

ComfoAir XL ComfoAir Eco Manual

zehnder

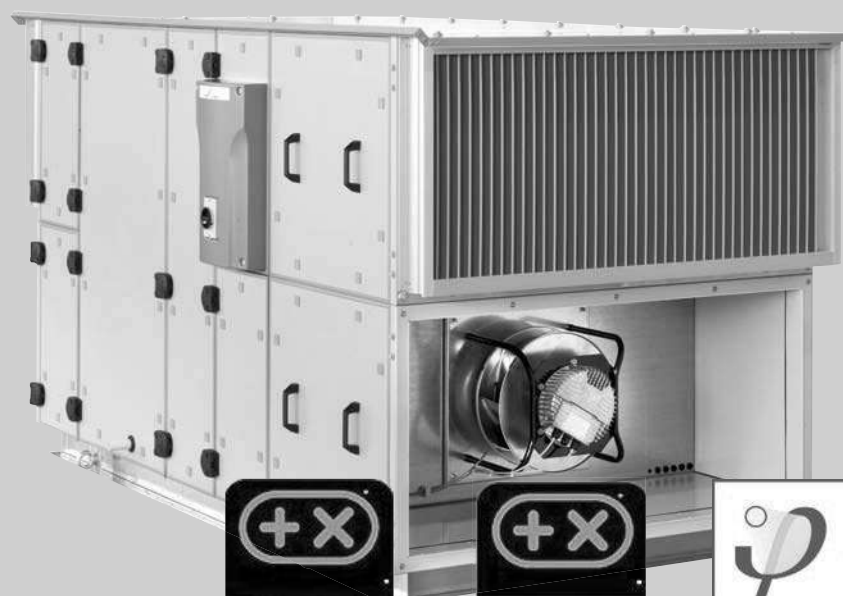
always
around you

Heating

Cooling

Fresh Air

Clean Air



Foreword



Read this document carefully before use.

This document provides all the information required for the safe and optimal installation and maintenance of the ComfoAir XL and ComfoAir Eco with software version 3.07 or higher. In this following 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 unit;**
- **performance of the unit 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 can be found at the end of this document.

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1. Safety instructions

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.

- The unit may only be installed, connected, rendered operational and maintained by an appropriately approved installer, unless otherwise indicated in this document;
- Only a recognized cooling-technology fitter is permitted to carry out work on the DX battery;
- 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 connection to 230V 50/60Hz mains; With the exception of the unit size 6000, which is suitable for 400V 50/60Hz (3 phases);
- The unit must be connected to a separate group in the fuse box;
- When carrying out any work on the unit, make sure the power is disconnected and cannot be inadvertently reconnected;

 **The primary circuit-breaker can be locked with a padlock.**

- Always take ESD-inhibiting measures when dealing with PCBs, (printed circuits boards) such as wearing an antistatic wristband;
- Store this document for the entire working life of the unit.

Safety provisions and measures

- The unit cannot be opened without using tools;
- It should not be possible to touch the fans, therefore ducting must be connected to the unit at a minimum duct length of 900mm.

2. Transport and unpacking

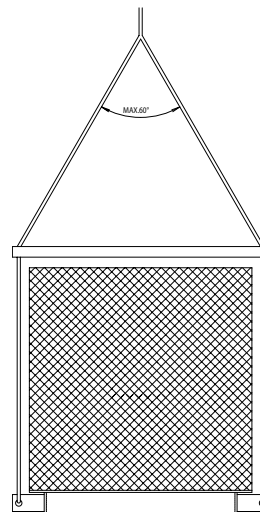
Take the necessary precautions when transporting and unpacking the unit and make sure the packing material is disposed of in an environmentally friendly manner.

Fork lift truck instructions

- The bottom of the unit must be supported during transport;
- Make sure the forks are slid completely under the unit, in order to avoid denting the housing;
- Check whether access to the area is not obstructed by excessively small passages etc.

Hoisting instructions

- Hoisting the unit may only be carried out by persons authorized to do so;
- Check the dimension sketch and the weight given on the unit;
- Hoist the appliance by means of the hoisting lugs on the base frame;
- When hoisting, protect the housing from denting by the hoisting strap. A suitable load spreader can be used for this purpose;



- Remove the hoisting lugs after placing the unit.

Checking the delivery

Contact your supplier immediately in case of damage or an incomplete delivery. The delivery should at least include:

- The unit; Check the identification plate to ensure that it is the required type.
- Seal cap, seal plug, cable feed in packaging;
- Hoisting instructions (attached to the operating side);
- Documentation.

The unit can be supplied in the following sizes:

ComfoAir 800	ComfoAir 3300
ComfoAir 1500	ComfoAir 4400
ComfoAir 2200	ComfoAir 6000

Meaning of the suffixes found on the identification plate:

Suffix	Explanation
ComfoAir XL ComfoAir Eco	Product family name
2200	Product type name (air volumes in m ³ /h)
CFE	The unit has a counterflow plate exchanger installed as default.
A	The unit has a modulated frost bypass installed in the outdoor air as default.
L	The unit is a left-hand version. (Exhaust/Supply Left)
R	The unit is a right-hand version. (Exhaust/Supply Right)
B	The unit has an open/close bypass installed as default.
BM	The unit has a modulating bypass installed as default.
I	The unit is suitable for indoor installation;
O	The unit is suitable for outdoor installation;
PF	The unit has a panel filter installed as default.
BF	The unit has a bag filter installed as default.
CL	The unit has a cooler installed as default.
PRH	The unit has a pre heater installed as default.
POH	The unit has an postheater installed as default.
DMP ODA	The unit has an outdoor air damper installed as default
DMP EHA	The unit has an exhaust air damper installed as default

The identification plate detailing information on the unit can be found on the operating side of the unit.

 **Suffixes between brackets mean there is space reserved for installing the specified function.**

3. Installation conditions

In order to determine whether the unit can be installed in a certain area, the following aspects must be taken into account:

- Check whether the admissible load (kg/m²) of the roof or floor is sufficient to bear the given weight of the unit;
- The system must be fitted to allow sufficient room around the unit for the air duct connections, condensation drain as well as for carrying out maintenance activities like a filter exchange;

 **To ensure components can be replaced, at least one casing's width of free space is required.**

- The condensation must be drained off frost-free, at a gradient and incorporate an air seal (U-bend or dry siphon);
- The room must offer the following provisions:
 - Air duct connections;
 - Electrical power connection;
 - Provisions for the condensation drain;
 - Facilities for battery or batteries.

4. Technical specifications

The units specific technical specifications are added separately to the unit. This can includes the following information:

- Dimension sketch;
- Wiring diagram;
- Air specifications;
- Parameter list with Factory settings.

All general technical information can be found in this document.

4.1 NTC sensors

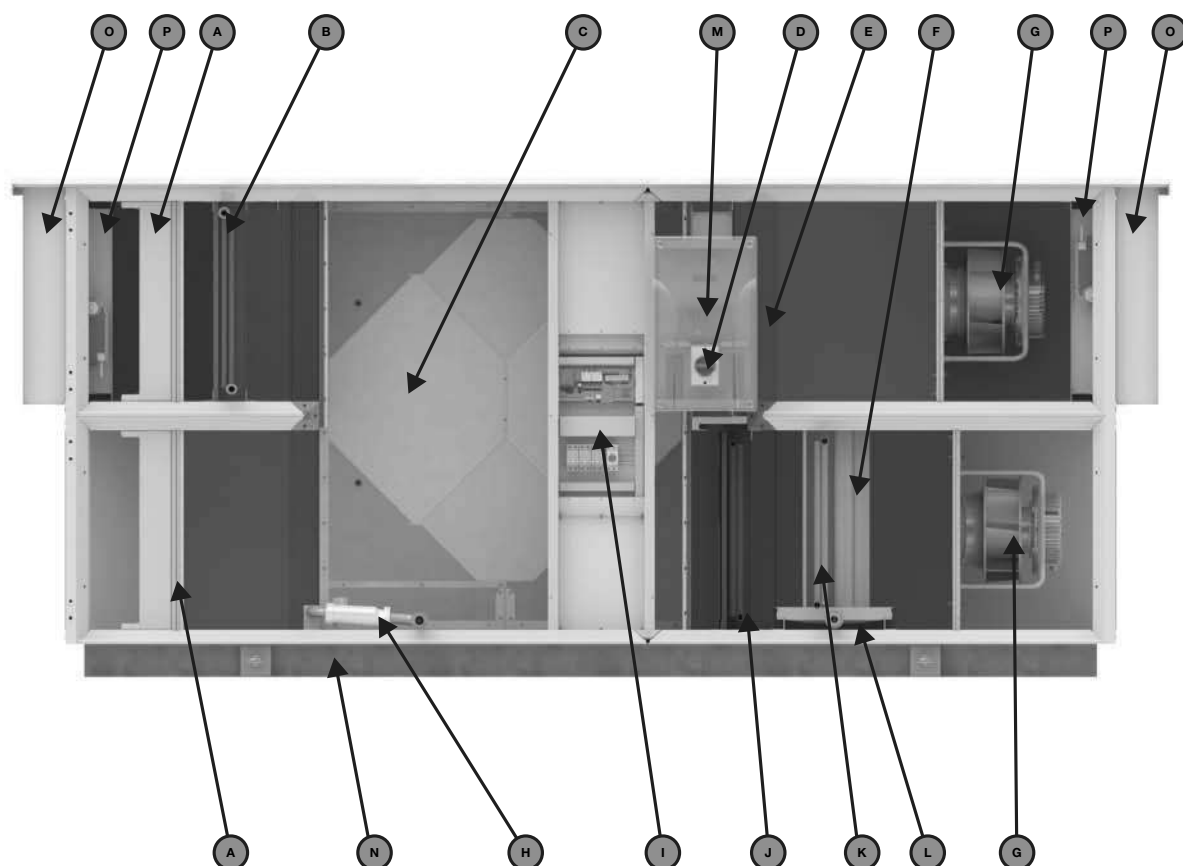
The unit has 7 analogue temperature inputs.

The first 5 temperature inputs have a preset function. The function of temperature sensors 6 and 7 can be set (parameter M50). Only NTC sensors can be connected to these inputs.

The resistance of the NTC sensors in the unit are as follows:

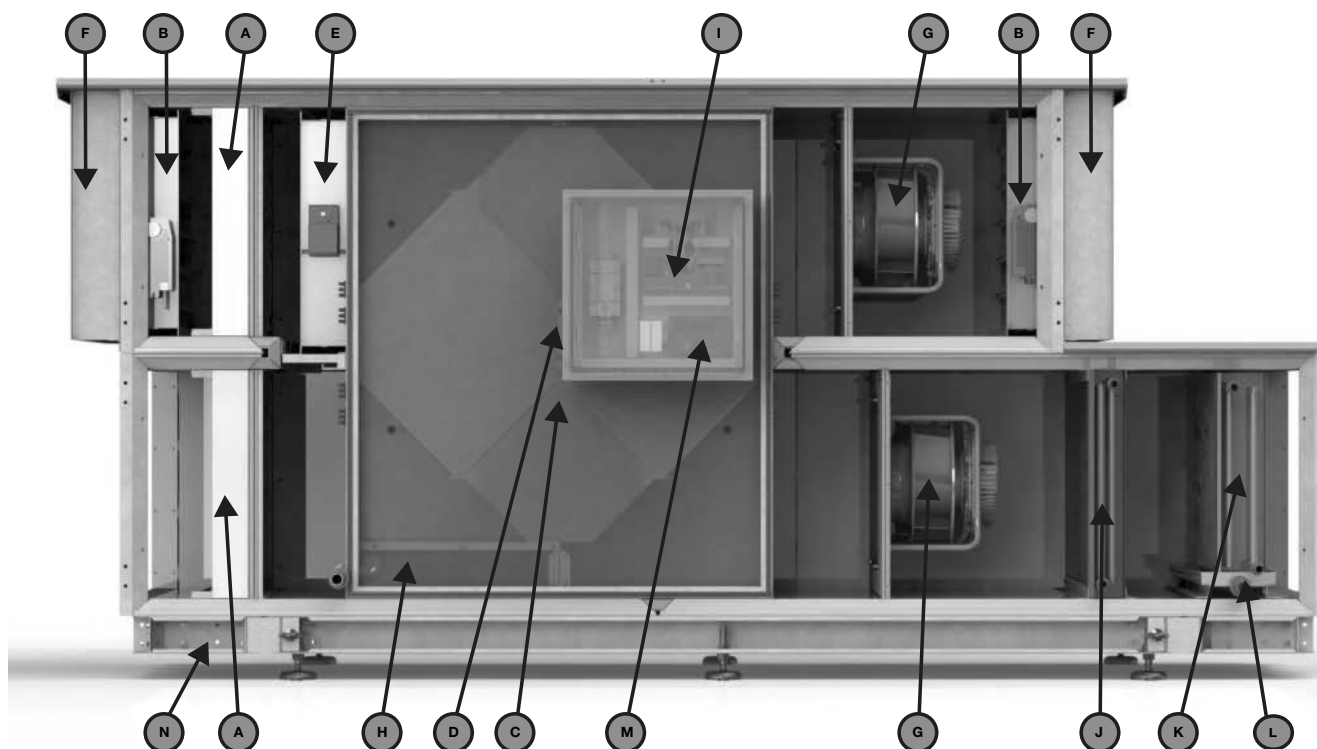
Temperature [°C]	Resisittance [kΩ]		
	MIN.	MED.	MAX.
10	19.570	19.904	20.242
15	15.485	15.712	15.941
18	13.502	13.681	13.861
19	12.906	13.071	13.237
20	12339	12.491	12.644
21	11.801	11.941	12.082
22	11.291	11.420	11.550
25	9.900	10.000	10.100
30	7.959	8.057	8.155

