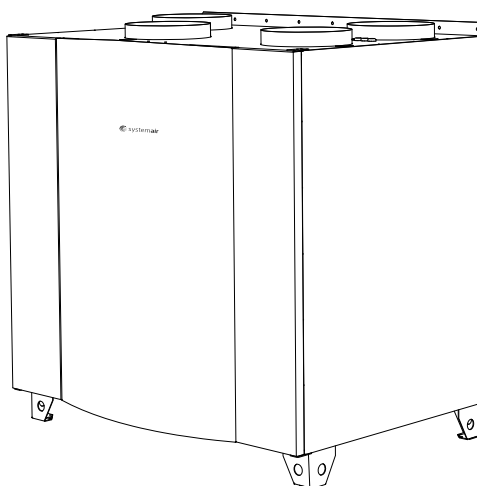


SAVE VTC 700

Heat Recovery Ventilation Unit



GB Installation and Service

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1 Declaration of Conformity

Manufacturer



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hereby confirms that the following product:

Heat recovery ventilation unit: SAVE VTC 700

(The declaration applies only to product in the condition it was delivered in and installed in the facility in accordance with the included installation instructions. The insurance does not cover components that are added or actions carried out subsequently on the product).

Comply with all applicable requirements in the following directives:

- Machinery Directive 2006/42/EC
- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU
- Ecodesign Directive 2009/125/EC

The following regulations are applied in applicable parts:

| | |
|-----------|---|
| 1253/2014 | Requirements for ventilation units |
| 1254/2014 | Energy labelling of residential ventilation units |
| 327/2011 | Requirements for fans above 125 W |

The following harmonized standards are applied in applicable parts:

| | |
|-------------------|--|
| EN ISO 12100:2010 | Safety of machinery - General principles for design - Risk assessment and risk reduction |
| EN 13857 | Safety of machinery – Safety distances to prevent hazard zones being reached by upper or lower limbs |
| EN 60 335-1 | Household and similar electrical appliances – Safety Part 1: General requirements |
| EN 60 335-2-40 | Safety of household and similar electrical appliances – Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers |
| EN 62233 | Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure |
| EN 50 106:2007 | Safety of household and similar appliances – Particular rules for routine tests referring to appliances under the scope of EN 60 335-1 and EN 60967 |
| EN 61000-6-2 | Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments |
| EN 61000-6-3 | Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standards for residential, commercial and light-industrial environments |

Skinnskatteberg, 30-03-2016



Mats Sándor
Technical Director

2 Disposal and recycling



This product are applicable to the WEEE directive. When disposing the unit, follow your local rules and regulations.

This product packing materials are recyclable and can be reused. Do not dispose in household waste.

3 Warnings

The following admonitions will be presented in different sections of the document:

Danger

- Make sure that the mains supply to the unit is disconnected before performing any maintenance or electrical work!
- All electrical connections and maintenance work must be carried out by an authorized installer and in accordance with local rules and regulations.

Warning

- The system should operate continuously, and only be stopped for maintenance/service.
- The installation of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.
- Beware of sharp edges during mounting and maintenance. Use protective gloves.
- All though the Mains supply to the unit has been disconnected there is still risk for injury due to rotating parts that have not come to a complete standstill.
- Make sure that filters are mounted before starting the unit.
- This product must only be operated by a person which has suitable knowledge or education within this field or carried out with the supervision of a suitably qualified person.

Caution

- Do not connect tumble dryers to the ventilation system.
- Duct connections/duct ends must be covered during storage and installation.

4 Product information

4.1 General

This installation manual concerns air handling unit type SAVE VTC 700 manufactured by Systemair AB.

SAVE VTC 700 include the following model options:

Right or Left models: R (Right), L (Left) (see figure 3).

Re-heater battery (electrical or water heating battery) is optional and can be ordered as an accessory.

This manual consists of basic information and recommendations concerning the design, installation, start-up and operation, to ensure a proper fail-free operation of the unit.

The key to proper and safe operating of the unit is to read this manual thoroughly, use the unit according to given guidelines and follow all safety requirements.

4.2 Technical data

4.2.1 Dimensions and weight

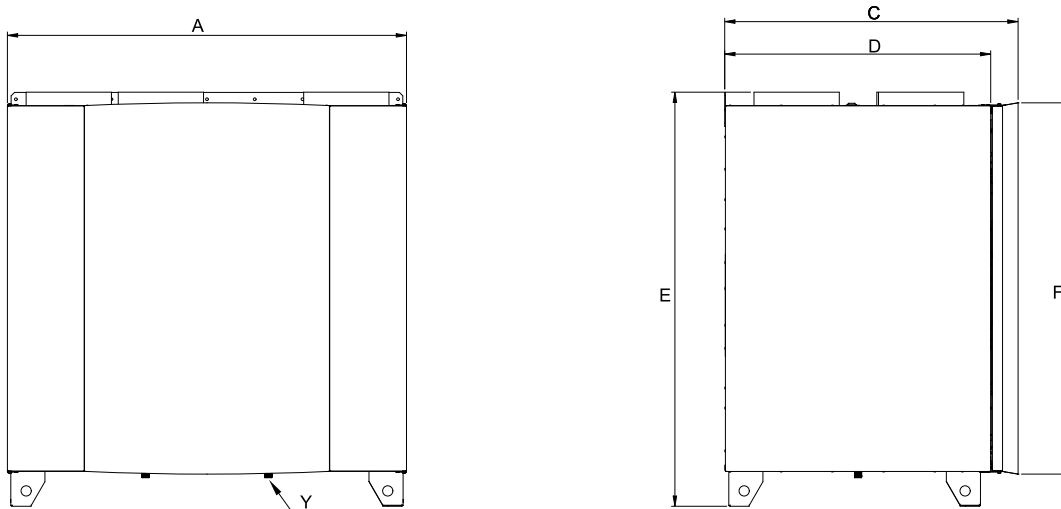


Fig. 1 Dimensions, drawn as a right hand connected unit

Y: 1/2" outer thread

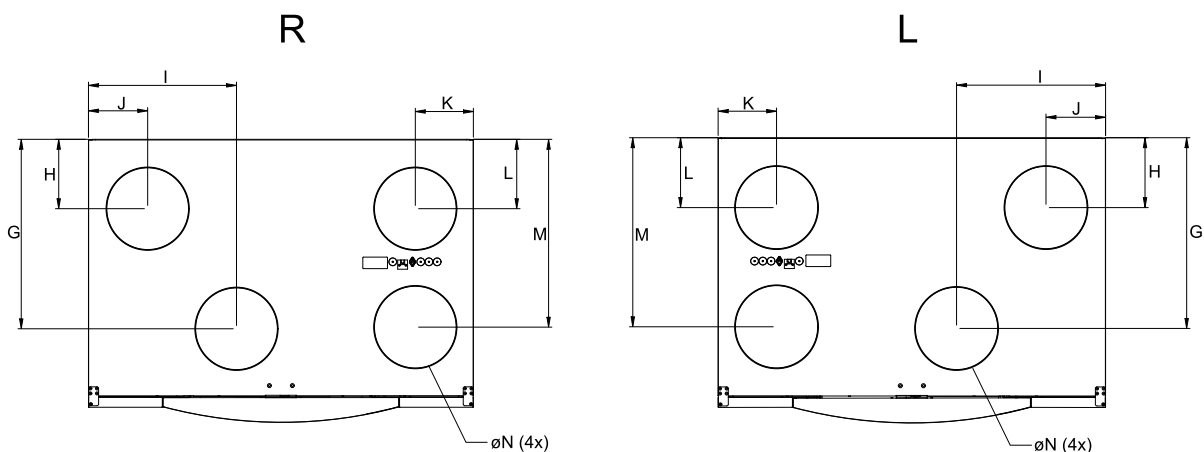


Fig. 2 Top view dimensions, right (R) and left hand (L) connected unit

| Model | A | C | D | E | F | G | H | I |
|---------|------|-----|-----|------|------|-----|-----|-----|
| VTC 700 | 1170 | 860 | 780 | 1214 | 1088 | 576 | 211 | 450 |

| Model | J | K | L | M | N | Weight (kg) |
|---------|-----|-----|-----|-----|-----|-------------|
| VTC 700 | 180 | 176 | 211 | 571 | 250 | 150 |

4.2.1.1 Connections Right and Left models

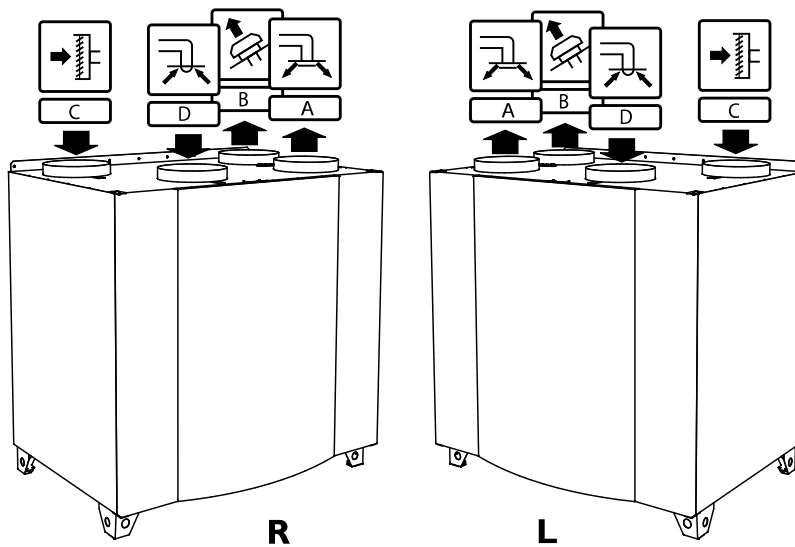






Fig. 3 Right and Left models

| Position | Description |
|----------|---|
| R | Right hand model (Supply air connection is situated on the right hand side of the unit viewed from the front) |
| L | Left hand model (Supply air connection is situated on the left hand side of the unit viewed from the front) |

Table 1: Symbol description

| Symbol | Description |
|---|------------------|
|  | A Supply air |
|  | B Exhaust air |
|  | C Outdoor air |
|  | D Extract air |

4.2.2 Required space

In order to be able to remove filters (figure 4) the unit needs to be installed with sufficient space in front as described below.

