

Living HR

Extract air unit with integrated heat recovery



GB Operation and Maintenance Instructions

Contents

1 Warnings.....	1
2 Product description	2
2.1 Description of internal components.....	2
2.2 Description of external components	3
3 Function description.....	4
3.1 Unit diagram	4
3.2 General description	5
3.2.1 Summer/Winter modes.....	5
3.2.2 Fire function	5
3.3 Components and function	5
3.3.1 Brine coil	5
3.3.2 Filters.....	5
3.3.3 Damper	6
3.3.4 Drip tray	6
4 Unit control.....	6
4.1 Control panel	6
4.2 Operator's level — navigating the menus	8
4.2.1 Running mode	8
4.2.2 Language selection	9
4.2.3 Alarm	10
4.2.4 Air control — Pressure control	10
4.2.5 Time settings	11
4.2.6 Restore factory settings.....	12
5 Maintenance.....	14
5.1 Important	14
5.2 Maintenance intervals.....	14
5.3 Maintenance instructions	14
5.3.1 Checking the fan.....	14
5.3.2 Changing extract air filter.....	15
5.3.3 Checking the brine coil	16
5.3.4 Checking the damper	16
5.3.5 Additional maintenance	16
6 Disposal and recycling	18
6.1 Disposal of the air handling unit.....	18
6.2 Disposal of electrical and electronic equipment.....	18
7 Troubleshooting	19
8 Additional information on personnel safety and protective measures	19
9 Service.....	20

1 Warnings

The following admonitions will be presented in the 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 must be carried out by an authorized installer and in accordance with local rules and regulations.

Warning

- 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 mounting and maintenance. Use protective clothing.
- This product is not intended to be used by children or people with reduced physical or mental ability or lack of experience and knowledge, if no instruction concerning the use has been given by the person responsible for their safety or that this person is supervising the operation. Children should be supervised so that they can not play with the product.

2 Product description

2.1 Description of internal components

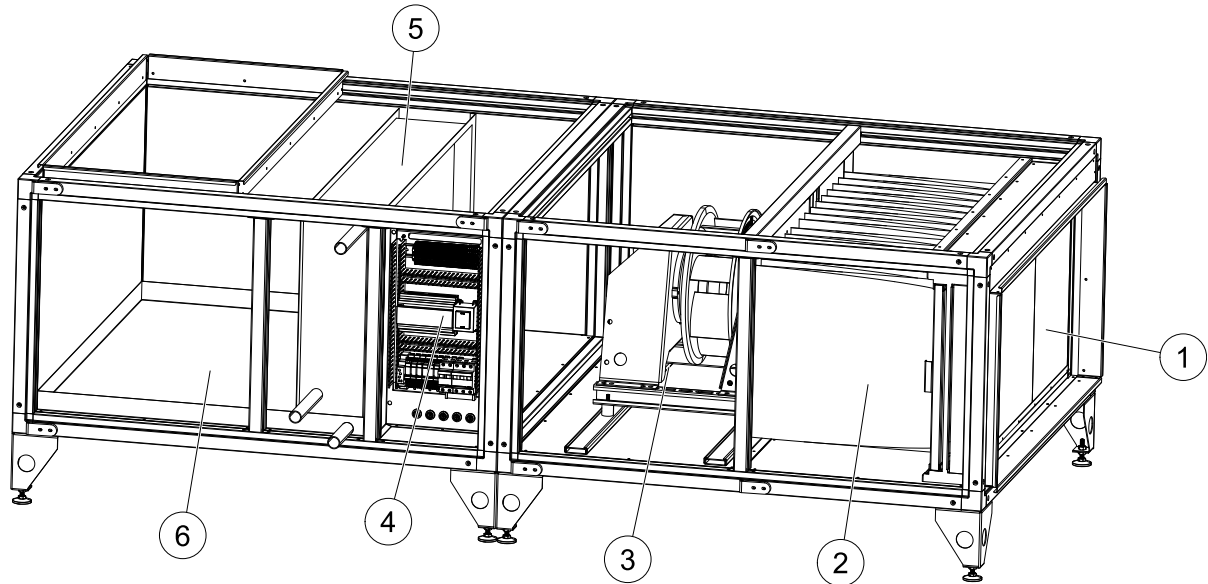


Fig. 1 Basic internal components

Table 1: Component position and description

Position	Description
1.	Pre-filters
2	Filters, extract air
3.	Fan motor with impeller, extract air
4.	Electrical connection box
5.	Brine coil
6.	Drip tray

