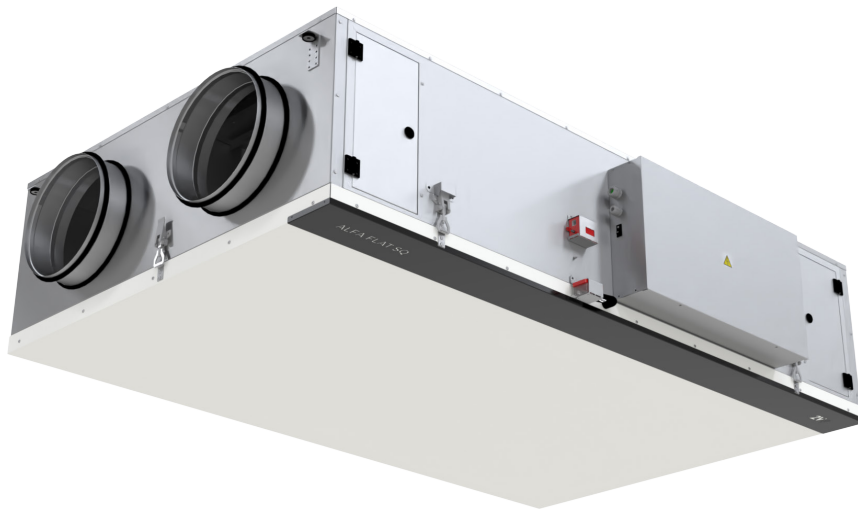




PARTNER  
IN VENTILATION  
2VV.CZ

EN

# HRFS1



## INSTALLATION MANUAL

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# 1. BEFORE STARTING

The following symbols can be found in this manual for a better orientation. The symbols and their meaning are in the following table.

Symbol	Meaning
<b>ATTENTION!</b>	Warning or notice
<b>READ CAREFULLY!</b>	Important instructions
<b>YOU WILL NEED</b>	Practical tips and information
<b>TECHNICAL DATA</b>	Detailed technical information
	Reference to another point/section of the manual



**Before connecting, read carefully** **Safe operation of the ventilation unit**, where you will find instructions for the proper and safe use of the product.

This manual includes important instructions for the safe connection of the ventilation unit. Before connecting the unit, read carefully and observe all the following instructions. The manufacturer reserves the right to make changes, including in the technical documentation, without prior notice. Keep this manual for future use. Consider this manual as part of the product.

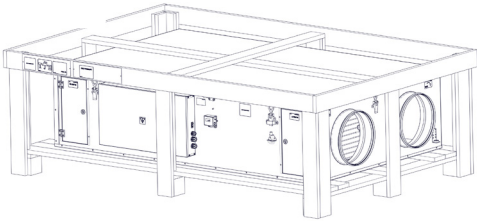
## DECLARATION OF CONFORMITY

The product has been designed, produced and marketed in compliance with all the applicable provisions, and abides to the guidelines of the European Parliament and Council, including the amendments under which it has been classified. It is safe under normal conditions and under the conditions laid down herein. The assessment was conducted pursuant to harmonized European standards included in the relevant EC Declaration of Conformity.

The current and full version of the EC Declaration of Conformity can be found at [www.2vv.cz](http://www.2vv.cz)

## 2. UNPACKING

### CONTROL THE DELIVERY

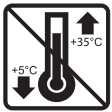


### **READ CAREFULLY!**

- Control de packaging for damages immediately upon delivery. In case of damage in the packaging, notify the carrier. If a complaint is not submitted in due time, it will be disregarded.
- Control whether the product corresponds to the order. If it doesn't, do not unpack it and contact the supplier immediately.
- After unpacking, check the condition of the unit and all the components thereof. In case of doubt, contact the supplier.
- Never try to operate a damaged ventilation unit.
- If the unit isn't unpacked upon delivery, store it indoors, in a dry place, at temperatures ranging from +5° C to +40° C.



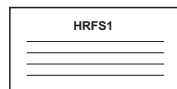
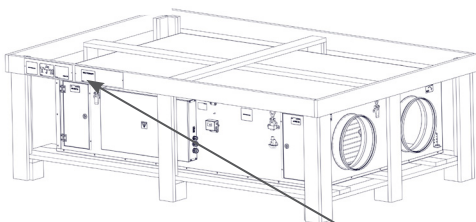
- This product is not intended for use by persons (including children) whose physical, sensory or mental incapacity or lack of experience and knowledge in the safe use of products when they are not supervised or, if they were not instructed on the use of the product by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the unit.



All packaging materials used are ecological and they can therefore be used repeatedly or recycled. Please contribute actively to the protection of the environment and ensure the regular liquidation and recycling of the packaging materials.



### UNPACK THE UNIT



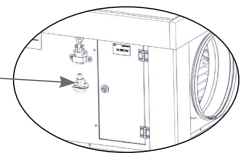
### Components included

1x QUICK Manual

1x Control

1x Key to open the side filter cover

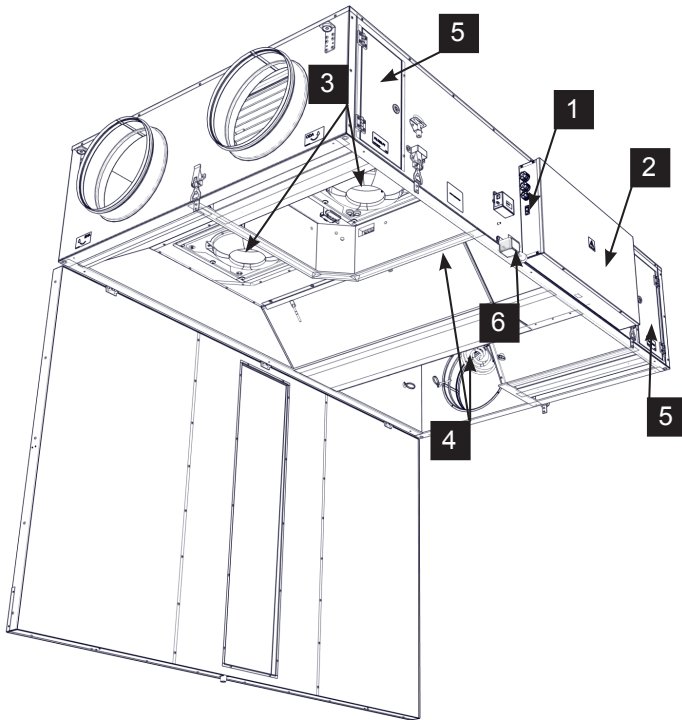
1x UTP cable 10m



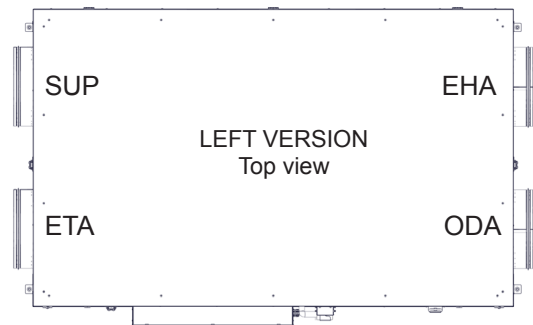
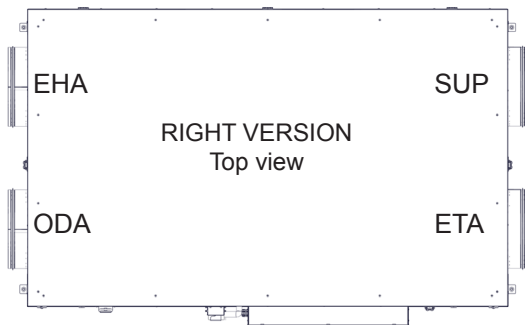
### **READ CAREFULLY!**

- If the unit was shipped at below 0°C temperatures, let it rest for at least 2 hours, without turning it on, so that its inner temperature can match the surroundings.