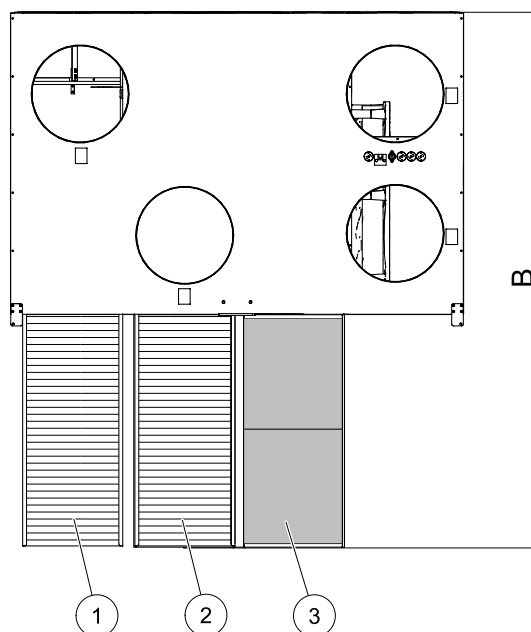


Fig. 4 Space required

| Position | Description |
|----------|-----------------------------|
| 1 | Filter outdoor air |
| 2 | Filter extract air |
| 3 | Heat exchanger ¹ |
| B | 1380 mm |

1. Two parts

4.2.3 Power consumption and current

Table 2: Power Consumption

| Model | Fans (W tot.) | Heater (W) | Total (W) | Fuse (mains) (A) |
|-----------------------|---------------|------------|-----------|------------------|
| VTC 700 | 336 | – | 336 | 10 |
| VTC 700 with reheater | 336 | 4500 | 4836 | 3x10 |

4.3 Transport and storage

The SAVE VTC 700 should be stored and transported in such a way that it is protected against physical damage that can harm panels etc. It should be covered so dust, rain and snow cannot enter and damage the unit and its components.

The appliance is delivered in one piece containing all necessary components, wrapped in plastic on a pallet for easy transportation.

5 Installation

This section describes how to install the unit correctly. To ensure a proper and fail free operation it is important that the unit is installed according to these instructions.

5.1 Unpacking

Verify that all ordered equipment are delivered before starting the installation. Any discrepancies from the ordered equipment must be reported to the supplier of Systemair products.

5.2 Where/how to install

SAVE VTC 700 are meant for indoor installation in a heated space. Mount the unit standing flat surface. It's important that the unit is completely levelled before it is put into operation.

Place the unit preferably in a separate room (e.g. storage, laundry room or similar).

When choosing the location it should be kept in mind that the unit requires maintenance regularly and that the inspection door should be easily accessible. Leave free space for taking out the main components (figure 4).

The outdoor air intake of the building should if possible be put in the northern or eastern side of the building and away from other exhaust outlets like kitchen fan exhausts or laundry room outlets.

5.3 Installing the unit

The unit must be installed in the following position (figure 5). It is important that the unit is completely level in order for the condensation drainage to work properly.

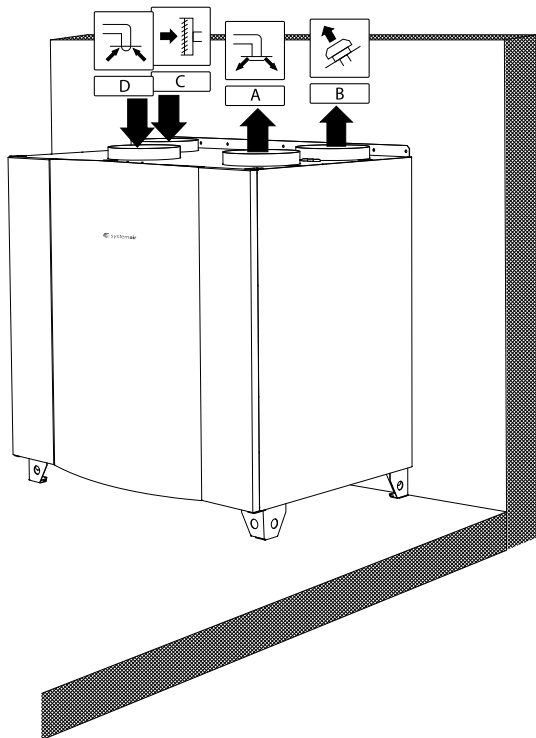


Fig. 5 Installation position (right hand unit)

5.3.1 Installation procedure SAVE VTC 700

1

Prepare the surface where the unit is to be mounted. Make sure that the surface is flat, levelled and that it supports the weight of the unit. Perform the installation in accordance with local rules and regulations.

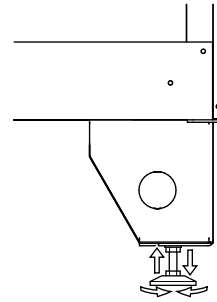
2

Place the unit standing on the floor. Use the enclosed adjustable feet to level the unit



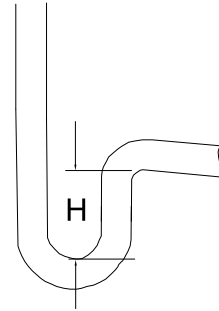
Warning

Beware of sharp edges during mounting and maintenance. Use protective gloves



3

Connect the condensate drainage to the 2 drain plugs in the bottom of the unit. Make sure to use correct drain traps on both connections. The height (H) must be at least 60 mm. Drain traps are not included on delivery and can not be obtained from Systemair.



4

Connect the unit to the duct system. Make sure that all necessary accessories are used to create a functional ventilation solution.



Warning

The installation of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.

5

Connect the control panel to the socket on top of the unit (chapter 5.3.2.3).

6

Connect the unit electrically to the mains with the enclosed plug and check that it starts up correctly.

5.3.2 Electrical Connections



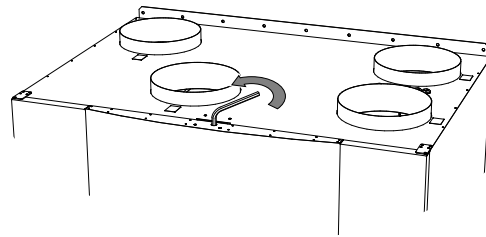
Danger

- Make sure that the Mains supply to the unit is disconnected before performing any maintenance or electrical work!
- All electrical connections must be carried out by an authorized installer and in accordance with local rules and regulations.

The SAVE VTC 700 is wired internally from factory. The electrical connection box is situated in the supply air fan compartment. Access the box according to below procedure.

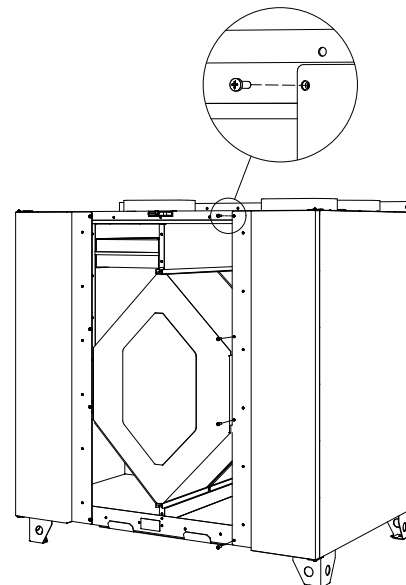
1

Remove the front hatch by the use of an 8 mm Allen key, after which the hatch is tilted back and lifted off completely.



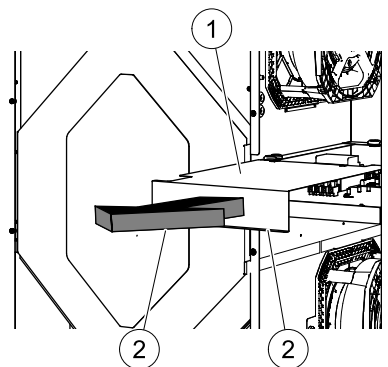
2

Open the side panel by removing 4 screws.



3

Remove the top cover plate (pos. 1) by removing 2 screws (pos. 2) in the lower front edge of the plate.



All external connections to possible accessories are made to terminals on the main print card (chapter 5.3.2.2).

5.3.2.1 Print card layout

The SAVE VTC 700 is equipped with built-in regulation and internal wiring.

The figure shows the print card. See wiring diagram for more information.

