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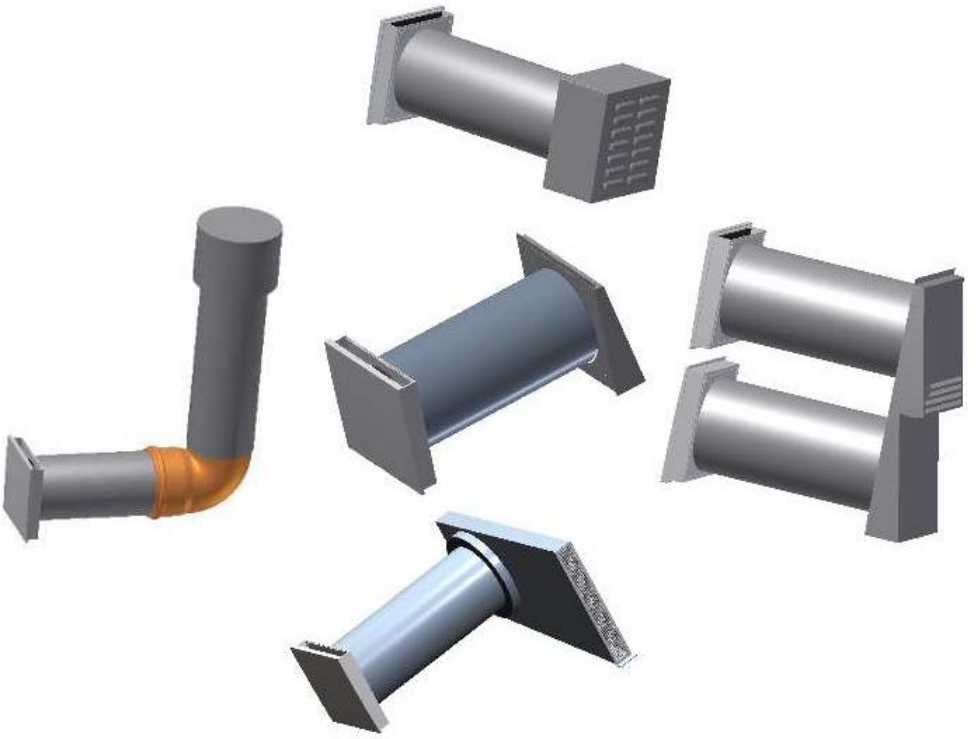
Operating Manual

SEVi 160 Series

(Intelligent ventilation system with heat recovery)



Production:

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As at: 10/2016

Notes

Explanation of the safety-relevant symbols and terms used in this manual:

Danger: indicates a danger with a high risk which can cause death or serious injuries if it is not avoided.

Warning: indicates a danger with a mean level of risk which can cause death or serious injuries if it is not avoided.

Caution: indicates a danger with a low level of risk which can cause slight or moderate injuries if it is not avoided.

Note: Failure to adhere to the instruction or guideline can damage the device or affect the proper functioning of the device.

For the purpose of this manual, the term qualified personnel refers to persons who have the appropriate professional education to perform the activities required (e.g. electrical installation, heating and ventilation installation) and know the relevant standards and regulations.

For proper disposal of packaging, separate it according to the specific material! If you want to dispose of the system, observe the current provisions! Contact the local authority for detailed information!

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Please, also observe the instructions given in the assemblymanuals of the ventilation systems!

1. General information concerning the Operating Manual

Check the product for completeness (see packing slip) and transport damage immediately after receiving it! The product must be stored at a safe and dry place!

Adhere to the instructions in this Operating Manual!

Please, observe the **approval regulations** and the applicable **construction provisions** as well as the **fire prevention regulation** and **accident prevention regulations** of the Employers' Liability Insurance Association when planning, installing and operating the system. When planning the ventilation system, details must be discussed with the responsible chimney sweeper and construction manager!

Before installation, contact your planner to get to know whether a RAL installation is required.

Assembly works and electrical installations are to be carried out by qualified personnel!

Use the ventilation system only in compliance with the applications described in this documentation and only in connection with components which have been recommended and approved by the company SEVentilation and are specified in this documentation.