### 3. MAIN COMPONENTS

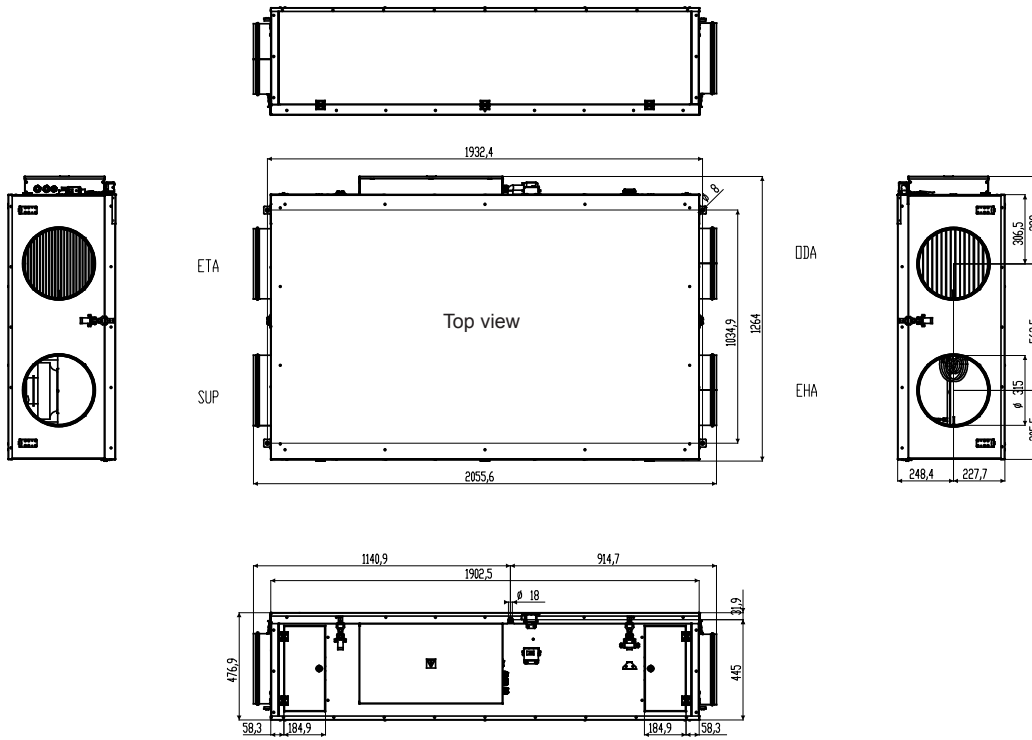


1	Main power switch
2	Regulation
3	Fans
4	El. pre/post-heater
5	Filters
6	Condensate drain

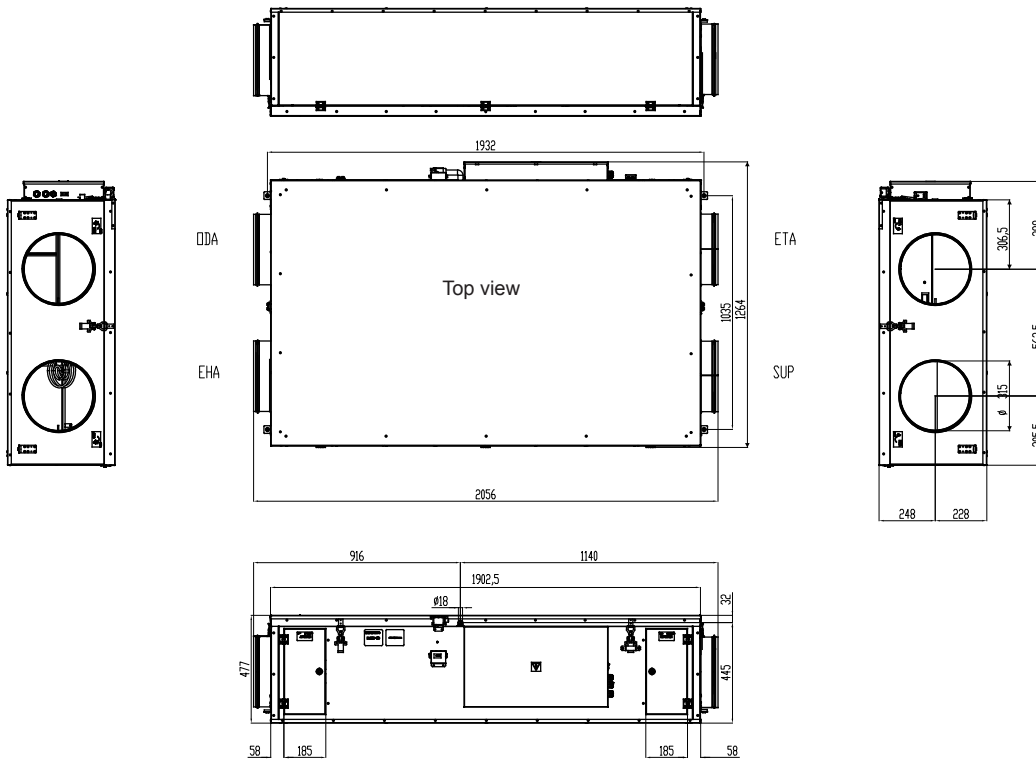


# 4. DIMENSIONS

## Right version



## Left version



## 5. TECHNICAL PARAMETERS

Model without electric pre-heater:

Model without coil

Type	Voltage [V]	Frequency [Hz]	Rated input [kW]	Total current [A]
HRFS1-100...XS0S	230	50/60	0,4	3,0

Model with electric coil (post-heater)

Type	Voltage [V]	Frequency [Hz]	Rated input [kW]	Total current [A]
HRFS1-100...XE1S	230	50/60	1,2	6,5

Model with electric pre-heater:

Model without coil

Type	Voltage [V]	Frequency [Hz]	Rated input [kW]	Total current [A]
HRFS1-100...ES0S	230	50/60	2,4	11,7

Model with electric preheater and post-heater

Type	Voltage [V]	Frequency [Hz]	Rated input [kW]	Total current [A]
HRFS1-100...EE1S	230	50/60	3,2	15,2

Characteristics of electric motors (1 Fan only)

Type	Voltage [V]	Frequency [Hz]	Rated input [W]	Total current [A]	Speed [r/min]	Protection IP	Insulation class
HRFS1-100...	230	50/60	180	1,35	2930	44	B

Characteristics of electric coil

Type	Voltage [V]	Frequency [Hz]	Rated input [kW]	$\Delta T$ (°C)
HRFS1-100...-E1.	230	50/60	0,8	2,5

Characteristics of electric preheater


Type	Voltage [V]	Frequency [Hz]	Rated input [kW]	$\Delta T$ (°C)
HRFS1-100...-E...	230	50/60	2,0	6,2

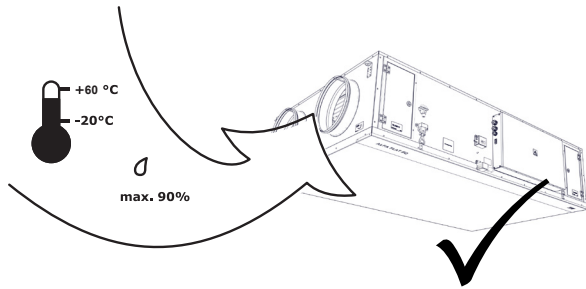
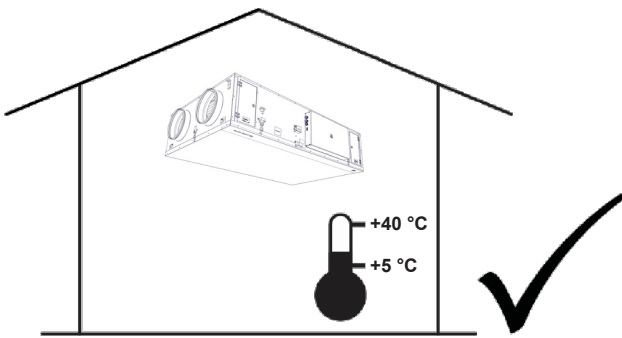
## 6. INSTALLATION

### SELECT UNIT'S LOCATION

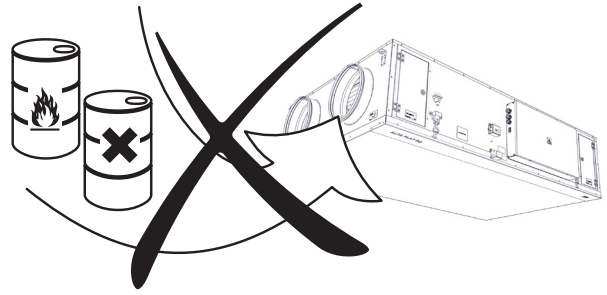
It is recommended that installation of a ventilation system be prepared by an HVAC designer.

#### TECHNICAL INFORMATION

 The unit is designed to be operated in a dry indoor environment (relative humidity not exceeding 80%) and at an ambient temperature in the range from +5°C up to +40°C. The unit is designed for transporting standard atmospheric air that is free of dust, grease, chemical emissions and other impurities.

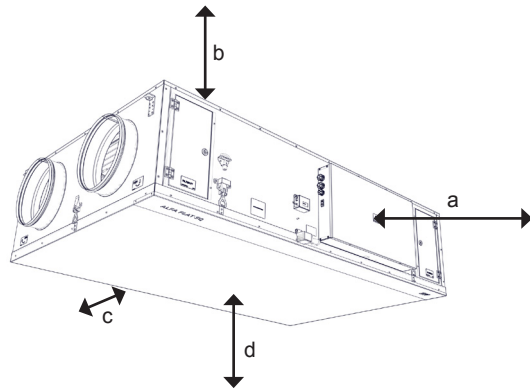


The unit should circulate air with temperatures ranging between -20° C ~ +60° C and with a relative humidity of 90%.



The unit is not designed to circulate air with flammable or explosive mixtures, chemical vapours, heavy dust, soot, grease, poisons, germs, etc. coverage IP20

### Access distance to service the unit



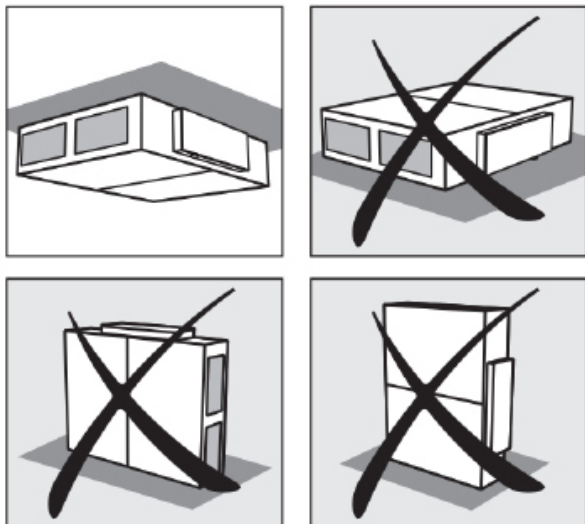
MIN. (mm)			
a	b	c	d
500	0	400	1200(50*)

All the dimensions in the table are in **mm**

## 6. INSTALLATION

### TECHNICAL DATA

- All the ALFA 95 FLAT units must be placed horizontally. Any other position is forbidden.

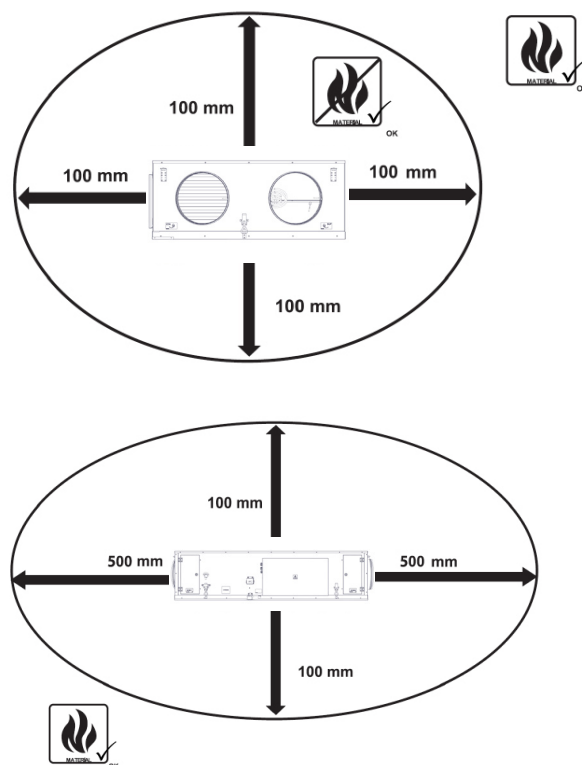


The unit must be installed so that the direction of the air exhaust corresponds to that of the distribution system. The unit should be installed so as to provide access for maintenance, service or disassembly. This includes, in particular, access to the inspection flaps and their opening, access to the cover of the control unit's cabinet, to connect side units and to the cover of the of the air filter.

### Safe installation distance

#### ATTENTION!

- All the materials within a distance of 100 mm of the unit must be non-flammable (they don't burn or flare) or of low flammability (they don't burn, disintegrate, like plasterboard). These materials, however, must not cover the unit's inlet and exhaust openings.
- The safe distance between combustible materials and the exhaust is 500 mm.
- The safe distance for combustible materials in all directions is 100 mm.