2.2 Description of external components

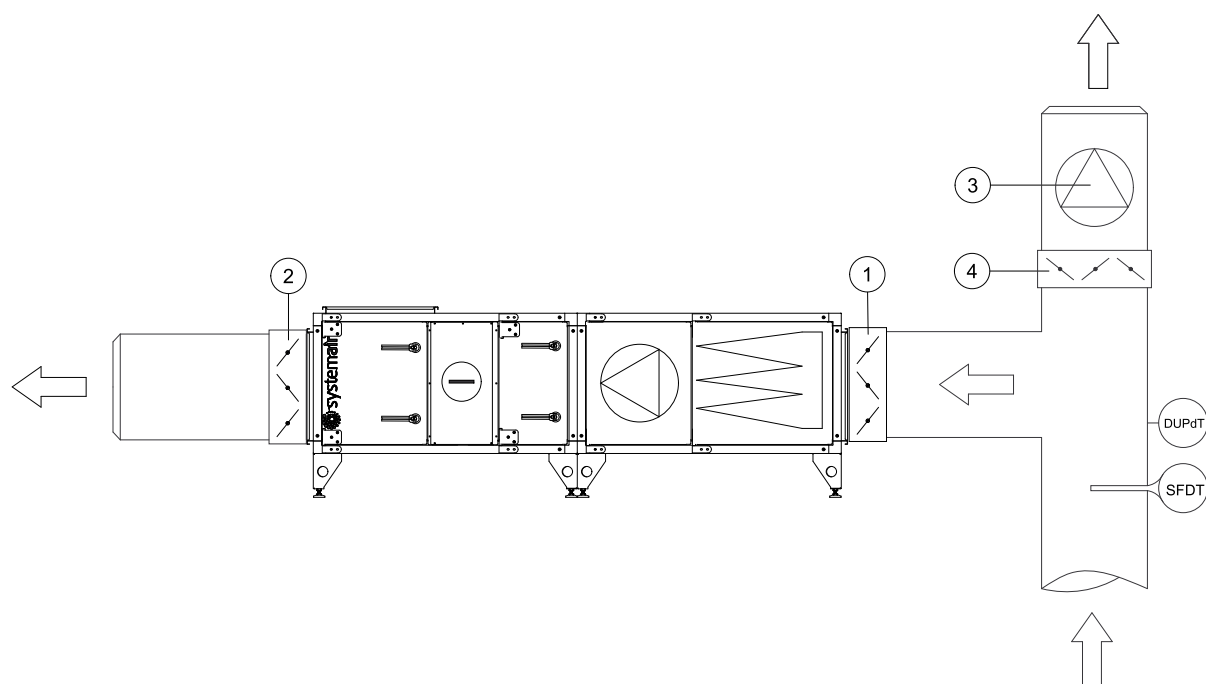


Fig. 2 Basic external components

Table 2: Component position and description

Position	Description
1.	Extract air damper A
2	Exhaust air damper C
3.	Smoke/fire fan
4.	Smoke/fire damper B
DUPdT	Duct differential air pressure transmitter
SFDt	Smoke and fire sensor

