

AERO

SENSOAIR

Air quality sensor for indoor use.

Window systems

Door systems

Comfort systems



Contents

1. Target group of this documentation 3

2. Intended use 3

3. Safety notes..... 4

4. Description of device..... 5

5. Installation 6

6. Wiring diagrams for SENSOAIR plus 11

7. Device control..... 13

8. Commissioning 15

9. Care and maintenance 15

10. Rectification of malfunctions 16

11. Technical specifications 17

12. Information concerning product liability 18

13. Feedback on documentation..... 18

14. EU Declaration of Conformity with regard to CE marking 19

1. Target group of this documentation

- This documentation is intended for use by specialists and end users.
- All instructions concerning assembly, installation and repairs described in this document are to be performed exclusively by electricians with training and practice in the installation, commissioning, servicing and maintenance of home automation devices and electrical installation.
- All instructions on operation, care and maintenance as well as rectification of disturbance described here are intended for specialists as well as end users.
- Following installation, the installation company must hand over the installation and operating instructions to the end user.

2. Intended use

- The device is only to be used for measurement and control purposes in closed, dry and dust-free rooms.
- Maintain a room temperature of 5 °C – 40 °C.
- This device is not suitable for use as a measuring device or as part of a gas warning or similar safety device.
- Do not use solvents near the device.
- Silicon vapours can have an effect on how the device works.
- Use the unit only with original accessories from SIEGENIA.
- The device must always be installed by an experienced specialist, in accordance with the installation and planning documents of SIEGENIA. The installation instructions in this document must be complied with at all times.
- Use the unit only when it is in a technically sound condition.
Do not modify the device's components in any way.
- It must be ensured that indoor air is circulating round the SENSOAIR.
- Ensure that the device's ventilation openings are kept free and are not blocked by other equipment, furniture or objects.
- The unit must be checked by a specialist in the event of a fault.

3. Safety notes

- This unit can be used by children aged 8 and above as well as by people with physical, sensory or mental difficulties or with a lack of experience and knowledge as long as they are supervised or have been instructed in how to use the unit safely and understand the resulting risks. Children must not play with the unit. Cleaning and user maintenance must not be carried out by children without supervision.
- Electrically operated unit. Risk of fatal injury from electric shock or fire.
To prevent personal injury or damage to property, always comply with the following instructions:
  - Insert the Euro mains plug of the standard connecting cable only into a suitable 230 V AC mains power supply socket.
  - If the mains connection cable for the unit is damaged, it must be replaced by SIEGENIA, its customer service or an equally qualified person to eliminate hazards.
  - Only a qualified electrician may perform any work on the 230 V AC mains power supply that is required in order to connect the unit.
  - All-pole safety isolation is required if the customer is routing the mains cable.
  - Current local regulations (such as those of the VDE in Germany) must be observed.
  - Relevant country-specific regulations must be strictly followed for all work carried out on the voltage supply system or house wiring system.
  - Do not connect the control line and low voltage connections of the device with the 230 V AC mains power supply. This can destroy all connected devices.
  - Should a solid object or any liquid get inside the unit, stop operation immediately and disconnect the unit from the mains power supply.
- Hazard due to third party attacks on SIEGENIA WLAN devices! Please observe the following notes to protect your system against attacks by third parties:
  - Every SIEGENIA WLAN device is protected by two passwords (user and administrator). It is essential that you change these passwords after the initial setup. Do not leave in the default setting.
  - If the SIEGENIA WLAN devices are integrated in your home WLAN, this must be encrypted for operation.
  - Please choose secure passwords consisting of lower case and capital letters, numbers and special symbols.

4. Description of device

The SENSOAIR is an air sensor for checking the quality of air in closed rooms.

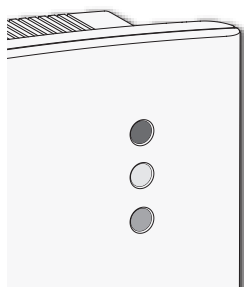
4.1 Device types

SENSOAIR type	plus	smart
Table unit version	–	✓
Wall-mounted version	✓	✓
Measure/display CO ₂ function	✓	✓
Measure/display VOC* function	✓	✓
Device control	by cable	via WLAN

* Volatile Organic Compound: In the form of gases, such as cigarette smoke, perspiration and kitchen odours etc.