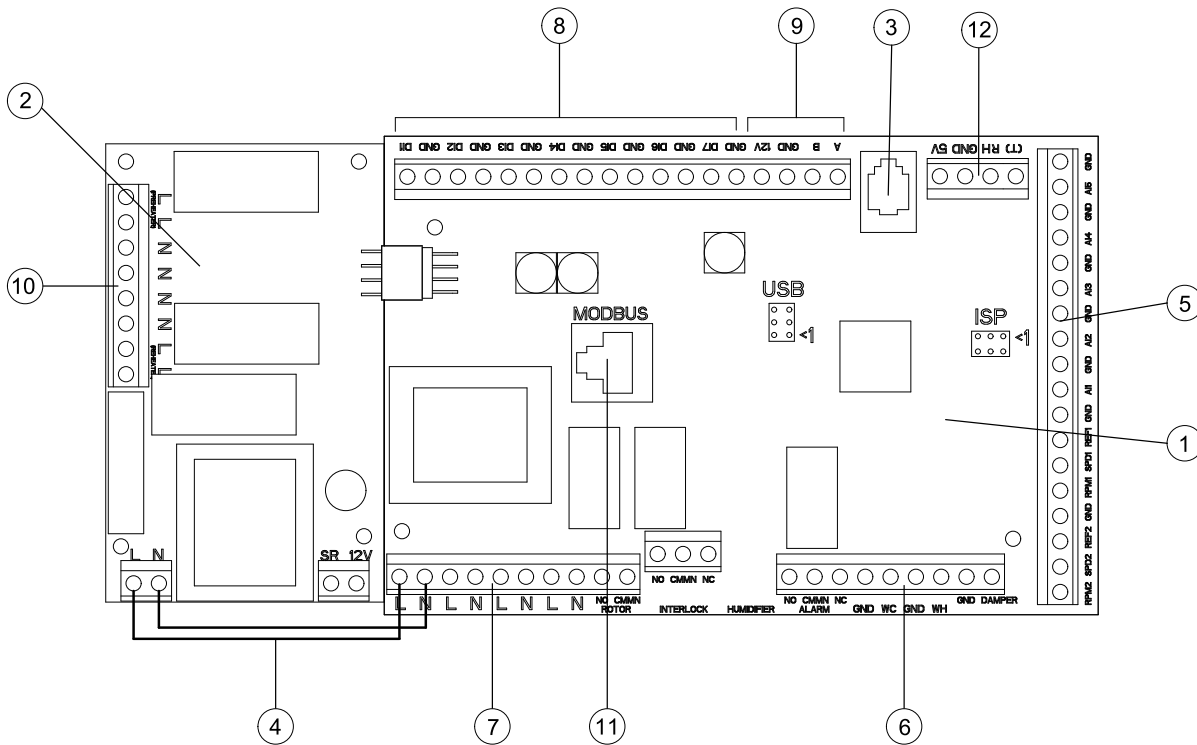


Fig. 6 Print card

| Position | Description |
|----------|--|
| 1 | Main print card |
| 2 | Print card for electrical heater |
| 3 | Connection to external control panel (connected to unit casing) |
| 4 | Mains supply connection between main print card and electrical heater print card |
| 5 | Terminals for AI 1–5 (temp sensors) and motor control |
| 6 | Terminals for external connections |
| 7 | Terminals for mains supply connections |
| 8 | Terminals for digital inputs (DI 1–7) |
| 9 | Terminals for internal control panel. |
| 10 | Terminals for regulated power supply to electrical heater |
| 11 | Modbus connection. See "User manual Modbus" for details. |
| 12 | Terminals for internal relative humidity sensor |

5.3.2.2 External connections on the print card

Connection terminals for external equipment can be found on the main print card inside the electrical connection box.

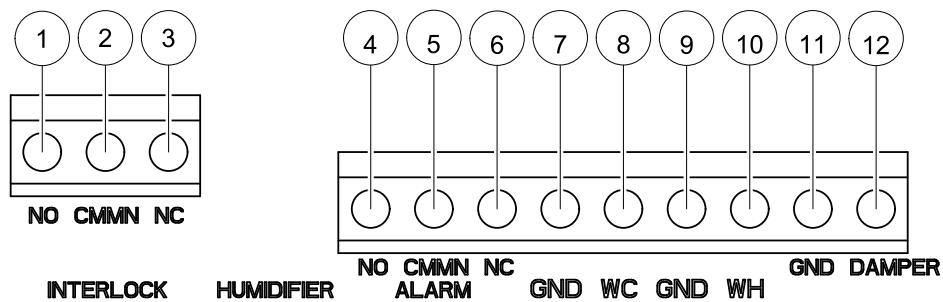


Fig. 7 External connections on the print card

| Position | Description | Remark |
|----------|-----------------------------------|---|
| 1 | Outdoor/exhaust air damper | Normally open, 230 V 1~, max 0,1 A / 24 VAC 1 A |
| 2 | Outdoor/exhaust air damper | Reference |
| 3 | Outdoor/exhaust air damper | Normally closed, 230 V 1~, max 0,1 A / 24 VAC 1 A |
| 4 | Sum alarm | Normally open, 24 V, max 1 A |
| 5 | Sum alarm | Reference |
| 6 | Sum alarm | Normally closed, 24 V, max 1 A |
| 7 | GND | Reference |
| 8 | Water cooler control signal (AO2) | 0–10 V DC |
| 9 | GND | Reference |
| 10 | Water heater control signal (AO1) | 0–10 V DC |
| 11 | GND | Reference |
| 12 | Bypass damper/Rotor control (AO3) | If used, 0–10 V DC |

5.3.2.3 External connections on top of the unit

Two of the connections on the main print card are wired to plugs on the unit casing:

- connection to an external control panel through a modular connector.
Maximum cable length: 50 m.
Cable type: Flat 4–conductor CEC Phone cable, or equivalent.
- External Modbus connector.
Maximum cable length: 90m in cable duct + 10 m in working area.
Cable type: LAN TCP Cat5E 4x2XAWG24 cable.
- connection to DI 3 with possibility to configure the fan speeds individually through a potential free on/off switch

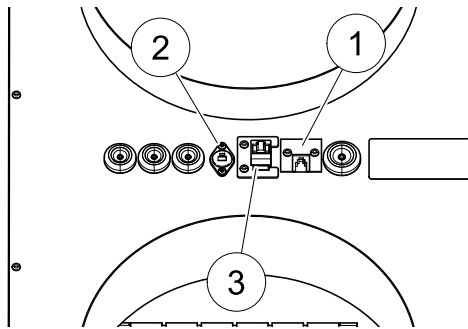


Fig. 8 Connections on top of the unit casing

| Position | Description |
|----------|---|
| 1 | Connection to control panel |
| 2 | Connection to DI 3 through an on/off switch |
| 3 | External Modbus connection |

5.3.3 Installation procedure Electrical Re-heater battery

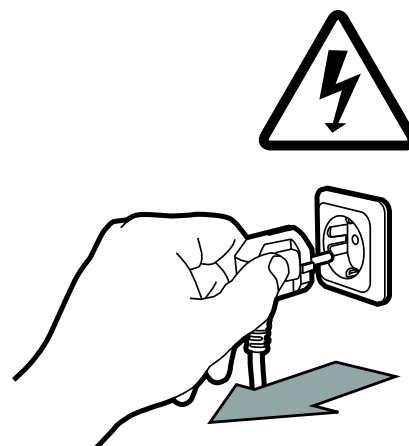
An electrical re-heater battery can be ordered as an accessory and be installed inside the unit.

Danger

- Make sure that the Mains supply to the unit is disconnected before performing any maintenance or electrical work!
- All electrical maintenance work must be carried out by an authorized installer and in accordance with local rules and regulations.

1

Disconnect the unit from the mains supply

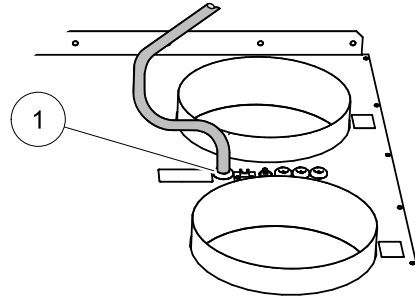


2

Open the electrical connection box as described above (chapter 5.3.2)

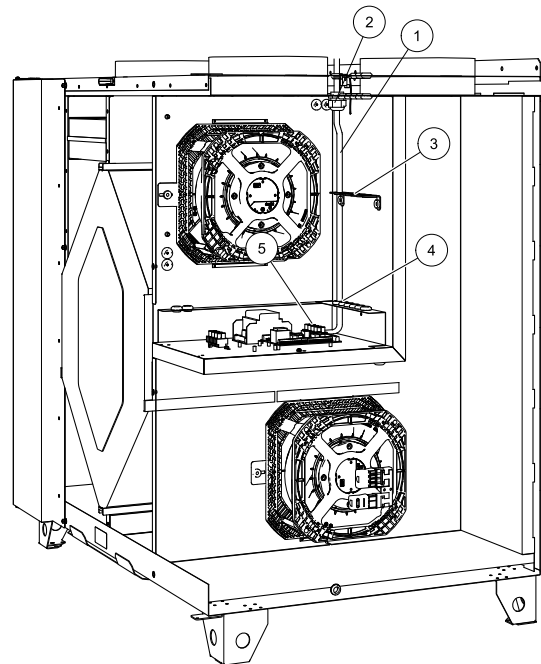
3

Remove the mains supply cable with the plug and replace it with a 5 lead cable. Insert it through the prepared cable gland (pos. 1) on top of the unit.



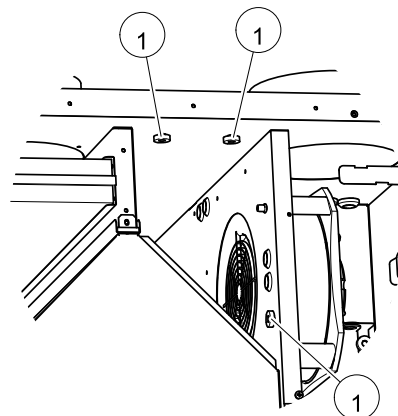
4

After leading the mains supply power cable (pos. 1) through the cable gland on top of the unit (pos. 2), continue to lead the cable through the cable gland bracket (pos. 3) and on down through the cable glands in the back of the electrical connection box (pos. 4). Connect the 3 phase mains supply to the terminal in the back of the box (pos. 5). See enclosed wiring diagram for more detailed information.



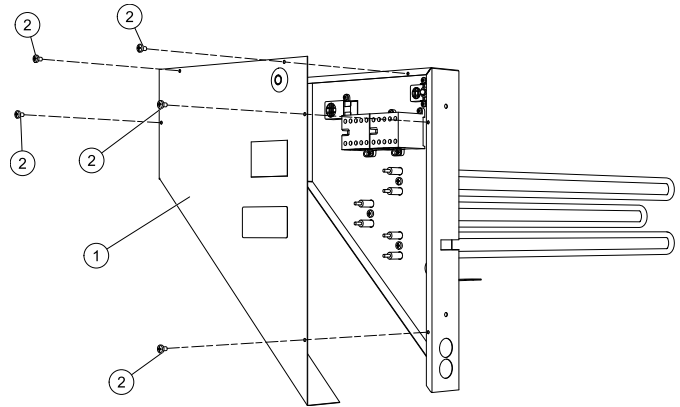
5

Remove the 3 screws with the black knobs (pos. 1) from the inner casing.