4.2 Configuration ComfoAir XL standard



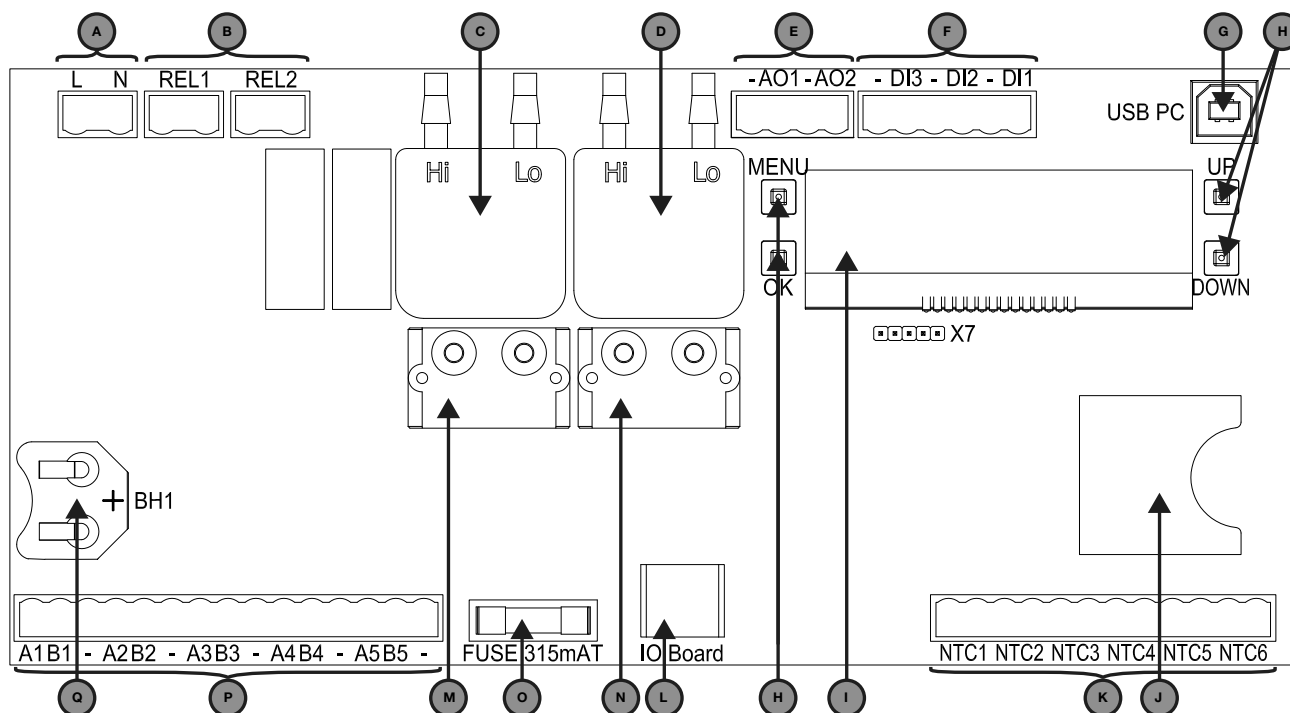
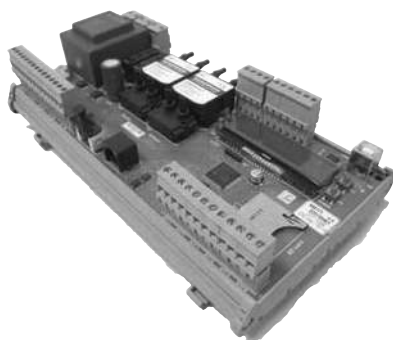
Letter	Description	
A	2 filter for air purification. ■ Top = Outdoor air F7 filter. ■ Down = Exhaust air G4 filter.	Standard
B	Pre heater (filled with glycol mixture) for additional heating of the supply air.	Optional
C	High Efficient (HE) Counter-Flow plate heat Exchanger (CFE) for heat recovery.	Standard
D	Primary circuit-breaker for safe installation and maintenance of the unit.	Standard
E	Bypass valve for free cooling operated by a servomotor.	Standard
F	Drip catcher standard when using a cooler or change-over battery.	Optional
G	2 energy-efficient EC motors with high-efficient fan. ■ Top = Outdoor air fan. ■ Down = Extract air fan.	Standard
H	Drip tray with siphon underneath the plate exchanger.	Standard
I	Electronics panel with main PCB including integrated display.	Standard
J	Postheater for additional heating of the supply air.	Optional
K	Cooler for additional cooling of the supply air. Or change-over battery to heat and cool using a single battery.	Optional
L	Drip tray with condensation drain, underneath a cooler or change-over battery and its drip catcher.	Optional
M	Connection PCB behind the design front.	Standard
N	Metal (magnelis) support frame (with adjustable feet).	Standard
O	2 drip catchers on the outdoor units.	Standard
P	Damper operated by a spring-loaded servomotor	Optional
Not visible in picture.	5 temperature sensors.	Standard
	Tubtaras for connecting the air ducts.	Standard
	Coated metal roof on the outdoor units.	Standard
	Flexible connection sleeve	Optional

4.3 Configuration ComfoAir XL A (modulated frost bypass in supply air)



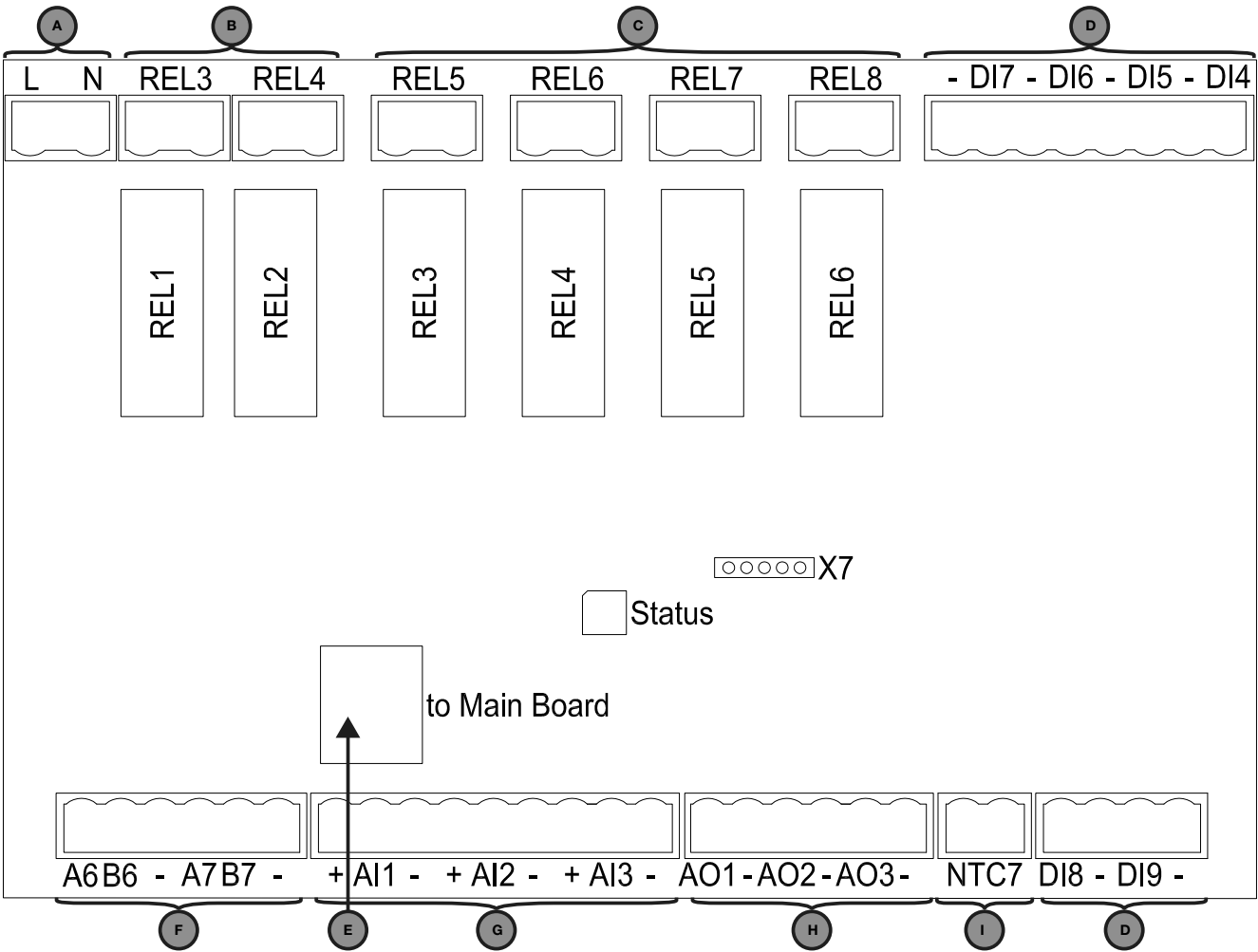
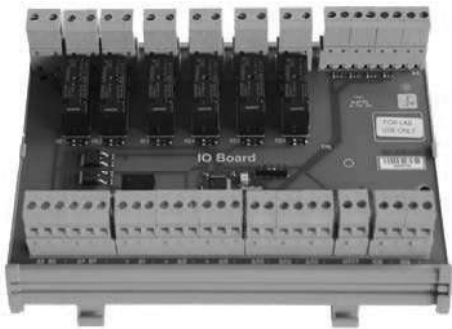
Letter	Description	
A	2 filters for air purification. ■ Top = Outdoor air F7 filter. ■ Down= Exhaust air G4 filter.	Standard
B	Damper operated by a spring-loaded servomotor	Optional
C	High Efficient (HE) Counter-Flow plate heat Exchanger (CFE) for heat recovery.	Standard
D	Primary circuit-breaker for safe installation and maintenance of the unit. (on the side of the external electronics cabinet)	Standard
E	Modulated frost bypass valve for free cooling and frost protection operated by a servomotor.	Standard
F	2 drip catchers on the outdoor units.	Standard
G	2 energy-efficient EC motors with high-efficient fan. ■ Top = Outdoor air fan. ■ Down= Extract air fan.	Standard
H	Drip tray with siphon underneath the plate exchanger.	Standard
I	Main PCB including integrated display in external electronics cabinet.	Standard
J	Post heater for additional heating of the supply air.	Standard
K	Cooler for additional cooling of the supply air.	Optional
L	Drip tray with condensation drain underneath a cooler	Optional
M	Connection PCB in external electronics cabinet.	Standard
N	Metal (magnelis) support frame (with adjustable feet).	Standard
Not visible in picture.	5 temperature sensors.	Standard
	Coated metal roof on the outdoor units.	Standard
	Flexible connection sleeve	Optional

4.4 Configuration Main PCB



#	Description	Specification	
A	Supply voltage connection.	Power	230 V
B	2 power relay outputs.	Power	230 VAC
		Maximum current	8 A
C	Pressure sensor for supply flow calculation.	-	-
D	Pressure sensor for exhaust flow calculation.	-	-
E	2 analogue outputs.	Impedance	10 Ω
		Minimum load resistance	5 k Ω
		Maximum current	5 mA
F	3 digital inputs.	Maximum terminal resistance (detection closed)	150 Ω
		Maximum current	1 mA
G	Type B USB communications connector.	-	-
H	4 operating push buttons.	-	-
I	LCD two-line display.	-	-
J	SD slot.  Check whether the SD-card used is not locked and can be overwritten.	Size Type	$\geq$ 4GB SD/HC
K	6 temperature inputs.	-	-
L	RJ45 communications connector for linking to the connector PCB.	-	-
M	Pressure sensor for supply dirty filter alert.	-	-
N	Pressure sensor for extract dirty filter alert.	-	-
O	Slow-blow fuse.	Type	315mAT
P	5 communication ports.	-	-
Q	Button cell.	Type	CR2032 Li-Mn 3V