4.2 Function

The quality of the air that has been measured is shown using an LED indicator (traffic light system).



- Red = Poor air quality – ventilation is required
- Yellow = Medium air quality – ventilation is recommended
- Green = The air quality is good

LED indicator	Signal	Ventilation
Red	Flashes 2x briefly	Urgently required
	Flashes 1x long	
Red	Permanently illuminated	Required
Yellow/Red	Permanently illuminated	
Yellow	Permanently illuminated	Recommended
Green/Yellow	Permanently illuminated	Not necessary
Green	Permanently illuminated	

5. Installation

5.1 Installation requirements

- Suitable installation location:
  - Ideally, use a wall-mounted outlet box
  - Not in the immediate vicinity of windows, ventilation devices and people or animals
- A smooth and even wall
- Maintain a temperature of 5 °C–40 °C during installation
- During installation and before initial operation protect the device against:
  - Dirt (e.g. cover ventilation grilles when wallpapering, etc.)
  - Draught and directly exhaled air
  - Direct sunlight

** WARNING**

**Exposed electrical components.
Danger due to short circuit or fire.**

- › Make sure that the power is isolated before installation.
  - › The fuses may need to be removed.
-

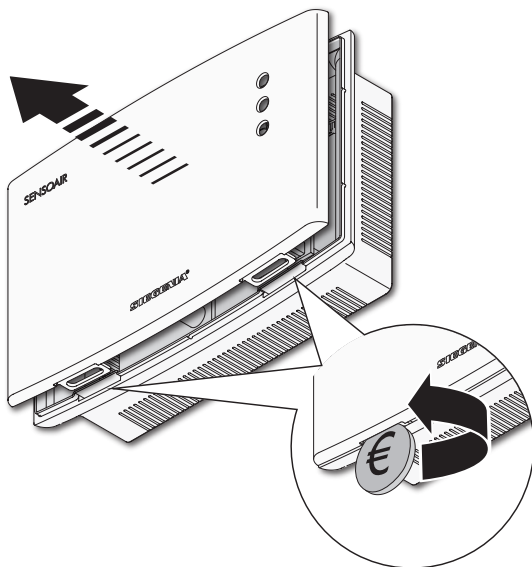
5.2 Additional requirements for SENSOAIR smart

- The SENSOAIR should be installed to be as free from interference as possible.
The following interferences can have a negative influence on the WLAN signal:
  - Water lines
  - Stone and concrete walls
  - Metal objects
  - Air conditioning units
  - Wireless devices (e. g. radio telephones, baby monitors, Bluetooth loudspeakers, etc.)
  - WLAN networks on the same wireless channels (e. g. the neighbour's WLAN router)
- If energy-carrying cables are routed in parallel to data cables (ISDN, DSL, etc.), this could lead to interference e.g. in the speed of the data transmission.

5.3 Installation steps

1. Remove the casing cover

Note: In the delivered state, the cover is not clipped on. If it does need to be removed, insert a suitable object (e.g. coin or screwdriver) into the gap in the retention catches and twist to lever the cover off the casing.

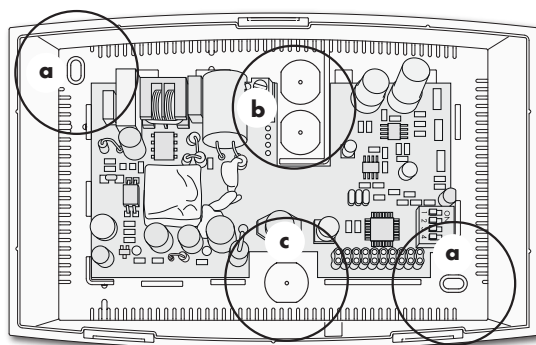


2. Remove the pre-punched drill hole cut-outs and the power cable cut-out (depending on the device) using a suitable tool:

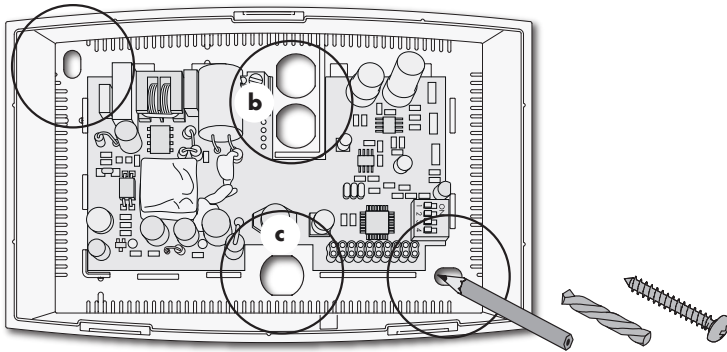
a = Drill hole cut-outs

b = Power cable cut-out for 230 V AC

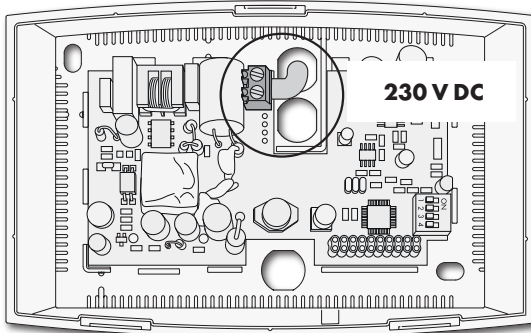
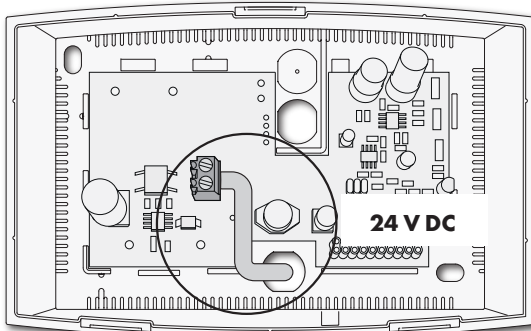
c = Power cable cut-out for 24 V DC



3. Pull the power cable through the relevant cable cut-out (**b** or **c**).
4. Position the bottom part of the casing and use it as a drilling template.
5. Drill the holes for wall mounting.
6. Fix the bottom part of the casing using two 4 mm x 30 mm screws and dowels (included).

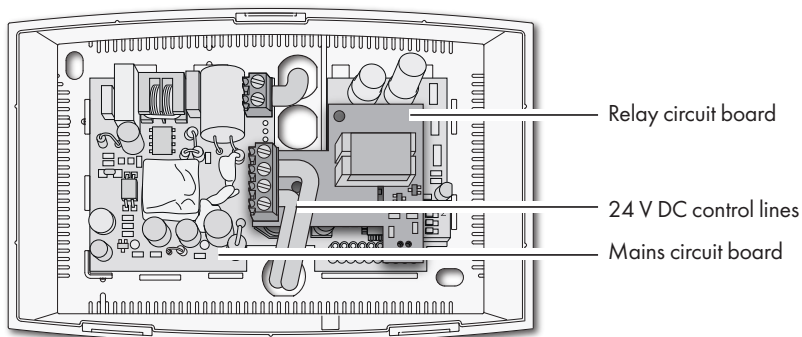
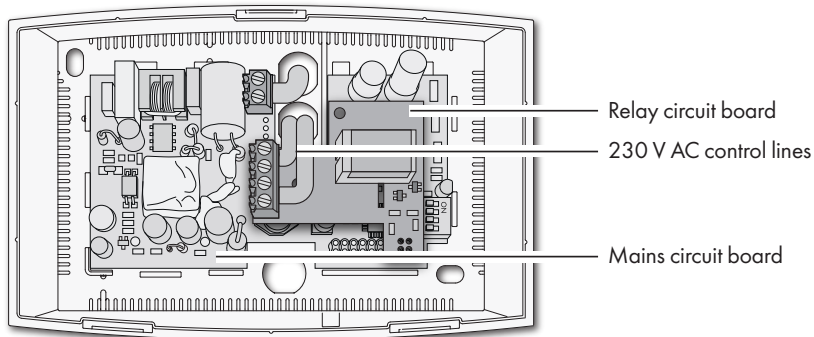
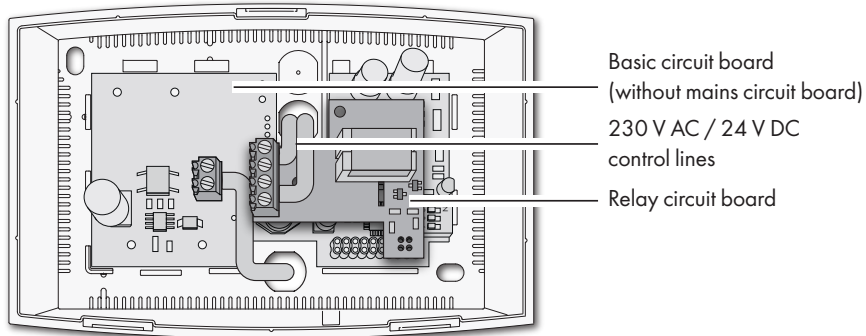


