing a different ventilation setting with a position switch.
After the overrun timer is finished the ventilation setting will automatically return to the previous value.

Short overrun timer (P25)
The default setting of the P25 menu is 10 minutes.
The timer of menu P25 can be set from 1 minute to 20 minutes or every minute in-between.

Long overrun timer (P26)
The default setting of the P26 menu is 30 minutes.
The timer of menu P26 can be set from 1 minute to 120 minutes or every minute in-between.

3.2.4 ComfoSense (P27)



The ComfoSense has one overrun timer which can be set in menu P27.

As long as the overrun timer is running the ventilation setting will remain in the High position.
This can be bypassed by choosing a different ventilation setting with a position switch.
After the overrun timer is finished the ventilation setting will automatically turn to the set value.

The default setting is 30 minutes. The timer can be set from 0 minutes to 120 minutes or every minute in-between.

3.3 Frost protection (P52)

The unit with pre heater has a frost protection which can be set in menu P52 in to 4 settings.

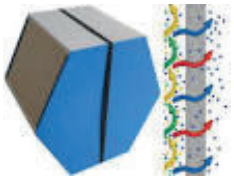
The default setting is 2: Nominal protection.
In cold areas (frequent periods of -10°C or lower), where the pre heater must switch on sooner, the setting can be set to 0: Extreme protection or 1: High protection.
In warmer areas, where the pre heater does not have to switch on so soon, the setting can be set to 3: Economy.

3.4 Fire place program (P50)

When a fire place is present in the dwelling the open fire program must be activated. This must be done in menu P50.

The default setting is 0: open fire program not active.
The open fire program can activated by setting the menu P50 to 1: open fire program active.

3.5 Enthalpy exchanger (P59)



The presence of a enthalpy exchanger must be given in menu P59.

The default setting is 0; Enthalpy exchanger not fitted.
When a enthalpy exchanger is installed this menu must be set to 2; Enthalpy exchanger without RH sensor. When the unit is delivered from factory with enthalpy exchanger the standard setting is already changed to 2.

Ensure the condensation drain is sealed.

4 Technical specifications

Position	Ventilation capacity	Power	Current	Silencer housing	Sound power[1] Supply fan	Sound power[1] Exhaust fan
15%	28 m^3/h at 3 Pa	7 W	0.08 A	27.2 dB(A)	39 dB(A)	38 dB(A)
20%	37 m^3/h at 6 Pa	8 W	0.09 A	27.8 dB(A)	40 dB(A)	39 dB(A)
30%	55 m^3/h at 14 Pa	10 W	0.10 A	29.8 dB(A)	42 dB(A)	40 dB(A)
40%	76 m^3/h at 27 Pa	13 W	0.14 A	31.9 dB(A)	45 dB(A)	41 dB(A)
50%	97 m^3/h at 44 Pa	18 W	0.20 A	34.7 dB(A)	43 dB(A)	43 dB(A)
60%	118 m^3/h at 64 Pa	26 W	0.27 A	37.4 dB(A)	53 dB(A)	45 dB(A)
70%	141 m^3/h at 92 Pa	37 W	0.37 A	40.2 dB(A)	57 dB(A)	48 dB(A)
80%	160 m^3/h at 118 Pa	50 W	0.48 A	42.9 dB(A)	59 dB(A)	50 dB(A)
90%	178 m^3/h at 147 Pa	66 W	0.61 A	44.7 dB(A)	62 dB(A)	52 dB(A)
100%	195 m^3/h at 175 Pa	85 W	0.75 A	45.8 dB(A)	63 dB(A)	53 dB(A)

Default settings air volume			
Absent Setting	(nL / HL)	15%	15%
Low Setting	(nL / HL)	35%	40%
Medium Setting	(nL / HL)	50%	70%
High Setting	(nL / HL)	70%	90%

Connection data		
Power Supply	230V±10%, single phase, 50/60Hz	
cos ϕ[2]	0.38 – 0.49	
Power Maximal	1250 W	5.77 A
Power Pre heater[3]	250 W	4.99 A