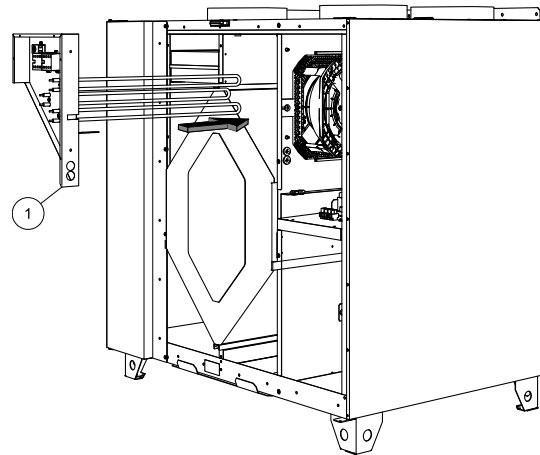
6

Remove the cover plate (pos. 1) of the electrical re-heater by loosening the 5 screws (pos. 2)



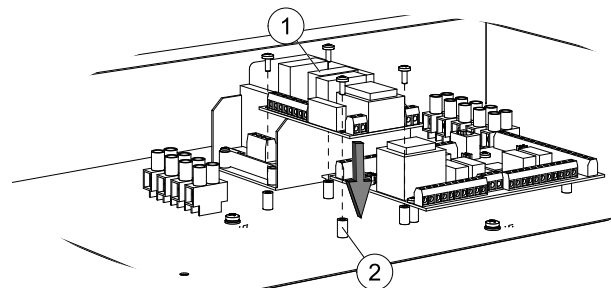
7

Insert the re-heater (pos. 1) in the compartment next to the supply air fan and fasten the mounting bracket against the inner walls with the 3 black knob screws.



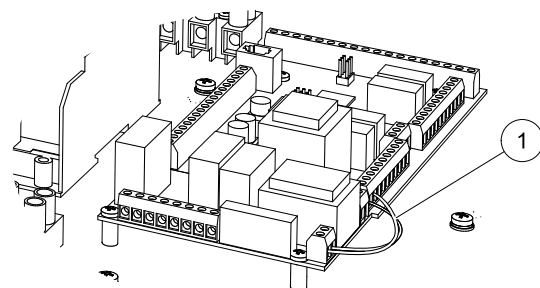
8

Continue with fastening the re-heater print card (pos. 1) on the prepared distances (pos. 2) next to the main print card with the 4 enclosed screws. Connect it to the main print card by the use of the prepared connections on the side of the 2 circuit boards.



9

Connect the blue and brown cables (pos. 1) to the free L/N terminals on the main print card. See wiring diagram for detailed information.

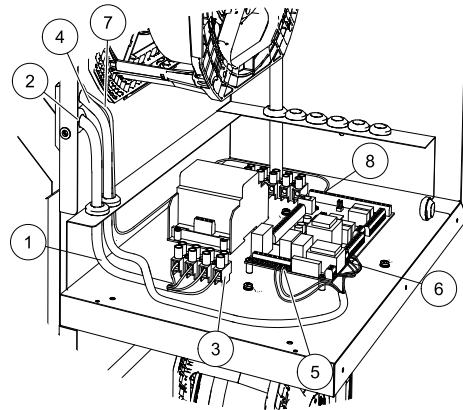


10

Lead the electrical re-heater mains power supply cable (pos. 1) through the lower cable gland (pos. 2) and connect the three phases to the terminal (pos. 3).

Lead the cable (pos. 4) containing the re-heater contactors power supply leads and emergency thermostat indication leads through the upper cable gland and connect it to terminals on the re-heater PCB. The leads are marked 1–4. The leads 1 and 2 are used for the contactor mains supply (pos. 5), 3 and 4 are used for the emergency thermostat indication (pos. 6).

Insert the over heat protection sensor (OT) cable (pos. 7) through the same upper cable gland and lead it to the back of the box. Connect it to the OT terminals on the main PCB (pos. 8).

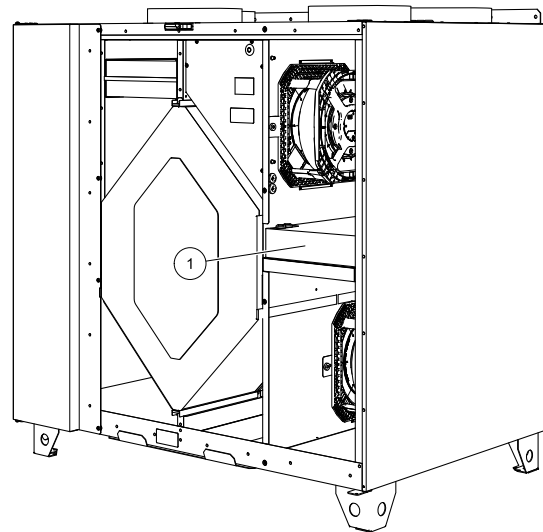


Note:

See enclosed wiring diagram for detailed information.

11

Put back the cover plate (pos. 1) and fasten it with the enclosed screws



12

Close the side and front hatch, turn the power back on and start the software configuration in the display according to below procedure (chapter 7.1).

After completed installation of the electrical re-heater battery the unit looks as described in below illustration (figure 9).

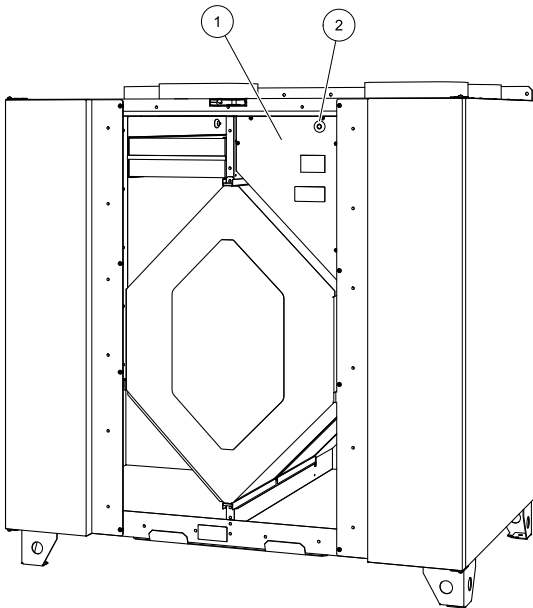


Fig. 9 Installed electrical re-heater

| Position | Description |
|----------|--|
| 1 | Electrical re-heater battery front plate |
| 2 | Reset button emergency thermostat |

Note:

After the re-heater battery has been installed and connected properly, apply the 2 type labels belonging to the electrical re-heater battery next to the labels of the unit. The first label is placed next to the unit label situated on the inner lower frame of the casing behind the inspection hatch. The second label is placed next to the unit label situated on top of the unit next to the duct connections.

6 Operation

6.1 Control panel

Connect the unit electrically to the mains with the enclosed plug and check that it starts up correctly.

The control panel is used to make the necessary adjustments.

An external control panel can be connected on the top of the unit.

The illustration below shows the control panel with a short description.

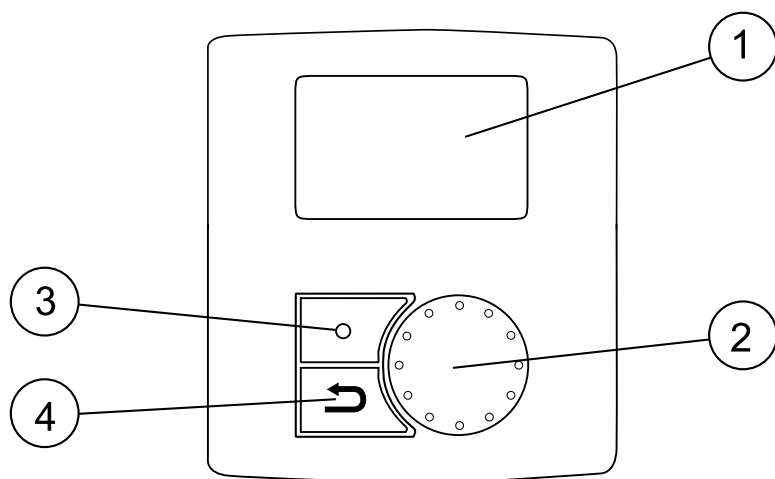
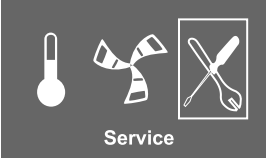



Fig. 10 Control panel

| Position | Description | Explanation |
|----------|----------------|---|
| 1 | Display | Shows symbols, menus and settings |
| 2 | SELECTION knob | Move through the menu lists or change settings and values by turning the knob left or right |
| 3 | ENTER button | ENTER menu choices or settings by pressing the button |
| 4 | RETURN button | Step RETURN in the menu levels and to abort an initiated parameter change and restore the original value by pressing the button |

6.1.1 Display symbols

| Symbol | Description | Explanation |
|--------|-------------|---|
| | Temp | <p>Illustrates the current set-point for supply air temperature (from completely empty to filled symbol).</p> <p>Turn the SELECTION knob to choose temperature.</p> <p>Press ENTER to save the setting.</p> |
| | Airflow | <p>Illustrates the current airflow. The airflow can be set manually in 5 steps: Off, Low, Nom, High and Auto.</p> <p>Turn the SELECTION knob to choose airflow.</p> <p>Press ENTER to save the setting.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> </div> <p style="text-align: center;">A B C D E</p> <p>A. Ventilation off.¹</p> <p>B. Low ventilation: Can be used when leaving the building for a longer period</p> <p>C. Nominal ventilation: Will give required air change under normal conditions.</p> <p>D. Maximum ventilation: To increase the airflow if necessary.</p> |

| Symbol | Description | Explanation |
|--|-------------|---|
| | | E. Auto ventilation: Will regulate after the pre-setting for the demand control settings. |
|  Service | Service | Press ENTER to access the service menu. |
|  Alarm | Alarm | Press ENTER to access the alarm list. |

1. The fan can be set to OFF by activating manual fan stop. See service menu description under functions.

Important

It is not recommended to activate manual fan stop (set fan to OFF) in standard households. If manual fan stop is activated, the unit should be provided with dampers in exhaust and fresh air ducts to avoid cold draught and risk of condensation when the unit has been stopped.