3 Function description

3.1 Unit diagram

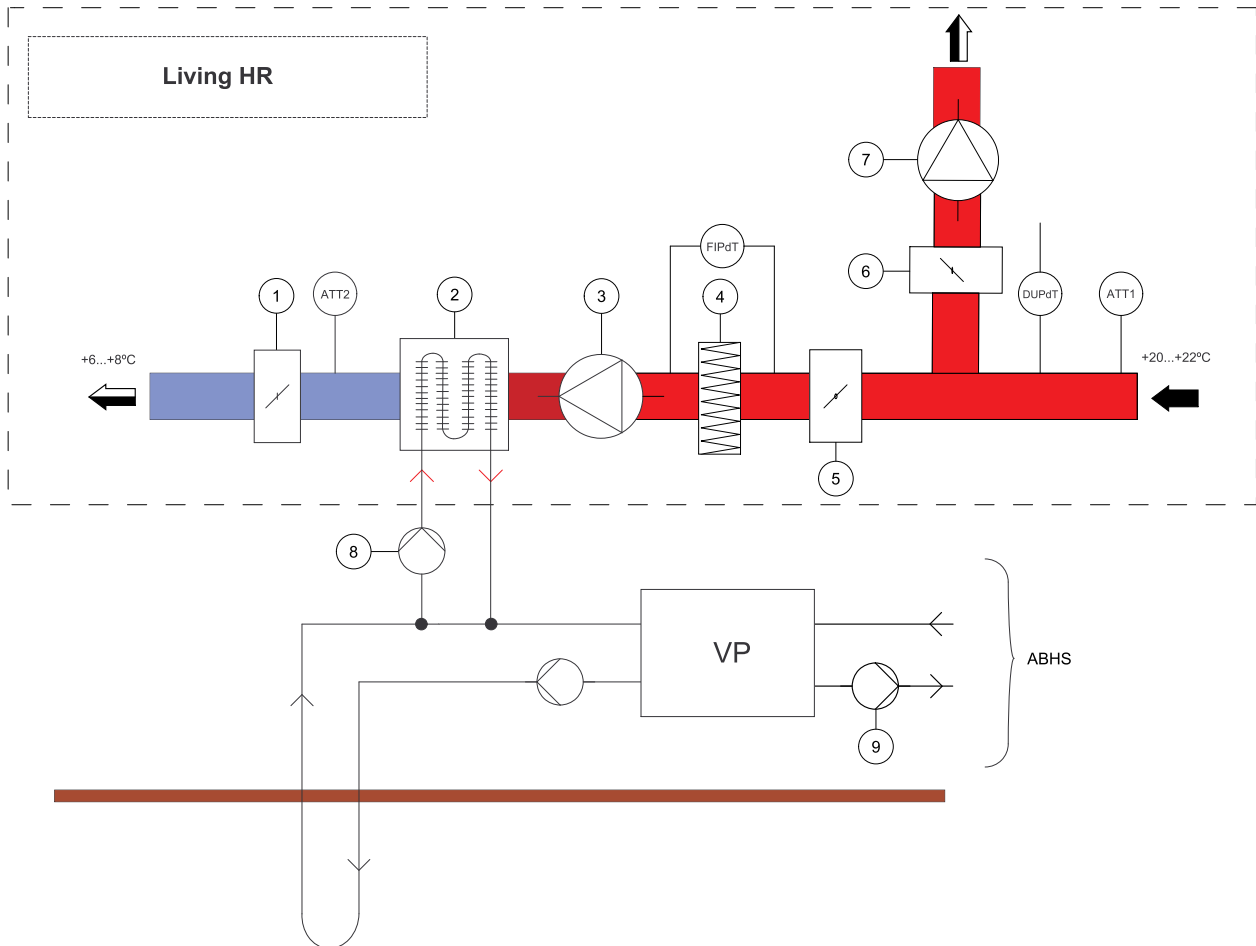


Fig. 3 Unit diagram

Table 3: Component position and description

Position	Description
1.	Exhaust air damper C
2.	Brine coil
3.	Fan
4.	Filters
5.	Extract air damper A
6.	Fire/smoke damper B
7.	Fire/smoke fan
8.	Heat transfer agent pump
9.	Water pump
ATT1	Extract air temperature sensor
ATT2	Exhaust air temperature sensor
DUPdT	Duct differential air pressure transmitter

Component position and description cont'd

Position	Description
FIPdT	Filter air pressure sensor
ABHS	Apartment building heating system

3.2 General description

The Living HR is extract air ventilation unit for apartment buildings that have integrated heating system with the heat pump. The Living HR unit should be integrated into extract air ventilation system of the building and the brine coil, which is used for heat recovery, should be connected to the heat pump cooling side. The Living HR is also designed to control fire/smoke fan during normal operation.

The stops and starts of the unit are based on signals from the heat pump in apartment building.

The Living HR unit can work in two modes: summer and winter.

3.2.1 Summer/Winter modes

Summer mode: when requirements are met to stop the heat pump in apartment building, a signal is sent to deactivate the Living HR unit. Dampers A and C are closed. Another signal is sent to open fire/smoke damper B and to start fire/smoke fan in order for waste air from the residence to be vented outside. In summer mode heat recovery is not possible.

Winter mode: when requirements are met to start the heat pump in apartment building, a signal is sent to stop fire/smoke fan, fire/smoke damper B will be closed. Another signal is sent to activate the Living HR unit. Dampers A and C are open, air travels through the unit. The heat recovery is fully operational.

3.2.2 Fire function

Fire function is activated by smoke and fire sensor. The sensor must be mounted in the duct before fire/smoke damper B. Fire function is used to protect the Living HR unit from smoke and heat in case of fire emergency. If smoke is detected in winter mode the unit is stopped, dampers A and C are closed. Signal is sent to open smoke fan damper B and to start smoke fan at full capacity immediately in order to extract smoke from the residence.

In the summer mode if fire/smoke alarm is activated, the fire/smoke fan from regulation mode will be immediately switched to full capacity. In normal conditions the speed of fire/smoke fan is controlled by the unit based on differential pressure in extract air duct.

3.3 Components and function

3.3.1 Brine coil

The brine coil is made of copper tubes with aluminium fins and is used to absorb heat from extract air. The brine coil is filled with ethylene glycol which is used as a medium for heat transfer.

3.3.2 Filters

Living HR comes with the pair of class filters and G4 pre-filters installed in the factory. Filters are used to filter extracted air from the residence in order to prevent dust gathering on components inside of the unit. Filters need to be replaced when polluted. New sets of filters can be acquired from your installer or a wholesaler. Optionally, filter quality F7 can be installed for extract air filtering.

The filter type is labelled on the top of the filter.