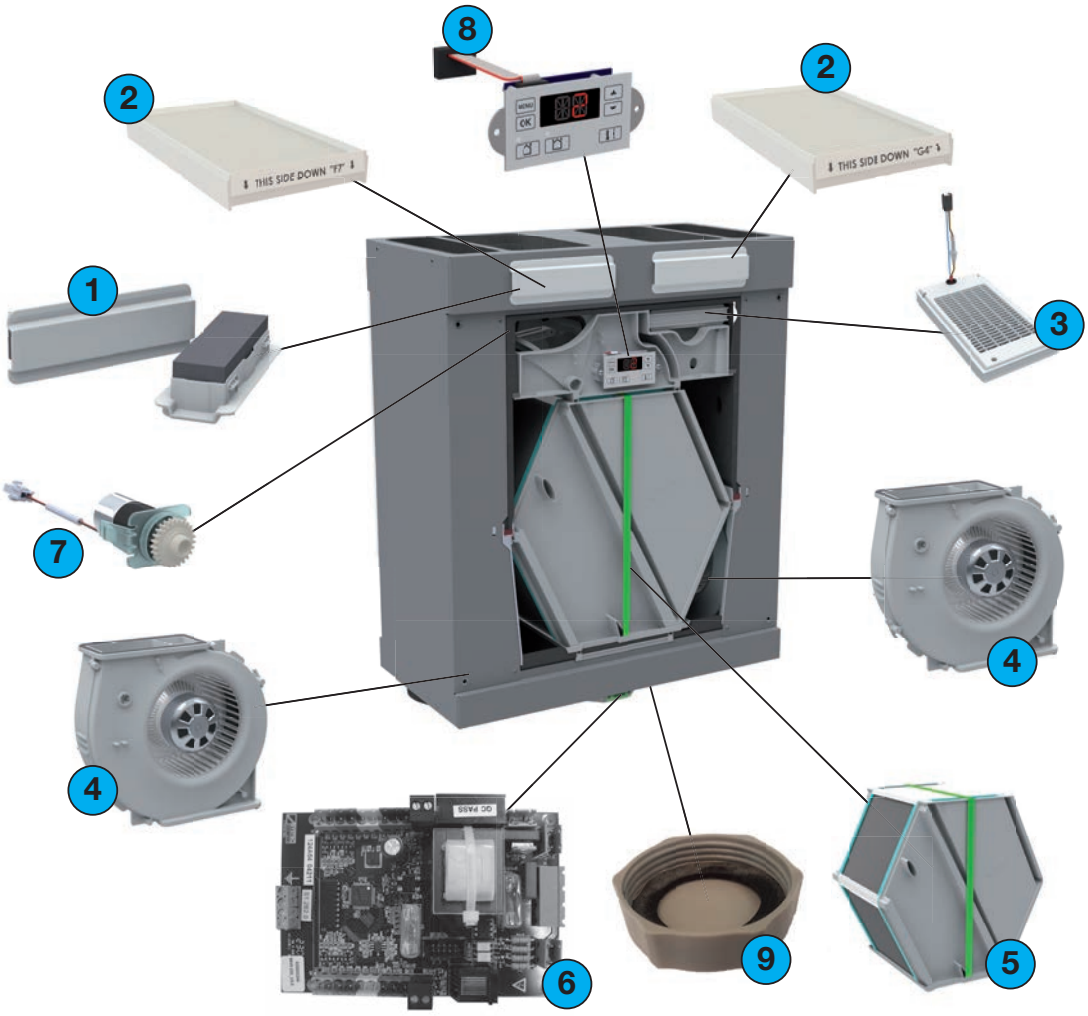
General specifications			
Material Housing		Coated Sheet Steel	
Material Interior		EPP and ABS	
Material Heat Exchanger		Polystyrene	
Material Enthalpy Exchanger		Polyethylene-polyether-copolymer	
Thermal Yield[2]		up to 89%	
Weight		24kg	
Humidity Maximal		72% at 20°C	
Ambient temperature	(minimum / maximum)	0°C	40°C
IP classification		IP40	
Filter class	(outdoor air / return air)	G4 or F7	G4
Type speed control		4 speed	
Connecting air ducting		Sleeve	
Nominal diameter air ducting (top / bottom)		rectangular	125

Temperature sensors	10k NTC KTY 81-210		
Temperature	**Resistance MIN.**	**Resistance MID.**	**Resistance MAX.**
10 °C	19,570 kΩ	19,904 kΩ	20,242 kΩ
15 °C	15.485 kΩ	15,712 kΩ	15,941 kΩ
18 °C	13,502 kΩ	13,681 kΩ	13,861 kΩ
19 °C	12,906 kΩ	13,071 kΩ	13,237 kΩ
20 °C	12,339 kΩ	12,491 kΩ	12,644 kΩ
21 °C	11,801 kΩ	11,941 kΩ	12,082 kΩ
22 °C	11,291 kΩ	11,420 kΩ	11,550 kΩ
25 °C	9,900 kΩ	10,000 kΩ	10,100 kΩ
30 °C	7,959 kΩ	8,057 kΩ	8,155 kΩ

