Topvex SF02-S12

Air Handling Unit

GB Operation and Maintenance Instructions

Document in original language

130323-EN_GB
10-11-2015 A001

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

- The door handles are only intended to be used during the installation and service. These must be removed before the unit is put into operation to ensure the required level of safety for the unit.

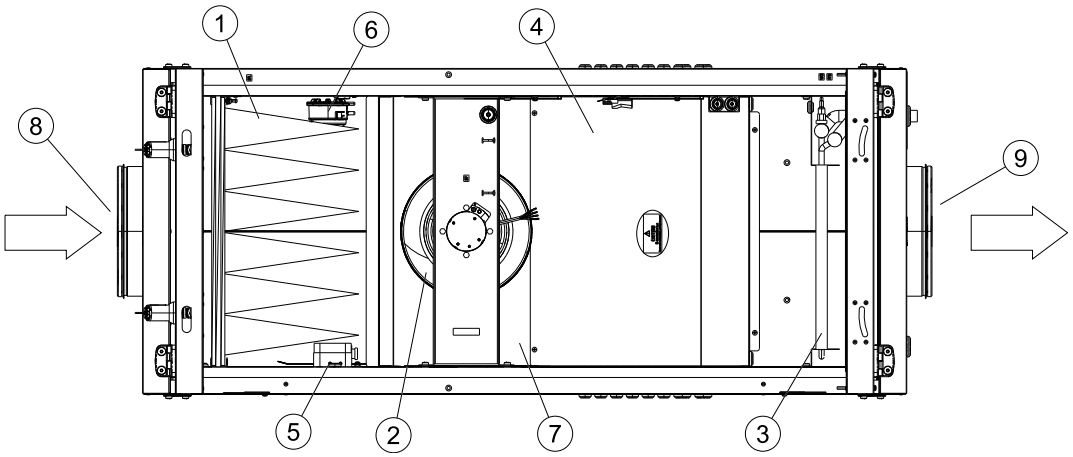
  The unit must be duct connected or in some other way provided with protection so that it is not possible to come in contact with the fans through the duct connections
- The unit is heavy. Be careful during transport and mounting. Risk of injury through pinching. Use protective clothing.
- Beware of sharp edges during mounting and maintenance. Make sure that a proper lifting device is used. Use protective clothing.
- The units electrical connection to the mains supply must be preceded by an all pole circuit breaker with a minimum 3 mm gap.

Caution

- If the unit is installed in a cold place make sure that all joints are covered with insulation, and tape well
- Duct connections/duct ends should be covered during storage and installation
- Do not connect tumble dryers to the ventilation system
- Take care not to damage the water battery when connecting water pipes to connectors. Use a spanner to tighten the connection.

2 Product description

2.1 Internal components



1	Filter, supply air
2	Fan, supply air
3	Heater, electrical or water
4	Electrical connection box
5	Pressure guard filter
6	Air flow sensor (only EL units)
7	Outdoor air sensor
8	Duct connection, outdoor air
9	Duct connection, supply air

2.2 Description internal components

2.2.1 Fan

The fan has external rotor motors of EC type which are steplessly controlled. 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 fan for cleaning

2.2.2 Supply air filter

The filter is of bag filter type with filter quality M5. The filter need to be replaced when polluted. New filter can be acquired from your installer or wholesaler.

2.2.2.1 Pressure guard filters

A pressure guard measures the differential pressure over the supply air filter. 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.

2.2.3 Temperature sensor

In Topvex SF the supply air sensor is delivered with the unit and is to be installed in the supply air duct externally from the unit. See Installation instructions for more detailed information.

The outdoor air sensor is mounted and wired inside the unit.

2.3 Heating battery

⚠ 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.
- Observe that the heating battery can be hot although the power is switched of. Risk of burning.

2.3.1 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.

2.3.2 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 electric heating coil has both automatic and manual overheating protection.

The manual overheat protection is reset by pressing the button, marked RESET figure 1. The power demand of the electrical heating coil is controlled by the main regulator.

The main regulator 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.

Topvex SF units equipped with Electrical heater performs 3 minutes of re-cooling after the unit have been turned of.

Note:

- If activating the fire alarm when the heater is switched on, the fan stops immediate without re-cooling, this can cause the overheating protection to trip. See figure 1 where to reset.
- Reset of the overheat protection must be done by an authorized electrician.
- An all pole circuit breaker (safety switch) must precede the unit.

2.4 Electrical connection box, components

⚠ Danger

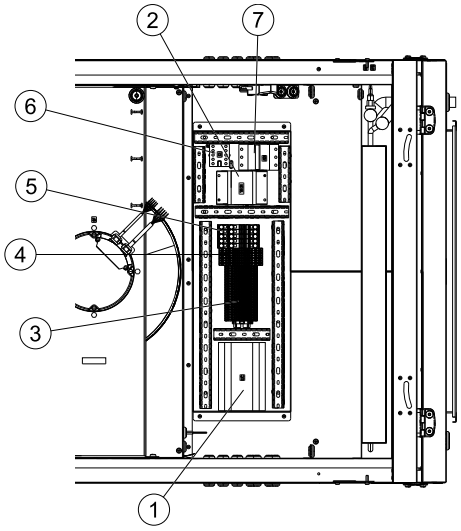
- Make sure that the Mains supply to the unit is disconnected before performing any maintenance or electrical work!
- All electrical connections must be carried out by an authorized installer and in accordance with local rules and regulations.

⚠ Caution

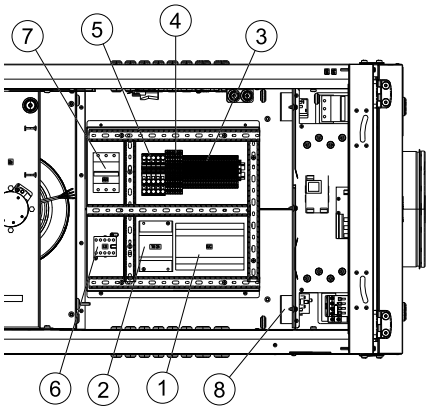
Be careful so the hatch doesn't fall down if the unit is false ceiling mounted.

Topvex SF is equipped with a built in regulator and internal wiring.

Loosen the 4 screws to remove the hatch to the electrical connection box.



Topex SF04-S12



Topex SF02-03

Fig. 1 Connection box

Position	Description
1	Regulator E283 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	Reset for overheat protection (only EL units)

3 Interface Description

3.1 Control Panel

The SCP control panel is delivered with a 10 m cable (up to 100 m can be used) 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 2).

3.1.1 Operating the control panel

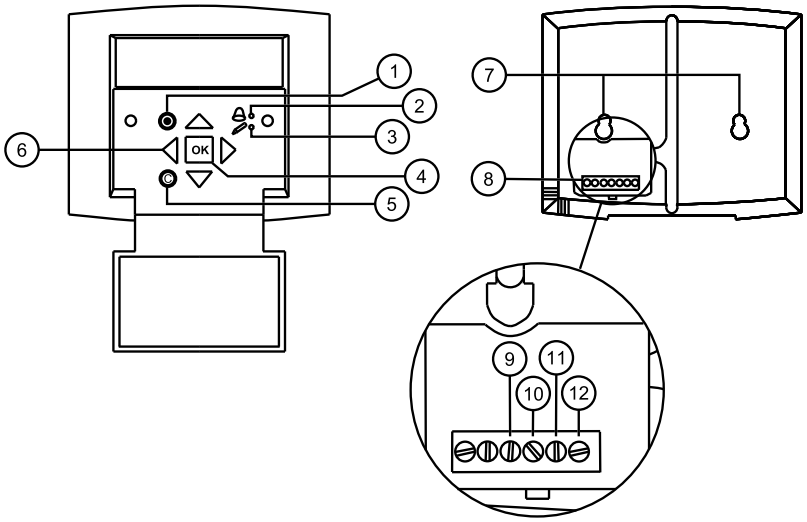


Fig. 2 The control panel

Position	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 finished, check that:

- The unit is installed in accordance with the installation instructions
- The unit is correctly wired
- Mufflers 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.

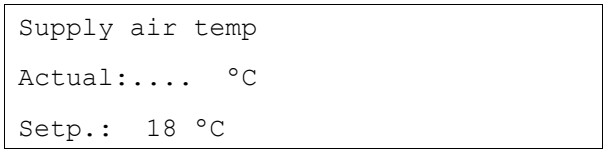
The following will be displayed:

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.

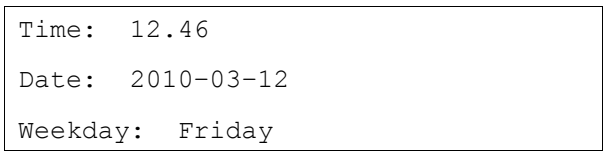
2

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



3

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



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".

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.

Note:

See Corrigo manual-Ventilation application for more information and additional configuration alternatives.

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
Topvex SF03 HW 2015-03-15 09:00 System:Normal run Sp:22.0 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	The time in hours that the motors have been operating SAF = Supply air fan
	→ Selected functions	Control function Supply air control Fan control Frequency manual control	Type of air temperature control the unit is configured for. Type of fan speed control the unit is configured for.
		Heating: Water Exchanger: Not conne 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.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
		Fire damper function Not active Operation when alarm Stopped	Status of the fire damper function when fire alarm is active.
		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		Alarm log list 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	Outd temp: °C Supply air temp Act.: °C→ Setp: 18°C	Supply air temp. 18°C Neutral zone 0.0 °C	Actual outdoor air temperature. Actual supply air temperature. Choose setpoint value. A neutral zone can be set around the setpoint value. **Note:** See Corrigo manual-Ventilation application for more information.
	Frost protection Actual: °C		Actual water temperature in the water heating battery. **(Only visible for HW units).**
→Air Control			

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
	Frequency control manual SAF Output: %		Frequency control manual. Fans controlled by setting fixed output signal. **This menu option becomes visible if the unit is configured for "Manual frequency".**
		Frequency control manual SAF Output 1/1: 75% Output 1/2: 50%	
		Outdoor comp.output. -20°C = 0 % 0°C = 0 % Act. Comp: 0 %	
	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 accessory).**
		Pressure control SAF Setp 1/1: 500 Pa Setp 1/2: 250 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.
→ Time settings	→ Time/Date		Set correct time and date. Set 00:00 - 24:00 for continuous running. Setting 00:00 - 00:00 inactivates the period (stops the unit). Normal speed overrides Reduced speed i.e. Normal speed 07:00 - 16:00 and Reduced speed 00:00 - 24:00 runs the unit on Normal speed 07:00 - 16:00 and Reduced speed the rest of the day.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
	→ 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. 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. Note the settings in the commissioning record.
	→ 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 even if the actual mode is 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 2:01–01 — 01–01 3:01–01 — 01–01	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”.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
→ 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.**
	Supply temp. contr. Auto Manual set: 0.0		Set the supply air temperature controller 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		Set the output signal for SAF (supply 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%.
	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		Set the pump control for the heating 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 Not used in default setting.
	Motor control1 Auto Motor control2 Auto		Motor control **Note:** See Corrigo manual-Ventilation application for more information.
→ 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 manual-Ventilation application 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 manual-Ventilation application 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	Status for frost protection. When running mode switched to "Off". Shutdown controller will control the heating output to maintain a constant settable temperature at the frost protection sensor for the hot water coil. If frost protection temperature falls below Frost protection Alarm level + settable P-Band for frost protection, it will rise the internal signal and force the heating valve to open to avoid freeze-up of hot water coil.
		Fast stop at frost protection alarm Yes	**Set** the fast stop of the unit in case of frost protection alarm to Yes or No.
		Sequency with frost protection Y1-Heating	Frost protection control. Is available for Y1 heating, Y4 extra sequenceor on both Y1 and Y4.
	→ Control pressure	Pressure control SAF P-band: 500.0 m³/h I-time: 60.0 sec Min. output: 0%	**Set** P-band, I-time and Min. output for the supply air. **Only shown if VAV accessory is used.**
	→ 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
	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

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
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 control range.
	→ Control function	Control function Mode: Supply air control	**Set** type of temperature control function you want the unit to operate under. Choose between Supply air control, Outdoor comp. supply More information in chapter 4.4
	Fan control	Frequency manual	***Set** type of fan control function you want the unit to operate under. Choose between Pressure control (option accessory), Frequency manual.
	→ Extra sequency Y4	Mode extra sequence Y4 Active w cool recov	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.
	→ Heating		Type of heater
	→ Cooling		Type of cooler
	→ 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.
	→ Free cooling	Free cool active: No Outd. temp activation 22°C	**Set** free cooling active toYes 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.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
		Outd. temp night High: 18.0°C Low: 10.0°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.
	→ 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 60 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

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
	→ CO2/VOC Control	CO2/VOC active Never Type: Fan Min. time: 20 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
		Sequency with CO2 comtrol Y2 exchanger	CO2/VOC control can be used with mixing dampers. Select for use on Y2, Y4 or on both outputs.
	→ Fire Function	Fire damper function Not active Operation when alarm Stopped	The fire alarm input can be configured as Not active, Normally closed or Normally open. Choose operation when alarm is active Stopped, Continuous run, Normal run, Only SAF, or Only EAF
		Fire alarm input Normally open Damper exercise No	Fire alarm input can be configured to normally open or normally closed. Fire alarm input is also available to be configure from digital inputs. Note the risk of a twice changed signal can create an undesired function. 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
	→ 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.
	Type of actuator		Type of control signal for actuators. Choose between 0-10V, 2-10V, 10-2V, 10-0V.
	Motor control	Motor control1 Run mode when unit run (/DI) Stop delay 120s	Settings running conditions external fan.
		Motor control2 Run mode when unit run (/DI) Stop delay 0s	
	→ Alarm settings	Alarm no(1-115): 1 Run Error Supply Air	
	→ Communication	Function Port1 Slave	Set functionality and adjust communication settings Slave, Expansion unit, Freq conv/Press tran, External display, Exp and freq conv or Exp and ext display.
		→ Function Port2 Slave	
		TCP/IP	
→ 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. To enter Admin level code: 3333.

Main menu item	Sub-menu item 1	Sub-menu item 2	Explanations
	→ Log off	Log off? No Actual level:None	**Log off** from Administrator level by changing Noto 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 Temperature control possibilities

Type of Control	Temperature sensor placement	Description/function
Supply air temperature control:	The supply air temperature sensor is placed in the supply air duct approximately 3m after the unit.	Controls the temperature of the supply air
Supply air temperature control with outdoor air temperature compensation:	2 temperature sensors are needed. The outdoor air sensor is mounted and wired inside the unit. The supply air temp sensor is placed in the supply air duct approximately 3m after the unit.	Compensates for low outdoor temperatures by increasing the supply air temperature with an optional value to avoid sudden temperature drops in the interior of the building. Preset is + 20K temperature increase at -20°C outdoor temperature and +15K increase at 0°C outdoor temperature.
Extract air temperature control:	2 temperature sensors are needed. The extract air temp sensor is placed in the extract air duct or in the room if the building lacks extract air ducting. The supply air temp sensor is placed in the supply air duct approximately 3m after the unit.	Set the extract air temperature (preset is +18°C). To ensure that the supply air temperature produced by the unit is not too low or too high, a minimum and maximum supply air temperature value can be set by the installer/operator. Preset minimum temperature is +12°C and maximum temperature is +30°C.

4.5 Free cooling

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.

In order for the free cooling function to work, a total of 3 temperature sensors (outdoor, supply and extract/room) are required.

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 and Y3-Cooling are shut down. After free cooling has been activated, the heating output is blocked for 60 minutes (configurable).

5 Maintenance

⚠ 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

In order to avoid electrical shock, fire or other damage that might occur in connection with faulty use and operation of the unit, it is important to consider the following:

- The system must be installed according to the installation instructions.
- Insulate mains supply before service or cleaning of the heat recovery unit.
- Make sure the filter is mounted in its place before running the system.
- Maintenance must be performed according to the instructions.

⚠ Caution

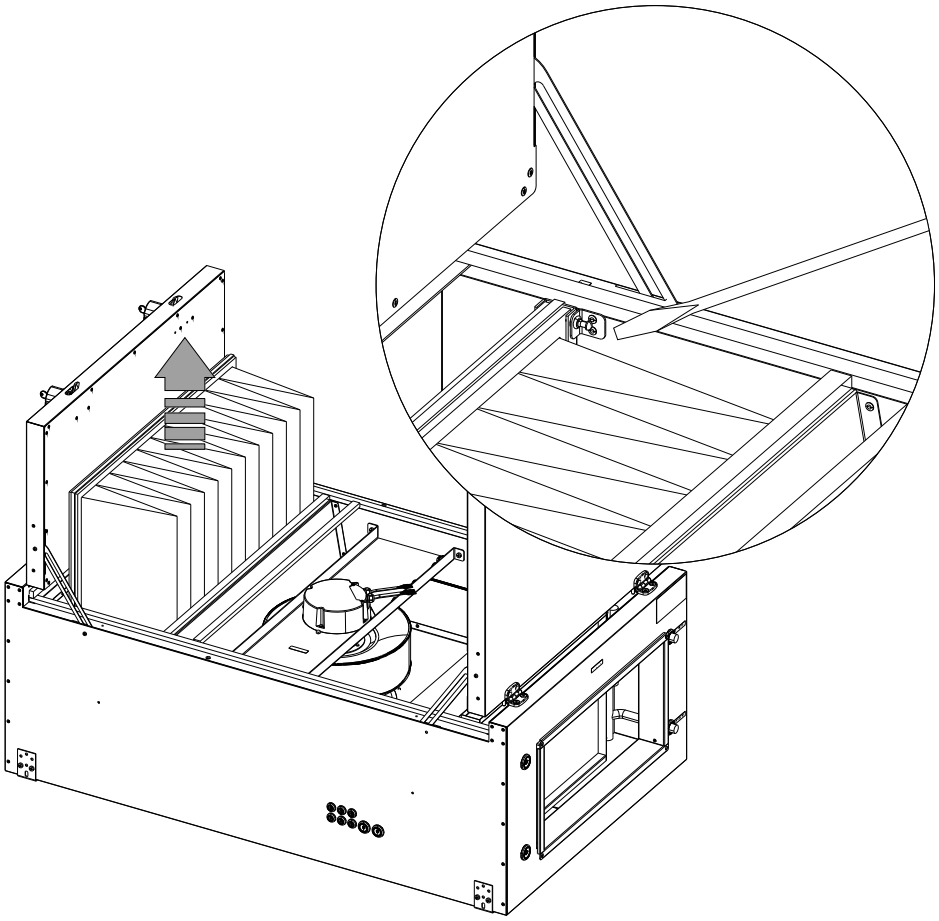
Make sure that loosened parts during maintenance doesn’t fall down and causing injury.

5.1 Changing air filters

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.

Re-set the alarm after filter change, see Alarm settings, Alarm limits, Service alarm in the Control panel.

Initial pressure drop for Topvex SF02 to Topvex SF03 is approx. 50 Pa and 60 Pa for Topvex SF04 to Topvex SF12.



5.2 Checking the fan

Even if the required maintenance, such as changing of filters is carried out, dust and grease may slowly build up inside the fan. This will reduce the efficiency.

The fan 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 use.

The fan can easily be taken out, by removing 4 screws (pos 1) shown in figure 3 and disconnecting the fast couplings to the electric wires.

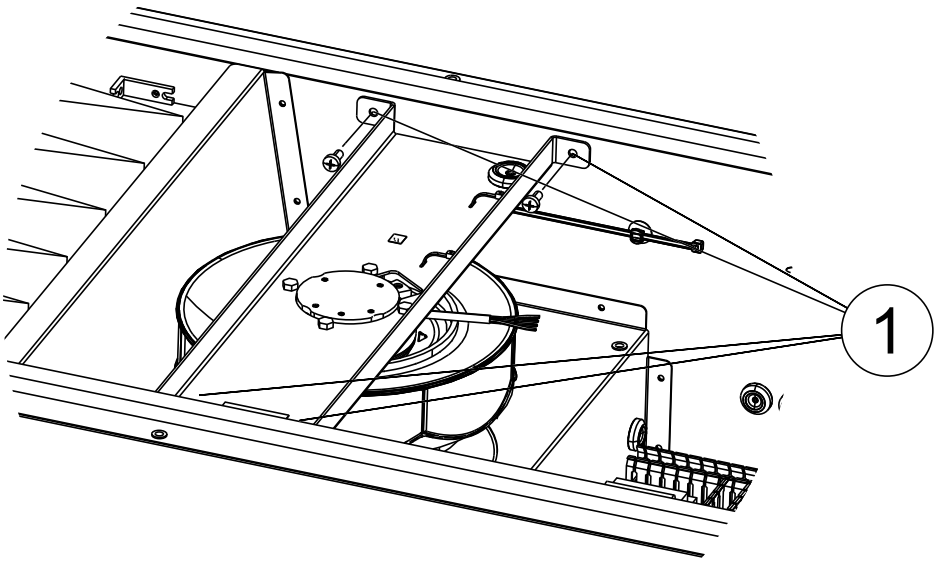


Fig. 3

5.3 Cleaning louvers and diffusers

Check the louvers and diffusers at least twice a year, and clean if necessary.

The system supplies fresh air to the building via the duct system and diffusers/louvers. Diffusers and louvers are mounted in ceilings/walls.

Remove diffusers and louvers and wash in hot soapy water as required. (Diffusers/louvers must be put back with their original settings and positions in order not to unbalance the system).

5.4 Checking the outdoor air intake

Leaves and pollution could plug up the air intake grille and reduce the capacity.

Check the air intake grille at least twice a year, and clean if necessary.

5.5 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 duct runs 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/louver openings or special inspection hatches in the duct system (if fitted).

Note:

In addition the roof cowl must be checked once a year and cleaned as necessary.

5.6 Changing the Internal Battery

Note:

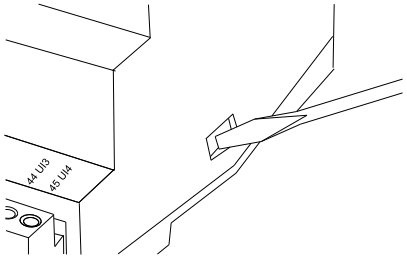
This procedure requires knowledge of proper ESD protection; i.e. an earthed wristband must be used!

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

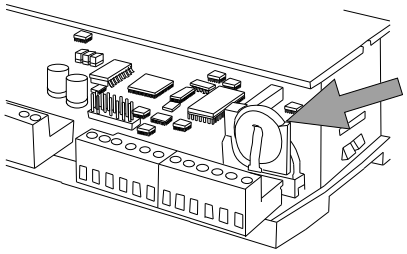
Remove the cover by pressing down the locking torques at the edge of the cover using a small screwdriver, and at the same time pulling the edges outwards.



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”.



6 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. **The fan do not start**
   - Check that the fuses are not defect.
   - Check the settings in the control panel (time, week schedule, auto, manual operating etc.).
   - Check if there are any alarm messages.
2. **Reduced airflow**
   - Check the settings of Normal and reduced fan speed.
   - Check that the outdoor air damper, if used, opens.
   - Change of filter required?
   - Cleaning of diffusers/louvers required?
   - Cleaning of fan required?
   - Is roof unit/air intake clogged?
   - Duct system. Check visible duct runs for damage and/or build-up of dust/pollution.
   - Check diffuser/louver openings.
3. **Cold supply air**
   - Check set supply air temperature on the control panel.
   - Check if overheating thermostat is still alert. If necessary, reset by pressing the button, marked RESET, figure 1).
   - Check if the fan thermo switch has tripped, shows as ***Fan alarm*** in the control panel. If necessary, reset it.
4. **Fluctuating supply air temperature**
   - Check that the supply air temperature sensor is assembled approximately 3 meters from the heater.
5. **Noise/vibrations**
   - Clean fan impeller.

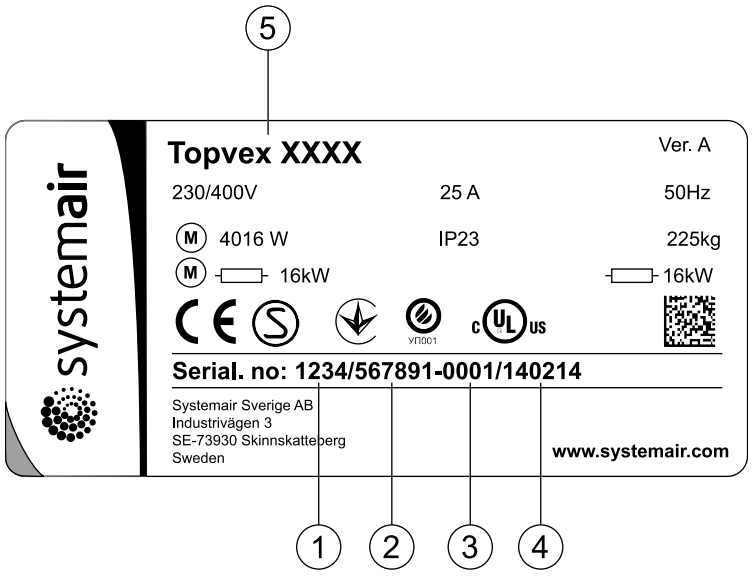
6.1 Alarms

The alarm button (pos.1, figure 2) 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 2) 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.

7 Service

Before calling your service representative, make a note of the specification and production number from the data plate on the unit.



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

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