3.3.3 Damper

The function of the damper is to direct the airflow. When the unit is off, extract damper A and exhaust damper C are closed and the Fire/Smoke damper B is open to make air flow directly to the outside. When the unit is operating, extract and exhaust dampers are open and the Fire/Smoke damper is closed to make air flow through the unit. For more information see chapter .

3.3.4 Drip tray

The drip tray is located under the evaporator/brine coil and collects the water condense that periodically occur during the cooling operation. The drip tray is made of stainless steel and has a 32 mm connection for connecting the drain pipe. The drip tray has an electrical heater to prevent the water condense from freezing.

4 Unit control

4.1 Control panel

The SCP control panel is delivered with a 10 m cable that is connected to the panel and with a fast coupling contact, connected to the Living HR unit. The contact is connected to the **Corrigo** controller in the electrical connection box. The cable can be unscrewed in the back of the control panel (figure 4).

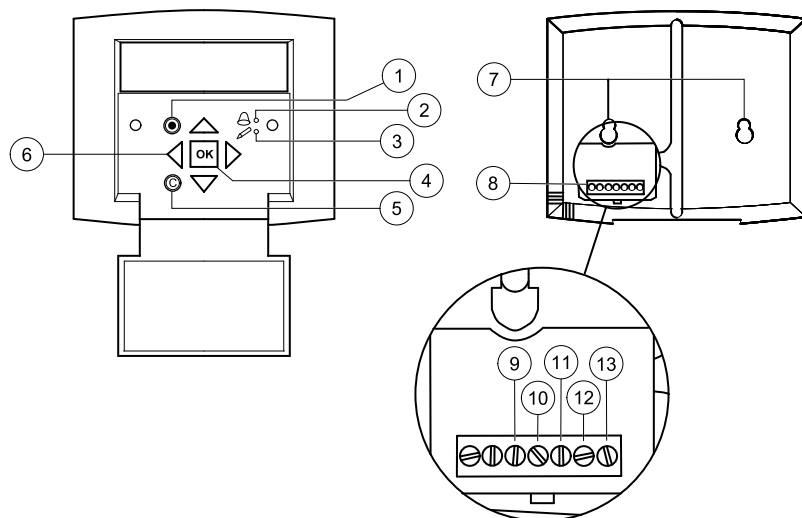
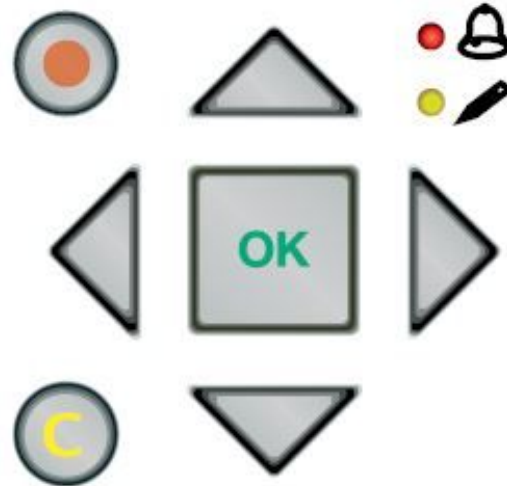