## 6. INSTALLATION

### Hanging the unit

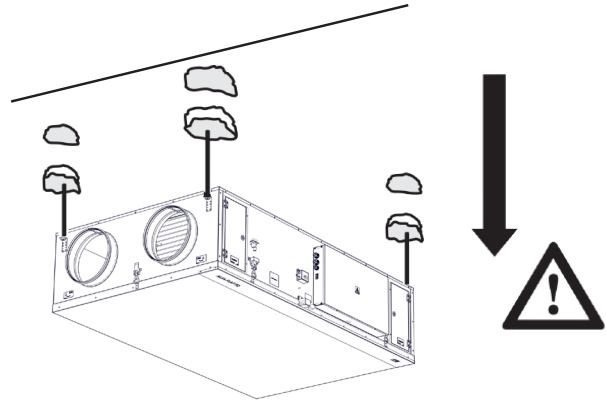
Use the drilling template below to place the anchoring points.



Top view

Type	Weight of unit (kg)
HRFS1-100...-XS0S	175
HRFS1-100...-ES0S	176
HRFS1-100...-XE1S	176
HRFS1-100...-EE1S	177

Drill the openings in the ceiling, check the strength of the material and fasten the unit to the side brackets with the ZTZ-M8/1,0 threaded rods.



### ATTENTION!

- The support of the unit should be sufficiently strong, it must correspond to the unit's weight!
- Given its weight, lifting equipment will be required when installing the unit (e.g. a forklift) or at least two more people to hold it.

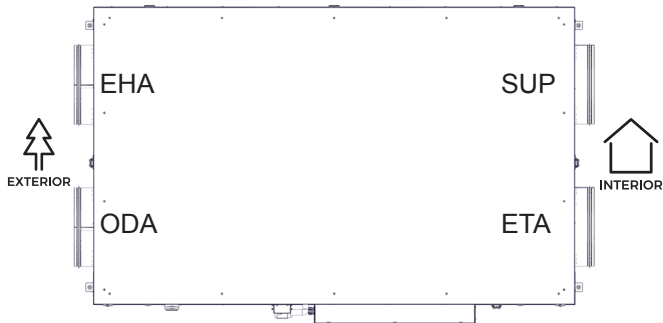
### YOU WILL NEED

- 4 M8 lock nuts
- 4 threaded rods
- 4 dowels of suitable type and size (depending on the material of the ceiling and the weight of the unit)
- drill with bits of suitable type and size
- pliers and wrenches

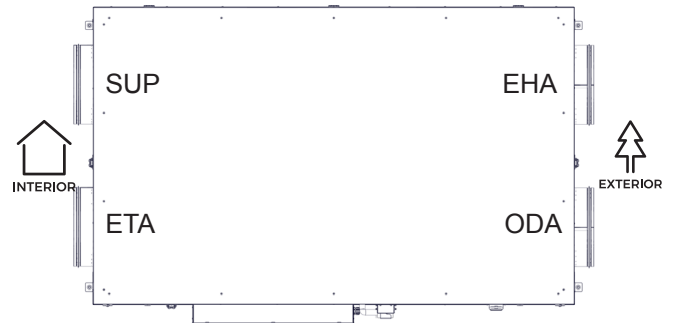
## 6. INSTALLATION

### CONNECTING THE AIR DUCT

RIGHT VERSION  
Top view



LEFT VERSION  
Top view



#### READ CAREFULLY!

- The connected ductwork must have the same dimensions as the intake and exhaust openings of the unit. Ducts of a smaller diameter may reduce the efficiency of the unit and, in some cases, also its lifespan.
  - Connect the intake and exhaust openings (rectangular/circular opening) with flexible joints in order to reduce vibrations. All the connections to the ductwork must be sealed with sealant or tape.
- The minimum distance between bends in the ductwork or adapters and the neck of the unit is 500 mm.

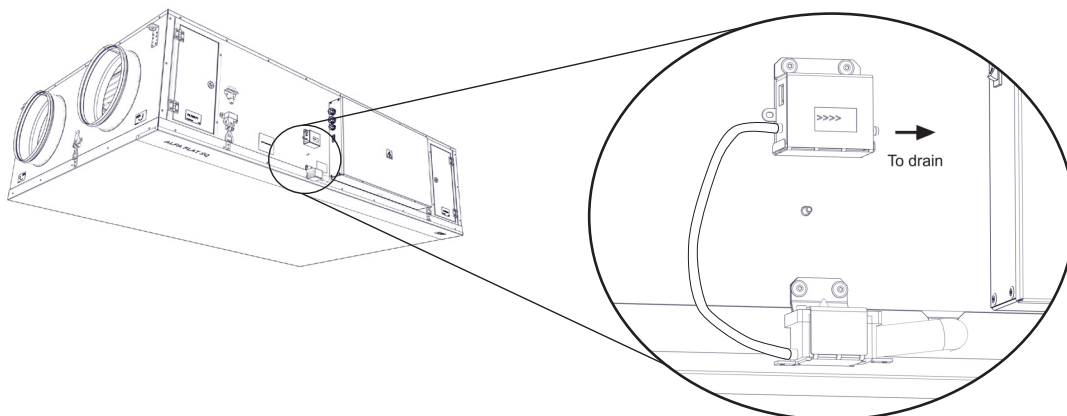
### CONNECTING MECHANICAL ACCESSORIES

#### Condensation within the unit:

If the unit can be turned off manually by the user or an automatic timer, it is necessary to install airtight dampers with emergency functioning on the intake and exhaust ducts. The dampers will ensure that no air from the warm parts of the building will flow through the unit (stack effect). If no dampers have been installed, there will be a risk of condensation within the unit and exterior ducts at the time the unit is deactivated. This may also result in cold exterior air flowing into the building. In that case condensation can also occur within the intake and exhaust ducts or even in valves placed in rooms. If the unit is not running for a long period of time during winter, the intake and exhaust ducts should be closed so that the above effect does not occur after this period. If the unit is placed in a moist area (e.g. a laundry room), condensation on the external parts of the unit may occur when combined with low exterior temperatures. If condensation occurs outside the unit, increase the ventilation in the surroundings of the unit.

### CONNECTING THE CONDENSATE DRAIN

#### Condensate pump



## 6. INSTALLATION

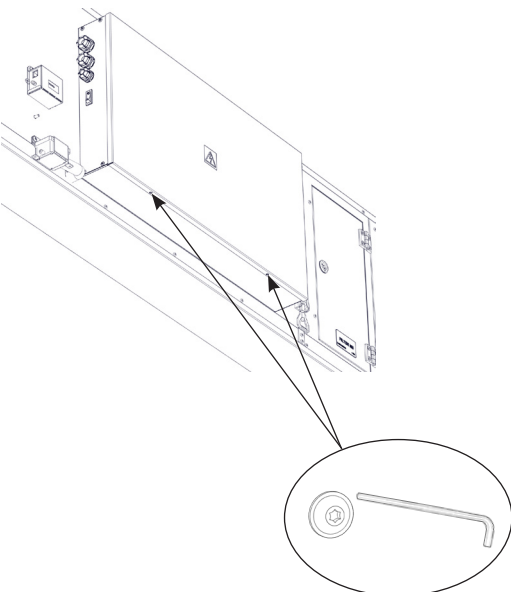
### CONNECTING THE WIRING AND ELECTRICAL ACCESSORIES

#### ATTENTION!

- **The main power switch must be turned off before any intervention on the unit!**
- **The electrical connection must be done by a qualified person (electrician). The electrical connection may be done only by a person authorised for such tasks. All the instructions herein and the local regulations must be observed.**
- **The wiring diagram on the product take precedence over the diagrams included herein! Before connecting, make sure that the terminal markings correspond to the diagram. In case of doubt, do not connect the unit and contact the supplier.**
- **If the unit is connected to a control system other than the original, contact that system's supplier regarding the connection of measuring sensors and control components.**
- **The unit must be connected to the mains with a temperature resistant, rigid, insulated cable that complies with the local regulations.**
- **Any intervention or modifications to the internal electrical connection are forbidden and shall result on loss of warranty.**
- **The correct operation of the unit can be guaranteed only with the use of original accessories.**
- **Should it be necessary to install a sensor or control device in the unit or its cover, consult with the manufacturer or their representative.**

#### Open the cover regulation

Use a hex wrench TORX to unscrew the screws on the regulator cover.



### Power cord

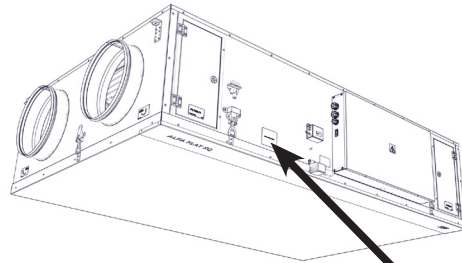
The terminal strip for the power cable is located in the housing of the control device.

#### ATTENTION!

The minimum dimensions of the safety grounding conductor must conform with the applicable local regulations.

#### TECHNICAL INFORMATION

- **The parameters of the wiring can be found on the label located on housing of the control device.**



Label with the type of unit



#### Information on the type of product

U = Voltage	I = Current
f = Frequency	P = power/input power
n = fan's speed	m = weight
ph = number of phases	IP = electrical protection
av = Air flow	tion

Serial number

## 6. INSTALLATION

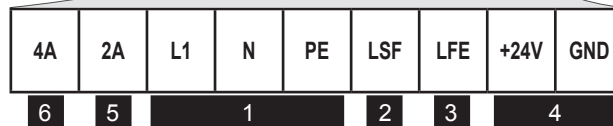
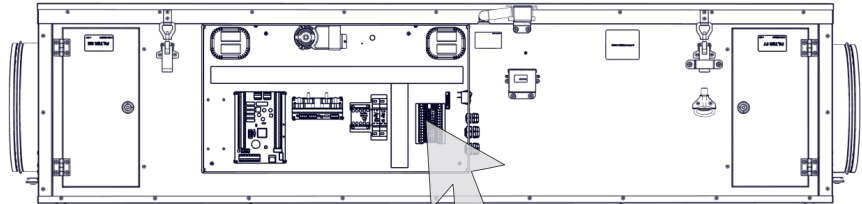
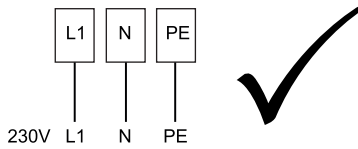
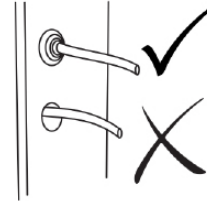
### Connecting cables

All the phases of the power supply must be connected through the appropriate type of circuit breaker. The distance between open contacts must be greater than 3 mm.

The unit must be connected in a way that it may be disconnected from the power supply with a single switch.