6.2 Service menu overview

Enter the service menu by selecting the service symbol in the display.

| Menu Level 1 | Menu Level 2 | Menu Level 3 | Explanation |
|--------------------------------------|--|--------------|---|
| Service Password | Password Password XXXX Locked YES/NO | | Enter the service level by typing 1111. Use the SELECTION knob for each digit and confirm with the ENTER button after each set digit. NO will unlock the system and allow parameter changes. |
| Service Change Password | Change password Actual XXXX New XXXX Confirm XXXX | | Set new password if necessary. In case the new password would be forgotten or misplaced, it's still possible to enter the service level by writing 8642. This overrides the earlier set password. |
| Service Filter period | Filter period Time to replace: 12month Reset NO/YES | | Shows selected time interval between filter change. Set Reset of the filter period to YES after completed filter change. Set time between filter changes. |

| Menu Level 1 | Menu Level 2 | Menu Level 3 | Explanation |
|---------------------------------|---|--|--|
| Service Time/Date | Time/Date YY/MM/DD Date: 12/09/12 Time: 10:00 Weekday: Sat | | Shows current set date and time. Set Correct date and time. |
| Service Summer/Winter | Summer/Winter Auto time change? YES/NO | | Use this dialog frame to configure automatic summertime/wintertime change-over. Time will automatically change between summertime and wintertime according to European standard, based on Greenwich time zone. Default value YES. Set YES or NO |
| Service Ext/Force Run | Ext/Force Run Minutes: 0 Airflow: Nominal | | Use this dialogue frame to program extended time you want the unit to work under operation conditions other than determined by the week schedule. Shows set time for extended/forced running. Shows Set airflow. Set the time that the unit is to run in extended/forced mode. Value range: 0–240 minutes. Set the airflow for this mode. Choose between Low, Nom or High. Default value: Nom. |
| Service Week program | Week program Week program | Week program Day: MON Per 1: 07:00 16:00 Per 2: 00:00 00:00 | Program how you want the unit to operate according to the week schedule. It's possible to set 2 periods per day. Set week day and time interval for the time you want the unit to be in ON mode. |
| | Week program Airflow | Airflow On level: low/nom/high/auto Off level: off/low/nom/high | Use this dialogue frame to determine the ON and OFF function for the fans in the week schedule. Set ON level. Choose between Low, Nom, High or Auto. Default value: Nom Set OFF level. Choose between OFF, Low, Nom or High. Default value: Low. |

| Menu Level 1 | Menu Level 2 | Menu Level 3 | Explanation |
|-------------------------------|---|--|--|
| Service Airflow log | Airflow log Level: 1-5 Reset: NO/YES SF: 140 /140 EF: 140 /140 | | <p>Use this dialogue frame to see how the fans have operated during the time (h) they have been active.</p> <p>The airflow are shown in 5 different levels:</p> <ul style="list-style-type: none"> • Level 1: 0% • Level 2: 1 – 29% • Level 3: 30 – 44% • Level 4: 45 – 59% • Level 5: 60 – 100% <p>Choose between the levels to see the time in hours the fans have been active in the different levels.</p> <p>Reset Yes resets the SF and EF time in the left column for all levels. The right column continues to count ahead and can not be reset.</p> <hr/> <p>Note:</p> <p>Factory reset (see Functions ->Factory reset) will not affect this function</p> <hr/> |
| Service Functions | Functions Heater/Cooler | Heater/Cooler Preheater: YES/NO Reheater: None/Electrical/Wa- ter/Other Cooler: None/Water | <p>Use this dialogue frame to set up the unit for heating and/or cooling.</p> <p>Set YES to activate preheater. Default setting is NO.</p> <p>Set Re-heater to None, Electrical, Water or Other.</p> <hr/> <p>Note:</p> <p>If reheater is set to Other, external heater is only controlled by AO1 (0–10V). Overheat or frost protection is not available.</p> <hr/> <p>Set Cooler to None or Water.</p> |

| Menu Level 1 | Menu Level 2 | Menu Level 3 | Explanation |
|--------------|--|--|--|
| | Functions Temp. Control | Temp. control P-band: 5°C I-time: OFF Output: 0-100% | Use this dialog frame to adjust the settings of supply air temperature controller. Set the proportional band (P-band) range for PI controller. Default value 5°C. Set integral time (I-time) range for PI controller. Default value Off. Shows output signal presented for the supply air temperature controller. |
| | Functions Preheater | Pre-Heater Preheater Sp: -30 - 0°C) P-band: 5°C I-time: OFF Output: Auto (xx%) / Man (Off/On) | Use this dialog frame to configure pre-heater function. Configure the setpoint setting. Default value is dependant on system type. In counter flow units setpoint is not adjustable. Set the proportional band (P-band) range for PI controller. Default value 5°C. Set integral time (I-time) range for PI controller. Default value Off. Set output to Auto or Man. Default setting is Auto. Actual controller output signal is presented in auto mode. Selecting Man, enables the user to manually control output of the preheater (On/Off). |
| | Functions Frost protection | Frost protection Alarm limit: 7°C | Shows current set frost protection alarm limit in °C for the installed water coil. Set Alarm limit in °C. Default value: 7°C. |
| | Functions Fan control | Fan control Airflow % | Only “%” is option (default) |
| | Fan control Airflow unit | Airflow unit % | Only “%” is option (default) |

| Menu Level 1 | Menu Level 2 | Menu Level 3 | Explanation |
|--------------|---|---|--|
| | Demand control | Demand control CO2 / RH Setpoint 0 ppm/0% RH P-Band 100 ppm/10%RH I-Time OFF | <p>It is possible control the indoor air quality using RH (Relative humidity) or CO2 (Carbon dioxide) sensor/sensors. Default setpoint setting is Off. (0%/0ppm).</p> <p>Both types should be able to use at the same time, meaning 2 PI controllers. When demand control setpoint is configured, fans set to auto mode and regulate against the setpoint. The fan symbol should have the middle area empty, and the outer and inner filled. It should not be possible to change either.</p> |
| | Fan control Airflow | Airflow EF SF % Nom 50 50 High 100 100 Low 25 25 | <p>Use this dialogue frame to set the airflow in %. The airflow can be set individually for each fan EF: Extract fan, SF: Supply fan</p> <p>Set the airflow for EF and SF for each step (Low, Nom, and High).</p> |
| | Functions Manual fan stop | Manual fan stop Allow manual fan stop Y/N | <p>Set if it should be possible to turn off the fans in the unit manually from the control panel.</p> <p>Chose between Y and N.</p> <p>If Y is selected the fans can be turned off by turning the SELECTION knob to empty fan</p> |
| | Functions Analog input | Analog input 1: SS 20.0 2: ETS 23.0 3: Unused 4: Unused/OT/FPS 20.0 5: OS 10.5 6: RH 0% | <p>Shows analogue inputs from active temperature sensors.</p> <p>SS: Supply air temp sensor. ETS: Extract air temp sensor. FPS: Frost protection sensor. OS: Outdoor air temp sensor. OT: Overheat protection sensor. RH: Relative humidity sensor.</p> |

| Menu Level 1 | Menu Level 2 | Menu Level 3 | Explanation |
|--------------|---------------------------------------|--|--|
| | Functions Analog output | Analog output A01 auto/man/off A02 auto/man/off A03 auto/man/off | <p>Shows current analogue outputs in 0–10 V to hot/cold water actuator or electrical re-heater and rotor drive / bypass damper.</p> <p>Set AO1 (Analogue output to hot water actuator or electrical re-heater) to auto, man or off. Default value: auto.</p> <p>Set AO2 (Analogue output to cold water actuator) to auto, man or off. Default value: auto.</p> <p>Set AO3 (Analogue output to rotor drive or bypass damper) to auto or man. Default is auto. Selecting man enables the user to manually control the actuator/damper with a 0–10 V signal. 0 V completely closed and 10 V completely opened actuator/bypass damper.</p> |
| | Functions Digital input | Digital input DI1 ON/OFF DI2 ON/OFF DI3 ON/OFF DI4 ON/OFF DI5 ON/OFF DI6 ON/OFF DI7 ON/OFF | <p>Shows current status of the digital inputs ON or OFF</p> <p>DI1: Fan configuration</p> <p>DI2: Fan configuration</p> <p>DI3: Fan configuration</p> <p>DI4: Heater deactivated</p> <p>DI5: Extended/forced running</p> <p>DI6 for rotating heat exchanger: Rotor sensor</p> <p>DI6 for counter flow heat exchanger: Bypass damper limit switch</p> <p>DI7: Home/leave</p> |
| | Functions Config DI 1-3 | Config DI1-3 DI:1-3 SF: high EF: high Polarity: N.O/N.C Delay: Off-240s | <p>DI 1-3 are free to use for any purpose and have a different priority, DI1 being the highest. DI 1-3 have a higher priority than DI5.</p> <p>It is possible to invert input function.</p> <p>Set DI 1-3 to be normally open (N.O) or normally closed (N.C). Default setting N.O.</p> <p>It is also possible to set how you want the fans to react to</p> |

| Menu Level 1 | Menu Level 2 | Menu Level 3 | Explanation |
|--------------|---------------------------------------|---|---|
| | | | <p>3 different digital inputs when they are switched on.</p> <p>Potential free switches need to be connected physically to terminals on the main print card to obtain the different functions. See the wiring diagram for more information.</p> <p>Set the supply air fan (SF) and extract air fan (EF) individually to off, low, nom or high for digital inputs 1–3</p> <p>Set a predefined off delay for the input signal. System will be in the ON state for predefined period or as long as DI is activated and period is set to 0. Counting down for the predefined period starts when DI function is deactivated. Default value is 0 sec.</p> |
| | <p>Functions</p> <p>DI 4–7</p> | <p>DI 4–7</p> <p>4 Stop heat 5 Ext run 6 Damper/Rotor 7 Home/Leave</p> | <p>DI 4–7 are default set from factory and can't be changed by the user. Below follows a short description of each function.</p> <p>DI4: Makes it possible to disable the electrical re-heater. Activated input means that the electrical/other re-heater is deactivated.</p> <p>DI5: Activate the Extended/forced running function. The function overrides current set airflow settings and runs according to the settings in <i>Service->Ext/Force run</i>. Choose between Low, Nom and High for this function. The input is calculated based on the signals from an impulse-switch. If a standard switch is used, the countdown of the set time starts when the switch is switched off.</p> <p>DI6 for rotating heat exchanger: Rotor sensor. Used by the system to monitor the rotor rotation.</p> <p>DI6 for counter flow heat exchanger: Bypass damper limit switch.</p> |