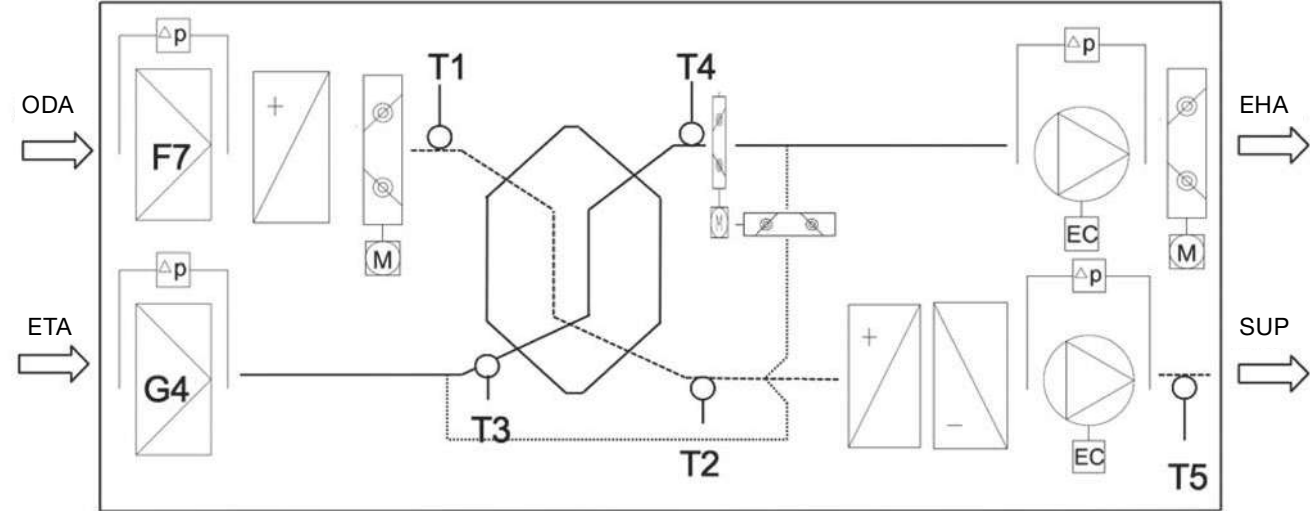
4.5 Configuration I/O PCB



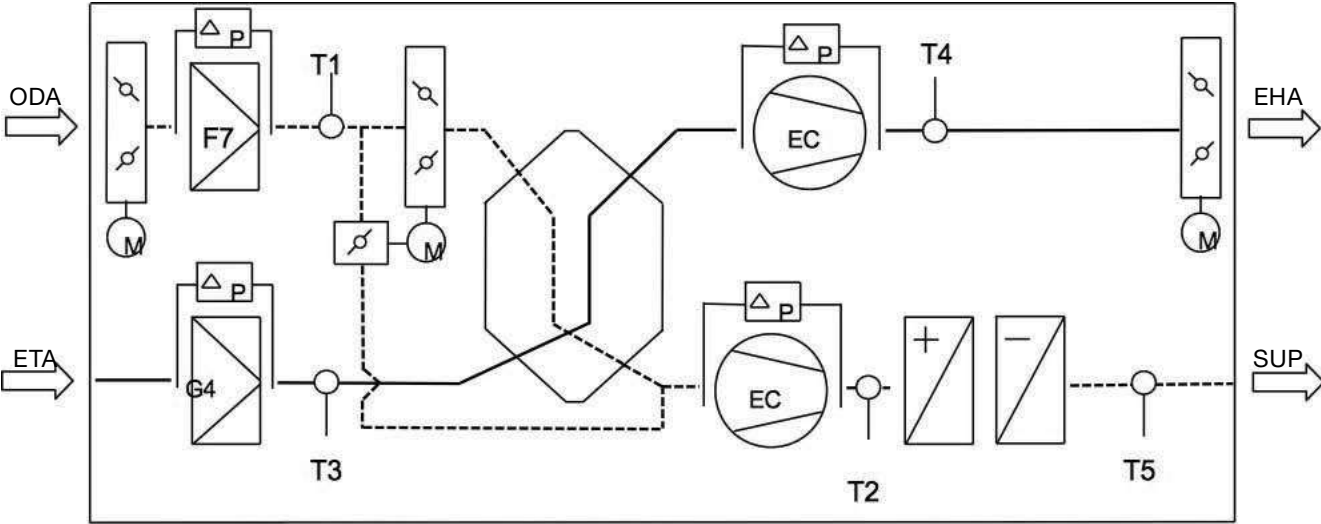
#	Description	Specification	
A	Supply voltage connection.	Power	230 V
B	2 power relay outputs.	Power	230 VAC
		Maximum current	8 A
C	4 potential free relay outputs.	-	-
D	6 digital inputs.(detection closed)	Maximum terminal resistance	150 Ω
		Maximum current	1 mA
E	USB communications connector for linking to the main PCB.	-	-
F	2 communication ports.	-	-
G	3 analogue inputs.	Impedance (per unit)	15 kΩ
		Maximum current (all 12V connections together)	150 mA
H	3 analogue outputs.	Impedance	10 Ω
		Minimum load resistance	5 kΩ
		Maximum current	5 mA
I	Temperature input 7.	-	-

4.6 Operating principle diagram

Standard unit



A unit (modulated frost bypass in supply air)



Legend

Code	Decription
	Filter
	Heater
	Cooler

Code	Decription
	Heat exchanger
	Fan
	Temperature sensor

Code	Decription
	Bypass
	Damper
ODA	Outdoor air
SUP	Supply air
ETA	Extract air
EHA	Exhaust air

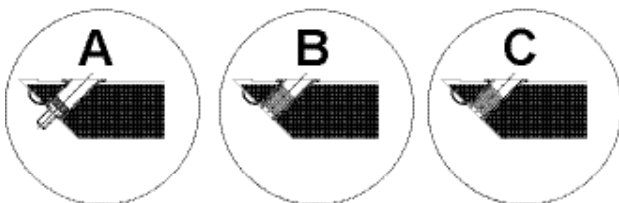
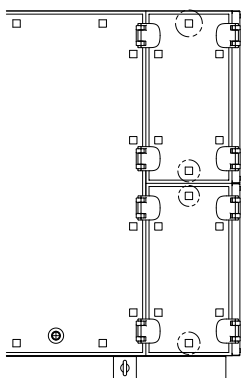
5. Installation

⚠ 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.

After fitting and commissioning, a number of checks must be carried out. At the back of this document is an installation report stating the points requiring checking.

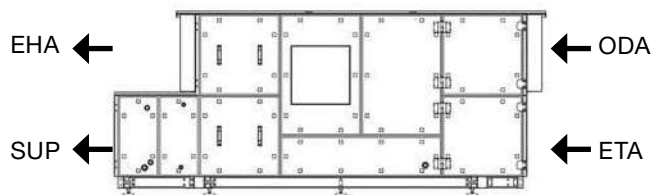
5.1 Mounting



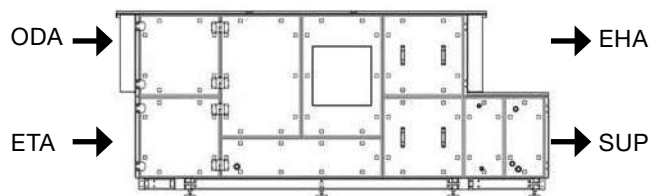
1. Set the height of the unit and ensure it stands level. Make sure the unit is evenly supported. In units with (adjustable) feet, all (adjustable) feet must be supported.
2. Remove the socket screws (A) from the maintenance doors.
3. Insert the seal plugs (B) (supplied).
4. Fit the seal cap (C) (supplied).
5. Lock the hinges/clamps.



5.2 Air ducts



Left-hand version



Right-hand version

Legend

Code	Decription
ODA	Outdoor air
SUP	Supply air
ETA	Extract air
EHA	Exhaust air

The following aspects must be taken into account, while installing the air ducts:

- Install the air ducts with as little air resistance as possible and free from air leakage;
- Install a silencer straight directly onto the supply and return air connections. For relevant advice, please contact Zehnder;
- Insulate the outdoor air and the air exhaust duct between the roof/wall passage to render the unit damp proof. This prevents the formation of condensation on the outside of the ducts;
- To prevent unnecessary temperature loss in either the summer or the winter, we recommend fitting thermal and damp-proof insulation to the supply ducts from the unit up to the supply valves;
- Make sure the inside of the air ducts do not have an obstruction of any sort. Air ducts may not have sharp bents, dents or long screws inside. Obstructions will compromise the performance and maintenance of the system.

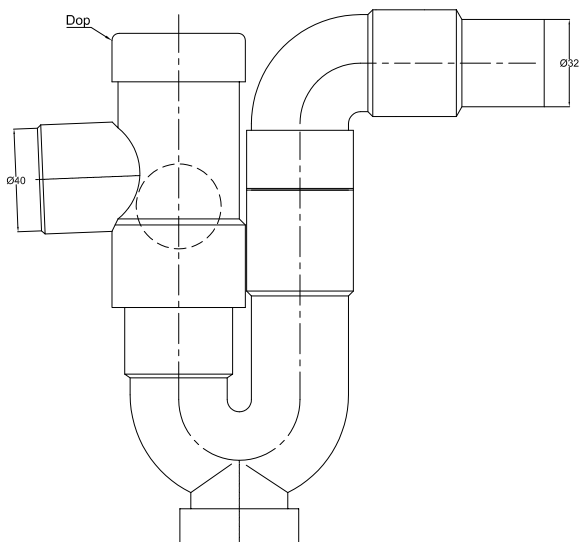
5.3 Condensation drain

Plate exchanger

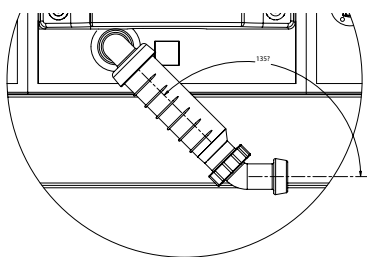
The plate exchanger is placed in a drip tray which is fitted with a membrane siphon as standard. The membrane siphon connects to a plastic 32mm drain through which condensation can be drained directly. The condensation drain must have a free outlet to the siphon of the domestic waste-water system.

Cooling battery

Each cooling battery is placed in a drip tray fitted with a 32mm plastic drain. In order to prevent external air leakage, a membrane siphon must be connected to this plastic drain on site. Use a siphon with water lock if the cooler is installed behind the fan (overpressure).



Use a membrane siphon if the cooler is installed in front of the fan (underpressure). The membrane siphon does not lock the output pipe with a water lock, but with a self-locking valve.



Take account of the following factors when fitting the condensation drain:

- Spray or blow the membrane siphon before first use to loosen the non-return valve;
- The membrane siphon must be mounted at an angle of 45°;
- When determining the height of the water lock (siphon with water lock), take into account not only the total pressure in the casing, but also pressure surges that may occur when the valves are opened and closed, for example. The supplied overpressure siphon is suitable for overpressures of up to 600Pa in the cooling section;

- The siphon with water lock must be fitted with a sealable filler opening and drain option;
- One siphon is fitted for each drain;
- The siphon with water lock must first be filled with water when (re)starting the unit after a long period of inactivity;
- The siphon must be connected air-tight to the condensation drain of the unit;
- The siphon may not be connected directly to the domestic waste-water system. The siphon must have a free outlet to the siphon of the domestic waste-water system;
- The condensation must be drained off frost-free.

5.4 Siphon heating

Siphons are sensitive to frost. A siphon heater reduces the risk of frost damage. A siphon heater is a heating spiral that can be wrapped around the siphon. In order to maximize heating efficiency, the heating spiral is insulated on the outside.



A present siphon heater must be connected to his own relay output on the I/O PCB. The connected relay can be controlled by the standard temperature sensor T1 of the unit or by a separate temperature sensor installed near the siphon.

When using a separate temperature sensor the temperature sensor must be connected to one of the spare temperature inputs (NTC6 located on the main PCB or NTC7 located on the I/O PCB)



The separate temperature sensor of the siphon heating can only be connected to NTC6 or NTC7.

5.5 Constant flow control

Separate speed switches

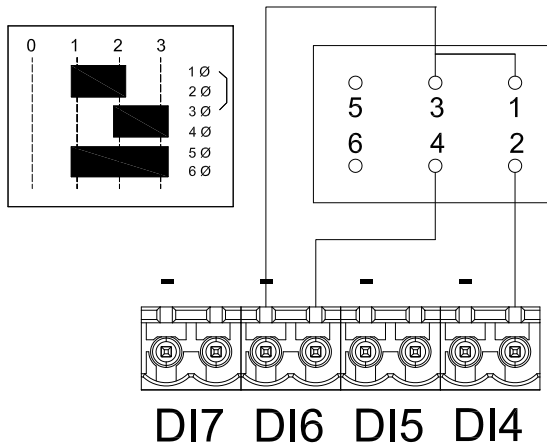
When the ventilation setting of the unit must be controlled by constant flow connect up to 4 switches to the digital inputs on the I/O PCB. Each switch must be linked to its own digital input.

SAG 0-3 CV



The “SAG 0-3 CV” is a position switch with 3 settings in one switch. The “SAG 0-3CV” can also be connected to the unit instead of 3 separate switches. This saves a digital input by switching to the

second ventilation speed when two inputs are controlled simultaneously. Connect the “SAG 0-3 CV” switch to the digital inputs 4 and 6 on the I/O PCB as shown in the schematic.



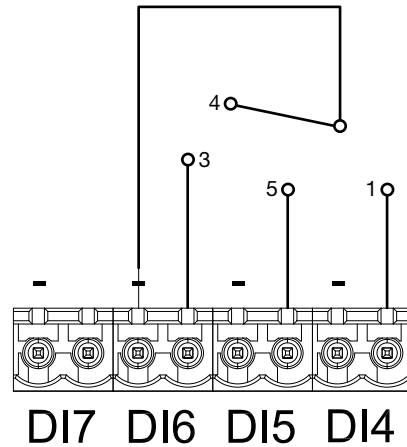
Ventilation speed 4 is not used by the “SAG 0-3CV”. When a fourth ventilation speed is also desired a separate switch must be installed to his own digital inputs on the I/O PCB.

3 Position switch (Umschaltend)



Connect the 3 Position switch to the digital inputs 4, 5 and 6 on the I/O PCB as shown in the schematic.

The “Enable time clock” function can also be configured to one of the digital input of the 3 Position switch instead to one of the ventilation speeds.



SAG 0-M



The SAG 0-M is a switch for variable speed adjustment. Connect the SAG 0-M to its own analog input on the I/O PCB.

5.6 Sensor (0..10V) control

When the ventilation setting of the unit must be controlled by sensors connect the desired sensors to the analog inputs on the I/O PCB. Each sensor must be linked to its own analog input.

5.7 Constant pressure control

When the ventilation setting of the unit must be controlled by pressure sensors connect the desired pressure sensors to the analog inputs on the I/O PCB. Each pressure sensor must be linked to its own analog input.

5.8 Switch to second setpoint

When the ventilation setting of the unit is controlled by one or more sensors it is possible to select a second setpoint. To use this function an on/off switch must be connected to his own digital input on the I/O PCB.

5.9 Summer night ventilation

When desired the unit can provide summer night ventilation to lower the indoor temperature of the building. To use this function an on/off switch must be connected to his own digital input on the I/O PCB.

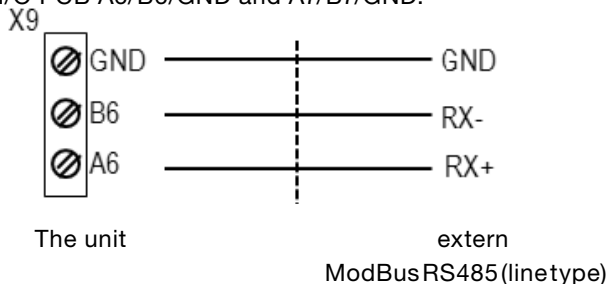
Indicator

When desired an indicator (e.g. a light) can be connected to the unit to verify whether the summer night ventilation is active. To use this function the indicator must be connected to his own relay output on the I/O PCB.

5.10 Modbus

When desired the unit can be connected to a building management system with a Modbus connection.

Two communication ports on the I/O PCB are used to connect the unit to a Modbus field bus. These two communication ports are wired in parallel and can be used to expand the Modbus network. The connectors for Modbus can be found at X9 on the I/O PCB A6/B6/GND and A7/B7/GND.



5.11 Manually switching functions off

When desired the following functions can be switched off manually:

- Supply fan;
- Exhaust fan;
- Post-heater;
- Post-cooler;
- The unit;
- Heat/Cool mode (coolmode is closed);
- Ventilation time clock;

To use these functions an on/off switch must be connected to an digital input on the I/O PCB. Each function switch must be linked to its own digital input on the I/O PCB.

 The “Enable time clock” function can also be configured to one of the digital input of the 3 Position switch instead to one of the ventilation speeds.

Indicator fans on

When desired an indicator (e.g. a light) can be connected to the unit to verify whether the fans are on. To use this function the indicator must be connected to his own relay output on the I/O PCB.