Fig. 4 The control panel



Hand terminal – Systemair Control Panel



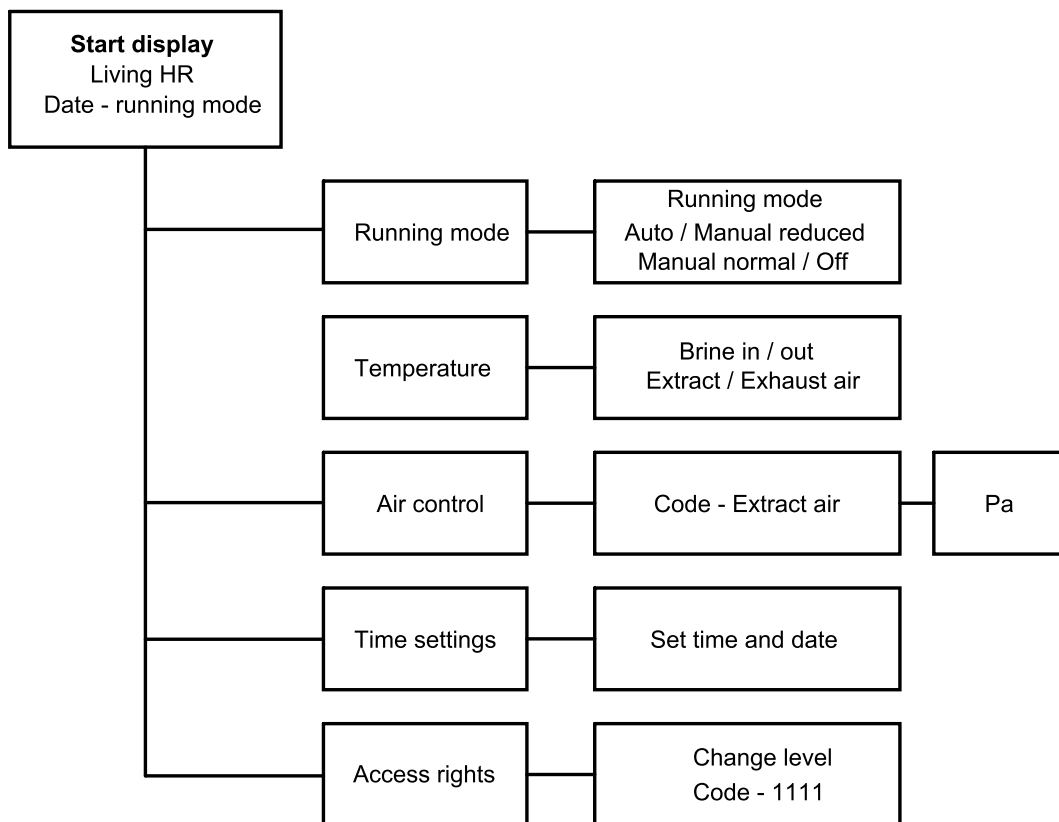
LED's and buttons

-  **UP:**
Move to a higher menu line (Increase value of the parameter)
-  **DOWN:**
Move to a lower menu line (Decrease value of the parameter)
-  **RIGHT:**
Move right to a lower menu level (Move the cursor to the right in the parameter)
-  **LEFT:**
Move left to a higher menu level. (Move the cursor to the left in the parameter)
-  **OK/ENTER:** Open/activate a selected menu/setting
(Confirm a parameter value)

-  **ALARM:** Press for alarm list
-  **CLEAR:** Abort a parameter setting and restore the original value, if "OK/ENTER" not yet has been pressed.
-  **ALARM LED:** Red light is flashing for unacknowledged alarm. Permanent red light for acknowledged alarm, but the alarm is still active, because the reason is not yet eliminated.
-  **"WRITE ENABLE" LED:** Yellow light – slow flashing indicates that a parameter can be selected for changes, when the OK/ENTER button is pressed. Yellow light – fast flashing indicates that the parameter is activated for changes. Permanent yellow light indicates that the changes are going on.

4.2 Operator's level — navigating the menus

Below menu overview shows Operator level tree structure.



The start display (the display normally shown) is at the root of the menu tree. Pressing DOWN will move you through the menu options. UP will move you back through the options. To enter a higher menu level, use UP or DOWN to place the cursor at the menu you wish to access and press RIGHT. If you have sufficient log on privileges the display will change to the menu you have chosen.

At each level there may be several new menus which you move through using UP/DOWN. Sometimes there are further sub menus linked to a menu or menu item. This is indicated by an arrow symbol at the right-hand side of the display. To enter a menu, press RIGHT again. To step back to previous menu level, use LEFT.

4.2.1 Running mode

Follow the steps bellow to change running mode of the unit.

Press button	Explanation	The display shows
 x 1	The display is lit up	Living HR Date, time Syst: Running mode (Auto, Manual reduced, Man. norm., Off)
 x 1	Running mode	

Press button	Explanation	The display shows
 x 2	Actual running mode	Running mode Auto Manual reduced run Manual normal run
  	Press OK and use UP and DOWN keys to select Auto, Manual Normal, Manual Reduced or Off	
	Confirm selected value with OK. The system will automatically return to the start menu after some minutes	
 	To return to the start menu at once – press LEFT and UP several times	

4.2.2 Language selection

Follow the steps below to change language.

Press button	Explanation	The display shows
 x 1	The display is lit up	Living HR Date, time Syst: Running mode (Auto, Manual reduced, Man. norm., Off)
 x 3	Language selection	Choose language
	Language to be changed flashes	
 	Use UP and DOWN keys to select language from the list	
	Confirm change of the language with OK.	
 	To return to the start menu at once – press LEFT and UP several times	

4.2.3 Alarm

Follow the steps below to cancel and acknowledge alarms.

Press button	Explanation	The display shows
 x 2	Press the alarm button twice to see the alarms logged in the alarm list	Example: Low frost guard temp Date, time, Class:A
	Press OK	Example: Low frost guard temp Acknowledge Block
	Confirm with OK. Class A alarm is always triggered by the system, when the reason for alarm is hazardous, and it is only possible to restart the unit, when the reason for the alarm has been solved. The Class A alarm can be triggered by the fire thermostats when the temperature rises above the set point values, indicating risk of fire.	Example: Low frost guard temp Date, time, Class:A
	When the reason for the alarm has been solved, pressing the OK button will activate the menu - Confirm - and the unit starts. The alarm indication disappears from the display.	
	Confirm selected value with OK. The system will automatically return to the start menu after some minutes	
	To return to the start menu at once – press LEFT and UP several times	

4.2.4 Air control — Pressure control

Follow the steps below to change air pressure control values.

Press button	Explanation	The display shows
 x 1	The display is lit up	Living HR Date, time Syst: Running mode (Auto, Manual reduced, Man. norm., Off)
 x 3	Air control	
 x 1	Pressure control	Pressure control SAF (SAF = supply air fan) EAF (EAF = extract air fan)

Press button	Explanation	The display shows
	Use UP and DOWN keys to select exhaust air fan (EAF).	
 x 2	Extract air fan selected.	Pressure control EAF Setp. 1/1: xxx Pa Setp. 1/2: yyy Pa
	Value to be changed flashes. Change of set point for normal flow (1/1) and for reduced flow (1/2). Access code 1111 may be necessary.	Setp. 1/1: xxx Pa Setp. 1/2: yyy Pa
	Confirm change of the set point value with OK. Value to change is flashing.	
	To return to the start menu at once – press LEFT and UP several times	

4.2.5 Time settings

Follow the steps bellow to change time, date and weekday.

Press button	Explanation	The display shows
 x 1	The display is lit up	Living HR Date, time Syst: Running mode (Auto, Manual reduced, Man. norm., Off)
 x 4	Time settings	
 x 1		Time/Date Timer Normal Speed Timer Reduced Speed Extended running
	Use UP and DOWN keys to select Time/Date (this menu permits the setting of time and date in the internal clock)	Time: aa:aa Date: bbbb-bb-bb Weekday: XXXXXXXX
	Time: aa:aa is activated for changes. Value to be changed flashes	
	To select the correct value.	

Press button	Explanation	The display shows
	Confirm with OK.	
	Confirm with OK when all values are OK. The system will automatically return to the start menu after some minutes.	
	To return to the start menu at once – press LEFT and UP several times	

4.2.6 Restore factory settings

Follow the steps below to restore factory settings.

Press button	Explanation	The display shows
 x 1	The display is lit up	Living HR Date, time Syst: Running mode (Auto, Manual reduced, Man. norm., Off)
 x 5	Access rights	
 x 2	Select Log on	Log on Enter password **** Actual level: Operator
	Digit to be changed flashes. Factory logged password, exclusively for service partners.	Actual level: Admin
 x 2	Return to start menu	Running mode Temperature ... Access rights
 x 2	Settings	
 x 1	Menus in settings	Control temp Control flow Alarm settings

Press button	Explanation	The display shows
 x 3	Select: – Restore factory settings: Yes/No – Restore user settings: Yes/No	Restore factory settings: No Restore user settings: No
	Confirm with OK for selected alternative. Values to be changed flashes.	
 x 1	To select menu: – Save user settings: Yes/No	Save user settings: No
	Value to be changed flashes. Confirm selected value with OK.	
 x 2	The system is now logged on at the Admin level and unskilled persons could change important parameters and settings to values that will cause malfunction of the system. Go to the start menu to return the system immediately to the lowest access level – Operator	
 x 2	Access rights	Log on Log off Change password
 x 1	Select - Log off and select the answer – Yes	Log off? No Actual level: Admin
	System returns to the start menu and is now logged on at the Operator-level.	

5 Maintenance

5.1 Important

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.

Warning

- 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 mounting and maintenance. Use protective clothing.

5.2 Maintenance intervals

Type of maintenance	Once a year	When necessary
Unit • Cleaning the unit • Inspection of seals and locks	X	
Filters • Replacing filters		X
Fans • Cleaning the fans • Inspecting of vibration dampers and flexible connections	X	
Cleaning the duct system		X ¹
Cleaning the brine coil/drip tray	X	
Dampers • Checking the dampers • Cleaning the dampers	X	

1. Or in accordance with local rules and regulations.

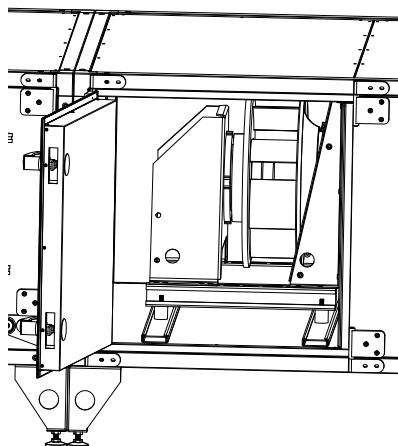
5.3 Maintenance instructions

5.3.1 Checking the fan

5.3.1.1 Cleaning

Even if the required maintenance, such as change of filters, is carried out dust and grease may slowly build up inside the fans. This will reduce the efficiency. The fan motor can overheat if a thick layer of dust prevents the air from entering the motor to cool down the stator structure.

- The external surfaces may be cleaned with a cloth or a soft brush. If they are severely fouled, use an environmentally friendly de-greasing agent. Do not use water. White spirit can be used to remove obstinate settlements. Allow drying properly before starting the unit.
- Wipe the fan impeller blades to remove any coatings. Use only the environmentally friendly de-greasing agent.



5.3.1.2 Inspection

- Check if the fan impeller rotates easily, is in balance and does not vibrate.
- Check if the fan impeller is fixed and overlaps inlet cone.
- Listen to the sound coming from the motor bearings. It should make a slight purring sound. A scraping or pounding sound can indicate that the bearings are damaged and should be changed.
- Check if the rubber anti-vibration mountings are not damaged and intact.
- Check the mounting screws and tighten if necessary.

5.3.2 Changing extract air filter

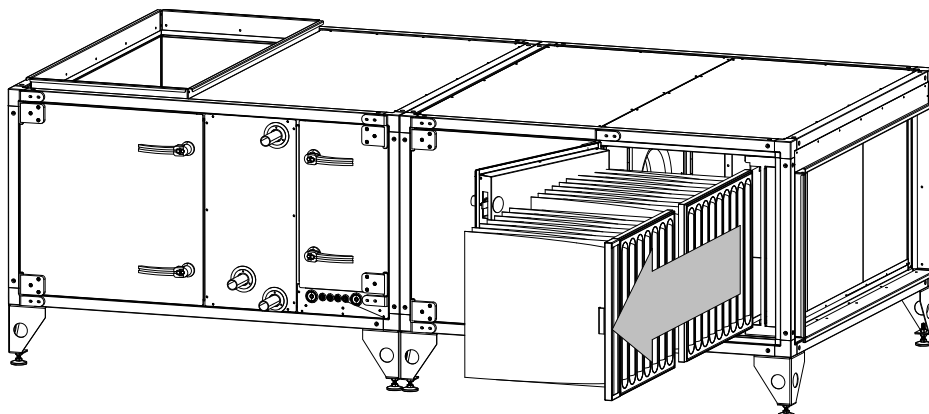
The bag filter cannot be cleaned and must be changed when necessary. New filters can be ordered from Systemair. Operation time between filter changes depends on the air pollution at the installation site. A differential pressure switch indicates when it's time to change the filters. This will trigger an alarm in the control panel.



Caution

- A high concentration of dust collected the bag filter and the unit might be harmful to health. It is recommended to use the air-purifying respirator during maintenance and cleaning.

There is one pair of filters in the unit. Filters are taken out by releasing the filter locking handle after which filters can be taken out and replaced.



5.3.2.1 Supported filter types

Unit model	Filter class	Dimensions
15	M5	490x392x520
20	M5	490x490x520
20	M5	592x490x520
25	M5	592x592x520

Optionally, F7 class filters can be used instead of M5 for extract air filtering.

5.3.3 Checking the brine coil

The brine coil is used to absorb heat from extracted air. The coil will have reduced capacity if dust forms a coating on the coil surface and increases the pressure drop on the air side. Even if the Living HR is fitted with the extract air filters, dust eventually will deposit on the coil fins.

5.3.3.1 Inspection

- Check the coil fins for any damage;
- Check if heat transfer agent is not leaking;
- Check the dip tray and drain, clean if necessary;

5.3.3.2 Cleaning

- Use the vacuum cleaner to remove dust from the inlet side of you can blow them with compressed air from the outlet side;
- Use hot water mixed with non corrosive cleaning medium and rinse using water. Any corrosion should be cleaned off immediately and the surface treated.

5.3.4 Checking the damper

A faulty damper can give rise to disturbances that may result in serious problems. Make sure to check all three dampers.

- Check operation of the damper actuator.
- Check that the damper tightens when closed. If not, adjust the damper actuator to make the damper tight (does not apply to trim dampers).
- Check the sealing strips.
- If the damper does not operate, check that nothing is stuck between the drive mechanism and damper blades to interfere with the damper function.

Clean the damper blades with a cloth. If they are severely fouled, an environmentally friendly degreasing agent can be used.

5.3.5 Additional maintenance

Living HR does not require any maintenance other than the annual service. However things to be checked in addition could include:

- Tightening of clamps in the cabinet.
- Measuring power consumption.
- Reviewing settings and set points.

**Warning**

- Frequency converters must not be touched normally. The settings are made at the factory, and it is important that the parameters are not changed without consultation with Systemair. This could have critical consequences for compressors and the warranty may be invalidated.

All technical data for Living HR is supplied and is stuck to the inside of the control panel cabinet. The test diagram from the factory, instructions for installation, maintenance and operation, connection diagram and other documents are also supplied with the unit.

6 Disposal and recycling

Disposal must be carried out professionally and environmentally friendly in accordance with the legal stipulations.

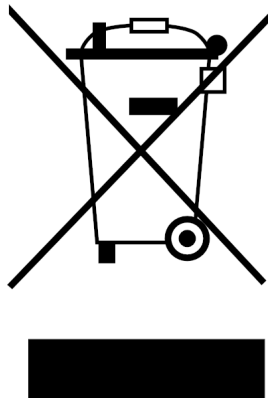
6.1 Disposal of the air handling unit

The unit can be dismantled or disposed in one piece in the same way it was installed only in reverse order (see: Living HR Installation instructions). A special vehicle capable of transporting the unit safely should be used to deliver the unit to the metal waste collection point where it can be recycled. Contact your local waste management company for more information.

6.2 Disposal of electrical and electronic equipment

In reference to European Union directive 2002/96/EC issued on 27 January 2003 and the related national legislation, please note that:

- the waste electrical and electronic equipment (WEEE) cannot be disposed of as municipal waste and such waste must be collected and disposed separately;
- the public or private waste collection system defined by local legislation must be used. In addition, the equipment can be returned to the distributor at the end of its working life when buying new equipment;
- the equipment may contain hazardous substances: the improper use or incorrect disposal of such may have negative effects on human health and on the environment;
- the symbol (crossed-out wheeled bin) shown on the product or on the packaging and on the instruction sheet indicates that the equipment has been introduced onto the market after 13 August 2005 and that it must be disposed separately;



- in the event of illegal disposal of electrical and electronic waste, the penalties are specified by local waste disposal legislation.

7 Troubleshooting

- Read the warnings before doing any work on the Living HR unit.

Should problems occur, please check or correct the following before contacting your service representative. Always check if there are any alarms active in the control panel.

1. Fan(s) do not start

- Check if there are any alarm messages
- Check if mains supply to the air handling section is not missing
- Check that the fuses are not defect

2. Reduced airflow

- Check that extract/exhaust (in winter) and fire/smoke (in summer) air dampers open
- Check if filters need changing
- Check if fan and evaporator coils need cleaning
- Check if the roof unit or air intake is clogged
- Check ducts for visible damage and/or build up of dust/pollution

3. Noise/vibrations

- Check that the unit is completely levelled
- Clean the fan impellers
- Check that the screws holding the fan are tightened properly
- Check anti vibration pads and flexible connections

8 Additional information on personnel safety and protective measures

Adjustments and maintenance must be done only by trained service personnel. The potential sources of harm are the fans with fast rotating impellers. The impellers are still a potential hazard even after power cut-off because of after-run that can last up to 30 seconds.

The inspection doors are provided with a lock.

9 Service

Before calling your service representative, make a note of the specification and product number from the type label (figure 5).

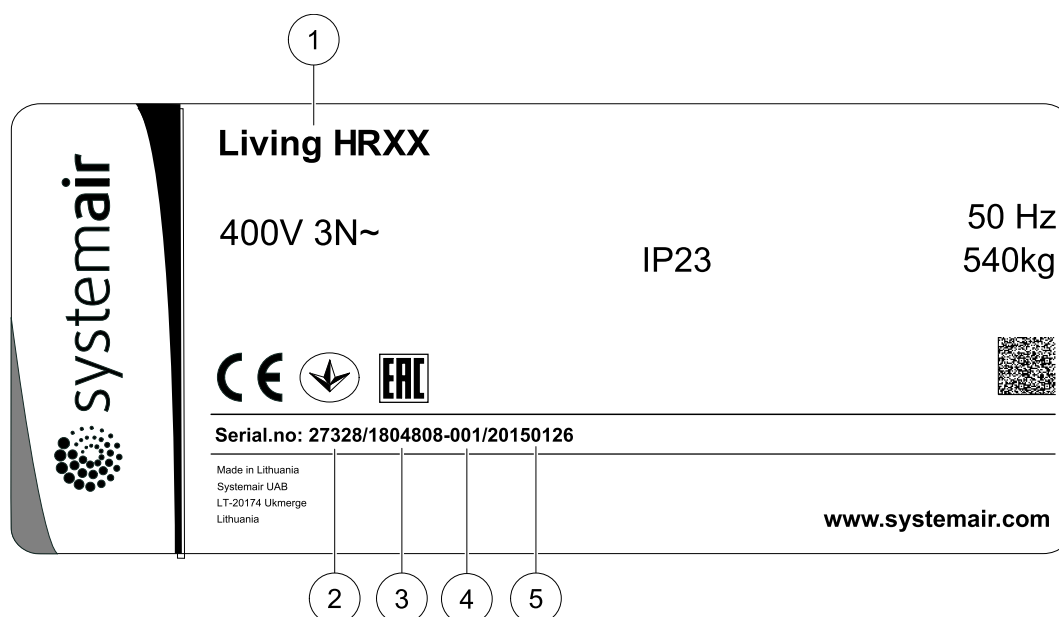


Fig. 5 Type label

Position	Description
1	Product code (product specification)
2	Item number
3	Production order number
4	Consecutive number
5	Production date (YYYY.MM.DD)

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



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