7. Connect the power cable for 230 V AC **or** 24 V DC.

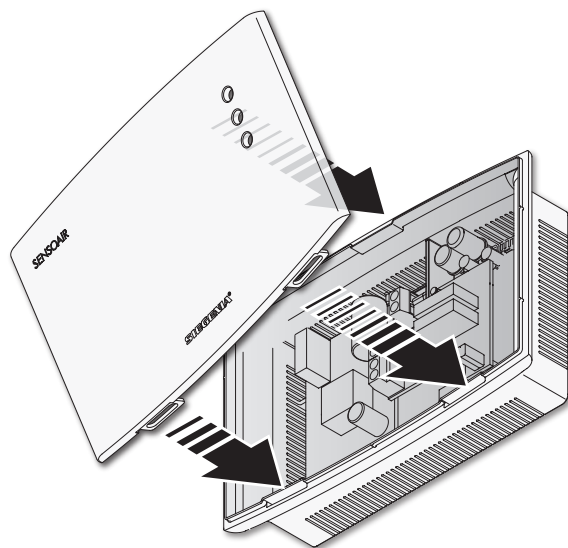


8. Optional: Connect devices (SENSOAIR plus only).

- SENSOAIR plus controls the connected devices via 230 V AC **or** 24 V DC control lines.
- The devices are connected to a relay circuit board.
- For wiring diagrams see from Page 4



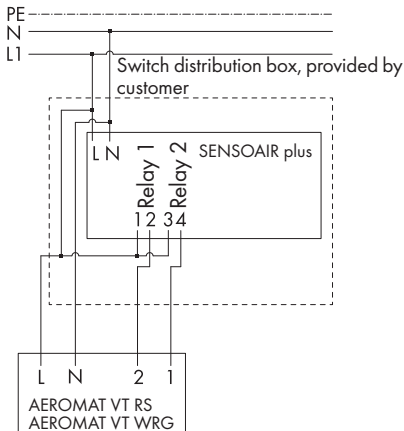
9. Optional: Device control (see Page 13 onwards)
10. Clip on the casing cover



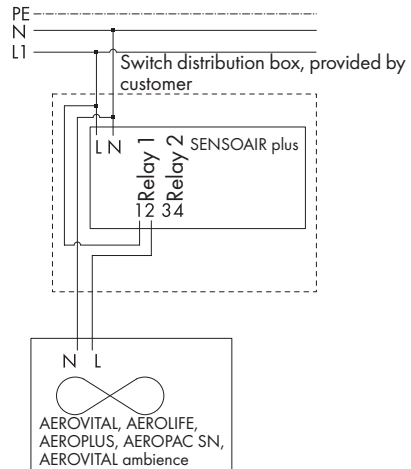
6. Wiring diagrams for SENSOAIR plus

6.1 Ventilation units

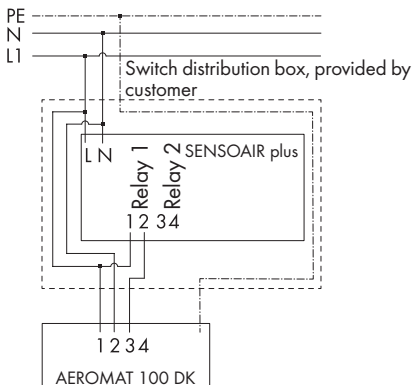
AEROMAT VT RS, AEROMAT VT WRG 1000 AEROMAT VT WRG 1100