 Most error messages affect the „ComfoAir XL active“ contact. This contact can therefore be used as error messages indicator. Which error messages do not affect the „ComfoAir XL active“ contact can be found in the error messages list.

5.12 Reset malfunction button

When desired a reset malfunction button (pulse switch) can be connected to his own digital input on the I/O PCB.

 The reset malfunction button must be a normally open contact.

5.13 Failure contact

When desired a general failure contact can be connected to his own digital input on the I/O PCB.

 The general failure contact must be an normally closed contact.

Indicator

When desired an indicator (e.g. a light) can be connected to the unit to verify whether the alarm contact of the unit is activated. To use this function the indicator must be connected to his own relay output on the I/O PCB.

 Most error messages affect the „Alarm“ contact. This contact can therefore be used as error messages indicator. Which error messages do not affect the „Alarm“ contact can be found in the error messages list.

5.14 Fire contact

In order to be able to respond to a fire, a fire contact must be connected to his own digital input on the I/O PCB.

 The fire contact must be a normally closed contact.

Switch to second response

When desired the unit can switch to an alternative response/scenario to fire. To switch to this second programed scenario an on/off switch must be connected to his own digital input on the I/O PCB.

 The second response switch must be a normally open contact.

5.15 Dirty filter alert

When a filter of the unit is dirty, the corresponding error code will be displayed on the display of the main PCB. (E44/E47 = exhaust; E45/E48 = supply)

When desired an indicator (e.g. a light) can be connected to the unit to verify whether the dirty filter alert of the unit is activated. To use this function the indicator must be connected to his own relay output on the I/O PCB.

5.16 External supply air temperature sensor

When desired the supply air temperature can be measured outside the unit. To use this function a NTC sensor must be connected to one of the spare temperature inputs (NTC6 located on the main PCB or NTC7 located on the I/O PCB)

The external supply air temperature sensor can only be connected to NTC6 or NTC7.

5.17 Battery

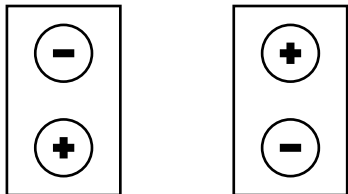
Warning for hot water battery!!
Its medium is warm or hot water under excess pressure “Danger of combustion”.

When a battery is installed as default in the unit the piping of the battery is sealed off with a compression fitting.

- 1. Remove the sealing cap from the compression fitting
- 2. Connect the piping system to the compression fitting.

The following aspects must be taken into account, while connecting the piping system:

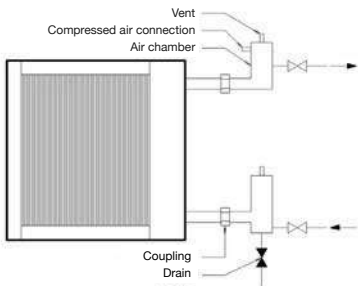
- Ensure the connection hoses are not in front of the operating doors, as this might hinder the checking and maintenance process;
- The battery connections must be counterflow connected to the airflow as indicated on the unit;



Cooler Heater

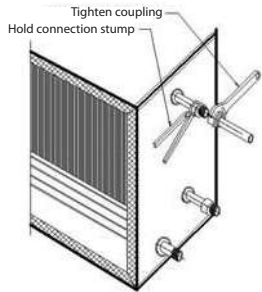
Code	Decription
+	input
-	output

- When connecting the battery, the piping system must be fitted with a good vent and drainage system directly outside the unit.



- 3. Tighten the compression fitting on both sides of the compression fitting.

When tightening the connections to the battery, the connecting stump must be held firmly in order to avoid the battery connection being bent or rotated, as this might otherwise result in serious damage



Battery pump

When the battery is controlled by a pump (230V), this battery pump must be connected to a power relay output on the I/O PCB. Each battery pump must be linked to its own power relay output on the I/O PCB.

Battery valve

When the battery is controlled by a valve (0-10V), this battery valve must be connected to an analog output on the I/O PCB. Each battery valve must be linked to its own analog output on the I/O PCB.

6. Commissioning

Each unit is preprogrammed with a set of default parameters. These preprogrammed settings are stored on the main PCB and can always be restored using parameter M99-99. Next to changing the preprogrammed parameters on the display it is also possible to load a new set of parameters to the main PCB. This can be done with the special control software “ComfoAir XL Control Center” or with parameter M90-03.

More information about the “ComfoAir XL Control Center” can be found in its own manual. More information about parameter M90-03 can be found in the chapter about using de SD card on the main PCB.

Not all parameters can be set as default. Some parameter settings depend on the hardware which is installed on site. These parameters must be set to the correct value after installing. How to set the correct value can be found in this commissioning chapter.

After fitting and commissioning, a number of checks must be carried out. At the back of this document is an installation report stating the points requiring checking.

6.1 Air volume control (M02, M12-04)

The unit is preset with a set of air volumes for each ventilation level. These preset air volumes can be changed in parameter M02-01 till M02-08.

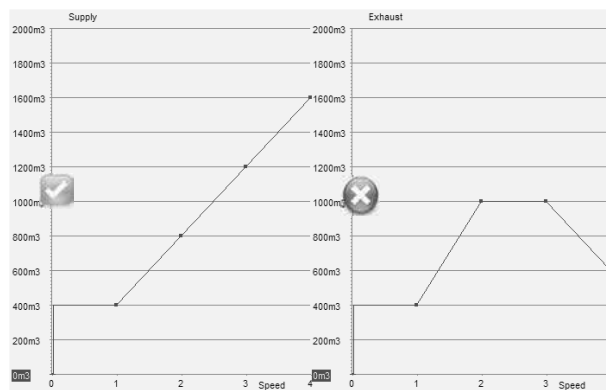
Function	Parameter
Air volume Supply air 1	M02-01
Air volume Supply air 2	M02-02
Air volume Supply air 3	M02-03
Air volume Supply air 4	M02-04
Air volume Exhaust air 1	M02-05
Air volume Exhaust air 2	M02-06
Air volume Exhaust air 3	M02-07
Air volume Exhaust air 4	M02-08



The unit is preset with a maximum air volume in parameter M04. These setting depend on the type of fans installed. Do not change these settings.

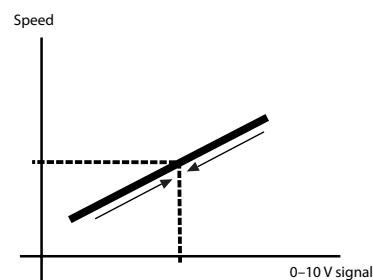
When two ventilation speeds are activated at the same time the unit will run on the highest activated ventilation speed. Regardless of the set volume of that ventilation speed.

In order to achieve a smooth control, it is recommended to program the ventilation levels in linear progression. If the ventilation levels are not programmed linearly, the fans might appear to be running uncontrolled or even power down when powering up was expected.



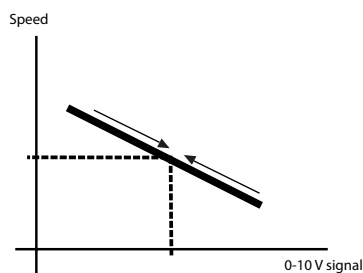
Positive sensor control

With a positive sensor control, power will go up if the measurement is below the set point. In the event of a higher measurement, power will go down. Most of the pressure sensors use positive control.



Negative sensor control

With a negative sensor control, power will go up if the measurement is higher than the set point. In the event of a lower measurement, power will go down. Most of the CO₂ sensors use negative control.



Balanced ventilation (M12-04)

When desired the unit can maintain balanced ventilation under all circumstances. Even when the software requires the reduction of only one fan. If the “balanced ventilation (frost)” option is activated in parameter M12-04 (option 1) all fans will always reduce or stop at the same time/rate.



The ComfoAir XL A is preset to balanced ventilation.

6.2 Ventilation time clock (M60)

The unit can also be controlled automatically by a built-in timer. To ensure the timer works properly, the correct time must be set first in parameter M60-01 and M60-02. When setting parameter M60-04 to “1” the unit will automatically adjust for Daylight Saving Time.

Function	Parameter
Real time	M60-01
Real date	M60-02
Daylight Saving Time automatic	M60-04

In parameter M60 six switching moments can be set for the timer.

 **Not all switching moments need to be programmed.**

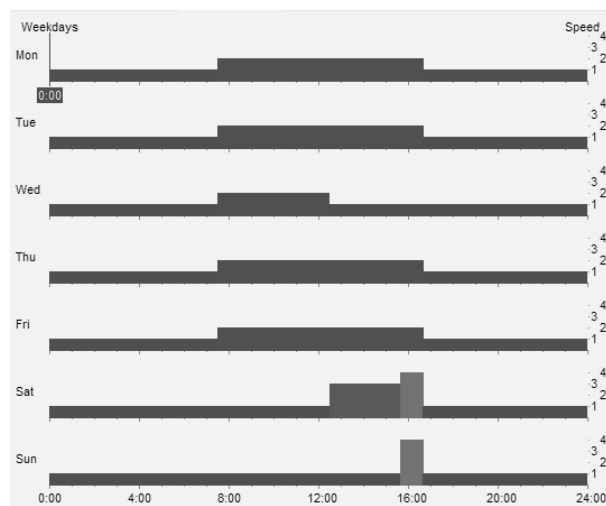
Function	Parameter
Switch moment 1	M60-1x
Switch moment 2	M60-2x
Switch moment 3	M60-3x
Switch moment 4	M60-4x
Switch moment 5	M60-5x
Switch moment 6	M60-6x

For each switch moment three parameters must be set. In the 1st parameter (M60-x1), the required switch time must be entered. In the 2nd parameter (M60-x2), the required switch day or days must be selected. As default all 2nd parameters (M60-x2) are set to “0” (Never), this way the unit will not respond to the timer. In the 3rd parameter (M60-x3), the required ventilation speed must be entered.

Function	Parameter
Switching time	M60-x1
Switching day	M60-x2
Ventilation speed	M60-x3

Switching day(s) in M60-x2	Option
Never	0
Every day	1
Weekday mon..fri	2
Weekend sat+sun	3
Monday	4
Tuesday	5
Wednesday	6
Thursday	7
Friday	8
Saturday	9
Sunday	10

Ventilation speed in M60-x3	Option
M02-10 = 0: Ventilation off M02-10 ≠ 0: First setpoint	0
M02-10 = 0: Ventilation speed1 M02-10 ≠ 0: First setpoint	1
M02-10 = 0: Ventilation speed2 M02-10 ≠ 0: First setpoint	2
M02-10 = 0: Ventilation speed3 M02-10 ≠ 0: First setpoint	3
M02-10 = 0: Ventilation speed4 M02-10 ≠ 0: First setpoint	4
M02-10 = 0: Ventilation speed4 M02-10 ≠ 0: Second setpoint	5



In parameter M60-03 the current requested ventilation speed by the ventilation time clock is displayed.

With the “Enable time clock” function it is possible to switch off the ventilation time clock function with an installed switch. (see chapters about manually switching functions off)

The clock works on a battery. When the battery is empty or the clock is broken, the unit will display error E04 or E05

6.3 PI control units

The unit is equipped with several PI controls. These PI controls are preset and can be altered when desired.

 **It is recommended to keep the factory setting. Wrong settings may cause unwanted software responses.**

PI controller	Parameter
Supply air	M04
Exhaust air	M04
Constant pressure control	M04
Sensor control	M04
Heating	M10
Cooling	M10
Bypass frost (only ComfoAir XL A)	M11
PreHeat supply	M13
PreHeat exhaust	M13

Explanation Proportional Integral controller

Proportional means the difference between the desired and measured value enhanced by the k-value.

Integral means providing a constant summation of the error and keep sending more signals depending on how long the error between desired and measured value exists. (The time needed to get an equivalent value as the P-action. A small time gives a powerful I-action.)

6.4 Siphon heating (M50, M06 option 7)

When a siphon heater is present to protect the siphon from frost, the siphon heater must be assigned in parameter M06 to the "Siphon heating" function. Check which relay the siphon heater is connected to and choose option 7 for that relay.

Switching temperature (M50-06)

The siphon heater is switched on by the unit at a preset temperature. This temperature is preset in the unit and can be altered when desired in parameter M50-06.

Temperature sensor (M50 option 1)

When a separate temperature sensor is present for the siphon heater, the separate temperature sensor must be assigned in parameter M50 to the "Siphon temperature" function. Check which temperature input the temperature sensor is connected to and choose option 1 for that temperature input.

 **When there is no separate temperature sensor present for the siphon heater, the relay will be controlled by the outdoor temperature (NTC1).**

6.5 Constant flow control (M02-10option 0)

When using a switch to control the ventilation, the unit must be set to option 0 "Constant Flow" in M02-10. In the chapter about the air volume control is explained how to change the air volume of each ventilation speed.

Separate speed switches (M05)

Each connected switch must be assigned in parameter M05 to the desired ventilation speed. Check which digital input the switch is connected to and choose the desired option for that digital input/switch.

Ventilation speeds in M05	Option
Ventilation speed 1	1
Ventilation speed 2	2
Ventilation speed 3	3
Ventilation speed 4	4

When two switches are activated at the same time the unit will run on the highest activated ventilation speed. Regardless of the set volume of that ventilation speed.

SAG 0-3CV (M05 and M50-03)



When a "SAG 0-3CV" switch is present, one digital input is spared by switching to the second ventilation speed when two inputs are controlled simultaneously. The connected digital inputs must be

assigned in parameter M05 to the correct ventilation speeds.

Assign the first connected digital input of the "SAG 0-3CV" to option 1 "Ventilation speed 1" (in the case of the schematic displayed in the installation chapter this is digital input 4).

Assign the second connected digital input of the "SAG 03-CV" to option 3 "Ventilation speed 3" (in the case of the schematic displayed in the installation chapter this is digital input 6).

Set parameter M50-03 to "1" to indicate the presents of a "SAG 0-3V" switch.

Ventilation speed 4 is not used by the "SAG 0-3CV".

When a fourth ventilation speed is also desired a separate switch must be connected and assigned as described for the separate speed switches.

3 Position switch (Umschaltend)



When a 3 Position switch is present, the connected digital inputs must be assigned in parameter M05 to the correct ventilation speeds. Assign the first connected digital input of the 3

Position switch to option 3 "Ventilation speed 3" or "Enable time clock" (in the case of the schematic displayed in the installation chapter this is digital input 4).