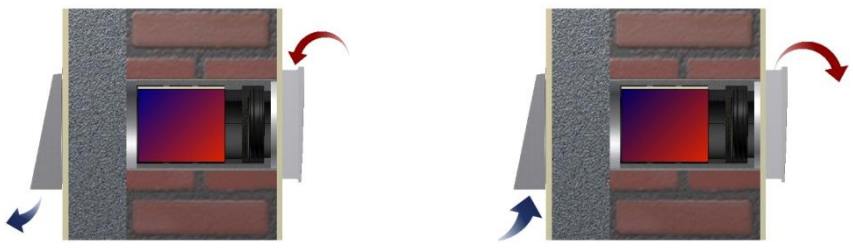
Modifications or reconstructions of the ventilation system are not permitted. The correct and safe operation of the ventilation system is only possible, if it is properly transported, stored and mounted as well as carefully operated and maintained. This documentation is part of the ventilation system and must always be at hand. Observe all safety regulations included in this documentation.

The manufacturer shall not be held liable for damages caused by improper installation, connection and use of the system. The warranty will expire. The legal warranty periods shall apply according the General Terms and Conditions!

Product description and instructions for use

The SEVi 160 ventilation system with heat recovery available in different variants is used for controlled living space ventilation.

A SEVi 160 ventilation system includes at least 2 SEVi 160 fans and a control unit SEC-20. Ideally, an even number of devices is to be installed (exception: SEVi 160 DUO).



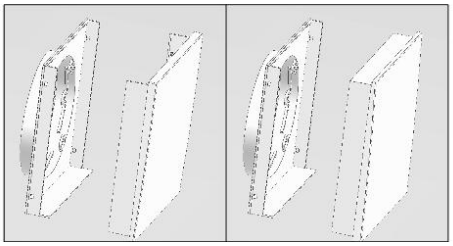
Principle of heat recovery

The devices belonging to the ventilation systemare operated in opposite directions in the heat recovery mode. This means that in pairwise operation each fan alternatively expels used room air to the outside and replaces it by fresh air which has been pre-heated in the heat accumulator. The direction of the fan is changed in intervals of 75 seconds. The ventilation system is operated with 12 V and exclusively consists of high-quality materials.

In addition to the heat recovery mode, intensive brief ventilation is possible (permanent intensive brief ventilation at fan stage 4) in which, depending on the installation condition of the fans, a constant air stream is provided towards one direction to ventilate the room without opening the window (noise protection).

The operation of the ventilation system is recommended throughout the year. In the seasonsin which heating appliances are not necessary, the ventilation system acts in a contrary manner. Here, summer operation (intensive brief ventilation, passive cooling) is recommended, and in this mode, the generally lower inside air temperature of the morning hours is maintained in the living space analogue to the principle of heat recovery.

When the ventilation system is not in use (important during the heating season), the upper part of the interior panel is to be turned by 180° to close the interior panel to avoid, for example, that heat escapes out of the building in an uncontrolled manner and cold air enters through the ventilation device in case of power failure or in special winter conditions.



Closure of the interior panel

Ideally, the opening of the interior panel faces upwards (avoidance of draught below the interior panel).

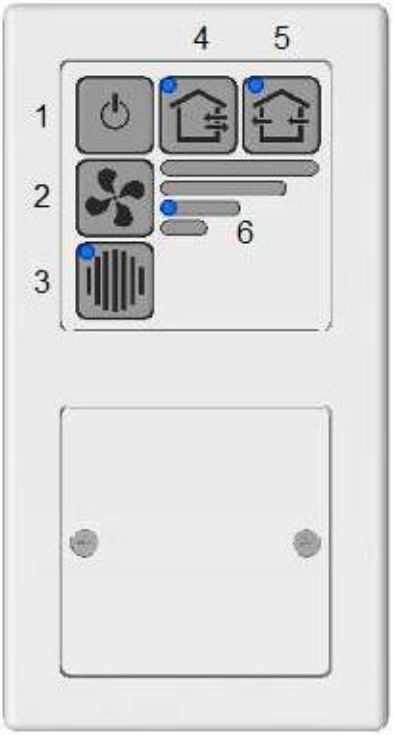
Note:

- The ventilation system is always controlled via the control unit.
- The system must not be operated in rooms with high dust rate.
- The system must not be operated in rooms in which decomposing gases are used.
- The system is not suited for drying out buildings.
- The ventilation system shall only be started up after the completion of the construction works.
- The ventilation system is to be closed during the construction works.
- Temperature range of application: -20°C to +75°C

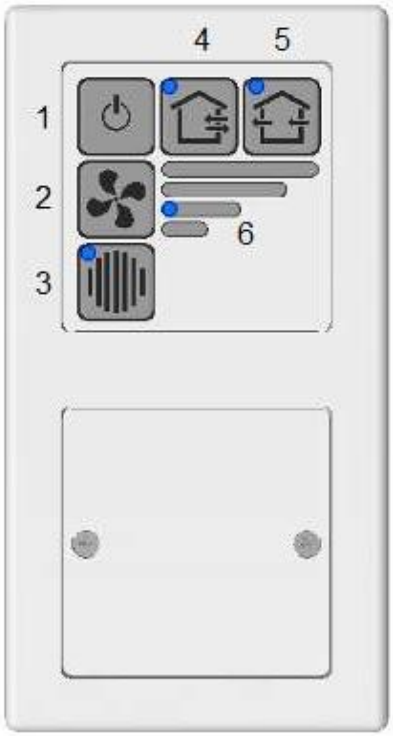
2. Operation

2.1 SEC-20 central control unit

The ventilation systems of the SEVi 160 series are operated via the SEC-20 central control unit. The keys desired are activated by a pressure on the membrane keypad. The operating condition, the operating mode selected and the fan stage are indicated by a blue LED top left on the corresponding keypad.

	1 Device On/Off:	When the device is switched off, the fan continues to run for a short period of time.
	2 Selection of the fan stage:	If this key is pressed repeatedly, the fan stages 1 – 4 are run through. The fan stage currently set is shown in the LED display (6).
	3 Acknowledgement/ filter change:	The end of the maintenance interval for the dust filter is signalized by the LED. The display will be reset if the key is pressed for 5 seconds after the filter change.
	4 Operation in pairs:	Heat recovery mode, normal operating condition in the fan stages 1 – 4.
	5 Permanent intensive brief ventilation operation:	If this key is pressed, the ventilation system jumps to a permanent intensive brief ventilation mode which allows the ventilation of a room without opening the windows. For this purpose, stage 4 is set automatically.
	Snooze function:	The control unit is provided with a snooze function by means of which the system can be started with a delay of 60 minutes. • Set the desired operating mode and fan stage. • Keep the keys 3 and 5 pressed for at least 3 sec. (press key 3 first) ->only the LED of the operating mode set (4 or 5) is lit. • Press the keys (2), (4) or (5) to terminate the snooze phase prematurely.

2.2 SEC-Basic and SEC-20-BF



Device On/Off:	When the device is switched off, the fan continues to run for a short period of time.
2 Selection of the fan stage:	If this key is pressed repeatedly, the fan stages 1 – 4 are run through. The fan stage currently set is shown in the LED display (6).
3 Acknowledgement/ filter change:	The end of the maintenance interval for the dust filter is signalized by the LED. The display will be reset if the key is pressed for 5 seconds after the filter change.
4 Operation in pairs:	Heat recovery mode, normal operating condition in the fan stages 1 – 4*. *depending on the device type; see page 8
5 Permanent intensive brief ventilation operation:	If this key is pressed, the ventilation system jumps to a permanent intensive brief ventilation mode which allows the ventilation of a room without opening the windows. For this purpose, stage 4* is set automatically. *Configuration 3-6: If activated, all fans connected run automatically inair dischargemode (see p. 8 et seqq.). Intensive brief ventilation is to be set correspondingly via (2)!
Snooze function:	The control unit is provided with a snooze function by means of which the system can be started with a delay of 60 minutes. • Set the desired operating mode and fan stage. • Keep the keys 3 and 5 pressed for at least 3 sec. (press key 3 first) -> only the LED of the operating mode set (4 or 5) is lit. • Press the keys (2), (4) or (5) to terminate the snooze phase prematurely.

2.2.1 Determining the device type when using SEC-Basic

The SEC-Basic offers the possibility to connect different device types of the SEVi series with different configurations. Depending on the device type, various programmes are implemented in the software. They are described in the following.

Currently, three different configurations are available. To select them, the keys (4) “Alternating operation” and (2) “Fan stage” are to be pressed simultaneously for ca. 5 seconds.

Then, the LED display (6) flashes (see Table).

To change the configuration, the key (2) “Fan stage” is pressed to select another configuration (the corresponding LEDs flash).

You can exit the selection mode by keeping the keys (4) “Alternating operation” and (2) “Fan stage” pressed again for ca. 5 seconds.

Note: **The configurations 4 to 7 (indicated by the LED 4 or LED 1+2, 1+2+3, 1+2+3+4) are reserved for later assignment!**

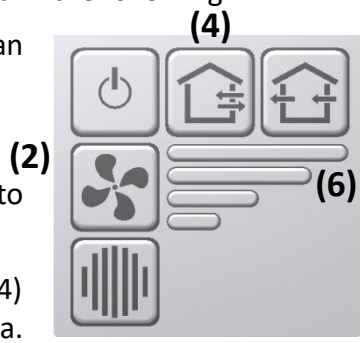
Configuration	Fan type		Indicated by LED
1	**SEVi 200 (DIBt)**	**SEVi 160**–sound-optimized operation at stage 1	**1**
2	**SEVi 160 (DIBt)**		**2**
3	**SEVi 160 air discharge**–Stage 4 is designed purely as anair discharge solution in which all fans connected are operated at the highest air discharge stage (irrespective of the connection on the operator control unit). **Note:** **Sufficient air must come in for pure air discharge operation!** *Configuration 3: If this configuration is selected, all fans connected are automatically running (irrespective of their terminal assignment) in air discharge operation. Intensive brief ventilation at stage 1-3 must be correspondingly set via (2)!		**3**

2.2.2 Determining the device type when using SEC-20-BF

The central control unit SEC-20-BF can be used for operating the fans of the SEVi 200 and SEVi 160 series. Moreover, the SEVi 160DUO MINI (available from autumn 2016) can be operated by using the SEC-20-BF.In addition to this, the central control unit can also be used as a humidity sensor.

Determining the device type- The SEC-20-BF offers the possibility to connect different device types of the SEVi series with different configurations. Depending on the device type, various programmes are implemented in the software. They are described in the following.

To select them, the keys (4) “Alternating operation” and (2) “Fan stage” are to be pressed simultaneously for ca. 5 seconds.



Then, the LED display (6) flashes (see Table).

To change the configuration, the key (2) “Fan stage” is pressed to select another configuration (the corresponding LEDs flash).

You can exit the selection mode by keeping the keys (4) “Alternating operation” and (2) “Fan stage” pressed again for ca. 5 seconds.

Configuration	**Device type**		**Indicated by LED**
In the configurations 1 through 3, a difference is only made between air incoming side and air discharge side! All four terminals can be allocated by devices of the SEVi 200/SEVi 160-series! **In the configurations 1 to 3, an allocation with SEVi 160DUO MINI is not possible!**			
1	**SEVi 200 (DIBt)**	**SEVi 160**–sound-optimized operation at stage 1	**1**
2	**SEVi 160 (DIBt)**		**2**
3*	**SEVi 160 air discharge** Stage 4 is designed as a pure air discharge solution in which all fans connected are operated at the highest air discharge stage (irrespective of the connection on the operator control unit). **Note: Sufficient air must come in for pure air discharge operation!** *Configuration 3: If stage 4 is activated, all fans connected are automatically running (irrespective of their terminal assignment) in air dischargeoperation. Intensive brief ventilation at stage 1-3 must be correspondingly set via (2)!		**3**
In the configurations 4 to 7, attention is to be paid additionally to the allocation of the top and bottom terminal strips! The SEVi 160DUO MINI can only be operated via the bottom terminal strip.			

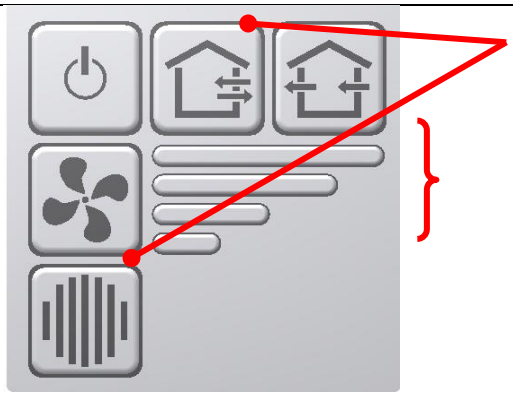
<table>
<tr><th colspan="4">The configurations 4 to7 are provided for the common operation of the devices of the SEVi 200/160 series and SEVi 160DUO MINI devices!</th></tr>
<tr><td rowspan="2">4</td><td>top</td><td>SEVi 160–sound-optimized operation at stage 1</td><td rowspan="2">4</td></tr>
<tr><td>bottom</td><td>SEVi 160DUO MINI- Stage 4 is designed as a pure air discharge solution in which the two fans are operated at the highest air dischargestage (irrespective of the connection on the operator control unit).
Note: Sufficient air must come in for pure air discharge operation!</td></tr>
<tr><td rowspan="2">5</td><td>top</td><td>SEVi 160 (DIBt)</td><td rowspan="2">1 + 2</td></tr>
<tr><td>bottom</td><td>SEVi 160DUO MINI -Stage 4 is designed as a pure air discharging solution in which the two fans are operated at the highest air discharge stage (irrespective of the connection on the operator control unit).
Note: Sufficient air must come in for pure air discharge operation!</td></tr>
<tr><td rowspan="2">6</td><td>top</td><td>SEVi 160 air discharge- Stage 4 is designed as a pure air discharging solution in which all fans connected are operated at the highest air discharge stage (irrespective of the connection on the operator control unit).
Note: Sufficient air must come in for pure air discharge operation!</td><td rowspan="2">1 + 2 + 3</td></tr>
<tr><td>bottom</td><td>SEVi 160DUO MINI - Stage 4 is designed as a pure air discharge solution in which the two fans are operated at the highest air discharge stage (irrespective of the connection on the operator control unit).
Note: Sufficient air must come in for pure air discharge operation!</td></tr>
<tr><td rowspan="2">7</td><td>top</td><td>SEVi 160 (DIBt)</td><td rowspan="2">1 + 2 + 3 + 4</td></tr>
<tr><td>bottom</td><td>SEVi 160DUO MINI 4-stageHRS operation</td></tr>
</table>

The SEC-20-BF central control unit can be optionally operated with or without humidity control.

The humidity control distinguishes between five different statuses:

Status	Indication by LED in setting mode	Humidity threshold (RH%)
Humidity control off	All LEDs off	-
1	LED fan stage 1 flashes	50
2	LED fan stage 2 flashes	55
3	LED fan stage 3 flashes	60
4	LED fan stage 4 flashes	70

To activate the humidity control or to set another humidity threshold, the following steps are to be taken:



Keep the “Alternating operation”and “Filter change” keys pressed for 5 seconds. The control unit changes to the activate /deactivate mode.

The statuscurrently set is indicated by the LED of the fan stages (see Table).

If the “Fan stage” key is pressed, the desired status of the humidity control can be selected.

If the “Alternating operation” and “Filter change” keys are pressed anew for at least 5 seconds, the setting selected will be stored. Afterwards, the control unit returns to normal operation.

Note to humidity control:

In the activated mode of the humidity control, the room humidity is continuously measured. If the value which has been set for the humidity threshold is exceeded, the fan stage of the fans connected is increased by one stage until fan stage4 is reached. The stages are gradually increased at 15-minute intervals.

If the value measured is lower than the humidity threshold set (minus a hysteresis of about 5%), the fan stage is decreased gradually again down to stage 1.

The manual change of the fan stage is still possible. However, the manual setting will be corrected at 15-minute intervals if the humidity control is switched on.

Delivery status: configuration 1, humidity control off

3. Maintenance and service

Danger: All works shall only be carried out when the system is **in de-energized condition**!

3.1 Maintenance intervals

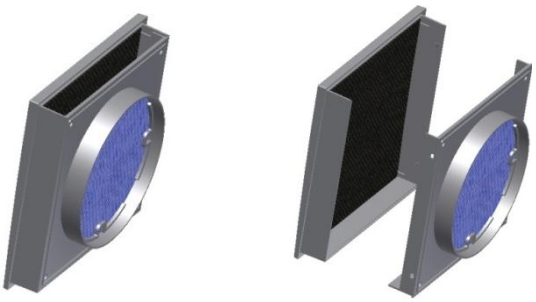
<table>
<tr><td>Dust filter
(interior panel)</td><td>Check for impermissible contamination, damage (leakage) and
smell every 12 weeks -->Change the corresponding filters, if required,
indication by control unit LED,
Filter change at least every 12 months
(4 x filter interval)</td></tr>
<tr><td>Optional pollen filter
(interior panel)</td><td>Change after 12 months, indication by control unit LED</td></tr>
<tr><td>Heat accumulator</td><td>Cleaning required every 24 weeks, indication by control unit LED (2 x filter interval)<table><tr><td>compressed air</td><td>washer</td><td>vacuum cleaner</td></tr></table></td></tr>
<tr><td>Ventilator</td><td>Cleaning of the blades required every 12 months<table><tr><td>soft, moistened cloth</td><td>brush</td></tr></table></td></tr>
<tr><td>Sound insulation element
(fan unit)</td><td>Cleaning required every 24 weeks
Rinse under running water, not leave in the water,
installation only in completely dry condition</td></tr>
</table>

3.2 Maintenance guidelines

Changingthe dust or pollen filters/sound insulation element

Dust filter (in the interior panel):

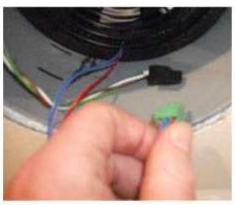
1. Remove or disassemble the complete interior panel from the fixation tube.
2. Remove the dust filter out of the filter support and change the dust filter.
3. Assemble the interior panel and mount it in the fixation tube.



Opening upwards

Sound insulation element:

1. Demount the interior panel completely and disconnect the plug connection. Then, the fan unit can be taken out of the fixation tube by using the pulling-out loop.
2. Lift the upper part upwards (remove the possibly existing fixation).
3. Exchange/clean/insert anew






Caution: Heat accumulator can have sharp edges!
To avoid injuries, suitable gloves must be worn!

4. Put on the upper part; position the protection grid (add the possibly existing fixation) and slide the fan unit into the fixation tube.

Note: When putting on the EPP upper part, the correct position of the decoupling strip at the ventilator must be ensured!

Note:

When the fan unit is inserted into the fixation tube, it must be ensured that the condensation discharge is positioned at 6 o'clock!

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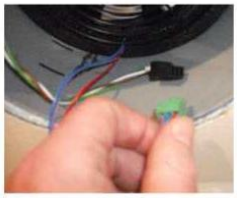
Removing the heat accumulator and the ventilator unit

1. Demount the interior panel completely and disconnect the plug connection. Then, the fan unit can be taken out of the fixation tube.

2. Remove the upper part (lift it upwards (remove possibly existing fixation).

3. Remove the sound insulation element, heat accumulator and fan.




Caution: Heat accumulator can have sharp edges!
To avoid injuries, suitable gloves must be worn!

4. Installation: After cleaning, insert the heat accumulator, sound insulation element and fan into the EPP lower part. When doing this, pay attention to the position of the cables!




Note: When inserting the fan and putting on the EPP upper part, the correct position of the decoupling strip at the ventilator must be ensured!

When inserting the unit into the fixation tube, it must be ensured that the condensation discharge is positioned at 6 o'clock!


3.3 Fault tracking

Danger: All works shall only be carried out when the system is in **de-energized condition**.

Error	Cause of error	Troubleshooting
Failure of fan	No power	Check the fuse, switching on/off at the control unit
	Installation error	Check connections Check distributor board or humidity sensor
	Ventilator defect	Change of ventilator
System too loud	Dirty ventilator blades	Cleaning
	Dirty filter/heat accumulator	Change/cleaning
	Decoupling tape incorrectly inserted	Check for correct position
Air volume flow too low	Interior panel closed	Open by turning the upper part by 180°
	Dirty pollen/dust filter	Change
	Dirty heat accumulator	Cleaning

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Maintenance of the device

Interval (LED display)	Dust filter/pollen filter	Accumulator/sound element	Ventilator

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Interval (LED display)	Dust filter/pollen filter	Accumulator/sound element	Ventilator

Comments:

EC Declaration of Conformity

The company

SEVentilation GmbH
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07768 Kahla
Germany

declares under its sole responsibility that the products:

of type: **SEVi 200 / SEVi 200U / SEVi 200L /SEVi 160 / SEVi 160DUO / SEVi 160U / SEVi 160L / SEVi 160R / SEVi 160CE / SEVi 160RO / SEVi 160ALD / A160**
(decentral ventilation devices with and without heat recovery),

to which this declaration refers, comply with the following standards and normative documents:

EN 55014 -1; 2006

EN 55014 -2; 1997, +A1; 2001

EN 61000-6-1, 2007; Generic StandardsEMC–Immunity

EN 61000-6-3, 2007; Generic StandardsEMC – Emission Standard

EN 61000-3-2, 12.2001; Low-Frequency System Perturbation
EN 61000-3-3, 1.1998

EN 60335-1, EN 60335-2-65; (safety of household and similar electrical appliances)

according to the provisions in the Directive 2004/108/ECor (EMC 2008), the Directive 2006/95/EC (Low Voltage Directive) and the RoHS Directive 2002/95/EC.

The decentral ventilation systems: "**SEVi 200 / SEVi 200U / SEVi 200L /SEVi 160 / SEVi 160DUO / SEVi 160U / SEVi 160L / SEVi 160R / SEVi 160CE / SEVi 160RO / SEVi 160ALD / A160**"with and without heat recovery are used for the ventilation of apartments/accommodation units.

Kahla, 10/12/2015

Dipl.Wirt.Ing. (FH)* Nico Schellenberg

**Graduate Industrial Engineer*

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