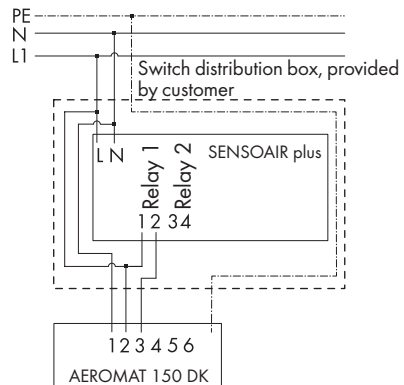
AEROVITAL, AEROLIFE, AEROPLUS, AEROPAC SN, AEROVITAL ambience



AEROMAT 100 DK type

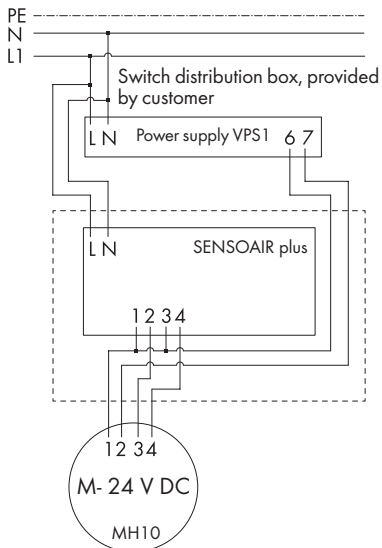


AEROMAT 150 DK type

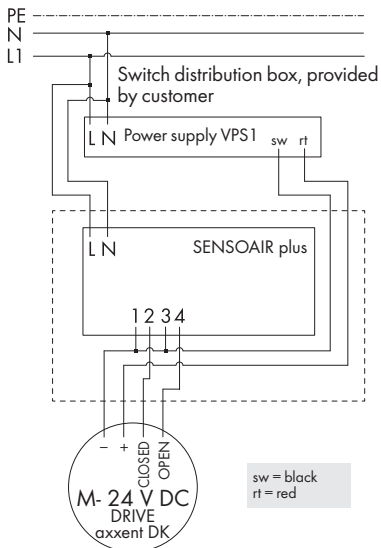


6.2 Motor-driven window drives

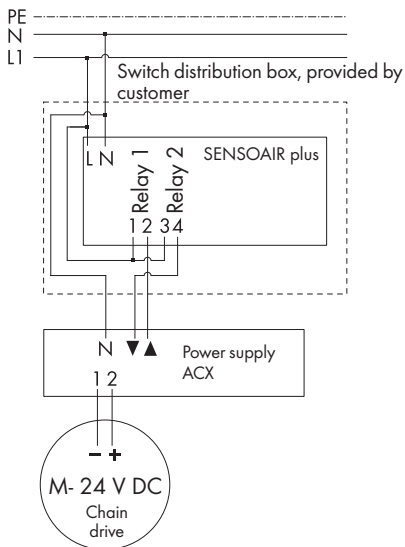
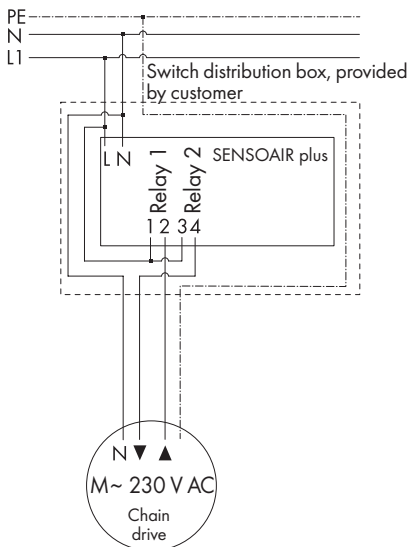
Motorised handle MH10