1 The Lw noise power level is measured at 0m
2 According to standard EN13141-7
3 At -15°C and 180m^3/h

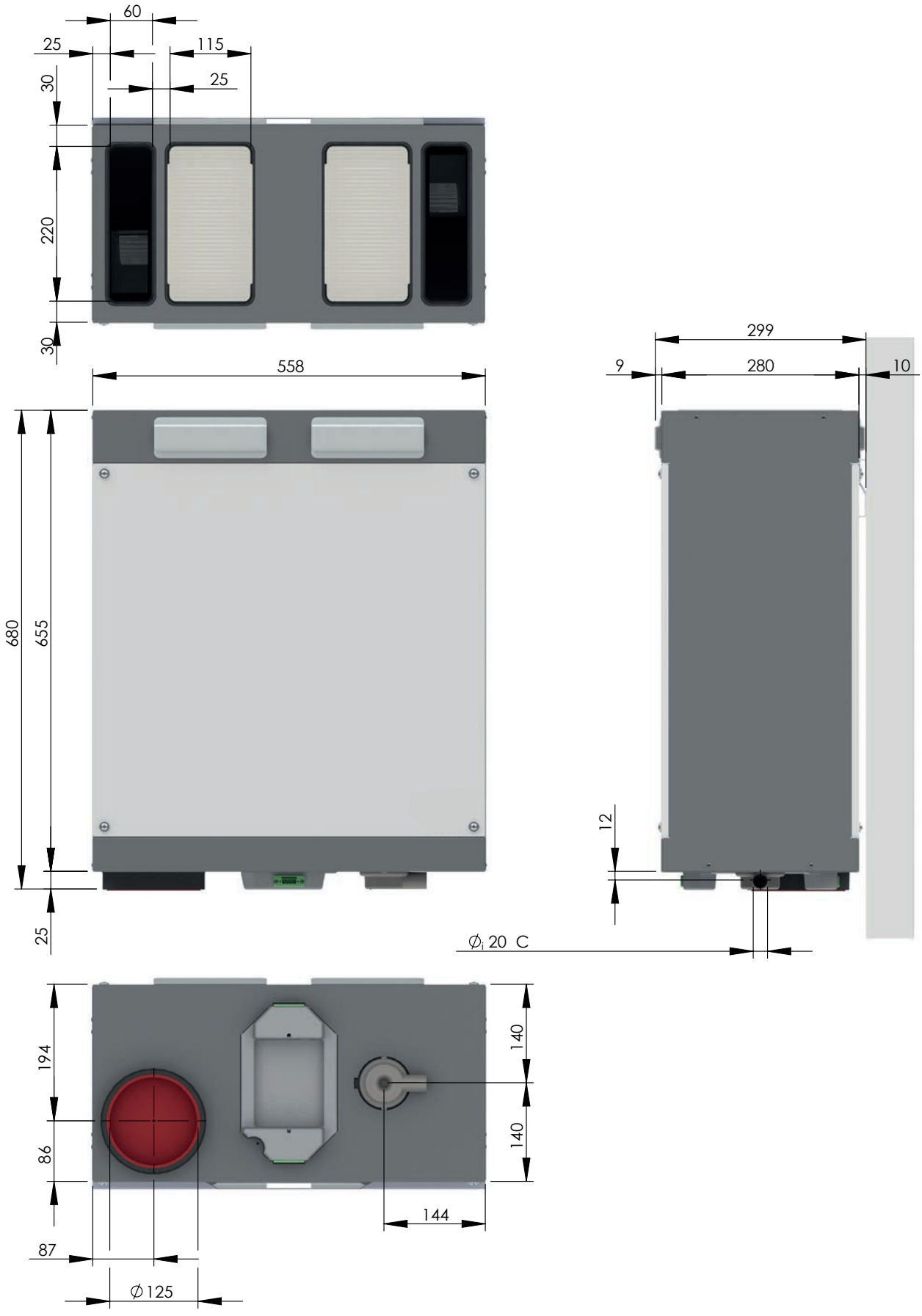
4.1 Service parts

The mentioned service parts below can be ordered as a special service set from Zehnder.
Each set will come with his own service instruction explaining how to replace the part.
Please check the pricelist of Zehnder for the article codes and prices of all available sets.



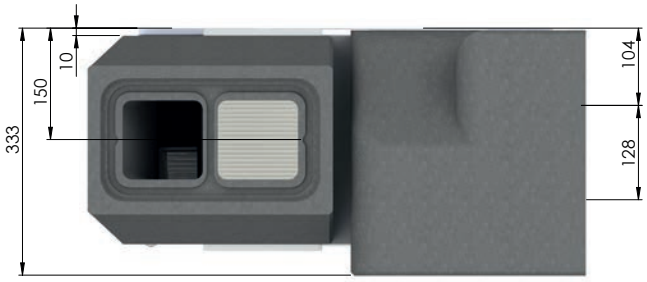
Position	Part
1	Set Filter Handles
2	■ Filterset G4/G4 (1x/1x) ■ Filterset G4/F7 (1x/1x)
3	Pre heater
4	Fan
5	■ Heat exchanger ■ Enthalpy exchanger
6	Control PCB
7	Bypass motor
8	Display
9	Condensation drain sealing cap (only for Switzerland units)

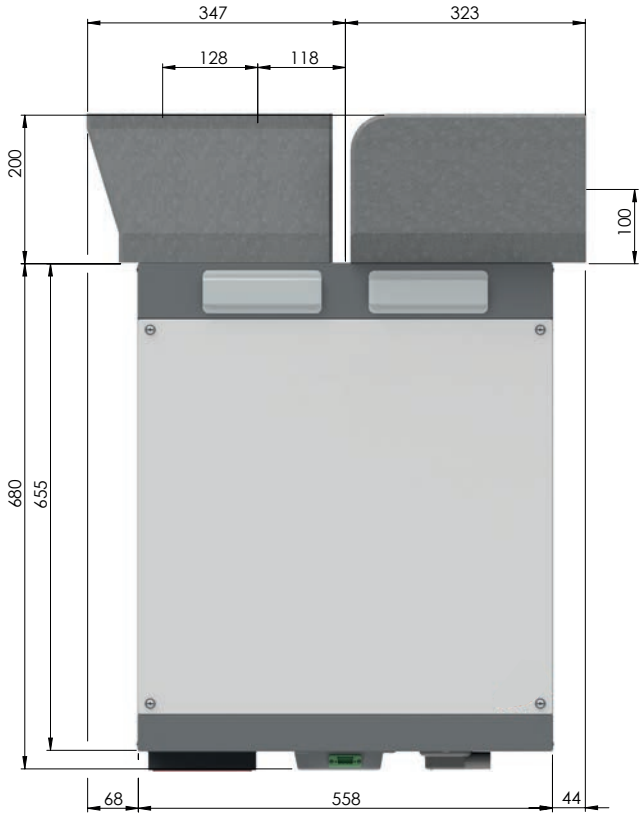
4.2 Dimension sketch

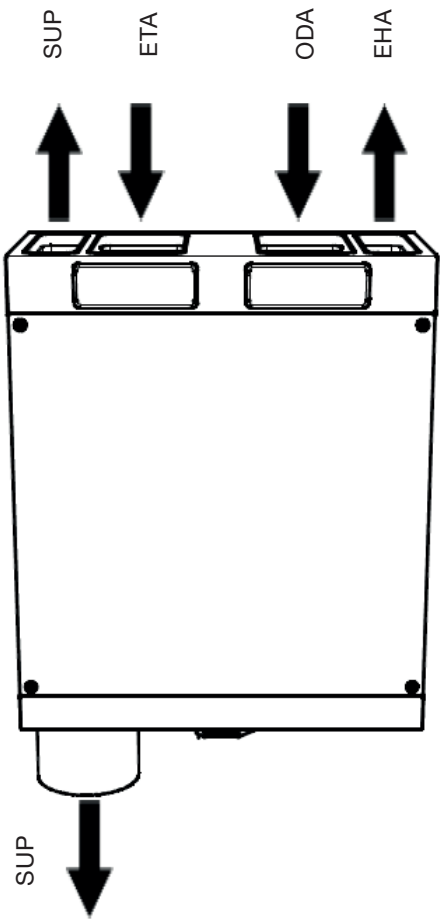


Legend

Code	Description
ODA	Outdoor air
SUP	Supply air
ETA	Extract air
EHA	Exhaust air
C	Condensation drain







4.3 Wiring diagram

Legend Colour code

Code	Colour
(N) B	Blue
(PE) G/Y	Green/ Yellow

Code	Colour
(L1) G	Grey
(L2) Bl	Black
(L3) Br	Brown

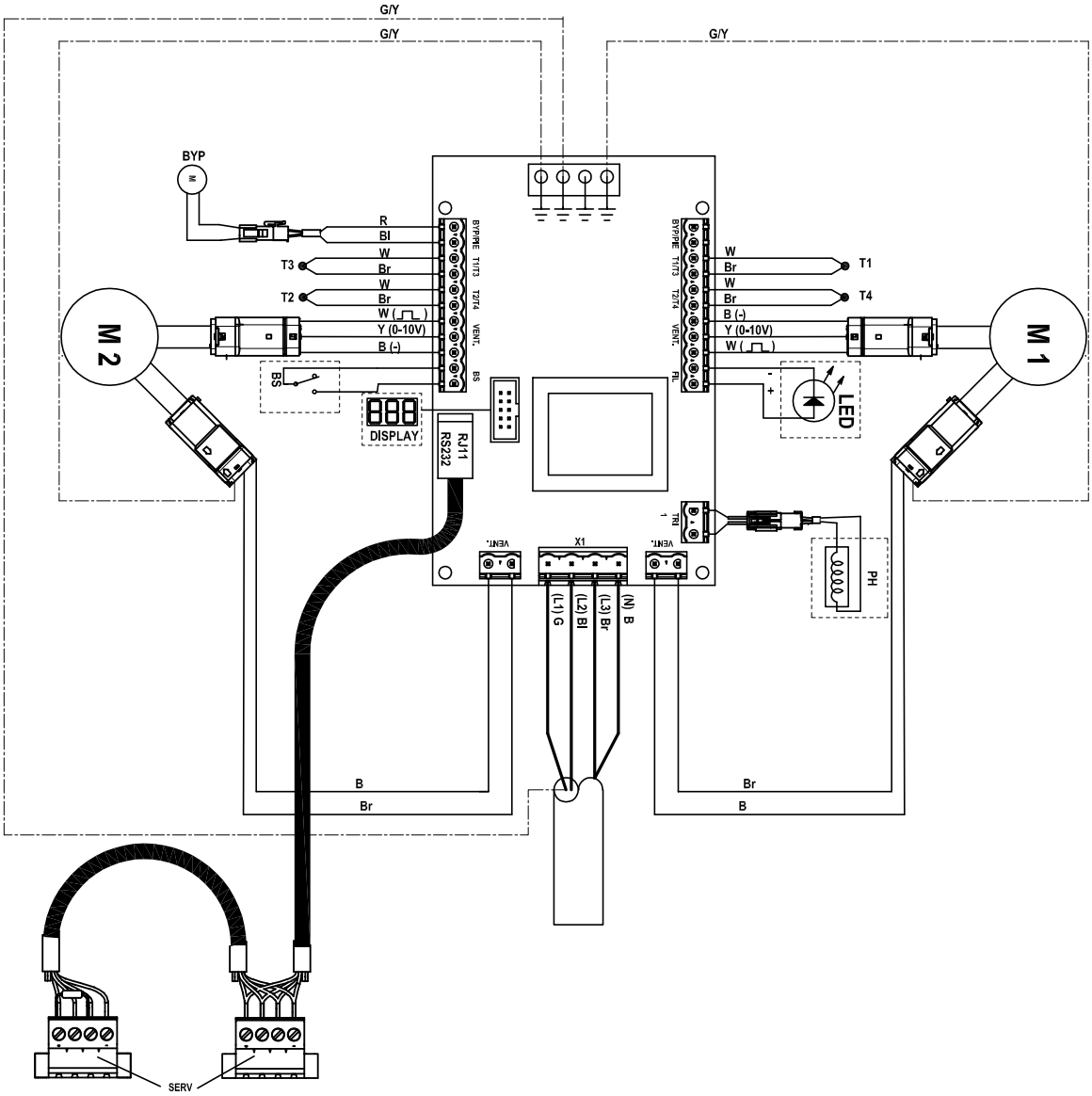
Code	Colour
W	White
Y	Yellow
R	Red

Legend

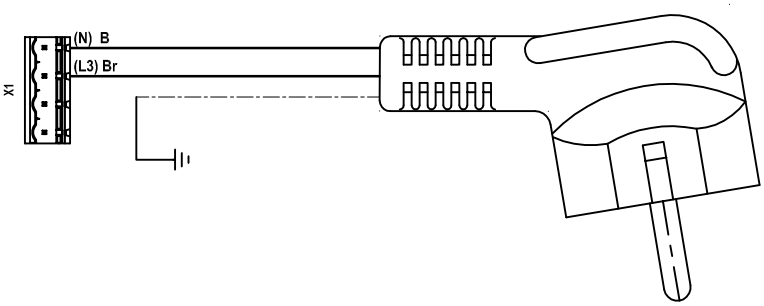
Code	Decription
PH	Pre heater
M1	Exhaust motor
M2	Supply motor
DISPLAY	Display
BYP	Bypass valve
LED	n/a

Code	Decription
T1	NTC-Sensor Outdoor air
T2	NTC-Sensor Supply air
T3	NTC-Sensor Return air
T4	NTC-Sensor Exhaust air
BS	Bathroom switch
SERV	Service/ComfoSense connector

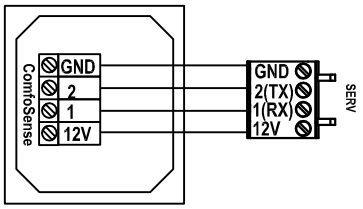
Control PCB



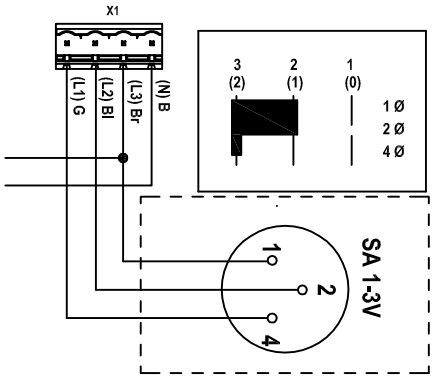
Power cord Luxe version



ComfoSense



Position switch



5 Maintenance

Failure to carry out (periodic) maintenance on the unit ultimately compromises the performance of the ventilation system.

A maintenance log has been included at the back of the user manual which can be used to note all performed maintenance.

In the user manual are details of how to carry out the following maintenance:

- Cleaning the valves/and or grilles;
- Cleaning and replacing the filter.

With menu P77 the counter of the dirty filter alert can be reset before the time is up.

Instructions for replacing parts can be found in the replacement instruction added with the service part.

When carrying out any work on the unit, make sure the power is disconnected and cannot be inadvertently reconnected.

Always take ESD-inhibiting measures when dealing with PCBs, (printed circuits boards) such as wearing an antistatic wristband.

To clean the whole ventilation system, we recommend hiring a specialised cleaning firm.

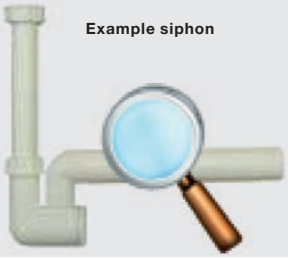
For maintenance of the devices and controls connected to the unit, please read the instructions in the corresponding manuals.
A copy of a Zehnder device or control manual can be obtained from Zehnder.

When all work on the unit is finished follow the following instructions:

1	2	3
		
Install all parts in reverse order. Fasten the screws to a maximum of 1.5 Nm. This is roughly equal to speed 2 of an average battery-powered drill.	Switch the power supply on.	Carry out the self-test of menu P76.

5.1 Condensation drain

Inspect the condensation drain at least once every 2 years.

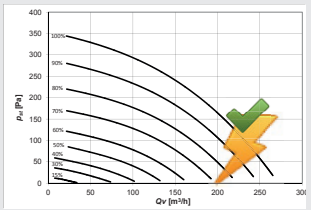
1	2	3
Example siphon 	Example siphon 	
Disconnect the condensation drain.	Perform the following checks on the condensation drain siphon: ■ Check whether the drain is still open by adding (extra) water to the siphon; ■ Visually inspect the condensation drain for contamination; ■ Check if the seal of the condensation drain is air tight. Air may not pass through or by the siphon.	Resolve any noted problems.

5.2 Air ducts

Inspect the air ducts at least once every 4 years.

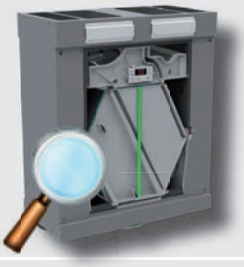
1	2	3
Example valve Example grille 	Example air duct 	
Remove the valves and/or gratings.	Perform the following checks on the air ducts: ■ Pollution (dirt and grease); ■ Air leakage (loose joints); ■ Resistance (bends, dents and blocked valves); ■ Valves and/or gratings.	Resolve any noted problems.

With nominal use the exhaust must be cleaned every 4 years and the supply every 8 years.

1	2	3
		Example graph 
Loosen the dirt.	Remove the dirt with a vacuum cleaner or filterbox. **Do not use the unit to dispose of the dirt from the air ducts.**	Switch the power supply on. Check the air flow settings and (if necessary) reprogram them.

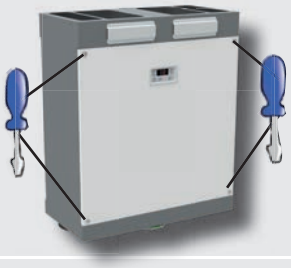
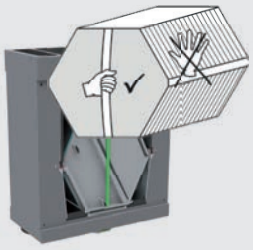
5.3 Casing

Inspect the unit casing at least once every 2 years.

1	2	3
		
Remove the front panel by removing the 4 screws.	Perform the following checks: ■ Check the seals for damage; ■ Check the inside and outside for dirt and damage; ■ Check the duct connections for dirt and damage.	Treat any signs of corrosion and other damage directly and appropriately.

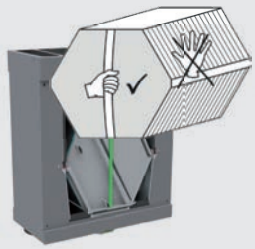
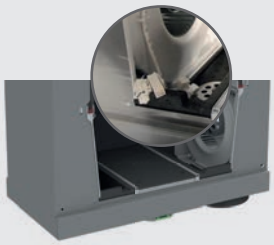
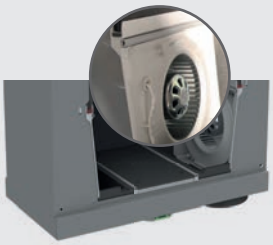
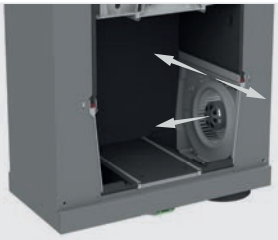
5.4 Heat exchanger

Inspect the heat exchanger once every 2 years.

1	2	3
		
Remove the front panel of the unit by removing the 4 screws.	Pull the strap to remove the heat exchanger, the bypass and the leakage tray. **Do not cut the strap.**	Inspect and, if necessary, clean the heat exchanger. ■ Use a soft brush to clean the fins; ■ Use a vacuum cleaner or air gun (no high pressure) to remove dirt and dust. Always clean against the direction of the airflow. This prevents dirt from getting stuck in the heat exchanger; ■ Or use water to remove dirt and dust: a. Submerge the heat exchanger several times in hot water (max. 40°C). b. Rinse the heat exchanger with clean hot tap water (max. 40°C). c. Clasp the heat exchanger between both hands (on the colored side surfaces) and shake the excess water from the heat exchanger. **Do not use aggressive cleaning agents or solvents.**

5.5 Fans

Check the fans once every 2 years.

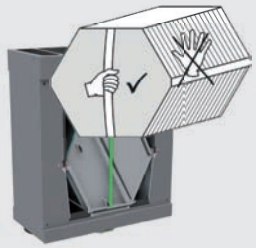
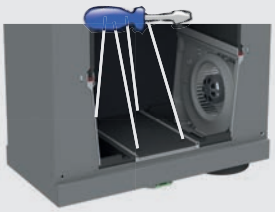
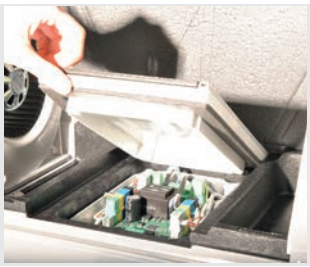
1 	2 	3 
Remove the heat exchanger as described in the cleaning instruction of the heat exchanger.	Remove the fan connector.	Remove the sensor and sensor cable from the fan housing. **Take care the fan impellors and temperature sensor do not get damaged.**
4 	5 	6 
Push the two click fasteners outwards and pull the fan housing forwards.	Remove the 6 screws surrounding the fan housing and remove the inflow nozzle.	Inspect and, if necessary, clean the fans. Use a soft brush to clean the fan impellors; Use a vacuum cleaner to remove dust. **When reassembling the fan housing make sure the open port is directed towards the open air duct.**

6 Malfunctions

When carrying out any work on the unit, make sure the power is disconnected and cannot be inadvertently reconnected.

Always take ESD-inhibiting measures when dealing with PCBs, (printed circuits boards) such as wearing an antistatic wristband.

Follow the following instructions to access the control PCB:

1	2	3
		
Remove the heat exchanger as described in the cleaning instruction of the heat exchanger.	Remove the 4 screws of the electronics cover.	Remove the electronics cover.

When all work on the unit is finished follow the following instructions:

1	2	3
		
Install all parts in reverse order. Fasten the screws to a maximum of 1.5 Nm. This is roughly equal to speed 2 of an average battery-powered drill.	Switch the power supply on.	Carry out the self-test within menu P76.

6.1 Malfunction alerts on the display

In the event of a malfunction, the corresponding malfunction code will be shown on the display of the unit.

Please refer to the malfunction overview to find out the meaning of the relevant malfunction alert which can be shown on the display of the unit. The chapter about troubleshooting explains how to solve these malfunctions.

Code	Explanation
A01	NTC sensor T1 is defective (= outdoor air temperature).
A02	NTC sensor T2 is defective (= supply air temperature).
A03	NTC sensor T3 is defective (=return air temperature).
A04	NTC sensor T4 is defective (= exhaust air temperature).
A05	Malfunction in the bypass motor.
A07	Pre heater does not heat sufficiently.
A08	Pre heater becomes too hot.
E01	Exhaust fan not rotating.
E02	Supply fan not rotating.
EA2	n/a.
FIL tEr	Filter is dirty.

6.2 Malfunction alerts on the ComfoSense

In the event of a malfunction, the corresponding malfunction code will be shown on the display of the ComfoSense.

The same malfunction code which can appear on the display of the unit will also appear on the display of the ComfoSense.

Please refer to the malfunction overview below to find out the meaning of the relevant malfunction alert which can only be shown on the display of the ComfoSense.

The chapter about troubleshooting explains how to solve these malfunctions.

Code	Explanation
FLTR	Filter is dirty.
COMM ERROR	No communication between the ComfoSense and the unit.

6.3 Malfunction alerts on the RFZ

In the event of malfunction, the red indicator lights of the RFZ will light up once the switch is used.

The malfunction that is being detected can be seen on the display of the unit or ComfoSense.

6.4 Read-out software

The unit has a special read-out software to make diagnostics easier. The read-out software can be installed on any Windows computer with RS232 connection. When no RS232 connection is present a USB-RS232 convertor can also be used. The computer can be connected via a special cable to the service connector of the unit. The special readout cable can be ordered from Zehnder.

The ComfoSense must be disconnected before connecting the readout cable.

6.5 What to do in the event of a malfunction / troubleshooting

The unit has two types of reset function. These reset functions can be activated in P-menus P74 and P75. P-menu P74 is a soft reset used for resetting malfunction codes. P-menu P75 is a hard reset for resetting the set values of all the P-menus. After using the P-menu P75 reset all P-menus must be checked and set to the right value and all wireless devices need to be paired to the unit.

Malfunction code A01 / A02 / A03 / A04			**NTC sensor T1/T2/T3/T4 is defective**
	Question	Answer	Action
1	Was the temperature < -27°C or > 127°C?	Yes	Reset the unit (P74 on 1)
		No	1. Reset the unit (P74 on 1) 2. Go to the next question.
2	Did the malfunction code reappear?	Yes	1. Access the control PCB as described in the introduction of the malfunction chapters. 2. Go to the next question.
3	Are the connections at the control PCB correct? (See the schematics in the technical specification chapter)	Yes	1. Remove the NTC sensor from the control PCB. 2. Go to the next question.
		No	Reconnect the NTC sensor
4	Is the resistance of the NTC sensor correct? (See the specifications in the technical specification chapter)	Yes	1. Get the control PCB service set 2. Replace the control PCB
		No	1. Get the repair kit for the NTC sensor 2. Replace the NTC sensor

Malfunction code A05			**Malfunction in the bypass motor**
	Question	Answer	Action
1	n/a	n/a	1. Access the control PCB as described at the introduction of the malfunction chapters. 2. Turn on the power of the unit. ⚠ **Risk of electrocution.** 3. Activate the self-test (P76 on 1) 4. Go to the next question.
2	Did the motor run?	Yes	1. Disconnect the power from the unit. 2. Remove the motor. 3. Go to the next question.
		No	1. Disconnect the power from the unit. 2. Go to the last question.
3	Is the motor cog defective?	Yes	Replace the cog of the motor.
		No	1. Get the bypass motor service set. 2. Replace the motor.
4	Was there 8VDC power present on the motor?	Yes	1. Get the bypass motor service set. 2. Replace the motor.
		No	1. Get the control PCB service set. 2. Replace the control PCB.

Malfunction code A07			Pre heater does not heat sufficiently
	Question	Answer	Action
1	Is P51 set to the correct value? (0 = No pre heater present; 1 = Pre heater present.)	Yes	Go to the next question.
		No	1. Set P51 to the correct value. 2. Reset the unit (P74 on 1).
2	Was the temperature increase of T1 between 1°C and 4°C in 3 minutes time?	Yes	1. Reduce the airflow. 2. Reset the unit (P74 on 1).
		No	1. Access the control PCB as described at the introduction of the malfunction chapters. 2. Remove the cable of the pre heater from the control PCB. 3. Go to the next question.
3	Is the resistance on the pre heater connector correct? (> 70Ω)	Yes	Go to the next question.
		No	Go to the last question.
4	Is the resistance on the pre heater connector correct? (<∞)	Yes	Go to the next question.
		No	Replace the pre heater cable.
5	Are the connections at the pre heater correct? (See the schematics in the technical specification chapter)	Yes	1. Get the pre heater service set. 2. Replace the pre heater.
		No	Reconnect the pre heater.
6	Is the resistance of NTC sensor T1 correct? (See the specifications in the technical specification chapter)	Yes	1. Get the control PCB service set 2. Replace the control PCB.
		No	1. Get the repair kit for the NTC sensor 2. Replace the NTC sensor.

Malfunction code A08	Pre heater becomes too hot (T1 > 40°C)
	Check the following:
1	Fan settings (too low?)
2	Supply valves (too closed?)
3	Supply air ducts (blockages?)

Malfunction code E01 / E02			Exhaust / Supply fan not rotating
	Question	Answer	Action
1	n/a	n/a	1. Reset the unit (P74 on 1). 2. Go to the next question.
2	Did the malfunction code reapper?	Yes	1. Access the control PCB as described at the introduction of the malfunction chapters. 2. Turn on the power of the unit. ⚠ **Risk of electrocution.** 3. Go to the next question.
3	Is there 230VAC present on the fan? (On the “Vent” connector.)	Yes	1. Activate the self-test (P76 on 1). 2. Go to the next question.
		No	1. Disconnect the power from the unit. 2. Get the control PCB service set. 3. Replace the control PCB.
4	Is a control signal present on the fan? (1,5 – 10 VDC between the yellow and blue wire of the “Vent” connector.)	Yes	1. Disconnect the power from the unit. 2. Get the fan service set. 3. Replace the fan.
		No	1. Disconnect the power from the unit. 2. Get the control PCB service set. 3. Replace the control PCB.

Malfunction code EA2	n/a

	Action
1	Set P59 to the correct value.
2	Reset the unit. (P74 on 1)

Malfunction code FIL LEr	Filter is dirty

	Action
1	**Do not disconnect the power from the unit until the filter warning has been reset.** Press “OK” on the display for at least 4 seconds until the filter warning disappears.
2	Disconnect the power from the unit.
3	Remove the filter caps from the unit.
4	Remove the dirty filters from the unit.
5	Slide the clean (new) filters back into the unit. **The arrow on the filter must point downwards.** Cleaning: Vacuum the filters with a vacuum cleaner
6	Refit the filter caps to the unit.

Malfunction code FLTR	Filter is dirty

	Action
1	**Do not disconnect the power from the unit until the filter warning has been reset.** Press OK twice on the ComfoSense panel to reset the FLTR warning.
2	Disconnect the power from the unit.
3	Remove the filter caps from the unit.
4	Remove the dirty filters from the unit.
5	Slide the clean (new) filters back into the unit. **The arrow on the filter must point downwards.** Cleaning: Vacuum the filters with a vacuum cleaner
6	Refit the filter caps to the unit.

Malfunction code COMM ERROR			No communication between the ComfoSense and the unit.
	Question	Answer	Action
1	Are the connections at the Service/ ComfoSense connector correct?	Yes	Go to the next question.
		No	Reconnect the ComfoSense panel to the unit.
2	Are the connections at the ComfoSense panel correct?	Yes	Go to the next question.
		No	Reconnect the ComfoSense panel to the unit.
3	Is something wrong with the ComfoSense cable?	Yes	Replace the cable.
		No	1. Turn on the power of the unit. 2. Go to the next question.
4	Is a control signal present on the Service/ComfoSense connector?	Yes	1. Disconnect the power from the unit. 2. Get a new ComfoSense. 3. Replace the ComfoSense.
		No	1. Disconnect the power from the unit. 2. Get the control PCB service set. 3. Replace the control PCB.

6.6 Malfunctions (or problems) without alerts

Problem/Malfunction	Indication	Check / action
System switched off	Power supply on	The control circuit board is defective and must be replaced
	No power supply	Mains power is off
High intake temperature in summer	Bypass remains closed	Reduce the comfort temperature
	ComfoAir is still in Winter mode: Bypass remains closed	The Mode of the ComfoAir can be checked in menu P17. (0 = Wintermode) ■ Wait untill ComfoAir switches to Summer mode (menu P17 = 1)
Low intake temperature in winter	Bypass stays open	Increase the comfort temperature
Little or no air supply; shower remains damp	Filters blocked	Replace the filters
	Valves blocked	Clean the valves
	Exchanger clogged by dirt	Clean the exchanger
	Exchanger frozen	Defrost the exchanger
	Fan dirty	Clean the fan
	Ventilation ducts blocked	Clean the ventilation ducts.
	ComfoAir is in frost-protection operation	Wait until the weather warms up.
Too noisy	Fan bearings defective	Replace the fan (bearings).
	Fan settings too high	Change the fan settings
	Slurping noise ■ U bend is empty ■ U bend does not seal properly	Reconnect the U bend
	Whistling noise ■ An air gap somewhere	Seal the air gap
	Airflow noise ■ Valves do not close onto duct ■ Valves not open far enough	Reinstall the valves Reset the valves
Condensation leak	Condensation drain clogged	Unblock the condensation drain.
	Condensation from exhaust duct does not run into leakage tray	Check whether the connections are correct
Corded position switch not working	Cabling is not correct	Check the wiring circuit of the position switch by measuring the voltage: ■ Voltage only on N & L3: [Fans rotate in position 1] ■ Voltage only on N & L3 & L2: [Fans rotate in position 2] ■ Voltage only on N & L3 & L1 or N & L3 & L2 & L1: [Fans rotate in position 3]
	Switch is defective	
RFZ not working	Battery is discharged	Check the battery. ■ Replace the battery if necessary.
	Switch will not connect to the unit	Make sure the ComfoSense is turned on and menu P893 is set to “1”
	Switch is not correctly tuned	Remove the power briefly from the ComfoAir. Shortly after reconnecting the power, tune the switch again

ZGNL-Manual_40010844, V0517, EN, Subject to change

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