| Menu Level 1 | Menu Level 2 | Menu Level 3 | Explanation |
|--------------|---|--|---|
| | | | <p>Used by the system to detect the damper position.</p> <p>DI7: Activates low energy support control. Heat exchanger operating by the adjusted setpoint value and a active re-heater has support control for the lowest setpoint. (12 °C)</p> <p>The function is used when the building is uninhabited for a longer period.</p> <p>It is recommended to connect DI7 and DI1 or DI3 in parallel. If DI7 is activated, set the fans speed to min. Airflow settings are done when configuring DI1/DI3.</p> |
| | <p>Functions</p> <p>Digital output</p> | <p>Digital output</p> <p>1: SF 67%</p> <p>2: EF 67%</p> <p>3: Rot ON/OFF</p> <p>4: ALARM Y/N</p> <p>5: Dmp Y/N</p> <p>6: Heater Y/N</p> | <p>Shows The current status of digital outputs 1–6 (the settings in the column to the left are examples).</p> <p>1: SF 67%: Current set speed of the supply air fan (shown as percentage of the maximum speed).</p> <p>2: EF 67% Current set speed of the extract air fan (shown as percentage of the maximum speed).</p> <p>3: Shows if the rotor is active or not. Unused for unit with counter flow heat exchanger.</p> <p>4: Alarm Y/N: Indicates if the sum. alarm is active or not</p> <p>5: Dmp OFF: Outdoor/exhaust air damper is on or off.</p> <p>6: Heater Y/N: Indicates if the electrical re-heater is active or not.</p> |
| | <p>External sensors</p> | <p>External sensors</p> <p>CO2: 0 ppm –</p> <p>RH: 0% –</p> | <p>Last valid value is presented for the bounded sensors.</p> <p>Highest actual sensor signal presented via –/modbus/wireless.</p> <p>Unbound sensor presented as – (none).</p> <p>Modbus sensors has priority over wireless sensors.</p> |

| Menu Level 1 | Menu Level 2 | Menu Level 3 | Explanation |
|--------------|--|---|--|
| | <p>Functions</p> <p>External DI</p> | <p>External DI Active Wireless: DI1/..DI20 Assign to: -/DI-5/DI7</p> | <p>External DI menu only available if one or several "Input modules" are bound to the system. Active wireless DI1-20 is depended on actual node for "Input module".</p> <p>Node shown in "Wireless" menu which node representing DI module inputs.</p> <p>Eg. Node 1 type: DI. Active wireless DI1 and DI2 Node 2 type: DI. Active wireless DI3 and DI4 Node 10 type: DI. Active wireless DI19 and DI20</p> <p>Active wireless DI1-20 are available to assign to DI1-5 and DI7 for the system in the air handling unit.</p> <p>DI6 is not available as selection, used by the system in the air handling unit.</p> <p>Unsigned DI is shown as – (none).</p> <p>To reset a previously assigned DI, select "–" and confirm the selection.</p> |
| | <p>Functions</p> <p>Wireless</p> | <p>External DI Note: 1 Type: None State: No Network Data: 0</p> | <p>Wireless system status.</p> <p>Node: Shows number of bound wireless module.</p> <p>Type: None/UI: User Interface (Control panel)/DI: Digital Input module/CO2: CO2 sensor module/RH: RH sensor module.</p> <p>State: No Network: No gateway connected to the system for air handling unit/Unbound: No bonded module/OK: Successful binding of module</p> <p>Data: The actual value from module/Comm fail: Communication failure, see manual for actual module for troubleshooting.</p> <p>To reset all bound nodes, see user manual for Gateway Wireless.</p> |

| Menu Level 1 | Menu Level 2 | Menu Level 3 | Explanation |
|--------------|-----------------------------------|---|---|
| | Functions Defrosting | When RH sensor is used: Defrosting Mode Normal/ Hard/ Soft Allow unbalance YES RH sensor: YES When RH sensor is not used: Defrosting Mode 1-5 Allow unbalance YES RH sensor: NO | Use this dialogue frame to set how aggressive you want the defrosting function to operate (see chapter 7.2). |
| | Functions Calibration | Calibration Sensor value: 0% Adjusted value: 0% Confirm: YES/NO | Use this dialogue frame to calibrate internal RH sensor for any deviations if necessary. Shows current input signal value of RH sensor. Set adjusted value for RH sensor. Adjusted value must be confirmed. Set YES to confirm changes. |
| | Functions Modbus | Modbus Settings Settings Address 1 Baud 19200 Parity None | Information about Modbus communication and variables can be found in the Modbus user manual for residential units in the online catalogue at www.systemair.com . |
| | | Modbus Gateway Gateway State Not present/... | Shows current status of communication. |
| | Functions Factory reset | Factory reset Really reset? YES/NO | Use this dialogue frame to return to factory settings. Set YES or NO <hr/> Note: This will erase all your personal settings that have been done for the unit. |

| Menu Level 1 | Menu Level 2 | Menu Level 3 | Explanation |
|----------------------------|--|--------------|--|
| Service Language | Language Language ENGLISH | | Use this dialogue frame to return to select your local language. Set Language by turning the SELECTION knob. |
| Service Versions | Version VTC 700 CD EC Appl. xxx xxx Boot xxx xxx | | Shows current software versions Note: The software versions are just an example and may differ in a specific unit. |
| Service Firmware | Firmware CD EC Unit xxx xxx Gate- xxx xxx way Update YES /NO | | Use this dialogue frame to update firmware. Set YES or NO. Shows current version of the unit and Z-wave Gateway. |
| Service Alarms | Alarms Fan Frost Bypass Rot Pb Fail Temp Filter Low SS Defrost RH | | Shows the alarms that have been triggered. See alarm list (chapter 9.3.1) |

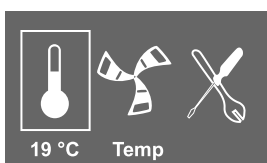
6.3 Setting the temperature

The supply air temperature is set manually in steps of 1 K in the main menu display by choosing the temperature symbol.

If an electrical re-heater is installed the temperature setpoints are: 12-22 °C. For installed water re-heater the setpoints are: 12-40 °C.

If the re-heater is deactivated, the temperature steps are: 15-19 °C. Default value: 15.0 °C.

Each temperature step is illustrated by increasing the filling of the temperature symbol and the temperature is shown in the display



An unfilled temperature symbol will activate manual summer mode. See chapter 6.5

6.4 Manual setting of airflow

It is possible, at any time, to manually set the airflow in the main menu display. By choosing the fan symbol and confirming, it is possible to increase or decrease the airflow in 5 steps: Off, Low, Nom, High and Auto.

By doing so, you override the programmed week schedule for the unit until the end of the present time period in the week program (chapter 7.3).



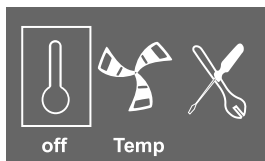
Warning

It is **not** recommended to activate manual fan stop (set fan to OFF) in standard households. If manual fan stop is activated, the unit should be provided with dampers in exhaust and fresh air ducts to avoid cold draught and risk of condensation when the unit has been stopped.

The fan can be set to OFF by activating manual fan stop. See the Installation and Service manual, chapter Service menu overview: Manual fan stop.

6.5 Manual and automatic summer mode

Manual summer mode occurs if no temperature step is selected. The temperature symbol on the main menu is then completely empty.



If the electrical re-heater is activated, it will switch off during manual summer mode. Manual summer mode goes automatically to step 1 (setpoint 12 °C) after two minutes if the supply air temperature is +5 °C or below.

If a water heater battery is installed and activated, the manual summer mode goes automatically to step 1 (setpoint 12 °C) if the outdoor air or supply air temperature is +5 °C or below.

The unit will automatically alternate between winter operation with heat recovery and summer operation without heat recovery.

6.6 Cool recovery

If the outdoor air is warmer than the extract air and the supply air is above the setpoint, cool recovery occurs. This condition blocks the heat regulation process.

7 Commissioning

7.1 Start up wizard

The **Start up Wizard** is a step-by-step configuration tool that starts automatically when the SAVE VTC 700 is started for the first time or when:

- a factory reset is performed

- a new print card is installed (spare part)
In this case the unit type must be entered (SAVE VTC 700)


The airflow in the Start up wizard can be set by percentage (Airflow %) with the Fan control.

7.1.1 Procedure

| 1. Turn the SELECTION knob to choose language and press ENTER | Languages Language ENGLISH | | | | | | | | | | | | | | | |
|---|---|----------------|-----------|-----------|---|--|--|-----|----|----|------|-----|-----|-----|----|----|
| 2. Choose unit type, this choice is only present if a new print card is installed (spare part) or when a factory reset is performed. | Type SAVE VTC 700 | | | | | | | | | | | | | | | |
| 3. Set date and time | Time/Date YY/MM/DD Date: 12/09/12 Time: 10:00 Weekday: Sat | | | | | | | | | | | | | | | |
| 4. Select heater: None/Electrical/Water/Other Note: This choice is available only after a factory reset, see chapter 7.1.2, or when a new print card is installed. | Heater Reheater: None/Electrical/Water/Other | | | | | | | | | | | | | | | |
| 5. Fan control. Turn the SELECTION knob to select percentage (%) fan control and press ENTER. Here it is possible to change the Nominal/High/Low airflow on the Extract air fan (EF) and Supply air fan (SF). Airflow in %. When settings are done, press ENTER. | <table border="1"> <thead> <tr> <th>Airflow</th> <th>EF</th> <th>SF</th> </tr> </thead> <tbody> <tr> <td>%</td> <td></td> <td></td> </tr> <tr> <td>Nom</td> <td>50</td> <td>50</td> </tr> <tr> <td>High</td> <td>100</td> <td>100</td> </tr> <tr> <td>Low</td> <td>25</td> <td>25</td> </tr> </tbody> </table> | Airflow | EF | SF | % | | | Nom | 50 | 50 | High | 100 | 100 | Low | 25 | 25 |
| Airflow | EF | SF | | | | | | | | | | | | | | |
| % | | | | | | | | | | | | | | | | |
| Nom | 50 | 50 | | | | | | | | | | | | | | |
| High | 100 | 100 | | | | | | | | | | | | | | |
| Low | 25 | 25 | | | | | | | | | | | | | | |

7.1.2 Perform Factory reset

How to perform a factory reset if necessary:

| | |
|--|---|
| 1. Enter the service menu by selecting the service symbol in the display and press ENTER. |  <p>Service</p> |
| 2. Go to password and enter the password, default 1111 Use the SELECTION knob for each digit and confirm with the ENTER button after each set digit and choose NO for the system not be locked. | Password Password XXXX Locked YES/NO |
| 3. Go to Functions and select Factory Reset | Functions Factory reset |
| 4. Turn the SELECTION knob so YES is shown and press ENTER. | Factory reset Really reset? YES/NO |
| 5. ACCEPTED is shown in the display window | ACCEPTED |
| 6. The Start up Wizard starts after approximately 10 seconds | |

7.2 Defrost settings

The unit is equipped with an automatic defrost function that is activated when there is risk of icing in the area around the heat exchanger. The setting shown in table 3 determines how aggressive the defrosting will be. Default factory defrost mode setting is Normal.

If relative humidity sensor is configured not to be used for defrosting, then defrosting levels have to be selected manually by the user, in that case defrosting will be controlled only by the outdoor air temperature sensor. The settings are shown in table 4.

Note:

The heat exchanger should withstand low outdoor temperatures, but in those cases where icing can occur please be aware of that the defrost setting will generate an under pressure in the building. Using a fire place, be aware that there is a possible risk of smoke being extracted into the living areas due to under pressure if defrosting is activated.

Table 3: Defrost modes

| Defrost mode | Description |
|--------------|--|
| Soft | Dry areas, such as warehouse buildings with few people or industrial buildings that don't use water in their production process. |
| Normal | Apartments or houses with normal humidity ¹ |
| Hard | Buildings with very high humidity level. |

1. In newly constructed houses it might be necessary with a higher defrost level during the first winter period.

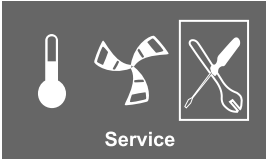
Table 4: Defrost levels

| Defrost level | Level of humidity | Relative humidity indoors ¹ | Description |
|---------------|-------------------|--|---|
| 0 | | <20% | Defrosting is turned off. Areas where relative humidity is very low. Note: This setting is not valid for units equipped with counter flow heat exchangers when RH sensor is set not to be used for defrosting. |
| 1 | Min | 20% - 29% | Dry areas, such as warehouse buildings with few people or industrial buildings that don't use water in their production process. |
| 2 | Low | 30% - 40% | Office buildings |
| 3 | Medium | 41% - 60% | Apartments or houses with normal humidity ² |
| 4 | High | 61% - 80% | Apartments or houses with high humidity |
| 5 | Extremely high | >80% | Buildings with very high humidity level. |

1. Approximate values of relative humidity in the extract air at cold outdoor temperatures.

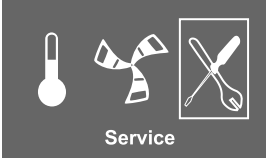
2. In newly constructed houses it might be necessary with a higher defrost level during the first winter period.

7.2.1 Setting the defrost level

| | |
|--|---|
| <p>1. Go to the service menu by using the SELECTION knob.</p> |  |
| <p>2. Enter the service level by typing the password, default 1111. Use the SELECTION knob for each digit and confirm with the ENTER button after each set digit and choose "NO" for the system not be locked.</p> | <p>Password Password XXXX Locked YES/NO</p> |
| <p>3. Go to: Functions Choose: Defrosting</p> | <p>Functions Defrosting</p> |
| <p>4. Set the mode</p> | <p>When RH sensor is configured to be used for defrosting function:</p> <p>Defrosting</p> <p>Mode Soft/Normal/Hard RH sensor: YES</p> <p>When RH sensor is not configured to be used for defrosting function:</p> <p>Defrosting</p> <p>Mode 1-5 RH sensor: NO</p> |
| <p>5. Select if unbalanced airflows are allowed in the building during the defrost cycle. Choose between YES and NO. Default is YES.</p> | <p>Allow unbalance YES/NO</p> |

7.3 Programming the Week schedule

Set the week schedule according to below procedure:

| | |
|--|--|
| <p>1. Go to the service menu by using the SELECTION knob.</p> |  |
| <p>2. Enter the service level by typing the password, default 1111. Use the SELECTION knob for each digit and confirm with the ENTER button after each set digit and choose "NO" for the system not be locked.</p> | <p>Password Password XXXX Locked YES/NO</p> |
| <p>3. Go to: Week program</p> | <p>Service Week program</p> |
| <p>4. Choose Week program again.</p> | <p>Week program Airflow</p> |

| | |
|--|--|
| <p>5. Set week day and time you want the unit to be in ON level. Two periods per day can be programmed. The rest of the time the unit will be in OFF level.</p> | <p>Week program</p> <p>Day: MON Per 1: 07:00 16:00 Per 2: 00:00 00:00</p> |
| <p>6. Go back to the previous dialogue frame with the RETURN button and go down to <code>Airflow</code>.</p> | <p>Week program</p> <p>Airflow</p> |
| <p>7. Set which airflow the fan is supposed to be running in the ON level, choose between Low, Nom, High or Auto.</p> <p>Set which airflow the fan is supposed to be running in the OFF level, choose between OFF, Low, Nom or High.</p> <hr/> <p>Note:</p> <p>If an electrical re-heater battery is installed and active and the unit is shut down from the control panel, for example by choosing OFF. When the unit is in OFF level in the week program, the fans will continue to run for 3 minutes, to prevent the heater from triggering the over heat protection sensor, before they stop.</p> <hr/> | <p>Airflow</p> <p>On level: low/nom/high/auto Off level: off/low/nom/high</p> |
| <p>8. Step back with the RETURN button until you reach the main menu display</p> | |

7.4 Extra functions

The unit is equipped with a number of extra on/off functions which can be activated from external on/off switches that can be connected to the digital inputs on the main print card (see wiring diagram).

The following possibilities are available:

- **Digital inputs 1–3:** Are free to be used for any purpose, they also have a different priority, DI 1 being the highest and DI 3 the lowest. DI 1–3 have a higher priority than DI 5. By connecting on/off switches to these inputs it's possible to choose 4 (Off/Low/Normal/High) individual airflow settings in the control panel depending on a temporary need for the building (for example lowering the extract air airflow when an open fire place is used). See chapter 6.2.

DI 3 is prepared and already connected internally for easy access on the unit. See chapter 5.3.2.3.

In units with a built-in bypass for cooker hood connection, DI 3 can be used to control external cooker hood. It has to be configured as SF=High and EF=High.

- **Digital input 4:** Makes it possible to disable the electrical/other re-heater
Activated input means that the electrical/other re-heater is disabled.
- **Digital input 5:** Activate the Extended/forced running function with a impulse switch. The function overrides current airflow settings and runs in forced mode according to the settings in `Service -> Ext/Force run`. Choose between Low, Nom and High for this function.
The input is calculated based on the signals from an impulse-switch. If a standard switch is used, the countdown of the set time starts when the switch is switched off.
- **Digital input 6:** Control for the exchanger, used by the system
- **Digital input 7:** Home/leave, switching on this activates low energy support control. The heat exchanger is always operating according to the setpoint value. Is there a re-heater activated it will operate according to the lowest setpoint value (12 °C). The function is used when the building is uninhabited for a longer period.

It is recommended to connect either of DI1, DI2 or DI3 in parallel with DI7. If DI7 is activated, set the fans speed to min. Airflow settings are done when configuring DI1, DI2 or DI3.

See menu options in “Service menu Overview” (chapter 6.2).

8 Before starting the system

When the installation is finished, check that:

- The unit is installed in accordance with the instructions
- The unit is correctly wired
- Outdoor and exhaust air dampers and silencers are installed and that the duct system is correctly connected to the unit
- All ducts are sufficiently insulated and installed according to local rules and regulations
- Outdoor air intake is positioned with sufficient distance to pollution sources (kitchen ventilator exhaust, central vacuum system exhaust or similar)
- All external equipment are connected
- The unit is correctly configured and commissioned
- The week schedule and airflow settings are correctly programmed.

9 Service

Note:

Questions regarding the unit and the installation are answered by your installer or place of purchase!

9.1 Warnings

Danger

- Make sure that the mains supply to the unit is disconnected before performing any maintenance or electrical work!
- All electrical connections and maintenance work must be carried out by an authorized installer and in accordance with local rules and regulations.

Warning

- The system should operate continuously, and only be stopped for maintenance/service
- Although the mains supply to the unit has been disconnected there is still risk for injury due to rotating parts that have not come to a complete standstill
- Beware of sharp edges during maintenance. Use protective gloves
- Make sure that filters are mounted in their place before running the system
- This product must only be operated by a person which has suitable knowledge or education within this field or carried out with the supervision of a suitably qualified person.

9.2 Internal Components

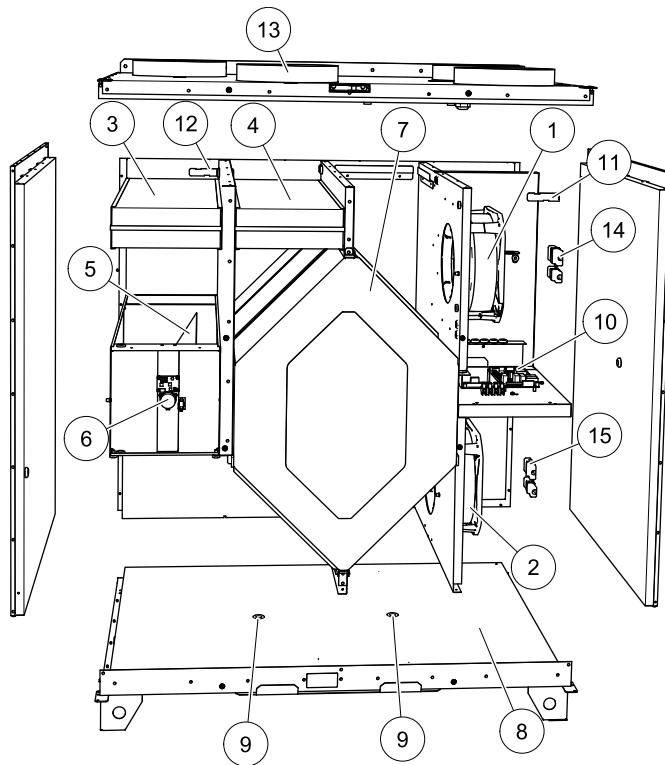


Fig. 11 Components

| Position | Description |
|----------|------------------------------------|
| 1 | Fan, supply air |
| 2 | Fan, extract air |
| 3 | Filter, outdoor air |
| 4 | Filter, extract air |
| 5 | Defrost damper ¹ |
| 6 | Motor, defrost damper |
| 7 | Heat exchanger |
| 8 | Condensation tray |
| 9 | Condensation drain |
| 10 | Print card with terminals |
| 11 | Temperature sensor, supply air |
| 12 | Temperature sensor, outdoor air |
| 13 | Temperature sensor, extract air |
| 14 | Fast couplings for supply air fan |
| 15 | Fast couplings for extract air fan |

1. The damper may not be turned by hand!

9.2.1 Description of Components

9.2.1.1 Fans

The fans (pos. 1 and 2 figure 11) have external rotor motors of EC type which can be steplessly controlled individually 20–100%. The motor bearings are life time lubricated and maintenance free. It is possible to remove the fans for cleaning, see “User Manual” for more information.

9.2.1.2 Filters

The filters are of filter quality G 4 for both the supply air and extract air filter. The filters need to be replaced when polluted. New sets of filters can be acquired from your installer or wholesaler.

9.2.1.3 Defrost damper

The built in bypass damper (pos. 5 figure 11) is involved in defrosting, cool recovery, and supply air temperature regulation of the unit. The damper motor is controlled by an analogue 0–10 V signal.

A test sequence which opens and closes the damper will occur once every 24 hours. An actuator drive detects if the bypass is able to close completely. If a signal from DI6 is not detected for two minutes after the function test has been initiated, then the warning “Bypass Alarm” appears in the control panel.

9.2.1.4 Heat exchanger

SAVE VTC 700 is equipped with a highly efficient, counter flow plate heat exchanger. Required supply air temperature is therefore normally maintained without adding additional heat.

The heat exchanger is removable for cleaning and maintenance, see “User Manual” for more information.

9.2.1.5 Condensation tray and drainage

Depending on the relative humidity in the extract air, condensation may occur on the cold surfaces of the heat exchanger. The condensate water is gathered in the condensation tray (pos. 9 figure 11) in the bottom of the unit and is led out through the drainage (pos. 10 figure 11) which are situated on each side of the heat exchanger. The drainage outlets are size ½” with outer threaded tube connections (chapter 5.3.1).

9.2.1.6 Print card

The main print card (pos. 10 figure 11) controls the functions and set temperatures of the unit. It is possible to connect external accessories to terminals in the print card. See wiring diagram for more information.

9.2.1.7 Temperature sensors

Three temperature sensors (NTC, 10 kΩ) are included in the unit from factory:

- Supply air sensor (pos. 11 figure 11)
- Outdoor air sensor (pos. 12 figure 11)
- Extract air sensor (pos. 13 figure 11).

The sensors are wired to the main print card. See wiring diagram for more information.

9.2.1.8 Humidity sensor

Relative humidity sensor (RHS) is included in the unit from factory and positioned in the extract air chamber.

The sensor is connected to the main print card. See wiring diagram for more information.

9.2.1.9 Electrical Re-heater battery

The electrical re-heater is optional, i.e. not included from factory in a standard unit, and must be connected and activated in the control panel. The re-heater is activated by a relay and switches on if the supply air temperature is lower than the set point and switches off if one or more of the following conditions are met:

1. If the supply air temperature is above the set point
2. If the over heat protection is activated or the sensor is malfunctioning
3. If the emergency thermostat is triggered or broken
4. If the supply air sensor is in error state
5. If the supply air fan is not running
6. If the heater is set to not active in the menu.
7. If re-heater is disabled by digital input 4 (DI 4).

9.2.1.10 Water Re-heater battery

A water re-heater battery (optional), which can be acquired as an accessory, can be controlled by the analog output WH (0-10 V DC). The water heater uses AI 4 for frost protection (OT, "Over heat protection", changes to FPS, Frost protection in the menu). The frost protection sensor should then be a strap on surface sensor situated on the return water tube. The supply air sensor (SS) at AI 1 must be replaced with a duct sensor which can be acquired as an accessory. See wiring diagram for more information.

Only electrical or water re-heater is allowed, i.e. if a water re-heater is selected, the electrical re-heater is deactivated and vice versa.

Note:

If a water re-heater battery is installed we strongly recommend you to also install an outdoor air damper with a spring return actuator.

9.2.1.11 Water Cooler

A water cooler (optional) can be acquired as an accessory and be controlled by the unit. If a water cooler is installed the supply air sensor (SS) at AI 1 must be replaced with a duct sensor which can be acquired as an accessory. See wiring diagram for more information.

9.3 Trouble shooting

If problems should occur, please check the items below before calling your service representative.

| Malfunction | Action |
|-------------------|---|
| Fans do not start | <ol style="list-style-type: none"> 1. Check the display for alarms. 2. Check that all fuses and fast couplings are connected (mains supply and fast couplings for supply and extract air fans, pos. 16 figure 11). 3. Check that the week program is in ON mode. The week program might be in OFF mode with the air flow set to OFF (chapter 7.3). 4. Check if one of the digital inputs 1–3 (DI 1–3) is active and set to off. This would force one or both fans to stop depending on the setup (chapter 7.4). |
| Reduced airflow | <ol style="list-style-type: none"> 1. Check the display for alarms. 2. The unit could be in defrost mode. This reduces the fan speed and in some cases shuts down the supply air fan completely during the defrosting cycle. The fans go back to normal after finished defrosting. Shown as <i>Defrosting</i> in the display 3. Check setting of air flow in the control panel (chapter 6.4). 4. Check week program (chapter 7.3). |

| Malfunction | Action |
|---|---|
| | <ol style="list-style-type: none"> 5. Check if one of the digital inputs 1–3 (DI 1–3) is active and set to off. This would force one or both fans to stop depending on the setup (chapter 7.4). 6. Check filters. Change of filters required? 7. Check diffusers/louvres. Cleaning of diffusers/louvres required? 8. Check fans and heat exchange block. Cleaning required? 9. Check if the buildings air intake and roof unit (exhaust) have been clogged. 10. Check visible duct runs for damage and/or build up of dust/pollution. 11. Check diffuser/louvre openings. |
| The unit cannot be controlled (control functions are stuck) | <ol style="list-style-type: none"> 1. Reset control functions by pulling out the plug for 10 seconds. 2. Check the modular contact connection between the control panel and the main print card. |
| Low supply air temperature | <ol style="list-style-type: none"> 1. Check the display for alarms. 2. Check set supply air temperature in the control panel. 3. Check the analogue inputs in the service menu to verify that the temp sensors are ok (chapter 6.2). Go to <code>Functions > Analogue input</code> and verify the temperature readings from the temp sensors. 4. In case of installed electrical/other re-heater battery: Check if the over heat protection thermostat is still alert. If necessary, reset by pressing the red button on the front plate of the electrical re-heater (pos. 2, figure 9). 5. Check if digital input 4 (DI 4) is set to off. This would force the electrical re-heater battery to be switched off (chapter 7.4) 6. Check if the extract filter must be changed. 7. Check if the unit has a re-heater battery connected. At very cold outdoor conditions an electrical or water heating battery might be necessary. A re-heater battery can be acquired as an accessory. |
| Noise/vibrations | <ol style="list-style-type: none"> 1. Clean fan impellers. 2. Check that the screws holding the fans are tightened. 3. Check that the anti vibration lists are fitted to the mounting bracket and to the back of the unit. |

9.3.1 Alarm list

Error is warned with text and warning triangle in the display. Turn the selection knob to the warning triangle and press 2x confirm

| Alarm | Explanation | Result |
|-----------|---|--|
| Fan | Indicates error on either supply or extract air fan. | <p>The alarm is displayed in the control panel</p> <p>May result in triggered over heat protection if an electrical re-heater battery is installed and active when the malfunction occurs.</p> |
| EMT/Frost | Indicates triggered emergency thermostat (in case of installed electric re-heater battery) or frost protection (in case of installed water re-heater or cooling battery). | <p>A triggered frost protection alarm results in the following:</p> <ul style="list-style-type: none"> • Both fans stop • Outdoor and exhaust air dampers close • Water valve opens completely (10 V signal goes out to the actuator) |

| Alarm | Explanation | Result |
|---------|--|--|
| | | <p>The unit will restart once the water temperature reaches +5K over set frost protection temperature.</p> <p>A triggered emergency thermostat alarm gives an alarm in the control panel.</p> <p>Reset by pushing the red button on the front of the heater.</p> |
| Bypass | Indicates malfunction in bypass damper | <p>The alarm is displayed in the control panel.</p> <p>Disconnect the mains supply for 10 sec to reset control function. Power up the unit, an automatic bypass damper test will be performed. If the alarm occurs again after approximate 2 min., contact your installation company or a place of purchase.</p> |
| Pb Fail | Error in connection with relay card for electrical re-heater or re-heater disconnected | <p>The alarm is displayed in the control panel.</p> <p>The electrical re-heater will not be activated.</p> |
| Temp | Malfunction in one or more of the temperature sensors. | <p>The alarm is displayed in the control panel.</p> <p>Check analogue inputs to verify which sensor is malfunctioning.</p> |
| Filter | Time for filter change. | <p>The alarm is displayed in the control panel.</p> <p>Change filter according to instructions in the "User Manual".</p> |
| Low SS | Indicates low supply air temperature | <p>The alarm is displayed in the control panel.</p> <p>If water reheater is configured and frost protection have failed, then an extra security function is triggered when supply air temperature is lower than 5 °C and outdoor air temperature is below 0 °C.</p> |
| Defrost | Indicates unacceptable pre-heater temperature. "Stop defrosting" level is not allowed. | <p>The alarm is displayed in the control panel.</p> <p>Pre-heater is triggered or malfunction of pre-heater have occurred.</p> |
| RH | Indicates malfunction of internal relative humidity sensor. | <p>The alarm is displayed in the control panel.</p> |

Systemair Sverige AB reserves the right to make changes and improvements to the contents of this manual without prior notice.



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