Assign the second connected digital input of the 3 Position switch to option 2 “Ventilation speed 2” (in the case of the schematic displayed in the installation chapter this is digital input 5). Assign the third connected digital input of the 3 Position switch to option 1 “Ventilation speed 1” (in the case of the schematic displayed in the installation chapter this is digital input 6).

SAG 0-M (M09 option 3)



When a “SAG 0-M” switch is present, the switch must be assigned in parameter M09 to the “Proportional ventilation” function. Check which analog input the switch is connected to and choose option 3 for that analog input/switch.

When the switch is fully opened (10V) the unit will run on the set air volume of ventilation speed 4. When the switch is fully closed (0V) the fans of the unit will turn off.

6.6 Sensor (0..10V) control (M02-10 M04-11, M09)

When using a sensor to control the ventilation, the unit must be set to option 3 “0..10V (positive)” or option 4 “0..10V (negative)” in M02-10. (see chapter “Air volume control” to learn the difference between positive and negative control)

Each connected sensor must be assigned in parameter M09 to the correct “air flow” function. Check the location of sensor connected and to which analog input the sensor is connected and choose option 8 for a supply sensor or option 9 for an exhaust sensor for that analog input/sensor. The preset value of the desired setpoint can be changed in parameter M02-15 (supply air) and/or M02-16 (exhaust air).

Only one sensor present (M04-11)

When only one sensor is present, an air ratio factor must also be set in parameter M04-11.

6.7 Constant pressure control (M02-10, M04-11, M09)

When using a pressure sensor to control the ventilation, the unit must be set to option 1 “Constant Pressure (positive)” or option 2 “Constant Pressure (negative)” in M02-10. (see chapter “Air volume control” to learn the difference between positive and negative control)

Each connected pressure sensor must be assigned in parameter M09 to the correct “air pressure” function. Check the type of sensor connected and to which analog input the sensor is connected and choose the correct option for that analog input/sensor.

Pressure functions in M09	Option
0..500Pa supply	4
0..500Pa exhaust	5
0..300Pa supply	6
0..300Pa exhaust	7

The preset value of the desired pressure setpoint can be changed in parameter M02-11 (supply air) and/or M02-12 (exhaust air).

Only one sensor present (M04-11)

When only one pressure sensor is present, an air ratio factor must also be set in parameter M04-11.

6.8 Switch to second setpoint (M02, M05 option 25)

When a switch is present to switch to a second setpoint, the switch must be assigned in parameter M05 to the “Second setpoint select” function. Check which digital input the switch is connected to and choose option 25 for that digital input/switch.

Constant pressure control (M02-13, M02-14)

When the ventilation setting of the unit is controlled by one or more pressure sensors the preset value of the desired second setpoint can be changed in parameter M02-13 (supply air) and/or M02-14 (exhaust air).

Sensor (0..10V) control (M02-17, M02-18)

When the ventilation setting of the unit is controlled by one or more sensors, the preset value of the desired second setpoint can be changed in parameter M02-17 (supply air) and/or M02-18 (exhaust air).

6.9 Summer night ventilation (M02-09, M05 option 21, M06 option 10)

When a switch is present to switch to summer night ventilation, the switch must be assigned in parameter M05 to the “Enable Summer Night Ventilation” function. Check which digital input the switch is connected to and choose option 21 for that digital input/switch.

Ventilation speed (M02-09)

The unit is preset with one of the standard ventilation speeds. The preset ventilation speed can be changed in parameter M2-09 to any of the standard ventilation speeds.

Indicator (M06 option 10)

When an indicator (e.g. a light) is present to verify whether the summer night ventilation is active, the indicator must be assigned in parameter M06 to the “Summer night ventilation active” function. Check which relay the indicator is connected to and choose option 10 for that relay/indicator.

 **When the summer night ventilation is active the bypass is always open.**

6.10 Modbus (M80)

The unit is fitted with an Modbus connection for connecting to a building management system. Modbus will use menu M30 to change the settings of the digital inputs and the ventilation speed. The Modbus protocol of the unit can be requested from Zehnder. In menu M80 the address, baud rate and parity settings of the Modbus must be programmed first.

6.11 Manually switching functions off (M05)

When a switch is present to manually switch off a function, this switch must be assigned in parameter M05 to the correct “Enable” function. Check which function the switch must have and which digital input the switch is connected to and choose the correct option for that digital input/switch.

Enable functions in M05	Option
Enable supply fan	14
Enable exhaust fan	15
Enable post-heater	16
Enable post-cooler	17
Enable ComfoAir XL	19
Heat/Cool mode (coolmode = closed)	22
Enable time clock	26

 **The balanced ventilation function is overruled when using the enable fan function.**

Indicator fans on (M06 option 8)

When an indicator (e.g. a light) is present to verify whether the fans are on, the indicator must be assigned in parameter M06 to the “ComfoAir XL active” function. Check which relay the indicator is connected to and choose option 8 for that relay/indicator.

6.12 Reset malfunction button (M05 option 23, M06)

When a switch is present to reset the failures of the unit, the switch must be assigned in parameter M05 to the “Reset all failures” function. Check which digital input the switch is connected to and choose option 23 for that digital input/switch.

6.13 Failure contact (M05 option 18, M06)

When a failure contact is present to detect a general failure, this contact must be assigned in parameter M05 to the “Failure” function. Check which digital input the failure contact is connected to and choose option 18 for that digital input/contact.



The used failure contact must be a breaker contact.

Indicator (M06 option 1)

When the failure contact of the unit is activated, the corresponding error message will be displayed on the display of the main PCB.

When an indicator (e.g. a light) is present to verify whether the failure contact of the unit is activated, the indicator must be assigned in parameter M06 to the “Alarm” function. Check which relay the indicator is connected to and choose option 1 for that relay/indicator.

6.14 Fire contact (M02, M05 option 20/24)

When a fire contact is present to switch to a fire response/scenario, the fire contact must be assigned in parameter M05 to the “Fire Contact” function. Check which digital input the fire contact is connected to and choose option 20 for that digital input/fire contact.

Switch to second response (M05 option 24)

When a switch is present to switch to an alternative fire response/scenario, the switch must be assigned in parameter M05 to the “Enable Fire overrule” function. Check which digital input the switch is connected to and choose option 24 for that digital input/switch.

Fire response scenarios (M02 option 19-22)

The unit can be programmed with two fire response/scenarios. The wanted standard response can be programmed in parameter M02-19 (supply air) and M02-20 (exhaust air). The wanted alternative response can be programmed in M02-21 (supply air) and M02-22 (exhaust air).

! When an alternative response is desired, both parameters must be set at all times. Even if only the supply or only exhaust must respond differently.

When the fire contact is enabled the Bypass will automatically open in all fire response scenarios.

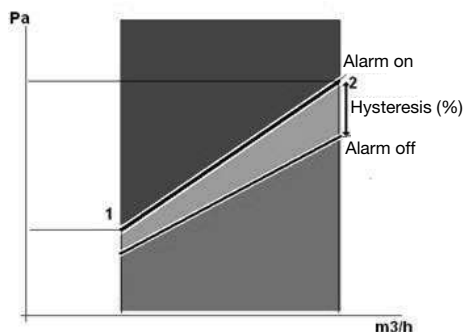
6.15 Dirty filter alert (M70, M06)

The unit is equipment with two dirty filter alerts to indicate when the filters must be replaced:

- One for the exhaust filter (E44);
- One for the supply filter (E45).

These dirty filter alerts are preset and can be altered when desired in parameter M70.

Function	Parameter
Supply volume (m ³ /h) point 1	M70-01
Supply pressure (Pa) point 1	M70-02
Supply volume (m ³ /h) point 2	M70-03
Supply pressure (Pa) point 2	M70-04
Exhaust volume (m ³ /h) point 1	M70-05
Exhaust pressure (Pa) point 1	M70-06
Exhaust volume (m ³ /h) point 2	M70-07
Exhaust pressure (Pa) point 2	M70-08
Hysteresis bandwidth (%)	M70-09
Mesasurement Time pressure	M70-12
Maximum filter pressure	M70-13



The unit will calculate the average pressure over the time set in parameter M70-12.

When the average pressure stays below the “alarm on” line, the dirty filter alert will stay off.

As soon as the average pressure rises above the “alarm on” line for at least 24 hours, the dirty filter alert will turn on.

As long as the average pressure stays above the “alarm off” line, the dirty filter alert will not turn off after resetting the unit.

The start and end point of the “alarm on” line is set in parameter M70. The “alarm off” line is a set percentage below the “alarm on” line. This percentage (“hysteresis”) is set in parameter M70-09.

Dirty filter protection (M70-13)

When the filter is not replaced in time the filter could tear and damage the unit. To protect the unit against damage a maximum allowed pressure over the filter is set in parameter M70-13. When the set level is reached the unit will start powering down the corresponding fan to reduce the pressure and will display an extra error (E47/E48). When the set maximum pressure is higher than the range of the pressure sensors (>550Pa) the filter protection will never turn on.

Indicator (M06 option 12)

When an indicator (e.g. a light) is present to verify whether the dirty filter alert of the unit is activated, the indicator must be assigned in parameter M06 to the “Filter Alarm active” function. Check which relay the indicator is connected to and choose option 12 for that relay/indicator.

6.16 External supply air temperature sensor

When an external supply air temperature sensor is present, the temperature sensor must be assigned in parameter M50 to the “Adopt function of NTC5” function. Check which temperature input the temperature sensor is connected to and choose option 2 for that digital input/switch.

6.17 Battery (M06, M07)

Battery pump (M06)

When the battery is controlled by a pump, this battery pump must be assigned in parameter M06 to the desired “Pump” function. Check the type of battery controlled and to which power relay output the battery pump is connected and choose the desired “Pump” function for that power relay output.

Pump functions in M06	Option
Post-Heater pump	5
Post-Cooler pump	6
Post-Cooler/Heater pump	9
PreHeater ODA (= supply) pump	11
PreHeater ETA (= extract) pump	13

Battery valve (M07)

When the battery is controlled by a valve, this battery valve must be assigned in parameter M07 to the desired “Valve” function. Check the type of battery controlled and to which analog output the battery valve is connected and choose the desired “Valve” function for that analog output.

Valve functions M07	Option
Post-Heater valve	4
Post-Cooler valve	5
Post-Cooler/Heater valve	6
PreHeater ODA (= supply) valve	8
PreHeater ETA (= extract) valve	9

Safety switch time (M10-27)

When the unit is equipped with both a heating and cooling battery a minimum switch time between the heating and cooling battery must be set in parameter M10-27, to ensure that the heater and cooler do not switch on too soon after each other.

Battery failure (M10-28)

The unit will check the temperatures before and after the cooler and postheater to check if the battery is working properly. The allowed minimal temperature difference before and after the battery can be set in parameter M10-28. The higher the set temperature difference, the higher the risk of failure. (The permitted difference is often set at 4°C.) When the temperature will not drop fast enough the unit will display error E38. When the temperature will not raise fast enough the unit will display error E39.

6.18 Temperature control (M10)

Comfort temperature (M10-01 option 0, M10-99)

 **When there are no batteries installed in the unit it is recommended to use comfort temperature control.**

When the room temperature must be controlled by one desired preset temperature (comfort temperature), parameter M10-01 must be set to option 0 "Tcomfort". The desired comfort temperature is preset and can be changed in parameter M10-99. It is best to set the comfort temperature to the same temperature as the room thermostat (of the central heating system).

When possible the unit will use the installed bypass to reach the desired supply temperature. When the outdoor temperature becomes too cold the unit disables the use of the bypass for comfort control. This temperature is preset and can be altered when desired in parameter M11-07.

Heatline (M10-01 option 1, M10)

 **When a battery is installed in the unit it is recommended to use heatline temperature control.**

When the supply temperature must be controlled by the outdoor temperature, parameter M10-01 must be set to option 1 "Outdoor heatline". The desired heatline temperatures can be set in parameter M10. There are 3 points for the heating heatline and 3 points for cooling heatline.

Function	Parameter
Outdoor temperature Low point heating	M10-02

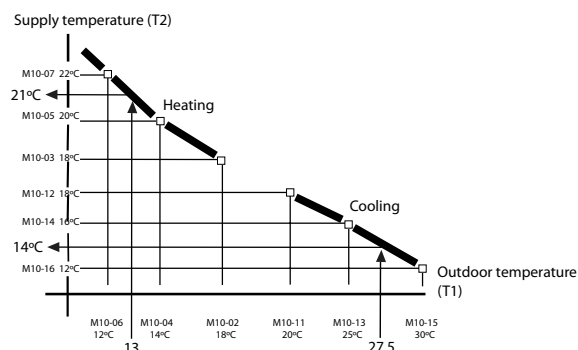
Function	Parameter
Supply temperature Low point heating	M10-03
Outdoor temperature Medium point heating	M10-04
Supply temperature Medium point heating	M10-05
Outdoor temperature High point heating	M10-06
Supply temperature High point heating	M10-07

Function	Parameter
Minimum supply temperature	M10-24
Maximum supply temperature	M10-25
Outdoor temperature Low point cooling	M10-11
Supply temperature Low point cooling	M10-12
Outdoor temperature Medium point cooling	M10-13
Supply temperature Medium point cooling	M10-14
Outdoor temperature High point cooling	M10-15
Supply temperature High point cooling	M10-16



Make sure the heating and cooling heatline do not overlap or coincide.

Example set heatline



When the temperatures are set as shown in the graph, the unit will try to reach a supply air temperature of 21°C when the outdoor temperature is 13°C and a supply air temperature of 14°C when the outdoor temperature is 27.5°C.

Maximum heating supply air temperature (M10-25)

The control process does not stop at the set outdoor temperature of the high heating point. In the event of higher outdoors temperatures, the control line can be continued in the same angle as that of the line running from the set medium heating point to the set high heating point. However the unit will never try to heat the supply air more than the set temperature in parameter M10-25.

Minimum cooling supply air temperature (M10-16)

The control process does not stop at the set outdoor temperature of the high cooling point. In the event of lower outdoor temperatures, the unit will try and cool the supply air in accordance with the desired temperature set in parameter M10-16.

Minimal supply air temperature (M10-24 and M10-29)

The unit is preset with a minimal supply air temperature. The preset minimal supply air temperature can be changed in parameter M10-24. The unit will try to keep the supply air above the set value.