- The unit must be connected with a NT-S system, meaning that the neutral conductor must be always connected.

Run the power cables through the V-TEC cable gland on the controller.



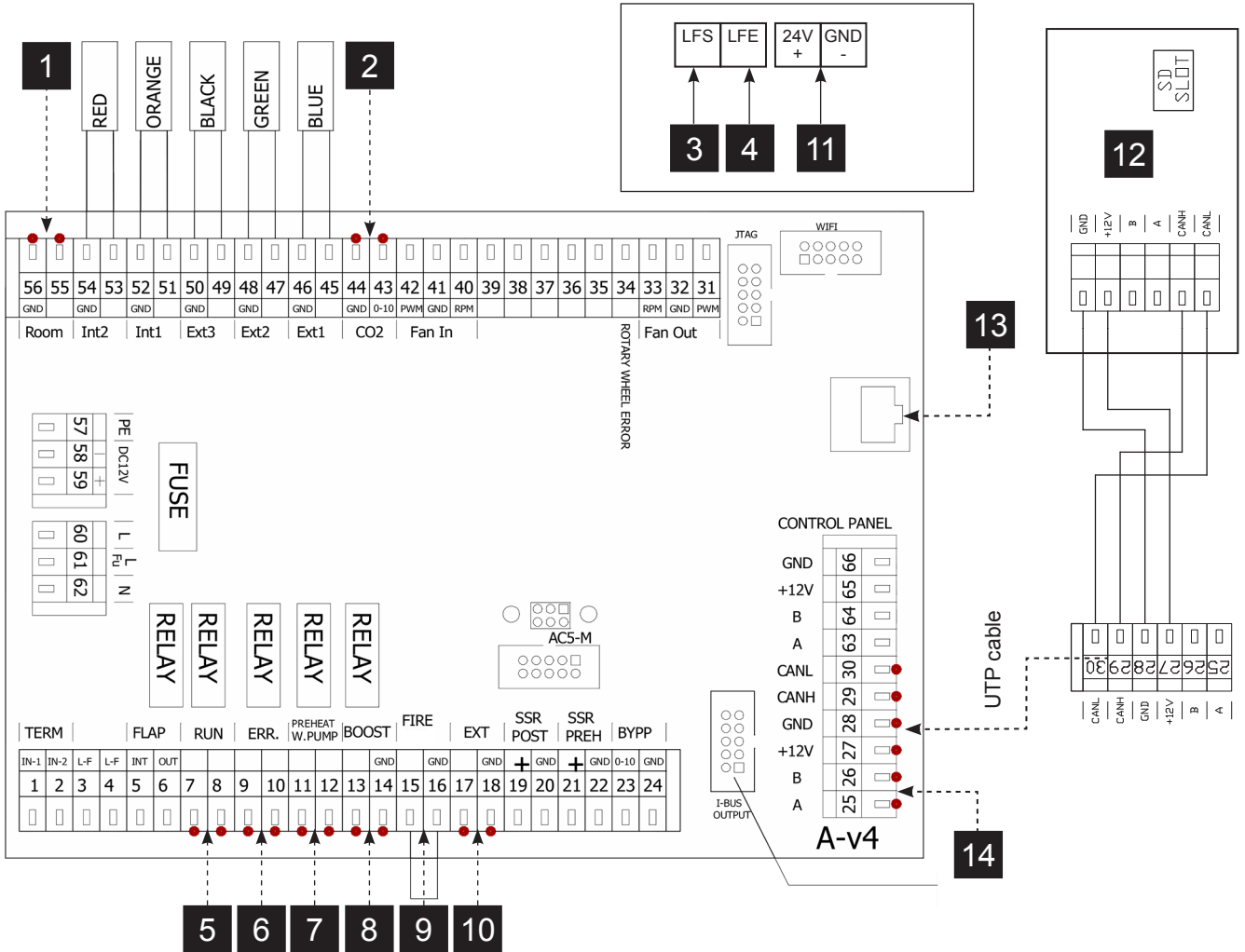
- 1** Main power supply L1,N,PE
- 2** Supply air damper - 230V output
- 3** Exhaust air flap - 230V output

- 4** 24V DC output for powering accessories
- 5** 2A fused 230V output for accessories
- 6** 4A fan fuse

# 6. INSTALLATION

## Connecting electrical accessories

Electrical accessories must be connected to the terminals located in the control cabinet according to the wiring diagram and the markings on the terminals.

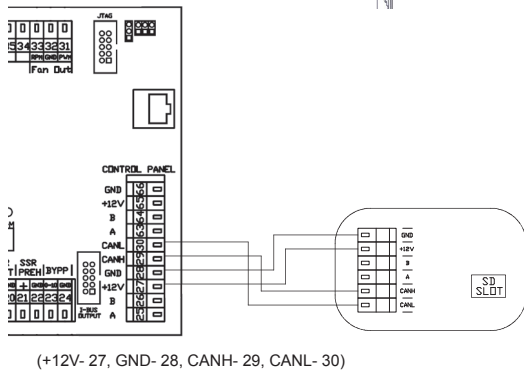
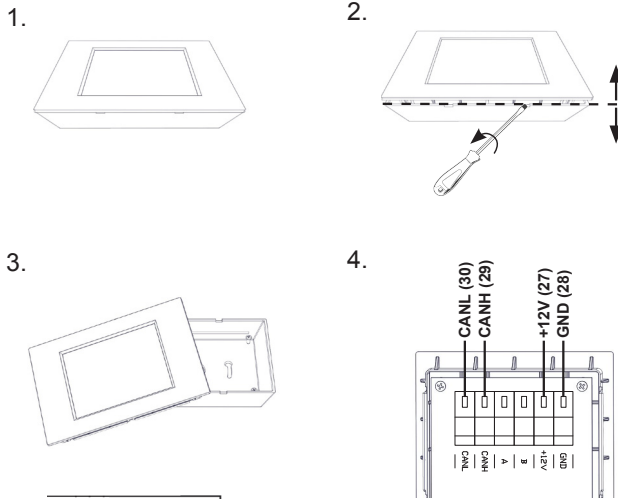


1	A (55-56)	ROOM TEMPERATURE SENSOR (input)
2	A (43-44)	THE AIR QUALITY SENSOR - CONTROL SIGNAL 0-10V (input)
3	(LFS)	INLET AIR DAMPER (output L-open, max. 230V/2A)
4	(LFE)	EXHAUST AIR DAMPER (output L-open, max. 230V/2A)
5	A (7-8)	RUN CONTACT (relay contact, output -NO/NC settable, max. 230V/2A)
6	A (9-10)	ERROR CONTACT (relay contact, output NO, max. 230V/2A)
7	A (11-12)	PREHEATER WATER PUMP (11 - Lint, 12 - Lout, max. 230V/2A)
8	A (13-14)	BOOST REGIME (nonpotential contact, input NO)
9	A (15-16)	ALARM - FIRE (nonpotential contact, input NC)
10	A (17-18)	EXTERNAL CONTROL - ON/OFF (nonpotential contact, input NC)
11		24DCV POWER SUPPLY
12		CONTROL PANEL
13		RJ45 plug - Ethernet, Modbus TCP, BACnet
14		Modbus RTU (A-25, B-26, 28 or 66-GND)

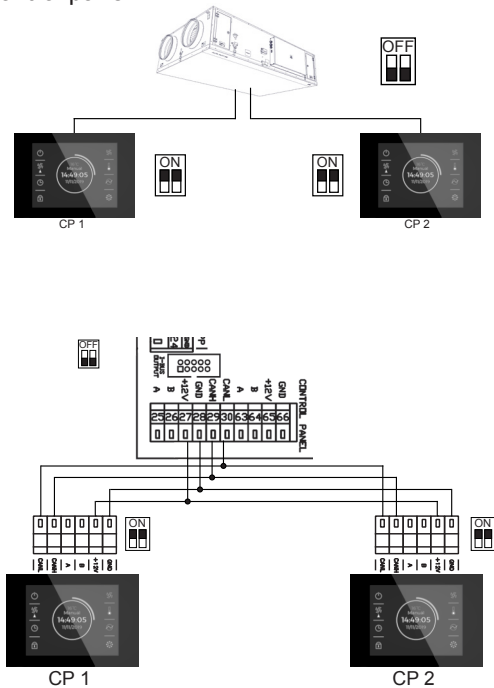
# 6. INSTALLATION

## Connecting the control unit

To start the unit, connect the remote control to the unit with the control cable (UTP).



### 2<sup>nd</sup> Control panel

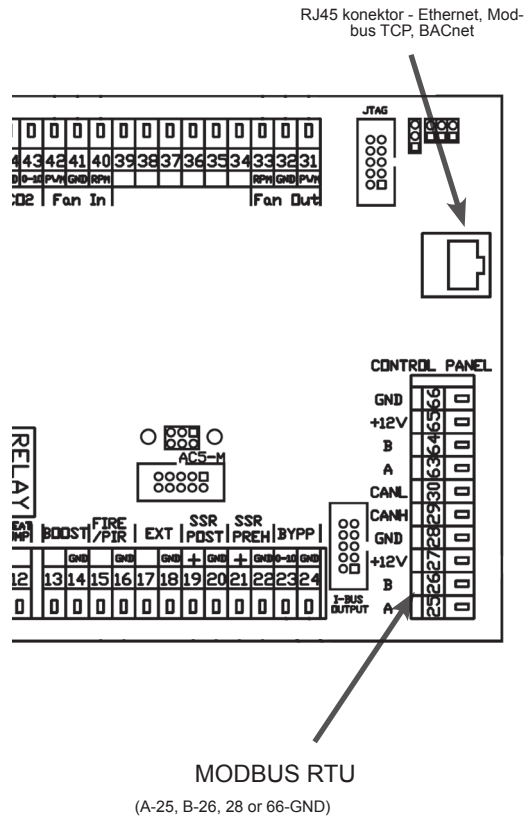


## READ CAREFULLY!

- There should be as much distance as possible between the supply and control cables.
- Make sure that the cable snaps into the connector.
- Be careful not to damage the cable insulation when fitting the control to a wall or other surface.
- If the connectors and cables aren't connected immediately after installing the unit, protect them with insulating tape against mechanical damage or short-circuit.
- The cable connectors must not come into contact with water or any other liquid.

## Connecting the unit to the BMS control system

The control of the unit is fitted with a RS-485 and an RJ45 interface as standard. Insert the cable into one of the connectors on the unit's electronic board. Connect the other end to the main control unit. For protocol details (Modbus-TCP, Modbus-RTU), contact 2VV.