DRIVE axxent DK



Motion chain drives

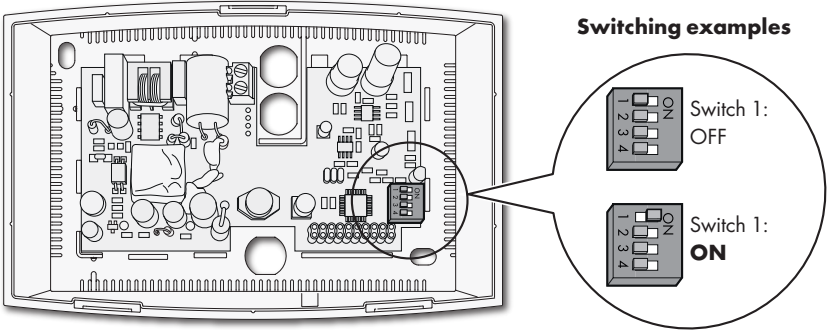


7. Device control

7.2 SENSOAIR plus

- All connected devices are activated/deactivated using preset air quality values.
- The presettings are made by means of DIP switches on the basic circuit board.

Important: Do not switch on the power supply until all DIP switches have been configured.



Ventilation units		DIP switch position				Ventilator blower levels for LED indicator				
		1	2	3	4	Green	Green/ Yellow	Yellow	Yellow/ Red	Red
Ventilator control with blower levels	AEROMAT VT RS AEROMAT VT WRG	OFF	OFF	OFF	OFF	Off	I	I	II	II
		ON	OFF	OFF	OFF	Off	I	II	II	II
		OFF	ON	OFF	OFF	I	I	II	II	II
		ON	ON	OFF	OFF	Off	Off	Off	I	II
Ventilator control with blower "On"/"Off"	AEROVITAL	OFF	OFF	OFF	ON	Off	On	On	On	On
	AEROLIFE	ON	OFF	OFF	ON	Off	Off	On	On	On
	AEROPLUS	OFF	ON	OFF	ON	Off	Off	Off	On	On
	AEROPAC SN	ON	ON	OFF	ON	Off	Off	Off	Off	On
	AEROVITAL ambience	OFF	OFF	OFF	ON	Closed	Open	Open	Open	Open
	AEROMAT 100/150 Type DK (closing flap "Open"/"Closed")	ON	OFF	OFF	ON	Closed	Closed	Open	Open	Open
		OFF	ON	OFF	ON	Closed	Closed	Closed	Open	Open
		ON	ON	OFF	ON	Closed	Closed	Closed	Closed	Open

Motor-driven window drives	DIP switch position				Window position for LED indicator				
	1	2	3	4	Green	Green/ Yellow	Yellow	Yellow/ Red	Red
Motorised handle MH10 DRIVE axxent DK	OFF	OFF	ON	ON	Closed	Open	Open	Open	Open
	ON	OFF	ON	ON	Closed	Closed	Open	Open	Open
	OFF	ON	ON	ON	Closed	Closed	Closed	Open	Open
	ON	ON	ON	ON	Closed	Closed	Closed	Closed	Open
Motion chain drives	OFF	OFF	OFF	ON	Closed	Open	Open	Open	Open
	ON	OFF	OFF	ON	Closed	Closed	Open	Open	Open
	OFF	ON	OFF	ON	Closed	Closed	Closed	Open	Open
	ON	ON	OFF	ON	Closed	Closed	Closed	Closed	Open

Function test for connected devices (automatic)

1. Switch on power supply
2. Relay 1 switches on after 30 seconds
3. Relay 2 switches on after 60 seconds
4. Both relays switch off after 90 seconds and the test is complete

7.2 SENSOAIR smart

The SENSOAIR smart can be controlled by a tablet or smartphone.
Please follow the enclosed quick start instructions ([H47.MOTS005EN](#)).

Overview of the device functions

- Indicator of air quality
- Turning the LED indicator On/Off
- Coupling of SIEGENIA smart devices:
  - AEROPAC SN smart
  - AEROMAT VT RS smart
  - AEROMAT VT WRG 1000 smart
  - AEROMAT VT WRG 1100 smart
  - DRIVE axxent DK smart

8. Commissioning

8.1 Automatic calibration of the CO₂ and VOC sensors

- The sensors are calibrated automatically as soon as the SENSOAIR is connected to the power supply (and also following a power failure).
- The LED makes 1x long green flash during the calibration.
- The calibration is completed after approx. 30 min. The LED is then permanently illuminated in green.

