Topvex FR03, FR06, FR08, FR11
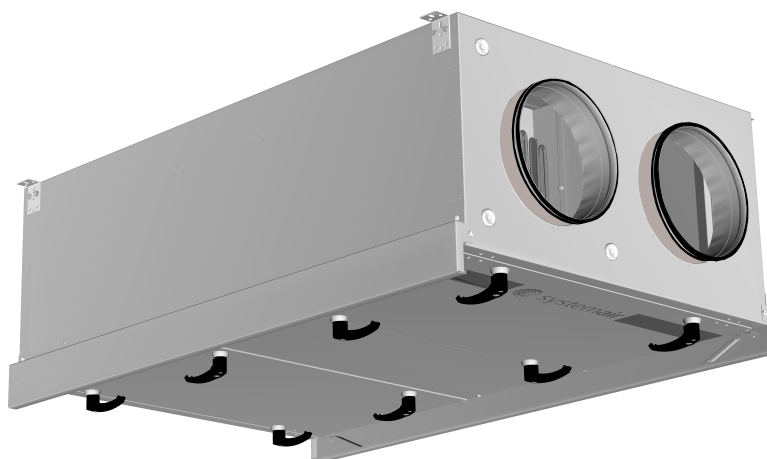
Compact Air Handling Unit

GB Operation and Maintenance Instructions

Contents

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 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
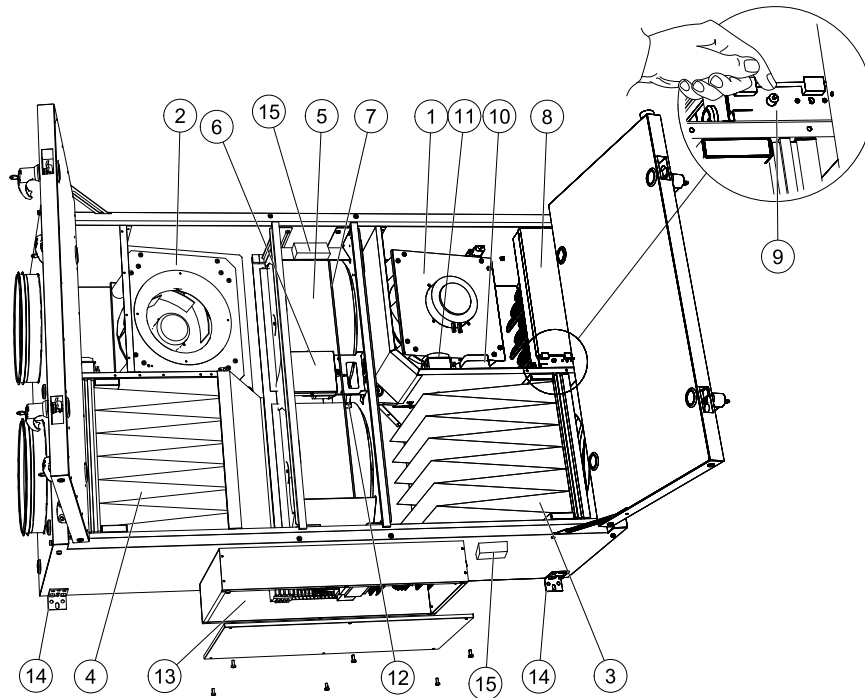
Fig. 1 Components EL units
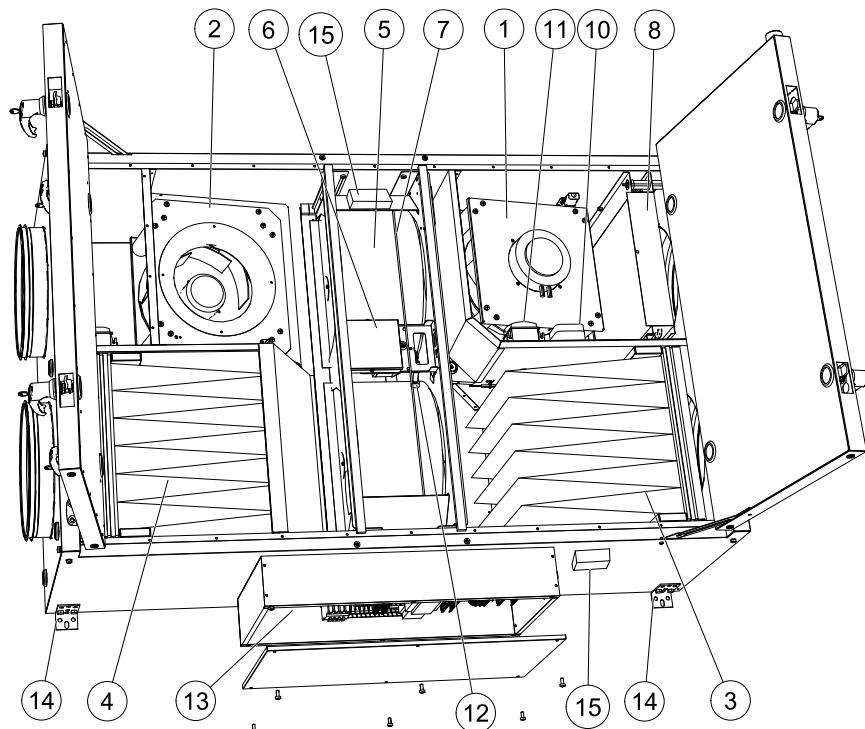

Fig. 2 Components HW units (in case of installed water heating battery)

Table 1: Component descriptions EL and HW units

Position	Description
1	Fan supply air.
2	Fan extract air.

Component descriptions EL and HW units cont'd

Position	Description
3	Filter extract air.
4	Filter outdoor air.
5	Heat exchanger.
6	Rotor motor.
7	Rotor belt.
8	Re-heater battery, electric or water coil.
9	Reset button, manual over heat protection (only units with electrical heater).
10	Pressure guard for filter.
11	Pressure transmitter for fan.
12	Rotation guard for heat exchanger.
13	Electrical connection box.
14	Mounting brackets.
15	Rotor control (location depending on size of unit)

2.1 Description of Internal components

2.1.1 Supply and Extract air Fans

The fans have external rotor motors of EC type which can be steplessly controlled individually 0–100%. It is possible to program the speed in 2 steps (normal/reduced) depending on the programming of the week schedule. The motor bearings are life time lubricated and maintenance free. It is possible to remove the fans for cleaning (chapter 5).

2.1.1.1 Pressure transmitter for Fans

2 pressure transmitters maintain the airflow at a constant level by measuring the differential pressure over the inlet cone of the fan impellers (pos.11 figure 1, and figure 2). The pressure transmitters are installed from factory in all units with CAV control. In VAV units the pressure transmitters will not be mounted in the unit from factory. Instead they will be delivered loosely with the unit to be mounted in the supply and extract air ducts, see "Installation instructions" for more information concerning VAV installations.

2.1.2 Outdoor and Extract air Filters

The filters are of bag filter type with filter quality F7 for the outdoor air filter and F5 for the extract air filter. The filters need to be replaced when polluted. New filters can be acquired from your installer or wholesaler.

2.1.2.1 Pressure guard for filters

A pressure guard measures the differential pressure over the supply and extract air filters (pos. 10 figure 1 and figure 2). When the pressure drop reaches the set value an alarm is triggered in the main regulator. The differential pressure can be set between 40 and 300 Pa. The pressure switch is preset from factory to 240 Pa.

2.1.3 Heat Exchanger

Topvex FR models are equipped with a highly efficient, belt driven, rotating heat exchanger. Required supply air temperature is therefore normally maintained without adding additional heat. The operation of the heat exchanger is automatic and depends on the set temperature.

The heat exchanger is removable for cleaning and maintenance (chapter 5).

2.1.3.1 Rotor motor

The rotor motor drives the exchanger rotor with an infinitely rpm as long as there is a heat demand. The motor is controlled by an analogue 0-10 V control signal (pos.6 figure 1 and figure 2).

2.1.3.2 Rotation guard

A sensor registers the rotation of the heat exchanger rotor. It's connected to the main regulator which gives an alarm if the rotor stops while there is a heat demand (pos. 12 figure 1 and figure 2).

2.1.4 Temperature sensors

4 temperature sensors (PT1000) are included in the unit from factory. The sensors are as follows:

- Supply air sensor
- Extract air sensor
- Outdoor air sensor
- Exhaust air sensor

In Topvex FR03–11 all temperature sensors are mounted and wired inside the unit except for the supply air sensor, which is loosely delivered with the unit and needs to be installed in the supply air duct externally from the unit. See Installation instructions for more information.

2.1.5 Water heating battery

In units with built in water heating battery the hot water coil is located next to the supply air connection. The hot water coil can be either HWL (hot water coil, low power) or HWH (hot water coil, high power). The coil material is copper piping with a frame of galvanized sheet steel and aluminium fins. The coil is equipped with venting and immersion sensor for frost protection.

2.1.6 Electrical Heater

In units with built in electrical heater the heating rods are located after the supply air fan in the airflow direction. The material is stainless steel. The electrical heating battery has both automatic and manual overheating protection. The manual overheat protection is reset by pushing the red button on top of the electrical heater frame (pos. 9 figure 1). The power demand of the electric heating coil is controlled by the main regulator, which controls the heat steplessly by a TTC triac control according to the desired supply/extract or room air temperature that is set in the control panel.

⚠ **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.

2.2 Internal components Electrical connection box

⚠	**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.

Topvex FR03–11 are equipped with a built in regulator and internal wiring (figure 3).
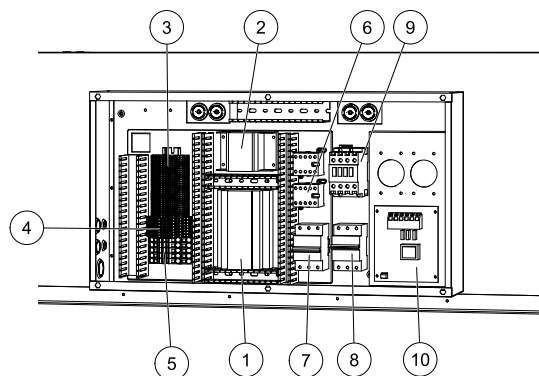
Fig. 3 Electric components

Position	description
1	Regulator E-28 WEB.
2	Transformer 230/24V AC.
3	Terminals for internal and external components.
4	Terminals for internal wiring.
5	Terminals for mains supply to the unit.
6	Contactor (K2) On/Off Pump control water (HW units only, not present in EL-units).
7	Automatic fuse.
8	Automatic fuse for heater.
9	Contactor (K3) EL heater.
10	TTC El heater control.

3 Interface Description

3.1 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 Topvex 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).

3.1.1 Operating the control panel
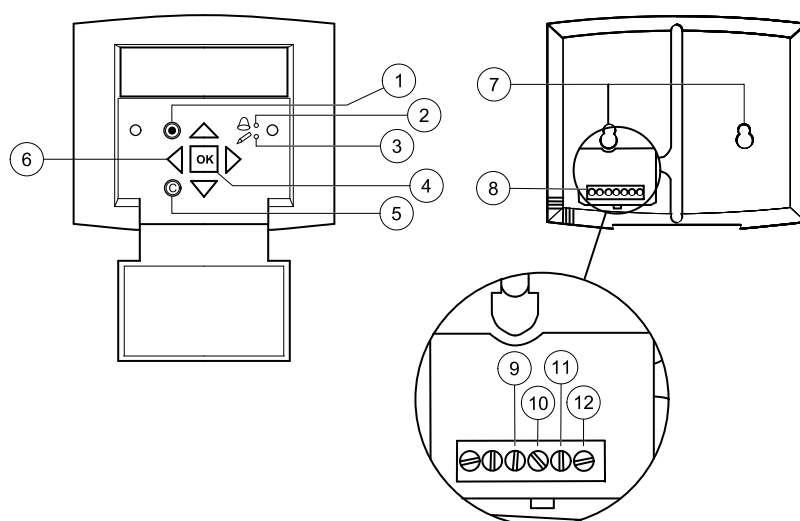
Fig. 4 The control panel

Posi-tion	Explanation
1	Alarm button: Gives access to the alarm list.
2	Alarm LED: Indicates alarm by flashing red light.
3	Write LED: Indicates by flashing yellow light that parameters can be set or changed.
4	OK button: Press this button to be able to change or set parameters whenever possible. Also used to move between changeable parameters in one dialogue window frame.
5	Cancel button: Used to abort a change and return to the initial setting.
6	Right/Left & Up/Down buttons: Used to move up, down, left & right in the menu tree. Up/Down buttons are also used to increase or decrease values when setting or changing parameters.
7	Mounting holes.
8	Connection block.
9	Connection to brown cable.
10	Connection to yellow cable.
11	Connection to white cable.
12	Connection to black cable.

3.1.1.1 Navigating the menus

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 Commissioning

4.1 Before Starting the System

When the installation is completed, check that:

• The unit is installed in accordance with the installation instructions.

• The unit is correctly wired.

• Sound attenuators are installed and that the duct system is correctly connected to the unit.

• 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 following data is available:

    • Intended configuration, for example temperature control functions, fan control, external control functions etc.

    • How the unit is supposed to operate according to a weekly schedule (normal and reduced speed).

4.2 Initial setup of the unit

On the first start-up, the controller will start a special program for setting language, supply air temp set point, Time & date and week schedule for normal speed. Use the "OK" button to move between changeable parameters and the UP/DOWN arrows to see the displayed alternatives. Confirm by pressing "OK" once more. Move on down in the menu structure by use of the UP/DOWN arrows.

The following will be displayed:

1

Select language by pressing "OK" and then move between the alternatives with the UP/DOWN buttons. Confirm by pressing "OK". Move to the next level by pressing the "DOWN" button.

```
Choose Language

English
```

2

Shows the actual extract air temperature

Set the supply air set point. Default is 18°C (logon to service level needed, code **2222**, to change default setting)

```
Extract air temp

Actual:....   °C

Setp.:   18 °C
```

3

Check and make sure that correct time and date is displayed, if not change the settings

```
Time:  12.46

Date:  2010-03-12

Weekday:  Friday
```

4

Set the week schedule for how it's intended for the unit to operate at normal speed during Monday to Friday. It's possible to set 2 periods per day.

```
Normal speed

Monday → Friday

Per 1:  07:00 - 16:00

Per 2:  00:00 - 00:00
```

5

Set the week schedule for how it's intended for the unit to operate at normal speed during Saturdays and holidays. It's possible to set 2 periods per day.

```
Normal speed

Saturday → Holiday

Per 1:  07:00 - 16:00

Per 2:  00:00 - 00:00
```

6

Set the week schedule for how it's intended for the unit to operate at reduced speed during Monday to Friday. It's possible to set 2 periods per day. Normal speed inactivates reduced speed.

```
Reduced speed

Monday → Friday

Per 1:  00:00 - 24:00

Per 2:  00:00 - 00:00
```

7

Set the week schedule for how it's intended for the unit to operate at reduced speed during Saturdays and holidays. It's possible to set 2 periods per day.

```
Reduced speed

Saturday → Holiday

Per 1:  00:00 - 24:00

Per 2:  00:00 - 00:00
```

8

Select "Yes" or "No"

```
End Wizard

No
```

After finishing the setup the menu system for "Operator level" will be available.

See below menu overviews that display the available menus in the Operator level followed by the "Service level" manual.

To enter Service level use code 2222 in the "Access rights" menu. For operator level use code 1111.

To enter Administrator level use code 3333 in the "Configuration menu".

Note:

To perform more advanced settings please see the separate "General Commissioning Record" on www.systemair.com, online catalogue

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4.3 Menu overview

Below menu overview shows both the Operator, Service and Administrator level. The overview of the parts unique to the levels in below table are marked with different background color.

| To logon to Operator level use code 1111 under `Access rights`. | To logon to Service level use code 2222 under `Access rights`. | To logon to Administrator level use code 3333 under `Access rights`. |

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations

`FR 03 EL`
 	
`2010-03-15 09:00`
 	
`System:Stopped`
 	
`Sp:18.0 Act:  °C`
			Start screen headline
			
			Can be set to 5 different layouts
			
			(Changeable at "Administrator level" under the `Configuration` menu).

→ `Running mode`	→ `Running mode`	`Running mode`
		
		`Auto`
			Set running mode to `Auto`, `Manual reduced run`, `Manual normal run` or `Off`.

		`Op time`
		
		`SAF: 0.0 h`
		
		`EAF: 0.0 h`
			The time in hours that the motors have been operating
			
			SAF = Supply air fan
			
			EAF = Exhaust air fan

	→ `Selected functions`	`Control function`
		
		`Extract air control`
		
		`Fan control`
		
		`Flow control`
			Type of air temperature control the unit is configured for.
			
			Type of fan speed control the unit is configured for.

		`Heating:  Water`
		
		`Exchanger: Rot.excha`
		
		`Cooling:  Water`
			Type of heating selected.
			
			Type of exchanger selected.
			
			Type of cooling selected.

		`Free cool active:No`	Status of the free cooling function.

		`Support control`
		
		`Active:  No`
		
		`CO2/VOC active`
		
		`Never`
			Status of the support control function.
			
			Status of the demand ventilation (CO2/VOC) function.

		`Fire damper function`
		
		`Not active`
		
		`Operation when alarm`
		
		`Stopped`
			Status of the fire damper function.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
		`Frost protection` `Active` `Cooling recovery` `No`	Status of the frost protection function. Status of the cooling recovery function.
		`External set point` `Not active`	Status of the external set point.
	→`Alarm events`		All registered alarms along with the time and date they occurred. Move down and up in the list by pressing ↑↓.
	→`Input/ Output`	→`AI`	Status of the Analogue inputs.
		→`DI`	Status of the Digital inputs.
		→`UI`	Status of Universal Analogue inputs or Universal Digital inputs.
		→`AO`	Status of the Analogue outputs.
		→`DO`	Status of the Digital outputs.
→`Temperature`	`Extract air temp` `Actual:  °C` `Setp:  18.0°C`		Configured temperature control (default is `Extract air temp`). Actual temperature in the chosen control mode. Temperature for the chosen control mode.
		`If cascade control` `Max/min supply setp.` `Max:  30°C` `Min:  12.0°C`	**Set** the maximum and minimum allowed supply air temperature in case of cascade control. **Logon to service level needed to change settings**.
	`Outdoor temp: °C` `Supply air temp` `Act.:  °C` `Setp:  18°C`		Actual outdoor air temperature. Actual supply air temperature. Calculated supply air set point. The exhaust air controller output signal generates the supply air controller's set point value.
	`Frost protection` `Actual:  °C`		Actual water temperature in the water heating battery. (Only visible for HW units).

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations

	`Exhaust air temp`
	
	`Actual:  °C`
			Actual exhaust air temperature.

	`Efficiency`
	
	`exch.`
	
	`Actual:  %`
	
	`Output exchanger`
	
	`Actual:  100%`
			Actual heat recovery efficiency.
			
			The function calculates the heat exchangers temperature efficiency in % when the output signal to the exchanger is higher than 5% and the outdoor temperature is lower than 10° C.
			
			When the control signal is lower than 5% or the outdoor temperature is higher than 10° C the display will show 0%.
			
			Status of the exchanger output.

→`Air Control`			This menu option becomes visible if the unit is configured for "Flow control" or "Pressure control".

	`Flow control SAF`
	
	`Actual:  m³/h`
	
	`Setp.:  m³/h`
			Airflow for the supply air fan (constant airflow control).
			
			Only visible if the unit is configured for `Flow control`.

		`Flow control SAF`
		
		`Setp 1/1:  1100 m³/h`
		
		`Setp 1/2:  550 m³/h`
			Set the normal (1/1) and reduced (1/2) airflow for the supply air fan.

		`Outdoor comp.Setp.  1`
		
		`-20°C = 10 m³/h`
		
		`0°C = 0 m³/h`
		
		`Act.  Comp:  0 m³/h`
			Set the SAF airflow compensation for the settable outdoor temperature. The outdoor compensation is linear and is set using two parameter pairs which give the value of the compensation at two different outdoor temperatures. The compensation can be positive or negative.
			
			Shows the actual airflow compensation.

	`Flow control EAF`
	
	`Actual:  + INF m³/h`
	
	`Setp.:  m³/h`
			Airflow for the extract air fan (constant airflow control).
			
			Only visible if the unit is configured for `Flow control`.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations

		`Flow control EAF`
		
		`Setp 1/1:  1100 m³/h`
		
		`Setp 1/2:  550 m³/h↓`
			Set the normal (1/1) and reduced (1/2) airflow for the extract air fan.

		`Outdoor comp.Setp.  1`
		
		`-20°C = 10 m³/h`
		
		`0°C = 0 m³/h`
		
		`Act.  Comp:  0 m³/h`
			Set the EAF airflow compensation for the settable outdoor temperature. The outdoor compensation is linear and is set using two parameter pairs which give the value of the compensation at two different outdoor temperatures. The compensation can be positive or negative.
			
			Shows the actual airflow compensation.

	`Pressure control SAF`
	
	`Actual:  Pa`
	
	`Setp.:  Pa`
			The actual external pressure and set point for the supply air fan.
			
			Only visible if the unit is configured for "Pressure control" (VAV)

		`Pressure control SAF`
		
		`Setp 1/1:  250 Pa`
		
		`Setp 1/2:  100 Pa`
			Set the external pressure set point for normal speed (1/1) and reduced speed (1/2) for the supply air fan.

		`Outdoor comp.Setp.  1`
		
		`-20°C = 0 Pa`
		
		`10°C = 0 Pa`
		
		`Act.  Comp:  0 Pa`
			Set the SAF pressure compensation for the settable outdoor temperature. The outdoor compensation is linear and is set using two parameter pairs which give the value of the compensation at two different outdoor temperatures. The compensation can be positive or negative.
			
			Shows the actual pressure compensation.

	`Pressure control EAF`
	
	`Actual:  Pa`
	
	`Setp.:  Pa`
			The actual external pressure and set point for the extract air fan.
			
			Only visible if the unit is configured for "Pressure control" (VAV).

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations

		`Pressure control EAF`
		
		`Setp 1/1: 250 Pa`
		
		`Setp 1/2: 100 Pa`
			Set the external pressure set point for normal speed (1/1) and reduced speed (1/2) for the supply air fan.

		`Outdoor comp.Setp. 1`
		
		`-20°C = 0 Pa`
		
		`10°C = 0 Pa`
		
		`Act. Comp: 0 Pa`
			Set the EAF pressure compensation for the settable outdoor temperature. The outdoor compensation is linear and is set using two parameter pairs which give the value of the compensation at two different outdoor temperatures. The compensation can be positive or negative.
			
			Shows the actual pressure compensation.

`→ Time settings`	`→ Time/Date`		Set correct time and date.

	`→ Timer Normal Speed`	`Normal Speed Monday`
		`Per 1:`
		`07:00-16:00`
		`Per 2:`
		`00:00-00:00→`
		
		`Normal Speed Monday-Friday`
		`Per 1:`
		`07:00-16:00`
		`Per 2:`
		`00:00-00:00`
			Set week schedule Monday to Sunday, Monday-Friday+ Holiday for normal speed. Possible to set 2 periods per day.
			
			00:00 24:00 for continuous running. 00:00 00:00 inactivates the period.
			
			Note the settings in the commissioning record.

	`→ Timer Reduced Speed`	`Reduced speed Monday`
		`Per 1:`
		`00:00-24:00`
		`Per 2:`
		`00:00-00:00→`
		
		`Reduced Speed Monday-Friday`
		`Per 1:`
		`00:00-24:00`
		`Per 2:`
		`00:00-00:00`
			Set week schedule Monday to Sunday, Monday-Friday + Holiday for reduced speed. Possible to set 2 periods per day.
			
			00:00 24:00 for continuous running. 00:00 00:00 inactivates the period.
			
			Note the settings in the commissioning record.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
	→ Extended running	Extended running 60 min Time in ext. running 0 min	Set the time for extended running. Use digital input to force the unit to start or increase to normal running although the timer says the running mode should be `Off` or `Reduced`. If the running time is set to 0 the unit only runs as long as the digital input is closed. The time the extended running is active is monitored in "Time in ext. Running". It's also possible to set a time here as well in order to shorten the initial set period.
	→ Holidays	Holidays (mm:dd) 1:01-01 — 01-02 2:09-04 — 09-10 3:01-05 — 01-05	Set up to 24 separate possible holiday periods for a full year. A holiday period can be any number of consecutive days from one and upwards. The dates are in the format: MM:DD. When the current date falls within a holiday period, the scheduler will use the settings for the weekday "Holiday".
→ Manual/Auto			In this menu the running mode of all the configured output signals and a number of control functions can be manually controlled. The supply air controller's output signal can be manually set (`Manual/Auto`) to any value between 0 and 100%. The temperature output signals will change accordingly if they are in Auto mode. It is also possible to manually control each of the temperature output signals individually. **Since leaving any of the outputs in manual control will disrupt the normal control, an alarm will be generated as soon as any output is set to a manual mode.**

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations

	`Supply temp. contr.`
	
	`Auto`
	
	`Manual set: 0.0`
			Set the supply air temperature to `Auto`, `Manual` or `Off`.
			
			Set the output signal between 0-100%.
			
			The outputs Y1, Y2 and Y3, if in Auto-mode, will follow the signal according to the set split values.

	`SAF: Auto`
	
	`Manual set: 0.0`
	
	`EAF: Auto`
	
	`Manual set: 0.0`
			Set the output signal for SAF (supply air fan) & EAF (exhaust air fan) to . `Auto`, `Manual`,`1/2-speed` or `1/1-speed`.

	`Heating`
	
	`Auto`
	
	`Manual set: 100.0`
			Set the heating to `Auto`, `Manual` or `Off`.
			
			Set the manual output 0-100%.

	`Exchanger`
	
	`Auto`
	
	`Manual set: 0.0`
			Set the exchanger rotor control to `Auto`, `Manual` or `Off`
			
			Set the manual output 0-100%

	`Cooling`
	
	`Auto`
	
	`Manual set: 0.0`
			Set the cooling to `Auto`, `Manual` or `Off`
			
			Set the manual output 0-100%
			
			Note:
			
			Needs to be activated in order to be visible here

	`P1-Heating`
	
	`Auto`
	
	`P1-Exchanger`
	
	`Auto`
			Set the pump control for the heating coil to `Auto`, `On` or `Off`
			
			Set the pump control for a possible run around coil to `Auto`, `On` or `Off`

	`P1-Cooling`
	
	`Auto`
			Set the pump control for the cooling coil to `Auto`, `On` or `Off`

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations

	`Fire damper`
	
	`Auto`
			Set the Fire damper to `Auto`, `Open` or `Close`
			
			Note:
			
			Needs to be activated in order to be visible here
			
			Configuration of fire damper functions are made at `Administrator level`

	`Outdoor air damper`
	
	`Auto`
			Set the Outdoor air damper to `Auto`, `Open` **or** `Close`

	`Exhaust air damper`
	
	`Auto`
			Set the Exhaust air damper to `Auto`, `Open` **or** `Close`

	`Extra sequence Y5`
	
	`Auto`
	
	`Manual set: 0.0`
			Set the Extra sequence to `Auto`, `Manual` **or** `Off`

→ `Settings`			In this menu group the settings for the activated functions are available. Depending on which choices have been made in the configuration menu some of the possible alternatives may not be displayed.

	→ `Control temp`	`Supply air control`
		
		`P-band: 33.0°C`
		
		`I-time:  100.0 sec`
			Set P-band and I-time for the Supply air control function
			
			Note:
			
			See Corrigo E ventilation manual for more information.

		`Room control`
		
		`P-band: 100.0°C`
		
		`I-time:  300.0 sec`
			Set P-band and I-time for the Room control function
			
			Note:
			
			See Corrigo E ventilation manual for more information.

		`Shutdown mode`
		
		`P-band: 100.0°C`
		
		`I-time:  100.0 sec`
			Set P-band and I-time for the Shutdown function
			
			Note:
			
			See Corrigo E ventilation manual for more information.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
		→ Frost protection Active Setp shutdown: 25.0°C P-band active: 5.0°C	P-band active 5° C means that the frost protection controller will start overriding the heating output when the frost protection temperature is less than 5 degrees above the set frost alarm default alarm limit is 7° C
		Fast stop at frost protection alarm Yes	**Set** the fast stop of the unit in case of frost protection alarm to Yes or No.
	→ Control flow		Alternatively Pressure control if chosen in the configuration of the unit from factory
		Flow control SAF P-band: 10000.0 m³/h I-time: 10.0 sec Min. output: 0%	**Set** P-band, I-time and Min. output for the supply air fan when the unit comes configured as Flow control from factory. Alternatively Pressure control if that configuration is chosen
		Flow control EAF P-band: 10000.0 m³/h I-time: 10.0 sec Min. output: 0%	**Set** P-band, I-time and Min. output for the Extract air fan when the unit comes configured as Flow control from factory. Alternatively Pressure control if that configuration is chosen
	→ Alarm settings	→ Alarm limits	**Set** the alarm limits and allowed deviations for the different functions
		→ Alarm delays	**Set** the alarm delays and allowed deviation delays for the different functions
		→ Restore alarm	Reset the service alarm (filter alarm).
	Restore factory settings: No Restore user settings: No		In this menu, it is possible to restore all parameters to their factory settings or to the user settings they were **saved as earlier.** **Select** Yes or No

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations

	`Save user settings`
	
	`No`
			The current configuration can be saved in a separate memory area and can later be restored using the previous menu, Restore user settings. **Select** `Yes` **or** `No`

Darker gray area, log in to "Administrator level" code 3333			
→ `Configuration`	→ `Inputs/Outputs`		Setup for inputs and outputs.
	→ `Sensor settings`		Setup of sensor types and boundaries for the regulation range.

	→
	
	`Control function`
		`Control function`
		
		`Mode:`
		
		`Room control`
			Set type of temperature control function you want the unit to operate under. Choose between
			
			`Room control, Extract air control, Outd comp room, Outd comp extr air, Supply air control, Outdoor comp. supply`
			
			`Extract/supply air` →(possible to switch between the two depending on outdoor temp.),
			
			`Room/supply air` →(possible to switch between the two depending on outdoor temp.),

	→ `Extra sequency Y4`		Can be configured to one of the following alternatives: `Active, Active with cooling recovery, Active with enthalpy control` and `Active with both cooling recovery and enthalpy control.`
	→ `Extra sequency Y5`		`Extra sequence Y5` can be configured to `Active` or `Not active.`

	→
	
	`Pump control`
		`P1-Heating`
		
		`P1-Cooling`
			Set parameters for pump control.
			
			If, for any of the control circuits, no output is configured for pump control these settings will be ignored.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
	→ Free cooling	Free cool active: No Outd. temp activation 22°C	**Set** free cooling active to "Yes or No. **Set** the lower outdoor day temperature limit for the activation of the free cooling function. The temperature of the previous day needs to be over the set temperature in order activate the free cooling function.
		Outd. temp night High: 15.0°C Low: 5.0°C Room temp min. 18°C	**Set** the upper outdoor night temperature limit for the activation of the free cooling function. **Set** the lower outdoor night temperature limit for the activation of the free cooling function. **Set** the lower room temperature limit. The temperature needs to be above this value for the free cooling function to stay active. If no room sensor are connected extract air is valid.
		Hour for start/stop Free cooling Start: 0 Stop: 7	**Set** the start and stop time for the free cooling function For example Start: 0 and Stop: 6 means that the free cooling sequence is active between 00.00 and 06.00 h.
		Time to block heat output after Free cooling 60 min	**Set** the delay in minutes from the time where the free cooling sequence has stopped until a possible heating sequence is initiated, i.e. how long a cooler room temperature than set temperature can be accepted
		Fan output when free cooling SAF: 0 % EAF: 0 %	**Set** the fan speed in percentage of the normal speed for each fan individually during the free cooling sequence
		Outdoor sensor placed in intake channel (intake duct) No	**Set** if the outdoor sensor is placed in the intake duct or not. Choose between No and Yes Preset is No.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
	→ Support control	Support control Active: No EAF running during Support contr.: Yes	When using the control function room control or extract air temperature control, it is possible to utilize support-heating and/or support-cooling. Minimum running time is settable 0…720 minutes (factory setting 20 minutes). Choose between "Active: Yes or No". (For start and stop temperatures see the "Temperature" menu)
		Min. run time for support ctrl: 60 min	**Set** the minimum running time in minutes for support control
	→ CO2/VOC Control	CO2/VOC active Never Type: Fan Min. time: 60 min	In applications with varying occupancy the fan speeds can be controlled by the air quality as measured by a CO2/VOC-sensor. See Corrigo manual for further explanation **Set** active to Never, Always or If time channel off. Set what should be regulated. Select type Fan **Set** the min. time the unit is activated by the CO2/VOC demand function
		Activation level 1/2-speed: 800 ppm 1/1-speed: 1000 ppm diff: 160 ppm	**Set** the activation level at 1/2 speed **Set** the activation level at 1/1 speed **Set** allowed diff. value
	→ Fire Function	Fire damper function Normally open Operation when alarm Stopped	The fire alarm input can be configured as Not active, Normally closed or Normally open. Choose operation when alarm Stopped, Continuous run, Normal run, Only SAF, or Only EAF
		Fire alarm input Normally open Damper exercise No	Activate the fire damper exercising, choose between No, Yes unit running or Yes unit stopped. Set the parameters for damper exercise in the submenu.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
	→ Exchanger de-icing	Exchanger de-icing Yes	This sections is for units with counterflow exchangers. Set if exchanger de-icing will be used, `Yes/No`
		Exchanger de-icing bypass: Yes Underpressure: Yes Defrost level: 3	This sections is for units with counterflow exchangers. Set if bypass of outdoor air is allowed during de-icing. `Yes/No` Set level of aggression for the defrosting, `1-5`
		Time between de-icing for level 5 20 min	Set the time between the de-icing cycles for level 5 for counterflow exchangers, can be used to have more aggressive de-icing when level 5 is not aggressive enough.
	→ Cooling recovery	Cooling recovery No Cooling limit: 2.0°C	**Set** the cooling recovery to `Yes` or `No`. **Set** the cooling limit (the difference in temperature between extract air and outdoor air that activates the cooling recovery).
	→ External setpoint	External setpoint Not active Min setp.: 12.0°C Max setp.: 30.0°C	An external setpoint device can be connected. The setpoint device must follow the PT1000 resistance curve. The setting range can be restricted.
	→ Alarm settings	Alarm no(1-100): 1 Run Error Supply Air	
	→ Communication	Function Port1 Slave Function Port2 Slave	Choose between different communications `Slave`, `Expansion unit`, `Frequency converter`, `External display`, `Exp and freq conv` or `Exp and ext display`.
		SMS: Not active Nbr1: Nbr2: Nbr3:	

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations

→ `Access rights`	→ `Log on`	`Log on`
		
		`Enter password`
		`xxxx`
		
		`Actual level:`
		`None`
			Log on to service level by entering a 4-digit code. After reaching the desired level go back with "LEFT" arrow (press 2 times) on the control panel.
			
			Standard code from factory to enter service level is 2222. Back to operator level: 1111

	→ `Log off`	`Log off?`
		
		`No`
		
		`Actual`
		`level:None`
			Log off from Administrator level by changing `No` to `Yes` with the "OK" and "UP/DOWN" buttons
			
			Automatic logoff after 6 minutes of inactivity.

	→ `Change password`	`Change password for`
		
		`level:None`
		
		`New password`
		`xxxx`
			Set a new password for the level of your choice.
			
			Can only be done once logged on to the service level.

4.4 Free cooling description

This function is used during the warm period to save energy by using cold outdoor air, e.g. during night time, to cool down the building.

Note:

The following is only valid if the free cooling function is set to `Active` in the program menu.

Free cooling is only activated when the following starting conditions are met.

Starting conditions:

- Less than 4 days have passed since the unit was last in running mode.
- The outdoor temperature during the previous running period exceeded a set limit (+22°C).
- It is between 00:00 and 07:00:00 in the day (settable).
- The timer outputs for normal speed, Extended running normal and External stop are Off.
- A time channel will be On sometime during the recently started 24 hours.

The unit checks the night temperature (indoor and outdoor temperature) during 3 minutes at the set starting hour when the fans are started so that the sensors can perform a temperature measurement. If above conditions are met the free cooling function is started, if not the unit goes back to OFF position.

If the outdoor sensor is not located in the outdoor air inlet duct and a room sensor has been selected, the unit will not start free cooling as long as all the temperatures are not within the start and stop temperature intervals.

Stop conditions:

- Outdoor temp above the set max value (+18°C) or below the set min value (condensation risk, +10°C).
- The room temp/extract air temp is below the set stop value (+18°C).
- One of the timer outputs for normal speed, External stop or Extended running normal is On.
- The time has past 07:00:00.

When free cooling is active, the fans run at normal speed or the set value for pressure/flow control and the digital output `Free cooling` is active. The outputs `Y1-Heating`, `Y2-Heat exchanger` and `Y3-Cooling` are shut down. After free cooling has been activated, the heating output is blocked for 60 minutes (configurable time).

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

The table below shows recommended maintenance intervals for the unit and the installation. To ensure a long operation lifetime for the unit it is important to perform maintenance according to below recommendations and that they are performed according to the operation and maintenance instructions. A thorough and recurrent maintenance is a must for a valid guarantee.

Type of maintenance	Once a year	When necessary
Cleaning the heat exchanger.	X	
Cleaning the fans.	X	
Cleaning extract louvres and supply air diffusers.		X
Cleaning the outdoor air intake.	X	
Cleaning the duct system.		X[1]

1.   *Or in accordance with local rules and regulations*

5.3 Maintenance instructions

5.3.1 Changing Supply/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.
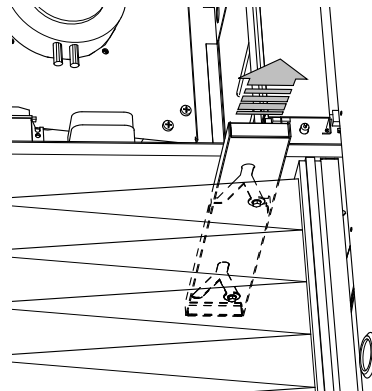
When this occurs do the following:

1. Replace the filters with new ones as described below.

2. Acknowledge the alarm by pressing the red button on the control panel (pos.1 figure 4) followed by OK (pos.4 figure 4).

3. Choose →Acknowledge by pressing OK.

The filters are taken out according to below procedure:

1

Release the filter frame by pulling the filter support bars.

2

Tilt the support bars to the back.
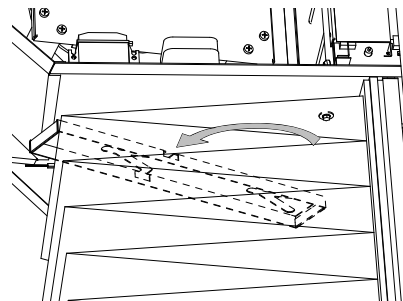
3

It is now possible to fold the filter and frame backwards. This is especially important if there is lack of space in front of the unit and the sliding door kit is used.

The filter can now be taken out of the unit.
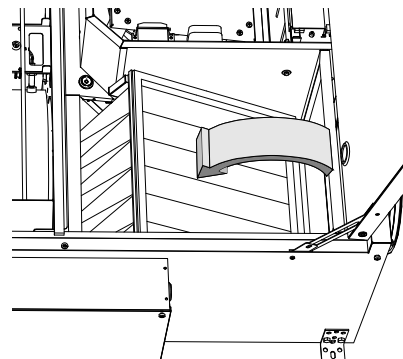
4

Insert the new filter and fasten it against the inlet seal with the filter support bars.

Make sure the filter is fitted tight all around the frame.

5.3.2 Checking the heat exchanger

After a long time of use dust may build up in the exchanger (pos. 5, figure 1) and block the airflow. It is important to clean the exchanger regularly to maintain high efficiency. The heat exchanger in the Topvex FR03–11 can be taken out of the unit. Wash in hot soapy water or use pressure air. Do not use detergent containing ammonia.
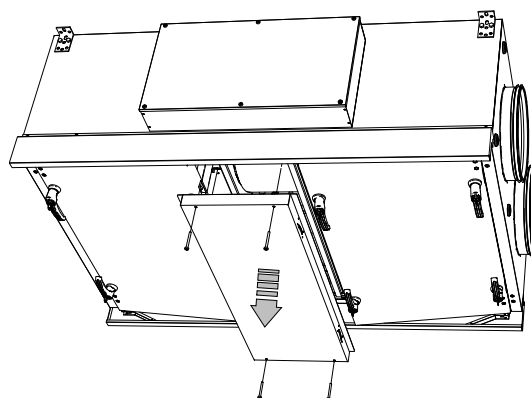
Note:

Make sure that the rotor motor is not exposed to moisture.

5.3.2.1 Dismounting the heat exchanger block on ceiling mounted units

1

Remove the exchanger cover plate in the centre of the unit by unscrewing the 4 screws in the corners of the plate.

Removing the plate is only possible after opening both inspection doors.

2

There are 4 screws (2 on each side) holding the heat exchanger block (Models FR08 and FR11 have 8 screws, 4 on each side). When removing the heat exchanger start with checking that the screw marked "A" is tightened properly. Remove the screw marked "B" completely as shown in the figure after which the screw marked "A" is loosened carefully, just enough to allow the exchanger frame to slide in the tracks.
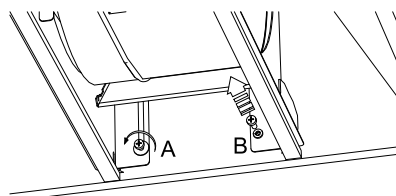
3

Slide out the exchanger block until the end of the tracks.
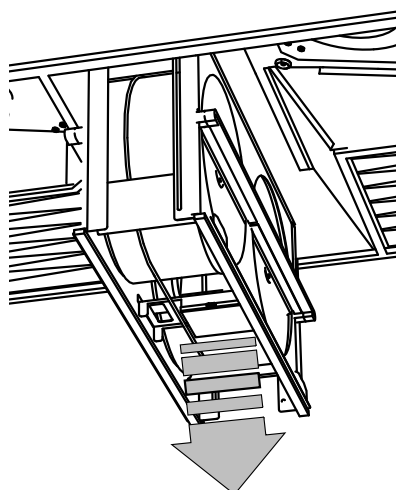
⚠ **Warning**
The heat exchanger block is heavy. Use proper support device when taking out the heat exchanger block for maintenance!

4

After finished cleaning/maintenance, push back the heat exchanger block and fasten all screws tightly.

5.3.2.2 Dismounting the heat exchanger block on floor mounted units

1

Loosen all screws completely holding the heat exchanger block.

2

Remove the heat exchanger block completely by lifting it straight up.

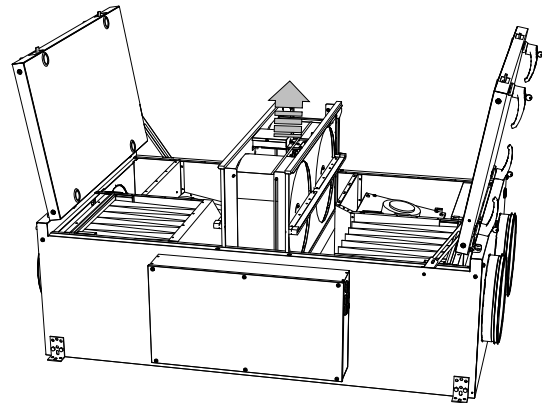| ⚠ **Caution** |
|---|
| The exchanger block is heavy, make sure to use proper lifting device or sufficient number of persons to lift the heat exchanger out of the unit |

Table 2: Weight of heat exchanger block

Model	Weight of heat exchanger block (kg)
FR03	30
FR06	40
FR08	52
FR11	66

5.3.3 Checking the fans

5.3.3.1 Checking the fans

Even if the required maintenance, such as change of filters, is carried out dust and grease may slowly build up inside the fans (pos.1 and 2, figure 1). This will reduce the efficiency.

The fans can be dismounted by loosening the 4 screws on the fan casing (figure 5). Topvex FR06–11 have a fan support bracket that needs to be removed by loosening 4 screws. The fans may be cleaned with a cloth or a soft brush. Do not use water. White spirit can be used to remove accumulations which are otherwise difficult to remove. Allow drying properly before remounting.
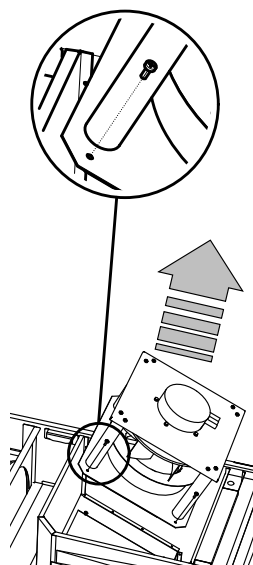
Fig. 5 Dismounting the fans

5.3.4 Cleaning extract louvres and inlet diffusers

The system supplies treated outdoor air to the building and extracts the used indoor air via the duct system and diffusers/louvres. Diffusers and louvres are mounted in ceilings/walls in bedroom, living room, wet rooms, WC etc. Remove diffusers and louvres and wash in hot soapy water if required. Diffusers/louvres must be put back with their original settings and positions in order not to unbalance the system.

5.3.5 Checking the outdoor air intake

Leaves and pollution could plug up the air intake grille and reduce the unit's capacity. Check the air intake grille at least twice a year and clean if necessary.

5.3.6 Checking the duct system

Dust and grease settlements may build up in the duct system even if filters are changed regularly. This will reduce the efficiency of the installation. The ducts should therefore be cleaned/changed when necessary. Steel ducts can be cleaned by pulling a brush, soaked in hot soapy water through the duct via diffuser/louvre openings or special inspection hatches in the duct system (if fitted).

5.3.7 Changing the Internal Battery in the Corrigo controller

When the alarm "Internal Battery" is activated and the battery LED lights up red, the battery for backup of program memory and real-time clock has become too weak. The battery is replaced as described below. A backup capacitor saves the memory and keeps the clock running for at least 10 minutes after the power supply is removed. Therefore, if the battery replacement takes less than 10 minutes, there will be no need to reload the program, and the clock will continue to run normally.

The replacement battery must be of the type CR2032.

1

Remove the cover by pressing down the locking torques at the edge of the cover using a small screwdriver, and at the same time pulling the edges outwards.
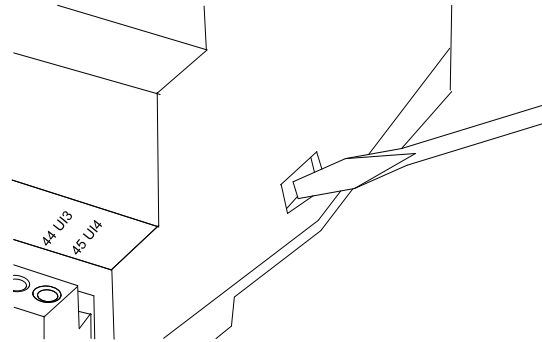
2

Grip the battery firmly with your fingers and lift it upwards until it rises from its holder.

Press the new battery firmly down into place. Note that to preserve correct polarity, the battery can only be inserted the "right way round".
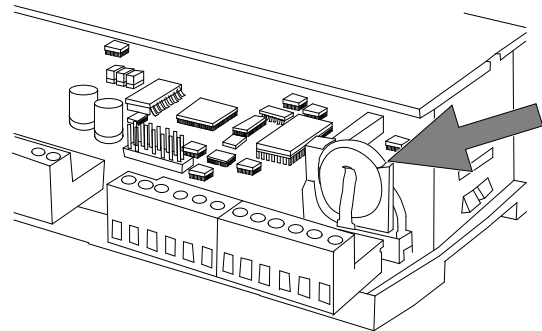
5.4 Troubleshooting

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 that the fuses are not defect (pos.8 figure 3).
   * Check the settings in the control panel (times, week schedule, auto/manual operation etc.).

2. **Reduced airflow**
   * Check the settings for medium and low fan speed.
   * Check that the outdoor/exhaust air damper (if used) opens.
   * Check if filters need changing.
   * Check if diffusers and louvres need cleaning.
   * Check diffuser/louvre openings.
   * Check if fans and exchanger block 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. **Cold supply air**
   * Check the control temperature on the control panel.
   * Check if the emergency thermostat has tripped. If necessary press the red button, on the electrical heater (pos. 9, figure 1) with a pointed tool.
   * Check if the extract filter must be changed.
   * Check if the fans have stopped due to overheating. If so the thermal contact might have tripped (shows as `Fan alarm` in the control panel).

4. **Noise/vibrations**
   * Check that the unit is completely leveled.
   * Clean the fan impellers.
   * Check that the screws holding the fans are tightened properly.

5.4.1 Alarms

The alarm button (pos.1, figure 4) opens the alarm queue. When pressing this button active and non-acknowledged alarms will be displayed in the menu window. The alarm-LED (pos.2, figure 4) is flashing if there are non-acknowledged alarms and steady if the alarms are still active but have been acknowledged. If there are multiple alarms, use UP/DOWN to move between them. An alarm can be acknowledged or blocked by using OK and UP/DOWN. To abort and go back to start menu press cancel and then press LEFT.

See commissioning record for an overview of possible alarms.

6 Service

Before calling your service representative, make a note of the specification and production number from the type label (figure 6)
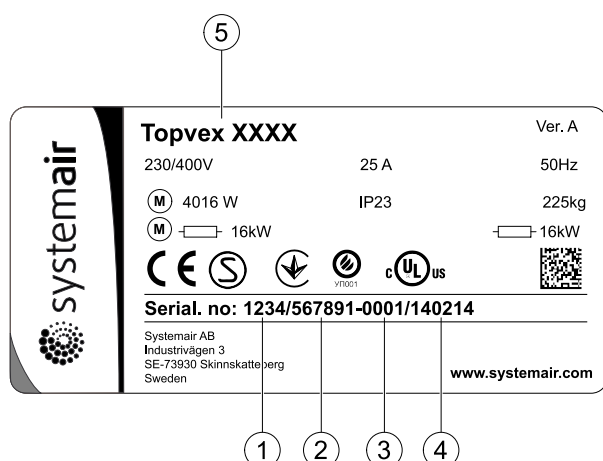

Fig. 6 Type label

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

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