## 6. INSTALLATION

### External control

#### TECHNICAL DATA

- Low voltage switching contact - maximum possible contact load 12 V, 0.4 A.
- CABLE: Cable with two conductors of cross section min. 0.5 mm<sup>2</sup> Maximum length 50 m.
- The contact is normally closed. When the contacts open, the unit turns off.

### Fire contact

#### TECHNICAL DATA

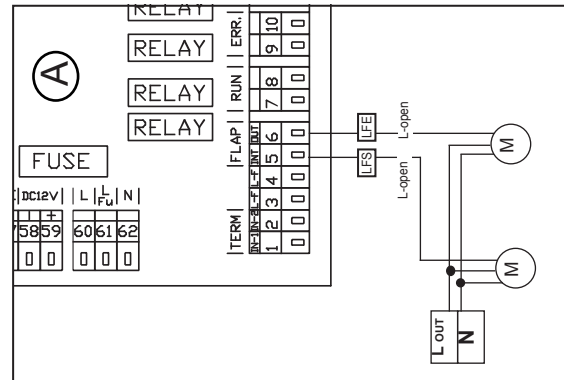
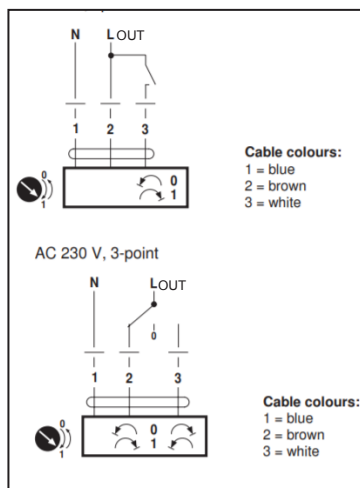
- Low voltage switching contact - maximum possible contact load 12 V, 0.4 A.
- CABLE: Cable with two conductors of cross section min. 0.5 mm<sup>2</sup> Maximum length 50 m.
- The contact is normally closed. When the contact disconnects, the unit operates according to the settings.

### Actuator to close the air supply regulator with a spring (accessory)

#### TECHNICAL DATA

- The actuator is supplied by 230 V AC – control with a cable with three conductors
- CABLE: cable with three conductors of a cross section min. 0.5 mm<sup>2</sup>. Maximum length 50 m.

Not included!



### CO2 / RH room sensor

#### AirGENIO comfort regulation: Automatically control unit with external sensors

##### • CO2 room sensor

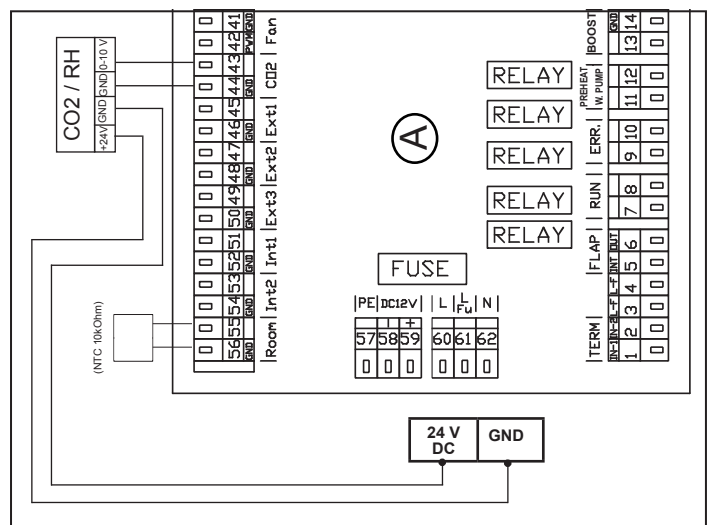
CI-CO2-R - CO2 sensor used in automatic mode for activating/deactivating the unit according to the level of CO2 in the air. Limit values must be set for the sensor.

##### • Relative humidity room sensor

CI-RH-R - RH sensor used in automatic mode for activating/deactivating the unit according to the level of relative humidity in the air. Limit values must be set for the sensor.

#### PLEASE NOTE!

- The accessories must be powered with their with their own external supply.
- For details on the power supply, refer to the documentation of the given accessory.



## 7. COMMISSIONING

### **READ CAREFULLY!**

Before the initial commissioning, check:

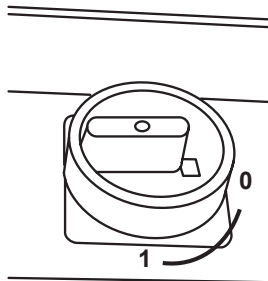
- that the unit is properly fastened to the supporting structure
- that the unit is properly closed and that all collars are connected to ducts or are fitted with rain blinds to prevent water from coming into contact with any moving or heating parts.
- that the wiring is well connected, including earthing and protection against external start-up.
- that all the accessories are well connected.
- that the condensate drain is well connected to the drainage piping (units with cooling).
- that the connection complies with the instructions herein.
- that no tools or other objects have been left inside the unit – it could result damage.

### **CAUTION!**

- Any intervention or modifications to the internal connection are forbidden and shall result on loss of warranty.
- We recommend using the accessories we supply. In case of doubt regarding the use non-original accessories, contact 2VV.

## ACTIVATION

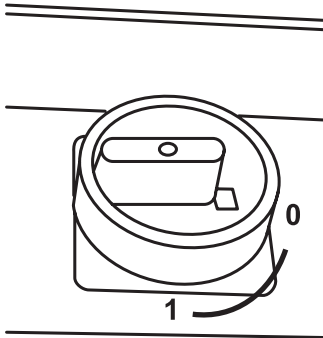
To activate the unit (Stand by mode), it is necessary to turn the main switch on (position I). After activation, the display on the control panel lights up and data download will start. After complete download of these data, the unit is ready for operation.



## 8. MAINTENANCE

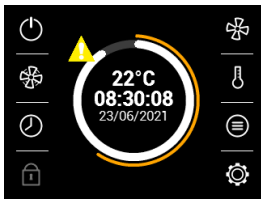
### **⚠ ATTENTION!**

- Before and during maintenance and repairs, the unit must be disconnected from the main power supply, which must be locked, and the service switch in 0 position (off).



### **FILTER CHANGE**

- The control of filter clogging is indicated on the unit remote.

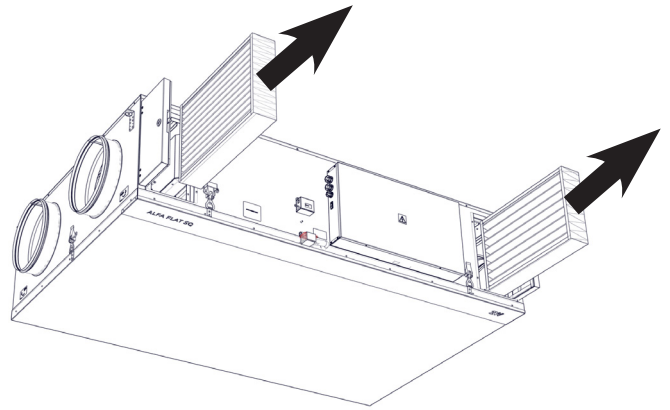


- The clogging of the filters is automatically assessed. The unit will automatically recognize that a new filter has been installed.

### **⚠ ATTENTION!**

**Failure to properly clean (change) the filters may reduce the performance of the unit and damage the fan.**

The filter can be replaced from the side or by opening the bottom covers.



## 8 PERIODICAL CLEANING OF THE VENTILATION UNIT

We suggest checking and cleaning the unit every six months, however these intervals must be accommodated to specific operating conditions.

We suggest thorough cleaning of the unit once a year. If the unit is not in use for a long time, we suggest its activation every six months for about an hour.

### ATTENTION

**Service of internal components and cleaning of the unit must be carried out by professional service shop only! Operation of the unit without the filter is not allowed! Otherwise the heat exchanger can be damaged!!!**

Clean the ventilation unit, using a vacuum-cleaner, small brush, cloth and soapy water especially recuperator. Do not clean the unit with following: Sharp objects, aggressive chemicals, solvents, abrasive cleaning products, pressured water, pressured air or steam.

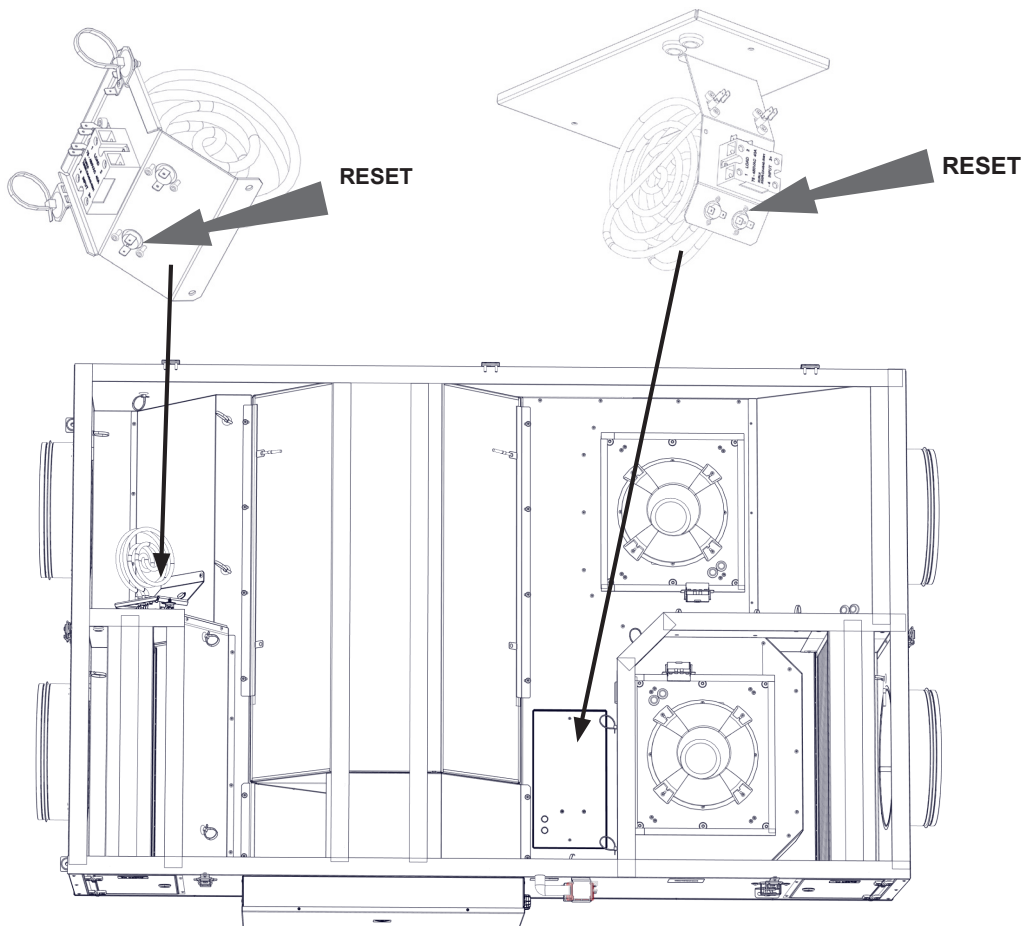
## 9. SERVICE

**The service of internal components must be done only by a professional. Always disconnect the unit before servicing.**

### Electric heating overheated:

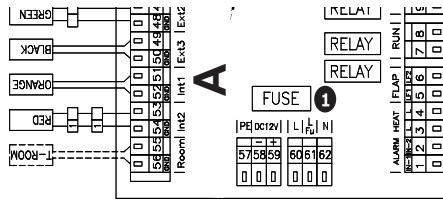
The safety thermostat disconnects if the heater overheats. After eliminating the cause of the overheat the safety thermostat located on the electric heater has to be reset manually.