Requirements for a faultless calibration

- The room must be well aired before the calibration.
- The room temperature must be between 5 °C and 40 °C.
- There should be no persons or animals in the room.

9. Care and maintenance

WARNING

Electrically operated unit.

Risk of fatal injury from electric shock or fire.

To prevent personal injury or damage to property, always comply with the following instructions:

- › Pull the mains plug out of the socket prior to every cleaning process or maintenance work. Never pull at the cable to disconnect the device from the power supply.
  - › For all devices with a fixed connection to the 230 V AC mains power supply, switch off all poles of the feeder. The fuses may need to be removed.
-

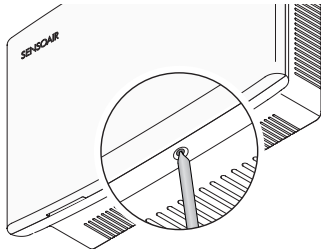
9.1 Cleaning

Important: When cleaning the SENSOAIR, do not allow liquids to get inside the unit.

- Never use cleaning agents that are aggressive or contain solvents, or sharp-edged objects, as these may damage the surfaces of the casing.
- Never clean the unit with a high-pressure cleaner or steam-jet cleaner.
- Clean the SENSOAIR with a cloth moistened with a mild soap solution or cleaning agent.

10. Rectification of malfunctions

In case of a malfunction, do not open the device or try to repair it under any circumstances. If the problem is not listed in the table below, please contact your installation firm or SIEGENIA directly: Tel. +49 271 3931-0

Problem	Possible cause	Solution
LED 1 x long green flash per second	Automatic calibration active	No help required (for further information see page Page 15)
LED 2x short green flashes per second	The CO ₂ sensor is defective	Contact installation company
LED 1 x short red flash per second	The VOC sensor is defective	Contact installation company
SENSOIR smart does not respond to smartphones/tablets	No WLAN connection to the router of the home network	Restart WLAN router of the home network
	No WLAN connection to the smartphone/tablet	Restart smartphone/tablet
	No WLAN connection to the SENSOIR smart	Reset SENSOIR smart: 1. Using a pointed object, press button 3 times briefly in succession 2. Hold button 1x (for approx. 4 seconds) directly on the connection  The SENSOIR smart will then return to the default setting.

10.1 SIEGENIA Comfort App

You will find detailed operating information as well as information on how to rectify disturbances on the SIEGENIA Smarthome Internet page:

<https://smarthome.siegenia.com>



11. Technical specifications

- The concentration of CO₂ and VOCs in the air is measured in parts per million (ppm). The CO₂ concentration outdoors is approx. 350 ppm. A level of above approx. 800 ppm negatively impacts our well-being.
- If the CO₂ content or the VOC concentration exceeds the following values, SENSOAIR indicates this using the LED traffic light and connected devices are activated.
- The concentration of CO₂ in a room depends on the number of people in the room, the length of time that they spend in that room, the volume of the room and the air change rate.
- For example, a 60 m³ room that contains two people and has an air change rate of 1 will reach a CO₂ concentration of 900 ppm.
- Without ventilation, the concentration in the room would increase to 1,500 ppm after two hours and 2,500 ppm after five hours.
- The VOC sensor has a high level of cross sensitivity. For example, it reacts to ethanol, carbon monoxide, methane, butane and cigarette smoke. The concentrations of the individual gases are measured in the range from 1 - 100 ppm and combined with the CO₂ values to produce the reference value for the ventilator control.