When the supply air temperature gets too cold the unit will activate failure E46 and turn off the supply air fan for at least a half hour. The minimal temperature at which the failure is activated is preset and can be changed in M10-29.

6.19 Frost protection

Only ComfoAir XL A: Modulated Frost Bypass (M11)

The ComfoAir XL A is equipped with a frost protection which uses the installed modulated bypass. This frost protection is preset and can be altered when desired in parameter M11.

Function	Parameter
Setpoint exhaust temperature (T4)	M11-02
minimum supply temperature before the heater/change-over battery (T2)	M11-05
minimum supply temperature after the heater/change-over battery (T5)	M11-06
Frost protection when T1 < Minimum outdoor temperature (T1)	M11-07

The bypass will function as frost protection when the outdoor temperature drops below the set temperature in parameter M11-07. When the outdoor temperature is above the set temperature in parameter M11-07 the bypass will function as normal comfort control bypass for free cooling.

 **The ComfoAir XL A is preset to balanced ventilation.**

Plate Exchanger (M12)

The units are equipped with a frost protection for the plate exchanger. This frost protection is preset and can be altered when desired in parameter M12. When this frost protection is activated the unit will display error E43 and will power down or switch off the supply fan.

When the exhaust temperature drops below the set temperature in parameter M12-02 the supply fan will start reducing. When the exhaust temperature drops below the set temperature in parameter M12-03 the supply fan will turn off completely.

Pre heater (M13)

The pre heater can be used as a frost protection. This frost protection is preset and can be altered when desired in parameter M13.

Function	Parameter
Setpoint temperature (T1) for the pre heater installed in supply air).	M13-02
Setpoint temperature (T4) for the pre heater installed in exhaust air.	M13-06
Delay time for starting the frost protection of the pre heater installed in the exhaust air.	M13-07

Heater/change-over battery (M50)

To prevent the medium in the heater/change-over battery from freezing the heater/change-over battery is turned on when the outside air becomes too cold. This frost protection is preset and can be altered when desired in parameter M50. The temperature at which the minimum level of heating will turn on is set in parameter M50-04. The minimal control signal (percentage) of the heater/change-over battery is set in parameter M50-05.

6.20 Preset settings

Air k-value

All units are equipped with PI controllers for the air volume control. The k-value is determined by the installed hardware. Never change the settings of the k-value.

Frost thermostat on heater (M05)

A heater is equipped with a frost thermostat. The digital input settings of the frost thermostat is determined by the installed type of frost thermostat. Never change the digital input settings of the frost thermostat.

Fans (M05, M07, M08)

All units are equipped with fans. The digital input, analog output and communication port settings for the fans are determined by the installed type of fans. Never change the digital input, analog output and communication port settings of the fans.

Bypass (M06, M07, M11-01)

All units are equipped with a bypass. The relay, analog output and position settings for the bypass are determined by the installed type of bypass. Never change the relay, analog output and position settings of the bypass.

Heat exchanger (M12-01)

All units are equipped with a heat exchanger. The settings for the heat exchanger are determined by the installed type of heat exchanger. Never change the settings of the heat exchanger.

Damper (M06)

Some units are equipped with one or two dampers. The relay settings for these dampers are determined by the installed type of damper. Never change the relay settings of the dampers.

Battery (M50)

Some heater/change-over batteries are equipped with a frost protection. The digital (temperature) input settings for this frost protection is determined by the installed type of frost protection. Never change the digital (temperature) input settings of the frost protection.

Pre heater (M13)

The location of an installed pre heater determined which location setting is activated. Never change the location settings of the pre heater.

6.21 Parameters

M1 – Actual Controls

Parameter	Description	Unit
M01-01	Temperature NTC1 (ODA = outdoor air temperature)	°C
M01-02	Temperature NTC2 (SUP = supply air temperature after the heat exchanger)	°C
M01-03	Temperature NTC3 (ETA = extract air temperature)	°C
M01-04	Temperature NTC4 (EHA = exhaust air temperature)	°C
M01-05	Temperature NTC5 (= supply air temperature after the cooler/heater).	°C
M01-06	Temperature NTC6 (= reserve temperature sensor on the main PCB).	°C
M01-07	Temperature NTC7 (= reserve temperature sensor on the connector PCB).	°C
M01-08	Request Supply air	m ³ /h
M01-09	Request Exhaust air	m ³ /h
M01-10	Actual Supply air	m ³ /h
M01-11	Actual Exhaust air	m ³ /h
M01-12	Control Supply fan	%
M01-13	Control Exhaust fan	%
M01-14	Pressure Supply nozzle	Pa
M01-15	Pressure Exhaust nozzle	Pa
M01-16	Pressure Supply filter	Pa
M01-17	Pressure Exhaust filter	Pa
M01-18	Request ventilation	%
M01-19	n/a	%
M01-20	n/a	%
M01-21	Actual bypass state	%
M01-22	Actual PreHeater control ODA (= supply air)	%
M01-23	Actual PreHeater control ETA (= extract air)	%

 Temperature sensors that are not present return a default value of -30°C.

M2 – Ventilation

Parameter	Description	Unit
M02-01	Supply air 1	m ³ /h
M02-02	Supply air 2	m ³ /h
M02-03	Supply air 3	m ³ /h
M02-04	Supply air 4	m ³ /h
M02-05	Exhaust air 1	m ³ /h
M02-06	Exhaust air 2	m ³ /h
M02-07	Exhaust air 3	m ³ /h
M02-08	Exhaust air 4	m ³ /h
M02-09	Summer night ventilation speed (1-2-3-4)	n/a
M02-10	Flow control 0: Constant Flow internal; 1: Constant Pressure positive; 2: Constant Pressure negative; 3: 0..10V positive; 4: 0..10V negative.	n/a
M02-11	1st setpoint Constant pressure supply air (Pa)	Pa
M02-12	1st setpoint Constant pressure exhaust air (Pa)	Pa
M02-13	2nd setpoint Constant pressure supply air (Pa)	Pa
M02-14	2nd setpoint Constant pressure exhaust air (Pa)	Pa
M02-15	1st setpoint 0..10V supply air	V
M02-16	1st setpoint 0..10V exhaust air	V
M02-17	2nd setpoint 0..10V supply air	V
M02-18	2nd setpoint 0..10V exhaust air	V
M02-19	Fire supply air, 0 or 100%	%
M02-20	Fire exhaust air, 0 or 100%	%
M02-21	Fire overrule supply air, 0 or 100%	%
M02-22	Fire overrule exhaust air, 0 or 100%	%

 Parameters that are not programmed display a 0.

M3 – n/a

Parameter	Description	Unit
M03-01	n/a	%
M03-02	n/a	%
M03-03	n/a	hrs

M4 – Ventilation settings

Parameter	Description	Unit
M04-01	Supply Air P-zone	m ³ /h
M04-02	Supply Air I-time	sec
M04-03	Exhaust Air P-zone	m ³ /h
M04-04	Exhaust Air I-time	sec
M04-05	Supply Air k-value pressure nozzle  Do not change.	n/a
M04-06	Exhaust Air k-value pressure nozzle  Do not change.	n/a
M04-07	Maximum Supply Air  Never set higher than the factory settings	m ³ /h
M04-08	Maximum Exhaust Air  Never set higher than the factory settings	m ³ /h
M04-09	Pa (Constant pressure) I-time	sec
M04-10	0..10V I-time	sec
M04-11	Exhaust/Supply air factor  Not active when option 0:Constant flow internal is selected at M2-10. Use when only one sensor is available.	%

M5 – Digital Input settings

Parameter	Description	Unit
M05-01	Input 1 ¹ (main PCB)	n/a
M05-02	Input 2 ¹ (main PCB)	n/a
M05-03	Input 3 ¹ (main PCB)	n/a
M05-04	Input 4 ¹ (I/O PCB)	n/a
M05-05	Input 5 ¹ (I/O PCB)	n/a
M05-06	Input 6 ¹ (I/O PCB)	n/a
M05-07	Input 7 ¹ (I/O PCB)	n/a
M05-08	Input 8 ¹ (I/O PCB)	n/a
M05-09	Input 9 ¹ (I/O PCB)	n/a
M05-11	Actual input 1 (main PCB)	n/a
M05-12	Actual input 2 (main PCB)	n/a
M05-13	Actual input 3 (main PCB)	n/a
M05-14	Actual input 4 (I/O PCB)	n/a
M05-15	Actual input 5 (I/O PCB)	n/a
M05-16	Actual input 6 (I/O PCB)	n/a
M05-17	Actual input 7 (I/O PCB)	n/a
M05-18	Actual input 8 (I/O PCB)	n/a
M05-19	Actual input 9 (I/O PCB)	n/a

¹ The digital inputs can be set as follows:

- | | | |
|---|---|--|
| ■ 0: No function; | ■ 9: n/a; | ■ 19: Enable ComfoAir XL; |
| ■ 1: Ventilation speed 1; | ■ 10: n/a; | ■ 20: Fire Contact (normal closed); |
| ■ 2: Ventilation speed 2; | ■ 11: Frost protection (normal closed); | ■ 21: Enable Summernight Ventilation; |
| ■ 3: Ventilation speed 3; | ■ 12: Frost protection (normal open); | ■ 22: Heat/Cool mode (coolmode = closed); |
| ■ 4: Ventilation speed 4; | ■ 13: n/a; | ■ 23: Reset all failures (reset = closed); |
| ■ 5: Failure supply fan (normal closed); | ■ 14: Enable supply fan; | ■ 24: Enable Fire Override; |
| ■ 6: Failure supply fan (normal open); | ■ 15: Enable exhaust fan; | ■ 25: Second setpoint select (Not active when option 0: Constant flow internal is selected at M2-10.); |
| ■ 7: Failure exhaust fan (normal closed); | ■ 16: Enable post-heater; | ■ 26: Enable time clock |
| ■ 8: Failure exhaust fan (normal open); | ■ 17: Enable post-cooler; | |
| | ■ 18: Failure (normal closed); | |

M6 – Relay settings

Parameter	Description	Unit
M06-01	Power Relay 1 ² (main PCB)	n/a
M06-02	Power Relay 2 ² (main PCB)	n/a
M06-03	Power Relay 3 ² (I/O PCB)	n/a
M06-04	Power Relay 4 ² (I/O PCB)	n/a
M06-05	Potential free Relay 5 ² (I/O PCB)	n/a
M06-06	Potential free Relay 6 ² (I/O PCB)	n/a
M06-07	Potential free Relay 7 ² (I/O PCB)	n/a
M06-08	Potential free Relay 8 ² (I/O PCB)	n/a
M06-11	Power Relay 1 ³ control (main PCB)	n/a
M06-12	Power Relay 2 ³ control (main PCB)	n/a
M06-13	Power Relay 3 ³ control (I/O PCB)	n/a
M06-14	Power Relay 4 ³ control (I/O PCB)	n/a
M06-15	Potential free Relay 5 ³ control (I/O PCB)	n/a
M06-16	Potential free Relay 6 ³ control (I/O PCB)	n/a
M06-17	Potential free Relay 7 ³ control (I/O PCB)	n/a
M06-18	Potential free Relay 8 ³ control (I/O PCB)	n/a

² The relays can be set as follows:

- | | | |
|------------------------------|---------------------------|---|
| ■ 0 : No function; | ■ 4 : Bypass valve; | ■ 9 : Post-Cooler/Heater pump; |
| ■ 1 : Alarm (normally open); | ■ 5 : Post-Heater pump; | ■ 10: Summernight ventilation active; |
| ■ 2 : Supply Dampers valve; | ■ 6 : Post-Cooler pump; | ■ 11: PreHeater ODA pump (= supply air); |
| ■ 3 : Exhaust Dampers valve; | ■ 7 : Sifon heating; | ■ 12: Filter Alarm active; |
| | ■ 8 : ComfoAir XL active; | ■ 13: PreHeater ETA pump (= extract air). |

³ The relays can have the following state:

- 0 : Off;
1 : On.

M7 – Analog output settings

Parameter	Description	Unit
M07-01	Analog output 1 ⁴ (main PCB)	n/a
M07-02	Analog output 2 ⁴ (main PCB)	n/a
M07-03	Analog output 3 ⁴ (I/O PCB)	n/a
M07-04	Analog output 4 ⁴ (I/O PCB)	n/a
M07-05	Analog output 5 ⁴ (I/O PCB)	n/a
M07-11	Analog output 1 control (main PCB)	n/a
M07-12	Analog output 2 control (main PCB)	n/a
M07-13	Analog output 3 control (I/O PCB)	n/a
M07-14	Analog output 4 control (I/O PCB)	n/a
M07-15	Analog output 5 control (I/O PCB)	n/a

⁴ The analogue outputs can be set as follows:

- 0: No function;
- 1: Supply fan;
- 2: Exhaust fan;
- 3: n/a;
- 4: Post-Heater valve;
- 5: Post-Cooler valve;
- 6: Post-Cooler/Heater valve;
- 7: Modulated bypass valve;
- 8: PreHeater ODA (= supply air) valve;
- 9: PreHeater ETA (= extract air) valve.

M8 – Communication settings

Parameter	Description	Unit
M08-01	Comport 1 ⁵  Do not change.	n/a
M08-02	Comport 2 ⁵  Do not change.	n/a
M08-03	Comport 3 ⁵  Do not change.	n/a
M08-04	Comport 4 ⁵  Do not change.	n/a
M08-05	Comport 5 ⁵  Do not change.	
M80-11	Comport 1 control	%
M80-12	Comport 2 control	%
M80-13	Comport 3 control	%
M80-14	Comport 4 control	%
M80-15	Comport 5 control	%

⁵ The comports can be set as follows:

- 0: No function;
- 1: Supply fan (EBM bus);
- 2: Exhaust fan (EBM bus);
- 3: Supply fan (EBM Modbus);
- 4: Exhaust fan (EBM Modbus);
- 5: n/a.

M9 – Analog input settings

Parameter	Description	Unit
M09-01	Analog Input 1 ⁶ (I/O PCB)	n/a
M09-02	Analog Input 2 ⁶ (I/O PCB)	n/a
M09-03	Analog Input 3 ⁶ (I/O PCB)	n/a
M09-11	Analog Input 1 reading (I/O PCB)	%
M09-12	Analog Input 2 reading (I/O PCB)	%
M09-13	Analog Input 3 reading (I/O PCB)	%

⁶ The analogue inputs can be set as follows:

- 0: No function;
- 1: No function;
- 2: No function;
- 3: Proportional ventilation;
- 4: Supply air pressure (0..500Pa);
- 5: Exhaust air pressure (0..500Pa);
- 6: Supply air pressure (0..300Pa);
- 7: Exhaust air pressure (0..300Pa);
- 8: Supply air 0..10V input;
- 9: Exhaust air 0..10V input.

M10 – Temp Control

Parameter	Description	Unit
M10-01	Controlmode supply temp. ■ 0 : Tcomfort (T5 controlled with (Tcomfort-T3)); ■ 1 : Outdoor heatline (T5 controlled with M10-02..16).	-
M10-02	TH(low) outdoor temp ,low point outdoor temp. heating	°C
M10-03	TH(low) supply temp ,low point supply temp heating	°C
M10-04	TH(med) outdoor temp, medium point outdoor temp heating	°C
M10-05	TH(med) supply temp, medium point supply temp heating	°C
M10-06	TH(hi) outdoor temp, high point outdoor temp heating	°C
M10-07	TH(hi) supply temp, high point supply temp heating	°C
M10-11	TC(low) outdoor temp, low point outdoor temp. cooling	°C
M10-12	TC(low) supply temp, low point supply temp cooling	°C
M10-13	TC(med) outdoor temp, medium point outdoor temp cooling	°C
M10-14	TC(med) supply temp, medium point supply temp cooling	°C
M10-15	TC(hi) outdoor temp, high point outdoor temp cooling	°C
M10-16	TC(hi) supply temp , high point supply temp cooling	°C
M10-20	Heating P-zone	°C
M10-21	Heating I-time	sec
M10-22	P-zone	°C
M10-23	Cooling I-time	sec
M10-24	Minimum supply temperature T2	°C
M10-25	Maximum supply temperature T2	°C
M10-26	Tsupply request heatline (calculated on M10-02..16 and M10-25)	°C
M10-27	Minimal time between Heating->Cooling	min
M10-28	ΔT heat/cool failure (see failure E38/E39) ■ 0 : not active.	°C
M10-29	Minimal supply temp (ALARM)	°C
M10-99	Comfort Temperature (indoor temperature)	°C

M11 – Bypass settings

Parameter	Description	Unit
M11-01	Bypass position: ■ 0: Exhaust; ■ 1: Exhaust, modulated; ■ 2: Supply; ■ 3: Supply, modulated; ■ 4: Supply, modulated (frost).  Do not change.	n/a
M11-02	Setpoint exhaust temp T4 (frost)	°C
M11-03	P-zone bypass (frost)	°C
M11-04	I-time bypass (frost)	sec
M11-05	Minimal supply temp T2 (frost)	°C
M11-06	Minimal supply temp T5 (frost)	°C
M11-07	Frost protection T1 <	°C

M12 – Heat Exchanger settings

Parameter	Description	Unit
M12-01	Heat Exchanger ■ 0: n/a; ■ 1: Yes.  Do not change.	n/a
M12-02	Frost setpoint start (supply air volume starts to decrease)	°C
M12-03	Frost setpoint full (supply air is switched off)	°C
M12-04	Balance ventilation (frost) ■ 0: No; ■ 1: Yes.	n/a

M13 – Pre heater frost settings

Parameter	Description	Unit
M13-01	PreHeater ODA (= supply air) available ■ 0: No; ■ 1: Yes.  Do not change.	n/a
M13-02	PreHeater ODA (= supply air) temperature	°C
M13-03	PreHeater ODA (= supply air) P-zone	°C
M13-04	PreHeater ODA (= supply air) I-time	sec
M13-05	PreHeater ETA (= extract air) available ■ 0: No; ■ 1: Yes.  Do not change.	n/a
M13-06	PreHeater ETA (= extract air) temperature	°C
M13-07	PreHeater ETA (= extract air) delay	sec
M13-08	PreHeater ETA (= extract air) P-zone	°C
M13-09	PreHeater ETA (= extract air) I-time	sec

M20 – Failures

Parameter	Description	Unit
M20-01	Last reset failure (E number presentation)	n/a
M20-02	2nd last reset failure	n/a
M20-03	3rd last reset failure	n/a
M20-04	4th last reset failure	n/a
M20-05	5th last reset failure	n/a
M20-06	6th last reset failure	n/a
M20-98	Reset Actual Failure ■ 0: No; ■ 1: Yes. (Yes will auto switch back to No)  Only reset failures are included in the history list of M20.	n/a
M20-99	Reset failure history list ■ 0: No; ■ 1: Yes. (Yes will auto switch back to No)	n/a

M50 – Miscellaneous

Parameter	Description	Unit
M50-01	Function T6 ⁷	n/a
M50-02	Function T7 ⁷	n/a
M50-03	Switch SAG 0-3CV present? ■ 0: No; ■ 1: Yes.	n/a
M50-04	Frost setpoint T1	°C
M50-05	Minimal heating when frost T1	%
M50-06	Siphon heating setpoint	°C

⁷ The spare temperature sensors can be set as follows:

■ 0: No function;

■ 1: Sifon temperature;

■ 2: Adopt function of NTC5;

■ 3: Frost protection digital input, normally open;

■ 4: Frost protection digital input, normally closed.

M60 – Time clock

Parameter	Description	Unit
M60-01	Real time	min
M60-02	Real date	dd-mm-yyyy
M60-03	Ventspeed selectclock, actual request value from selectclock	n/a
M60-04	Daylight Saving Time automatic ■ 0: Off; ■ 1: On.	n/a
M60-11	Selectclock 1 – Time	min
M60-12	Selectclock 1 – Day ⁸	n/a
M60-13	Selectclock 1 – Ventspeed ⁹	n/a
M60-21	Selectclock 2 – Time	min
M60-22	Selectclock 2 – Day ⁸	n/a
M60-23	Selectclock 2 – Ventspeed ⁹	n/a
M60-31	Selectclock 3 – Time	min
M60-32	Selectclock 3 – Day ⁸	n/a
M60-33	Selectclock 3 – Ventspeed ⁹	n/a
M60-41	Selectclock 4 – Time	min
M60-42	Selectclock 4 – Day ⁸	n/a
M60-43	Selectclock 4 – Ventspeed ⁹	n/a
M60-51	Selectclock 5 – Time	min
M60-52	Selectclock 5 – Day ⁸	n/a
M60-53	Selectclock 5 – Ventspeed ⁹	n/a
M60-61	Selectclock 6 – Time	min
M60-62	Selectclock 6 – Day ⁸	n/a
M60-63	Selectclock 6 – Ventspeed ⁹	n/a

⁸ The days can be set as follows:

■ 0: Never;

■ 1: Every day;

■ 2: Weekday mon..fri;

■ 3: Weekend sat+sun;

■ 4: Monday;

■ 5: Tuesday;

■ 6: Wednesday;

■ 7: Thursday;

■ 8: Friday;

■ 9: Saturday;

■ 10: Sunday.

⁹ The ventilation speed can be set as follows:

■ 0: Ventilation off;

■ 1: Ventilation speed 1;

■ 2: Ventilation speed 2;

■ 3: Ventilation speed 3;

■ 4: Ventilation speed 4;

■ 5: Second setpoint..

M70 – Filters

Parameter	Description	Unit
M70-01	Supply m ³ /h set 1	m ³ /h
M70-02	Supply max Pa set 1	Pa
M70-03	Supply m ³ /h set 2	m ³ /h
M70-04	Supply max Pa set 2	Pa
M70-05	Exhaust m ³ /h set 1	m ³ /h
M70-06	Exhaust max Pa set 1	Pa
M70-07	Exhaust m ³ /h set 2	m ³ /h
M70-08	Exhaust max Pa set 2	Pa
M70-09	Hysteresis detection	%
M70-10	Pressure supply filter	Pa
M70-11	Pressure exhaust filter	Pa
M70-12	Pressure Measurement Time	sec
M70-13	Maximum filter pressure	Pa

M80 – Modbus Communication

Parameter	Description	Unit
M80-01	Adress	n/a
M80-02	Baudrate,parity ■ 0: 19k2,E,1 (even parity, 1 stopbit); ■ 1: 19k2,N,2 (none parity, 2 stopbits); ■ 2: 9600,E,1 (even parity, 1 stopbit); ■ 3: 9600,N,2 (none parity, 2 stopbits).	n/a
M80-03	Watchdog communication, reset M30	n/a

M90 – SD Card

Parameter	Description	Unit
M90-01	Status ■ 0: No card; ■ 1: Fail; ■ 2..5: Init; ■ 6: Ready; ■ 7..9: Writing.	n/a
M90-02	Save parameters on SD card ■ 0: No; ■ 1: Yes.	n/a
M90-03	Restore parameters from SD card ■ 0: No; ■ 1: Yes.	n/a

M99 – Service

Parameter	Description	Unit
M99-01	Version number software	n/a
M99-03	Poweron time (without interruption)	hrs
M99-04	Version number I/O board	
M99-99	RESET ALL SETTINGS TO FACTORY DEFAULT (set code and press the "" button.)  The correct code can be requested at Zehnder.	n/a

7 Operation

How to use and read the operating devices of the unit is mentioned in the document of the operating device. How to use and read the display on the unit is mentioned in this document.

When needed the unit will overrule a desired ventilation speed. For instance in case of a fire or when the functionality of the unit is in danger by the desired ventilation speed.

7.1 Using the display on the main PCB

The unit can be operated and set by means of a display on the main PCB. A total of 4 operating push buttons are located around the display.



MENU calling up parameters **UP** up
OK OK **DOWN** down

Main page

The air supply volume and air exhaust volume can be read out as default setting in the main page.



The main page will also show error messages in the event of a failure. Both the error code and description will then scroll along the upper line.



In the event of multiple error messages press and hold the **OK** button for a minimum of 3 seconds to view the next error message.

Each error message must be confirmed by pressing **OK**. Error messages not yet acknowledged will show (!) in front of the error code.



Parameter page

There are two types of parameters, namely main- and subparameters. In order to access a parameter follow this procedure:

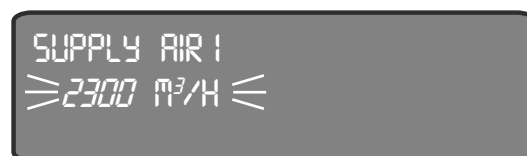
1. In the main page, press the **MENU** button to show the first main parameter (M01).



2. Use the **UP** or **DOWN** button to select the desired main parameter.
3. Press the **OK** button to show the first subparameter of the selected main parameter, for example, "M02-01".



4. Use the **UP** or **DOWN** button to select the desired subparameter.
5. Press the **OK** button to change the value of the selected subparameter, for example, "M02-01".
 - Wait for the value to flash.



6. Use the **UP** or **DOWN** button to select the desired value.
7. Use the **OK** button to save the changed value.
 - Press the **MENU** button if the changed value must not be saved.
8. Press the **MENU** button to return from a subparameter to the main parameter.
9. Press the **MENU** button (again) to return from a main parameter to the main page.

Comfort temperature

The bypass valve settings can be adjusted using a programmed comfort temperature (required indoor temperature). The comfort temperature can be programmed in parameter M10-99 or directly with the display. The comfort temperature cannot be set via the display if the comfort temperature control has not been set.



It is best to set the comfort temperature to the same temperature as the room thermostat (of the central heating system).

* This step only applies to subparameters with writing ability. Skip this step when the subparameter has a read-only ability.

1. On the main page, press the **UP** button to read out the current comfort temperature.



2. Press the **OK** button to change the current comfort temperature.
- Wait for the value to flash.



3. Use the **UP** or **DOWN** button to select the desired value.
4. Use the **OK** button to save the changed value.
- Press the **MENU** button if the changed value must not be saved.
5. Press **MENU** to return to the main parameter.

Heat line

If heat-line control has been selected, the desired supply temperature (T2) will be shown instead of the comfort temperature. This temperature is a read-out value only.

1. In the main page, press the **UP** button to read out the desired supply temperature.



2. Press **MENU** to return to the main parameter.

7.2 Using the SD Card on the main PCB

(M90)

Logging (M90-01)

The SD card supplied as standard can approximately store one year of logdata. Once the SD card is full, the oldest data will be overwritten. The main PCB writes data to the SD card at minute intervals. The text "SD" then appears on the display. In parameter M90-01, the status of the SD slot can be read out.

Function	Status
No card	0
Fail	1
Init	2..5
Ready	6
Writing	7..9

Back-up (M90-02, M90-03)

A week after turning on the unit a back-up of all set parameters will automatically be stored on the SD card. This back-up will be replaced automatically every week. If wanted the set of parameters can be saved manually from the main PCB on to the SD card with parameter M90-02. With parameter M90-03 the set of parameters can be loaded manually from the SD card on to the main PCB.

7.3 Service parameter (M99)

In parameter M99 some service details of the unit can be found.

Parameter M99-01 mentions the current installed software version of the main PCB.

Parameter M99-03 mentions the amount of hours the unit has been on power without interruption.

Parameter M99-04 mentions the current installed software version of the I/O PCB.

Parameter M99-99 is for executing a general reset. When activating this parameter all parameters will be restoring to the factory settings. Parameter M99-99 can only be activated by selecting the correct code. The correct code can be requested at Zehnder.

8 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 rear of this document which can be used to note all performed maintenance.

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

For safety's reasons the primary circuit-breaker can be locked with a padlock and the hinges/clamps can be locked using the locking screw or lock in the hinge/ clamp. The hinges/clamps are unlocked by rotating the locking screw 90° in the direction of the arrow on the hinge/clamp. Do not forget to relock the hinges/ clamps after maintenance by turning locking screw back 90°.

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

		
Reinstall all parts in reverse order Remove all loose objects sitting in the unit.	Close the maintenance access doors.	Switch the power supply on.

-  **The fans carry on rotating for a while after being switched off.**

-  **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 specialized cleaning firm. For relevant advice, please contact Zehnder.**

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.

8.1 Filters

The replacement period of the filter depends on local circumstances.

 **Replace the filters (at least) every six months.**

When using the unit for the first time, it is recommended to replace the filters (and clean the valves) first. During the construction phase the ventilation system could have become dirty with building dust.

		
1 Open the filter maintenance access door.	2 Pull both filter clamps (upper and lower) forwards.	3 Remove the old filters. The following aspects must be taken into account, while installing the new filters into the unit: ■ Place the air direction arrow towards the plate exchanger; ■ Place the text "Dust side" away from the plate exchanger.  If the filter is in two sections, the gap between them must line up with the vertical seal frame.

8.2 Condensation drain(s)

Inspect the condensation drain(s) at least once every 2 years.

		
1 Open the plate exchanger and/or battery maintenance access door.	2 Perform the following checks of the condensation drain siphon: ■ Check whether the drain is still open by pouring water in the drip tray; ■ 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.	3 Resolve any noted problems

8.3 Casing

Inspect the unit casing at least once every 2 years.

1 	2 	3 
Open the maintenance access doors.	Perform the following checks: ■ Check the seals for damage; ■ Check the inside and outside for dirt and damage; ■ Check that the door hinges/clamps function properly; ■ Check the duct connections for dirt and damage.	Treat any signs of corrosion and other damage directly and appropriately.

8.4 Heat exchanger

Inspect the heat exchanger once every 2 years.

1 	2 	3 
Open the fan maintenance access door.	Perform the following checks: ■ Contamination of plate exchanger; ■ Damage to plate exchanger; ■ Check the filters too if the plate exchanger is badly contaminated.	Resolve any noted problems.. ■ Clean the fins against the airflow direction with warm tap water no more than 40°C or using compressed air of no more than 6 bar.  Do not use a high-pressure hose, aggressive cleaning agents or solvents to clean the heat exchanger. ■ Use a fin comb to restore the fins.

8.5 Fans

Check the fans once every 2 years.

1 	2 	3 
Open the plate exchanger maintenance access door.	Perform the following checks: ■ Contamination; ■ Wear and tear; ■ Fixing of the vibration dampers.	Resolve any noted problems.

8.6 Battery

Inspect the battery or batteries at least once a year.

1 	2 	3 
Open the battery maintenance access door.  A direct evaporator contains coolant. Make sure all work is carried out by a registered installer. The medium is a coolant that is contained in the cooling system under excess pressure.	Perform the following checks: ■ Check for corrosion and leakage; ■ Check for soiling of the droplet separator fins; ■ Check for soiling of the drip tray; ■ Check if the condensation drain is still open by pouring water into the drip tray; ■ Check the external siphon visually for contamination; ■ Check whether the external siphon is properly connected.	Resolve any noted problems.. ■ Clean the battery surface with a soft brush and degrease it; ■ Use a fin comb to restore the fins.

9. Failures

In the event of a failure, the corresponding failure code will be displayed on the display of the unit. Please refer to the error messages overview below to find out the meaning of the relevant failure code which can be displayed on the display of the unit.

Unit response

In the event of a failure, the ComfoAir XL active relay is deactivated (except for failures E38, E39, E42, E43, E44, E45, E47 and E48). There may be an indicator (e.g. a light) installed to this ComfoAir XL active relay too verify whether the fans are switched.

Indicator

In the event of a failure, the Alarm relay is activated (except for failures E38, E39, E42, E43, E44, E45, E47 and E48). There may be an indicator (e.g. a light) installed to this Alarm relay too verify whether the failure contact is activated.

Error messages

Error code	Description code	Cause	Result / Action
E01	Settings failure, settings reset!	Failure in the stored parameter settings.	All parameters are set to default. Check all parameters and adjust where necessary to comply with the required system settings.
E02	Internal failure	Failure in the processor.	The controls are malfunctioning. Replace the main PCB.
E03	Keys failure	Operating buttons malfunctioning.	One or more operating buttons by the LCD screen are malfunctioning. Replace the main PCB.
E04	Time clock failure	Time clock failure due to low battery voltage.	Battery voltage on the main PCB is low. Replace the battery on the main PCB and reset date and time.
E05	Time clock not running	Time clock failure, not running.	Battery on the main PCB is dead or the time clock is defective. Replace the battery on the main PCB or replace the timer.
E06	Time Out Error IO board	No communication with the I/O PCB.	Not all functions may work correctly.
E11	Temperature 1 failure	T1 probe malfunctioning or measurement range exceeds -25°C or 100°C limit.	Depending on probe failure type, supply and/or exhaust can switch off or run at 50%, and the bypass and cooling/ heating pumps can be switched on or off. Check probe and PCB connection.
E12	Temperature 2 failure	T2 probe malfunctioning or measurement range exceeds -25°C or 100°C limit.	
E13	Temperature 3 failure	T3 probe malfunctioning or measurement range exceeds -25°C or 100°C limit.	
E14	Temperature 4 failure	T4 probe malfunctioning or measurement range exceeds -25°C or 100°C limit.	
E15	Temperature 5 failure	T5 probe malfunctioning or measurement range exceeds -25°C or 100°C limit.	
E16	Temperature 6 failure	T6 probe malfunctioning or measurement range exceeds -25°C or 100°C limit.	
E17	Temperature 7 failure	T7 probe malfunctioning or measurement range exceeds -25°C or 100°C limit.	

Reset

After solving the failure the failure code can be reset on the display in parameter M20-98. There may be a reset malfunction button installed to the unit for resetting failure codes. Failure code E42, E43, E47 and E48 do not need to be reset. These failure codes are automatically reset by the unit when the problem is solved.

Modbus control

All failures can be read or reset with Modbus in menu M20.

Logging

The last 6 reset failure codes are stored in the history list of parameter M20. With menu M20-99 the history list can be cleared. Next to the history list up to 9 active failure codes are stored on the SD-card in the Modbus M20 parameters.

Error code	Description code	Cause	Result / Action
E21	Port 1 no communication	Com port 1 failure	No communication with connected equipment Check settings in parameter M08, connections and connected devices
E22	Port 2 no communication	Com port 2 failure	
E23	Port 3 no communication	Com port 3 failure	
E24	Port 4 no communication	Com port 4 failure	
E25	Port 5 no communication	Com port 5 failure	
E26	FIRE FIRE	The assigned input contact "Fire Alert" (FIRE) is activated	■ The supply and extract fans run at the values programmed in parameters M02-19 and M02-20 or in parameters M02-21 and M02-22; ■ The bypass opens; ■ The cooling and heating closes.
E31 ¹⁰	Failure supply fan	Supply fan malfunctioning.	Check fan, cabling, both PCBs.
E32 ¹⁰	Failure exhaust fan	Extract fan malfunctioning.	Check fan, cabling, both PCBs.
E33	n/a	Parameter M12-01 programmed incorrectly.	Set M12-01 to 0.
E34	Failure overall	The assigned input contact "General failure" is activated.	■ The supply or extract fans switch off; ■ The bypass closes.; ■ The cooling and heating valves close.
E35	n/a	Parameter M12-01 programmed incorrectly.	Set M12-01 to 0
E36	Failure supply air pressure nozzle	Supply fan pressure nozzle not registering pressure difference.	Corresponding fan still running at 50% Check air volumes, pressure hose, pressure nozzle.
E37	Failure exhaust air pressure nozzle	Extract fan pressure nozzle not registering pressure difference.	
E38 ¹¹	Failure cooling	Cooling battery failure.	No Delta T across the battery. Check the corresponding battery.
E39 ¹¹	Failure heating	Heating battery failure.	
E41	Frost contact closed	Frost risk! The assigned digital/temperature input contact "Frost protection" is activated.	■ Summer night cooling stops; ■ The supply fan is switched off; ■ The heating valve is set at a minimum of 50%; ■ The cooling/heating pump is switched on.
E42 ^{11,12}	PreHeat frost extract max power	Output preheater extract is more than 95% for at least 5 minutes.	No actions necessary
E43 ^{11,12}	Frost recuperating unit	Heat exchanger frost protection has become active. (T4 < M12-02).	The supply fan is powered down or switched off in accordance with M12-02 and M12-03 settings. This message will automatically disappear if the measured value T4 exceeds M12-02 settings again.
E44 ¹¹	Filter Exhaust	Excessive pressure drop across extract filter for at least 24 hours.	Replace extract filter.
E45 ¹¹	Filter Supply	Excessive pressure drop across supply filter for at least 24 hours.	Replace supply filter.
E46	Min supply temp alarm	Required supply temperature too low. (T2 ≤ M10-29).	Supply fan is deactivated and only reactivated 30 minutes after T2 measures a higher value than M10-29.
E47 ^{11,12}	Max Filter Exhaust	Pressure across exhaust air filter is higher than set in M70-13.	The exhaust fan is powered down. This message will automatically disappear if the pressure across the exhaust air filter is lower than set in M70-13.
E48 ^{11,12}	Max Filter Supply	Pressure across supply air filter is higher than set in M70-13.	The supply fan is powered down. This message will automatically disappear if the pressure across the supply air filter is lower than set in M70-13.

¹⁰ This failure code can be activated by a digital input or the communication line of the fan itself

¹¹ The Alarm relay stays deactivated. The ComfoAir XL active relay stays active.

¹² This failure code does not need to be reset.

10 CE certification and warranty

Warranty conditions

The unit is covered by a manufacturer's warranty for a period of 24 months after fitting up to a maximum of 30 months after the date of manufacture. Warranty claims may only be submitted for material faults and/ or construction faults arising during the warranty period. In the case of a warranty claim, the unit must not be dismantled without written permission from the manufacturer. Spare parts are only covered by the warranty, if they were supplied by the manufacturer and have been installed by an approved installer.

The warranty becomes invalid if:

- The guarantee period has elapsed;
- The device is used without filters;
- Parts are used that have not been supplied by the manufacturer;
- Non-authorized changes or modifications have been made to the unit.
- Installation has not been carried out according to the applicable regulations;
- The defects are due to incorrect connection, inexpert use, or contamination of the system;

On-site (dis)assembly costs are not covered by the terms of the warranty. This also applies to normal wear and tear. The manufacturer retains the right to change the construction and/or configuration of its products at any time without being obliged to alter previously delivered products.

CE certification

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T +31 (0)38 4296911 • F + 31 (0)38 4225694
Company register Zwolle 05022293

Liability

The unit has been designed and manufactured for use in balanced ventilation systems incorporating Zehnder heat recovery systems. Any other application is seen as inappropriate use and can result in damage to the unit or personal injury, for which the manufacturer cannot be held liable. The manufacturer is not liable for any damage originating from:

- Non-compliance with the safety, operating and maintenance instructions in this document;
- The use of components not supplied or recommended by the manufacturer.
Responsibility for the use of such components lies entirely with the installer;
- Normal wear and tear.

End of useful life

Consult with the supplier about what should be done with the unit at the end of its useful life. If the unit cannot be returned to the supplier, avoid disposing of it with the domestic waste, and ask your local council about the options for recycling the components or processing the materials in an environmentally friendly manner.

EEC declaration of conformity

Machine description

Heat recovery units: ComfoAir XL/Eco F series

Complies with the following directives

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

Zwolle, 01-08-2014

Zehnder Group Nederland B.V.



O. Schulte,
Director Production Zwolle

I Installation report

Activity	Initials
Check the internal and external plating for damage.	
Check the sealant beads for splitting.	
Check if the doors/hatches are closed before starting.	
Check the earthing is according to guidelines.	
Check if the battery or batteries are connected correct.	
Check if the battery or batteries are not leaking.	
Check the correct functioning of frost thermostat (if present).	
Check the bent fins of the drip catcher (not shifted).	
Check if the siphon(s) are open and connected correct.	
Check if there are no obstacles or loose objects sitting in the unit.	
Check the connection of the operating switch.	
Check the lock of the operating switch.	

II Maintenance Log

[illegible]

2 or 3 months after installation:

Activity	Y1	Y2	Y3	Y4	Y5	Y6	Y7
Checking (panel)filter (pressure drop, damage and seal).							

6 months after installation:

Activity	Y1	Y2	Y3	Y4	Y5	Y6	Y7
Checking (panel)filter (pressure drop, damage and seal).							
Checking the outdoor plating of the outdoor assembly (soiling and damage).							
Checking the draught excluders (splitting).							
Checking the servo motors of the valves (functioning).							

9 months after installation:

Activity	Y1	Y2	Y3	Y4	Y5	Y6	Y7
Checking (panel)filter (pressure drop, damage and seal).							

12 months after installation:

Activity	Y1	Y2	Y3	Y4	Y5	Y6	Y7
Checking (panel)filter (pressure drop, damage and seal).							
Checking the draught excluders (splitting).							
Checking the servo motors of the valves (functioning).							
Checking the fans (soiling and fixing vibration dampers).							
Checking the casing (soiling and damage).							
Checking the hinges/clamps (operation).							
Checking the valves (seal and bearings).							
Checking the battery or batteries (soiling and leakage).							
Checking the thermostat of the hot water battery (functioning, soiling and leakage).							
Checking the drip trays (soiling and functioning).							
Checking the drip catchers (soiling and functioning).							
Checking the plate exchanger (soiling).							

Date	Activity	Initials

2 or 3 months after installation:

Activity	Y8	Y9	Y10	Y11	Y12	Y13	Y14
Checking (panel)filter (pressure drop, damage and seal).							

6 months after installation:

Activity	Y8	Y9	Y10	Y11	Y12	Y13	Y14
Checking (panel)filter (pressure drop, damage and seal).							
Checking the outdoor plating of the outdoor assembly (soiling and damage).							
Checking the draught excluders (splitting).							
Checking the servo motors of the valves (functioning).							

9 months after installation:

Activity	Y8	Y9	Y10	Y11	Y12	Y13	Y14
Checking (panel)filter (pressure drop, damage and seal).							

12 months after installation:

Activity	Y8	Y9	Y10	Y11	Y12	Y13	Y14
Checking (panel)filter (pressure drop, damage and seal).							
Checking the draught excluders (splitting).							
Checking the servo motors of the valves (functioning).							
Checking the fans (soiling and fixing vibration dampers).							
Checking the casing (soiling and damage).							
Checking the hinges/clamps (operation).							
Checking the valves (seal and bearings).							
Checking the battery or batteries (soiling and leakage).							
Checking the thermostat of the hot water battery (functioning, soiling and leakage).							
Checking the drip trays (soiling and functioning).							
Checking the drip catchers (soiling and functioning).							
Checking the plate exchanger (soiling).							

Date	Activity	Initials







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