The location of the safety thermostat is indicated with the marking: RESET located in each unit.



# 9. SERVICE

## FUSE LOCATION



- 1 Fuse location on the electronic board:  
T2A 5x20 mm 250 V

Motor fuses:

The information can be found on the label next to the fuse or directly on the fuse.

### **READ CAREFULLY!**

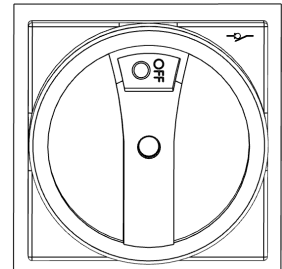
*When the power supply is resumed after an outage, the unit returns to the status it was before the outage. The unit always remembers its operational status and settings.*

*If you aren't able to find or remove the cause of the malfunction, or if the repairs require an intervention on the device, contact an authorised service.*

# 10. TROUBLESHOOTING

## ATTENTION!

- Before you start a perform maintenance and repair works, the unit must be disconnected from the power source and the supply voltage locked, service switch in 0 position (off).
- Do not start repairs, if you are not sure of or do not know the exact procedure, and contact the specialized service!!!



### TECHNICAL DATA

Defect is usually indicated by message on the display, see the table below.

ERROR No:	04	Description:	Supply fan error
<i>Likely problem:</i>		<i>Overheated fan or defect on thermal contact of supply fan</i>	
What to do / check:			
1	Check visually the supply ducting for any obstructions (all closing dampers, recirculation chamber, fire dampers, etc.)		
2	Check if there is power supply to the fan (check all fan fuses and measure voltage on the fan power supply)		
3	Check if fan connection is done well and according the wiring diagram. a. Fan monitoring by tacho output – check the tacho output connection to the electronic board, make sure it is done well (Supply fan: Module A – terminal 40) b. Fan monitoring by thermo contact – check the thermo contact connection to the electronic board, make sure it is done well (Supply fan: Module A – terminal 40-41)		
4	Check if fan connection is done well and according the wiring diagram Supply fan: Module A – terminal 41-42		
5	In service menu 1616 / 18-HW test open the closing dampers and set up 50% on supply fan, then measure DC voltage signal between terminals 41 and 42 (Supply fan) and check the measured airflow on the HW test screen		
6	Units with Comfort regulation – check the pipe connection of the flow alarm sensor, in case the unit does not detect at least 5Pa on the overpressure side of the supply fan it displays the error message		
7	If all steps has been done and fans still not working, it needs to be replaced		

ERROR No:	05	Description:	Exhaust fan error
<i>Likely problem:</i>		<i>Overheated fan or defect on thermal contact of exhaust fan</i>	
What to do / check:			
1	Check visually the exhaust ducting for any obstructions (all closing dampers, recirculation chamber, fire dampers, etc.)		
2	Check if there is power supply to the fan (check all fan fuses and measure voltage on the fan power supply)		
3	Check if fan connection is done well and according the wiring diagram a. Fan monitoring by tacho output – check the tacho output connection to the electronic board, make sure it is done well (Extract fan: Module A – terminal 33) b. Fan monitoring by thermo contact – check the thermo contact connection to the electronic board, make sure it is done well (Extract fan: Module A – terminal 32-33)		
4	Check if fan connection is done well and according the wiring diagram Extract fan: Module A – terminal 31-32		
5	In service menu 1616 / 18-HW test open the closing dampers and set up 50% on Extract fan, then measure DC voltage signal between terminals 31 and 32 (Extract fan) and check the measured airflow on the HW test screen		

## 10. TROUBLESHOOTING

7	If all steps has been done and fans still not working, it needs to be replaced
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ERROR No:	06	Description:	Clogged supply air filter
<i>Likely problem:</i>		<i>Clogged supply filter</i>	
What to do / check:			
1	Replace the supply filter. Make sure the new filter is of the same type and the same filtration class as the one being replaced. If not, the filter calibration must be done (it takes cca 35min.)		
2	If you have a device with the time management of the filter clogging, you must reset the filter timer in the Service menu 1616 / 06-Filter timer		
3	Start the unit again		

ERROR No:	07	Description:	Clogged extract filter
<i>Likely problem:</i>		<i>Clogged extract filter</i>	
What to do / check:			
1	Replace the extract filter. Make sure the new filter is of the same type and the same filtration class as the one being replaced. If not, the filter calibration must be done (it takes cca 35min.)		
2	If you have a heat recovery unit with the time management of the filter clogging, you must reset the filter timer in the Service menu 1616 / 06-Filter timer		
3	Start the unit again		

ERROR No:	08	Description:	Preheater 1 failure
<i>Likely problem:</i>		<i>Overheated electric pre-heater or non-functional thermostat or non-sufficient airflow</i>	
What to do / check:			
1	Visual check of the heating elements		
2	Check by measurement the functionality of the solid state relays		
3	Check by measurement the functionality of the safety thermostat with automatic reset and then the functionality of the emergency thermostat		
4	If all above functional, check the supply ducting for any obstruction (e.g.: icing on the supply closing damper, etc.)		

ERROR No:	09	Description:	Exchanger 1 failure
<i>Likely problem:</i>		<i>Overheated electric post-heater or non-functional thermostat or non-sufficient airflow</i>	
What to do / check:			
1	Replace the extract filter. Make sure the new filter is of the same type and the same filtration class as the one being replaced. If not, the filter calibration must be done (it takes cca 35min.)		
2	If you have a heat recovery unit with the time management of the filter clogging, you must reset the filter timer in the Service menu 1616 / 06-Filter timer		
3	Check by measurement the functionality of the safety thermostat with automatic reset and then the functionality of the emergency thermostat		

## 10. TROUBLESHOOTING


4	Check the temperature sensors EXT2 and EXT3 - either the sensor is faulty or wrongly positioned. (Can be read out in the service menu 1616 / 18-HW test)
5	Start the unit again


ERROR No:	10	Description:	Exchanger 2 failure
<i>Likely problem:</i>		<i>Overheated electric post-heater or non-functional thermostat or non-sufficient airflow</i>	
What to do / check:			
1	Visually check the heating elements		
2	Check by measurement the functionality of the regulation of the external post-heater and the functionality and correctness of the 0-10V signal from the electronic board (Module B – terminals 36-37)		
3	Check the functionality of the safety thermostat with automatic reset and then the functionality of the emergency thermostat inside of the external post-heater		
4	Check by measurement the temperature sensors EXT4 – either the sensor is faulty or wrongly positioned. (Can be read out in the service menu 1616 / 18-HW test)		
5	If all above functional, check the supply ducting for any obstructions (e.g.: icing on the supply closing damper, etc.)		


ERROR No:	11	Description:	Preheater 2 failure
<i>Likely problem:</i>		<i>Overheated external electric pre-heater or non-functional thermostat or non-sufficient airflow</i>	
What to do / check:			
1	Visually check the heating elements		
2	Check by measurement the functionality of the regulation of the external post-heater and the functionality and correctness of the 0-10V signal from the electronic board (Module B – terminals 36-37)		
3	Check the functionality of the safety thermostat with automatic reset and then the functionality of the emergency thermostat inside of the external post-heater		
4	If all above functional, check the supply ducting for any obstructions (e.g.: icing on the supply closing damper, etc.)		


ERROR No:	12	Description:	CO2 sensor failure
<i>Likely problem:</i>		<i>Defective air quality sensor</i>	
What to do / check:			
1	Check the sensor's connection to the electronic board – Module A, terminals 43-44		
2	Check the output signal 0-10V from the sensor		
3	Check the device set up – the right selection of the air quality sensor in the Service menu 1616 / 08-AQS sensor and the correct setting of the air quality sensor limits		
4	Check the setting of the time schedule modes that there is not selected automatic mode in case the quality sensor is not physically connected. In such case, delete the particular time schedule and set it up again		

## 10. TROUBLESHOOTING

ERROR No:	13	Description:	Rotary recuperator error 
<i>Likely problem:</i>		<i>Failure of the rotary heat recovery exchanger</i>	
What to do / check:			
1	Check visually that the belt is unbroken		
2	Check that the wheel can be turned around manually and it is not stuck		
3	Check the rotary wheel input connection (Module A – Error input 34)		
4	Check the functionality of the rotation control sensor – the sensor must react (a short flash) on the magnetic contact when the wheel makes a complete turn		

ERROR No:	14	Description:	ADB error 
<i>Likely problem:</i>		<i>Failure of adiabatic module</i>	
What to do / check:			
1	Check the adiabatic error input connection (Module B – Error input 9-10)		
2	Check the adiabatic module is selected in Service menu 1616 / 03-Accessories		
3	Check what type of error the adiabatic module is indicating		

ERROR No:	15	Description:	Heat pump error 
<i>Likely problem:</i>		<i>Heat pump failure</i>	
What to do / check:			
1	Check the Heat pump input error connection (Module B – Error input 13-14)		
2	Check the Heat pump is selected in Service menu 1616 / 07-Exchangers		
3	Check what type of error the heat pump is indicating		

ERROR No:	16	Description:	Supply – outside temperature sensor failure (T-EXT1) 
<i>Likely problem:</i>		<i>Outside temperature sensor failure; This failure is understood as a less serious therefore the device continues to operate but with temperature default value, some regimes might be limited</i>	
What to do / check:			
1	EXT1 default value is 0°C; FREECOOLING will not operate		
2	Check the sensor's connection to the electronic board – Module A, terminals 45-46		
3	If the connection ok and the fault persists, replace the sensor		

## 10. TROUBLESHOOTING


ERROR No:	17	Description:	Supply – outside temperature sensor failure (T-EXT2)	
<i>Likely problem:</i>		<i>Outside temperature sensor failure; This failure is understood as a less serious therefor the device continues to operate but with temperature default value, some regimes might be limited</i>		
What to do / check:				
1	EXT1 default value is 0°C; FREECOOLING will not operate			
2	Check the sensor's connection to the electronic board – Module A, terminals 45-46			
3	If the connection ok and the fault persists, replace the sensor			


ERROR No:	18	Description:	Supply – outside temperature sensor failure (T-EXT3)	
<i>Likely problem:</i>		<i>Outside temperature sensor failure This failure is understood as a less serious therefor the device continues to operate but with temperature default value, some regimes might be limited</i>		
What to do / check:				
1	EXT3 default value is 4°C; Anti-freeze protection is still active; Electric post-heater is forbidden; Duct minimum/maximum is not being watched;			
2	Check the sensor's connection to the electronic board – Module A, terminals 49-50			
3	If the connection ok and the fault persists, replace the sensor			


ERROR No:	19	Description:	Supply – outside temperature sensor failure (T-EXT4)	
<i>Likely problem:</i>		<i>Outside temperature sensor failure This failure is understood as a less serious therefor the device continues to operate but with temperature default value, some regimes might be limited</i>		
What to do / check:				
1	EXT4 default value is 4°C; Anti-freeze protection is still active; Electric post-heater is forbidden; Duct minimum/maximum is not being watched;			
2	Check the sensor's connection to the electronic board – Module B, terminals 46-47			
3	If the connection ok and the fault persists, replace the sensor			


ERROR No:	20	Description:	Extract – return duct temperature sensor failure (T-INT0)	
<i>Likely problem:</i>		<i>Return duct temperature sensor failure This failure is understood as a less serious therefor the device continues to operate but with temperature default value, some regimes might be limited</i>		
What to do / check:				
1	INT0 default value is 20°C; FREECOOLING will not operate; In case in service menu (1616) selected in 09-Temperature sensor "Extract duct", the device would heat up the duct minimum according the Supply temperature sensor			
2	Check the sensor's connection to the electronic board – Module B, terminals 44-45			
3	If the connection ok and the fault persists, replace the sensor			

## 10. TROUBLESHOOTING


ERROR No:	21	Description:	Extract – return duct temperature sensor failure (T-INT1) 
<i>Likely problem:</i>		<i>Outside temperature sensor failure This failure is understood as a less serious therefore the device continues to operate but with temperature default value, some regimes might be limited</i>	
What to do / check:			
1	INT1 default value is 20°C; FREECOOLING will not operate; In case in service menu (1616) selected in 09-Temperature sensor “Extract duct”, the device would heat up the duct minimum according the Supply temperature sensor		
2	Check the sensor’s connection to the electronic board – Module A, terminals 51-52		
3	If the connection ok and the fault persists, replace the sensor		


ERROR No:	22	Description:	Extract – return duct temperature sensor failure (T-INT2) 
<i>Likely problem:</i>		<i>Return duct temperature sensor failure This failure is understood as a less serious therefore the device continues to operate but with temperature default value, some regimes might be limited</i>	
What to do / check:			
1	INT2 default value is 4°C; The antifreeze protection of the heat recovery core is not functional		
2	Check the sensor’s connection to the electronic board – Module A, terminals 53-54		
3	If the connection ok and the fault persists, replace the sensor		


ERROR No:	23	Description:	Water inlet sensor failure (T_WATER_IN) 
<i>Likely problem:</i>		<i>Inlet water temperature sensor failure This failure is understood as a less serious therefore the device continues to operate but with temperature default value, some regimes might be limited</i>	
What to do / check:			
1	WAT_IN default value is 22°C a. Being sensed only for devices with Change-Over coil (WCO) b. In case heating by WCO required, for air temperature control the algorithm calculation uses the data from the previous WCO regime; when device switched OFF and ON again, it does not heat nor cool		
2	Check the sensor’s connection to the electronic board – Module B, terminals 42-43		
3	If the connection ok and the fault persists, replace the sensor		


ERROR No:	24	Description:	Water outlet sensor failure (T_WATER_OUT) 
<i>Likely problem:</i>		<i>Outlet water temperature sensor failure This failure is understood as a less serious therefore the device continues to operate but with temperature default value, some regimes might be limited</i>	
What to do / check:			
1	WAT_OUT default value is 4°C Sensed only for device with LPHW coil (heating only) In case the device (when switched On) enters mode “Waiting for hot water”, the mode will not be abandoned thanks to the default temperature (pump running, SMU opened, dampers shut, fans stopped)		
2	Check the sensor’s connection to the electronic board – Module B, terminals 40-41		
3	If the connection ok and the fault persists, replace the sensor		

## 10. TROUBLESHOOTING

ERROR No:	25	Description:	Room sensor failure (T_Room) 
<i>Likely problem:</i>		<i>Room temperature sensor failure This failure is understood as a less serious therefore the device continues to operate but with temperature default value, some regimes might be limited</i>	
What to do / check:			
1	T-ROOM default value is 20°C In case in service menu (1616) selected in 09-Temperature sensor "Room", the device would heat up the duct minimum according the Supply temperature sensor EXT-3 (EXT-4)		
2	Check the sensor's connection to the electronic board – Module A, terminals 55-56		
3	If the connection ok and the fault persists, replace the sensor		


ERROR No:	26	Description:	Press sensor extract air filter failure 
<i>Likely problem:</i>		<i>Extract air filter pressure sensor failure</i>	
What to do / check:			
1	If the signal LED is NOT flashing on the F module, check the correct connection of the I-BUS cable (in such case, all pressure sensors are in failure)		
2	If the signal LED is flashing on the F module and all pressure sensors are in failure, check the correct connection of the I-BUS cable or functionality of the I-BUS cable itself		
3	If the signal LED is flashing on the F module and there is only one pressure sensor failure (not all of them), the F module must be replaced		
4	If the device is equipped with C module, first check the signal LED is flashing and then that correct addressing of the BCD selector – for extract air filter pressor sensor it is address 1		
5	If the device is equipped with C module and there is pressor sensor failure on more than one, check the correct addressing on all of the pressure sensors (see correct addressing at Errors 26-31)		


ERROR No:	27	Description:	Press sensor supply air filter failure 
<i>Likely problem:</i>		<i>Supply air filter pressure sensor failure</i>	
What to do / check:			
1	If the signal LED is NOT flashing on the F module, check the correct connection of the I-BUS cable (in such case, all pressure sensors are in failure)		
2	If the signal LED is flashing on the F module and all pressure sensors are in failure, check the correct connection of the I-BUS cable or functionality of the I-BUS cable itself		
3	If the signal LED is flashing on the F module and there is only one pressure sensor failure (not all of them), the F module must be replaced		
4	If the device is equipped with C module, first check the signal LED is flashing and then correct addressing of the BCD selector – for supply air filter pressor sensor it is address 0		
5	If the device is equipped with C module and there is pressor sensor failure on more than one, check the correct addressing on all of the pressure sensors (see correct addressing at Errors 26-31)		


ERROR No:	28	Description:	Press sensor supply fan failure 
<i>Likely problem:</i>		<i>Supply fan pressure sensor failure</i>	
What to do / check:			
1	If the signal LED is NOT flashing on the F module, check the correct connection of the I-BUS cable (in such case, all pressure sensors are in failure)		
2	If the signal LED is flashing on the F module and all pressure sensors are in failure, check the correct connection of the I-BUS cable or functionality of the I-BUS cable itself		

## 10. TROUBLESHOOTING


3	If the signal LED is flashing on the F module and there is only one pressure sensor failure (not all of them), the F module must be replaced
4	If the device is equipped with C module, first check the signal LED is flashing and then correct addressing of the BCD selector – for supply fan pressor sensor it is address 2
5	If the device is equipped with C module and there is pressor sensor failure on more than one, check the correct addressing on all of the pressure sensors (see correct addressing at Errors 26-31)


ERROR No:	29	Description:	Press sensor extract fan failure 
<i>Likely problem:</i>		<i>Extract fan pressure sensor failure</i>	
What to do / check:			
1	If the signal LED is NOT flashing on the F module, check the correct connection of the I-BUS cable (in such case, all pressure sensors are in failure)		
2	If the signal LED is flashing on the F module and all pressure sensors are in failure, check the correct connection of the I-BUS cable or functionality of the I-BUS cable itself		
3	If the signal LED is flashing on the F module and there is only one pressure sensor failure (not all of them), the F module must be replaced		
4	If the device is equipped with C module, first check the signal LED is flashing and then correct addressing of the BCD selector – for extract fan pressor sensor it is address 3		
5	If the device is equipped with C module and there is pressor sensor failure on more than one, check the correct addressing on all of the pressure sensors (see correct addressing at Errors 26-31)		


ERROR No:	30	Description:	Press sensor VAV duct failure 
<i>Likely problem:</i>		<i>VAV duct pressor sensor failure</i>	
What to do / check:			
1	If the signal LED is NOT flashing on the F module, check the correct connection of the I-BUS cable (in such case, all pressure sensors are in failure)		
2	If the signal LED is flashing on the F module and all pressure sensors are in failure, check the correct connection of the I-BUS cable or functionality of the I-BUS cable itself		
3	If the signal LED is flashing on the F module and there is only one pressure sensor failure (not all of them), the F module must be replaced		
4	If the device is equipped with C module, first check the signal LED is flashing and then correct addressing of the BCD selector – for VAV duct pressor sensor it is address 4		
5	If the device is equipped with C module and there is pressor sensor failure on more than one, check the correct addressing on all of the pressure sensors (see correct addressing at Errors 26-31)		


ERROR No:	31	Description:	Press sensor C4/PCO failure 
<i>Likely problem:</i>		<i>C4/PCO pressure sensor failure</i>	
What to do / check:			
1	If the signal LED is NOT flashing on the F module, check the correct connection of the I-BUS cable (in such case, all pressure sensors are in failure)		
2	If the signal LED is flashing on the F module and all pressure sensors are in failure, check the correct connection of the I-BUS cable or functionality of the I-BUS cable itself		
3	If the signal LED is flashing on the F module and there is only one pressure sensor failure (not all of them), the F module must be replaced		
4	If the device is equipped with C module, first check the signal LED is flashing and then correct addressing of the BCD selector – for C4/PCO pressor sensor it is address 5		
5	If the device is equipped with C module and there is pressor sensor failure on more than one, check the correct addressing on all of the pressure sensors (see correct addressing at Errors 26-31)		

## 10. TROUBLESHOOTING


ERROR No:	32	Description:	Sensor AQS failure 
<i>Likely problem:</i>		<i>Defective air quality sensor</i>	
What to do / check:			
1	Check the sensor's connection to the electronic board – Module A, terminals 43-44 In case of AQS sensor location in SLAVE single-flow unit – module K, terminals 10-11		
2	Check that the AQS sensor is well connected		
3	Check the device set up – the right selection of the air quality sensor in the Service menu 1616 / 08-AQS sensor and the correct set up of the air quality sensor limits		
4	Check the setting of the time schedule modes that there is not selected automatic mode in case the quality sensor is not physically connected. In such case, delete the particular time schedule and set up it again.		


ERROR No:	36	Description:	B module error 
<i>Likely problem:</i>		<i>Faulty B module or faulty connection of the B module</i>	
What to do / check:			
1	If the signal LED is NOT flashing on the B module, check the correct connection of the I-BUS cables		
2	If the signal LED is flashing on the B module and it is in failure, check the correct connection of the I-BUS cable or the functionality of the I-BUS cable itself		
3	If the signal LED is flashing on the B module and the connection is faultless, the module B is faulty and needs to be replaced		


ERROR No:	37	Description:	Condensation drain overflow 
<i>Likely problem:</i>		<i>The condensation tray might be over-floated</i>	
What to do / check:			
1	Check if the condensation drain is not filled up over the limit (in case the condensation is monitored), if so make sure there is free drainage of the condensate		
2	In case the condensation tray is empty and the over-floating is monitored check the connection of the condensate terminals – module B, terminal 17-18 and the functionality of the float (that it is not stuck)		
3	In case more than one condensation trays are used in the unit, you must check the functionality and the connection on all of them.		
4	In case the condensation is not monitored, check that there is a bridge connection on module B, terminals 17-18		


ERROR No:	38	Description:	G module Error 
<i>Likely problem:</i>		<i>Faulty G module or faulty connection of the G module</i>	
What to do / check:			
1	If the signal LED is NOT flashing on the G module, check the correct connection of the I-BUS cables		
2	If the signal LED is flashing on the G module and it is in failure, check the correct connection of the I-BUS cable or the functionality of the I-BUS cable itself		
3	If the signal LED is flashing on the G module and the connection is faultless, the module G is faulty and needs to be replaced		


## 10. TROUBLESHOOTING

ERROR No:	39	Description:	Global Error 
<i>Likely problem:</i>		<i>This error indicates that there has been any error detected. It is always followed by another error message, which specify the particular defect.</i>	
What to do / check:			
1	Follow the instructions how to solve and remove the particular defect		


ERROR No:	40	Description:	K module Error 
<i>Likely problem:</i>		<i>Faulty K module, faulty connection of the K module or no power supply to the slave unit</i>	
What to do / check:			
1	First check there is a power supply to the slave unit		
2	If the signal LED is NOT flashing on the K module, check the correct connection of the I-BUS cable on K module, G-lite and module A		
3	If the signal LED is flashing on the K module and it is in failure, check the correct connection of the I-BUS cable or the functionality of the I-BUS cable itself		
4	If the signal LED is flashing on the K module and the connection is faultless, the module K is faulty and needs to be replaced		


ERROR No:	41	Description:	Flow sensor Error 
<i>Likely problem:</i>		<i>Failure of the flow sensor</i>	
What to do / check:			
1	1.	Check the signal LED is flashing on the sensor and then correct addressing of the BCD selector –address E	
2	2.	If the device is equipped with other C modules check the correct addressing on all of the pressure sensors (see correct addressing at Errors 26-27)	

ERROR No:	42	Description:	Press sensor HEPA air filter failure 
<i>Likely problem:</i>		<i>Failure of the HEPA air filter pressure sensor</i>	
What to do / check:			
1	Check the signal LED is flashing on the sensor and then that there is correct addressing of the BCD selector –address 7		
2	If the device is equipped with other C modules check the correct addressing on all of the pressure sensors (see correct addressing at Errors 26-31)		


ERROR No:	43	Description:	Clogged HEPA air filter 
<i>Likely problem:</i>		<i>Clogged HEPA air filter</i>	
What to do / check:			
1	1.	Replace the HEPA filter. Make sure the new filter is of the same type and the same filtration class as the one being replaced. If not, the filter calibration must be done (it takes cca 35min.)	
2	2.	Start the unit again	


## 10. TROUBLESHOOTING


ERROR No:	63	Description:	Room BMS temperature sensor failure 
<i>Likely problem:</i>		<i>Not available room temperature reading from BMS</i>	
What to do / check:			
1	Check if there is on BMS address 23000 available information about the room temperature		
2	Make sure there is sufficient frequency of sending the Room BMS temperature value to the address 23000		

ERROR No:	64	Description:	Flow alarm sensor failure 
<i>Likely problem:</i>		<i>Failure of the flow sensor</i>	
What to do / check:			
1	Check the signal LED is flashing on the sensor and then that there is correct addressing of the BCD selector –address E		
2	If the device is equipped with other C modules check the correct addressing on all of the pressure sensors (see correct addressing at Errors 26-27)		


## 10. TROUBLESHOOTING


ERROR No:	50	Description:	Supply air filter clogged > 80%	
<i>Likely problem:</i>		<i>The supply air filter would need to be replaced soon.</i>		
What to do / check:				
1	Order a new supply filter and replace it			


ERROR No:	51	Description:	Extract air filter clogged > 80%	
<i>Likely problem:</i>		<i>The extract air filter would need to be replaced soon.</i>		
What to do / check:				
1	Order a new extract filter and replace it			


ERROR No:	53	Description:	Extract air filter clogged > 80%	
<i>Likely problem:</i>		<i>The HEPA air filter would need to be replaced soon</i>		
What to do / check:				
1	Order a new HEPA filter and replace it			

## 10. TROUBLESHOOTING


ERROR No:	1	Description:	Request filters calibration – service menu 
<i>Status description:</i>		<i>When the device is in operation for the first time, it informs that the filter calibration should be done</i>	
Beware of:			
1	In case the filter calibration is not done, it evaluates the filters according to the default curve, which might not correspond with the used filters. Clogged filters measurement would be inaccurate		


ERROR No:	70	Description:	Water heater antifreeze protection 
<i>Status description:</i>		<i>The antifreeze protection could be active only for device with water coil heater</i>	
Beware of:			
1	<p>The antifreeze protection activates following actions:</p> <ul style="list-style-type: none"> <li>..... a. Water armature fully opened</li> <li>b. Pump switched on</li> <li>c. Fans switched off</li> <li>d. Supply and exhaust dampers are closed</li> <li>e. Rotating wheel is switched off</li> <li>f. Optionally (service menu 1616/02-HW setting) the extract fan can stay On; in such case, the exhaust damper stays open and rotating wheel runs at minimal speed</li> </ul>		


ERROR No:	71	Description:	Water heater waiting for hot water 
<i>Status description:</i>		<i>Checking the return water temperature</i>	
Beware of:			
1	Only for devices with water heater (LPHW or WCO coil)		
2	The device, during its start-up, is checking the return water temperature to make sure there is no danger of the water coil freezing; during this period, the pump is on, mixing point is being opened step by step and the dampers are closed, regeneration wheel is off, fans are off; The device would not start to operate sooner than the temperature on water return reaches at least 20°C		


ERROR No:	72	Description:	Water heater waiting for supply air temperature 
<i>Status description:</i>		<i>Checking the supply air temperature, so called "Soft-start"</i>	
Beware of:			
1	Only for devices with water heater (LPHW or WCO coil)		
2	This follows the "Water heater waiting for hot water"		
3	The dampers get open, fans on minimal speed, pump is running, mixing point fully opened, regeneration wheel is on		
4	As soon as temperature EXT3 gets to 20°C the device switches the pre-set mode		
5	In case EXT3 does not reach 20°C and the duct minimal temperature is not reached within 5mins the device starts up anyway, if during this process the return water temperature gets below 15°C the device switches back to "Water heater waiting for hot water" process.		


## 10. TROUBLESHOOTING


ERROR No:	73	Description:	WCO/WC searching inlet water temp (cold/hot) 
<i>Status description:</i>		<i>Applicable for a device with integrated or external Change-Over coil; the device measures the inlet water temperature to find out whether the water armature should regulate in cooling or heating mode</i>	
Beware of:			
1	Temperature test runs for 2mins		
2	Test is run always when the water armature is open for at least 30% and is repeated every 60 minutes; first test is run when the device is switched on		

ERROR No:	74	Description:	Air flow reduction, minimal duct temperature not reached 
<i>Status description:</i>		<i>The duct temperature reached minimal acceptable value and the airflow is linearly reduced</i>	
Beware of:			
1	The airflow is linearly reduced in the interval from the pre-set minimal temperature down to +5°C		

ERROR No:	75	Description:	Passive house protection 
<i>Status description:</i>		<i>The minimal duct temperature got below +5°C and the device has been switched Off</i>	
Beware of:			
1	If the device has been switched Off as the duct temperature dropped below +5°C , the device tries every 15mins automatically to switch On again and to reach minimal duct temperature		

ERROR No:	76	Description:	Heat pump Defrosting 
<i>Status description:</i>		<i>Defrosting sequence on the outdoor unit of the heat pump has been activated</i>	
Beware of:			
1	When the defrosting sequence on the outdoor unit of the heat pump is being activated, the control gives no demand for heat pump output and runs the fans on the minimal speed; when the defrosting sequenced finished the device returns to normal mode		

ERROR No:	78	Description:	Pre-freecooling active 
<i>Status description:</i>		<i>Being activated during the time period for which FREECOOLING is permitted (service menu 1616 / 16-Freecooling)</i>	
Beware of:			
1	The device is switched on into the pre-set mode (Manual, CAV, DCV, PCO) every hour for 10 mins to check the inside and outside temperatures and to find out whether the conditions for FREECOOLING have been reached, if so, the device would switch into the FREECOOLING mode, if not the device would switch itself off		

ERROR No:	79	Description:	Heater was reduced/ due to low airflow 
<i>Status description:</i>		<i>The duct temperature crossed +50°C therefore the electric heater output was changed to 0%, PID regulator carries on to evaluate requested output</i>	
Beware of:			
1	When the duct temperature drops below +50°C the heater output is activated for the requested temp.		

## 11. DECOMMISSIONING THE PRODUCT – LIQUIDATION

Render the unit useless before its disposal. Older units also have materials that can be reused. Take them to a collection yard. It is recommended to have the unit disassembled in a specialised facility so that the recyclable materials may be reused. Take the unusable components to a legal disposal site. The materials must be disposed of in compliance with the applicable regulations.

## 12. CONCLUSIONS

Read and observe the instructions herein for a safe and proper use of the unit. Do not hesitate to contact our sales or technical support department in case of any query or request for explanation.

**The producer shall not be liable for damages caused as a result of improper installation and operation contrary to the manual and the common practice of installation and operation of ventilation devices and regulations systems.**

## CONTACT

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