CO ₂ concentration		
LED indicator	CO ₂	Outcome
2x brief red flashes	2,500 ppm	Air quality is very poor
1x long red flash	2,000 ppm and above	Air quality is very poor
Continuously red	1,500 ppm	Maximum permissible value for offices and classrooms
Yellow/Red	1,000 ppm	Maximum permissible value for living spaces
Continuously yellow	800 ppm	Air is perceived as being poor
Green/Yellow	600 ppm	Air quality is becoming worse
Continuously green	350 ppm	Clean, fresh air

Measuring range of sensors	Approx. 350 ppm - 3,000 ppm (CO ₂ and VOC)
Service life of sensors	Approx. 10 years
Permissible room temperature	5 °C to 40 °C
Supply voltage	230 V AC / 24 V DC (depending on the device)
Power consumption	1.5 W
Device control (optional)	Air quality values can be adjusted with a DIP switch
Protection class	II, all-insulated
Protection class	IP 4X
Casing	Surface-mounted, ASA, RAL 9003 signal white
Dimensions (W x H x D)	154 mm x 98 mm x 39 mm

12. Information concerning product liability

12.1 Intended use

Any use of this product that is not in accordance with its correct use, or any adaptation of or modification to the product and its associated components for which the express consent of SIEGENIA has not been obtained, is strictly prohibited. SIEGENIA accepts no liability whatsoever for any material losses or injury to people caused by failure to comply with this stipulation.

12.2 Warranty

This product is guaranteed for a period of two years – subject to correct installation and proper use – in accordance with the provisions of the law. As part of our ongoing improvements, we reserve the right to make changes to individual components or the device as a whole. Consequential losses resulting from defects are excluded from the warranty within the limits of the law. The warranty shall become void if modifications that are not authorised by us or have not been described in this documentation are made to the product and/or individual components or if the product and/or individual components is/are dismantled or partly dismantled.

12.3 Disclaimer of liability

The product and its components are subject to stringent quality controls. As a result, they function reliably and safely when used correctly.

Our liability for consequential losses and/or claims for damages is excluded, except in the case of wilful misconduct or gross negligence, or where we are responsible for injury to life, physical injury or damage to health. Strict liability under the German Product Liability Act (Produkthaftungsgesetz) remains unaffected. Liability for the culpable violation of significant contractual obligations also remains unaffected; liability in this case is limited to losses that are specific to the contract and that could have been foreseen. The above regulations do not imply a change in the burden of proof to the detriment of the consumer.

12.4 Environmental protection

Although our products do not fall within the scope of the German Electrical and Electronic Equipment Act, SIEGENIA will continue to meet the requirements of this Act and will endeavour to completely eliminate the use of substances that are hazardous to the environment as soon as this becomes technically feasible.

Electrical products should not be disposed of as household waste.

13. Feedback on documentation

We welcome your comments and suggestions on how to improve our documentation. Please email your comments to documentation@siegenia.com.

14. EU Declaration of Conformity with regard to CE marking

For our product **SENSOAIR**, we confirm that the general safety of the defined product, in accordance with Directive **2001/95/EC**, is compliant with the relevant protection requirements which are laid down in the Council Directives about electrical and electronic products.

The following listed test standards, which are harmonised in the relevant directives, have been employed for the evaluation:

a) 2014/30/EC EMC Directive

EN 55014-1:2006+A1:2009+A2:2011
EN 55014-2:1997+A1:2001+A2:2008
EN 61000-3-2:2014
EN 61000-3-3:2013

b) 2014/35/EC Low voltage directive

EN 60730-1:2011
EN 62233:2008

c) 2014/53/EC RED Directive

c1) Electromagnetic compatibility

EN 301489-1, V.1.9.2
EN 301489-17, V.2.2.1
EN 61000-3-2:2014
EN 61000-3-3:2013

c2) Electrical safety - Establishment of information technology

EN 60950-1:2006+A11:2009+A12:2011+A1:2010+A2:2013

c3) Safety of persons in electromagnetic fields (10 MHz to 300 GHz)

EN 62479:2010

c4) Funkspektrumangelegenheiten - Datenübertragungsgeräte im 2,4- GHz-ISM-Band

EN 300 328 V1.9.1

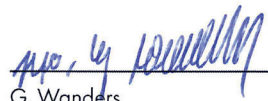
d) 2011/65/EU RoHs

EN 50581:2012 Technical documentation on the evaluation of electrical and electronic devices with reference to the restriction of hazardous substances

This declaration is responsible for the manufacturers / importers based in the European Union submitted by:

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Siegen, 2017-03-14


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Contact your dealer: