

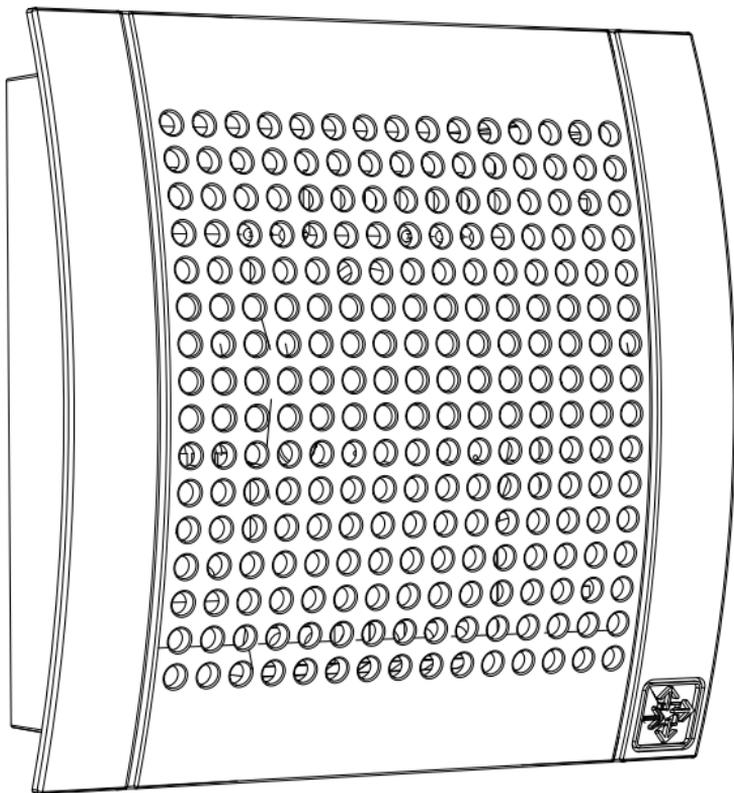


S-VOC

ENGLISH

VOC AMBIENT AIR SENSOR

INSTALLATION AND OPERATING INSTRUCTIONS



DESCRIPTION

This sensor is a low cost and low power solution for measuring indoor air quality beyond the CO₂ criteria. The sensing element is based on MEMS metal oxide semiconductor technology and can detect a broad range of VOCs (Volatil Organic Components) and other reducing gases such as CO. As the sensing part can also react to human VOCs, a built-in algorithm makes it possible to predict the CO₂ level in the room due to occupancy. Thus the sensor outputs a signal based on both VOC and CO₂ levels which is expressed in a specific Indoor Air Quality index : ppm CO₂ equivalents. The user can choose between two outputs: 0-10V or PWM.

SUBSTANCES DETECTED

- CO, CH₄, LPG
- Alcohols
- Ketones
- Organic acids
- Amines
- Aliphatic hydrocarbons
- Aromatic hydrocarbons

APPLICATIONS

- HVAC: Demand Controlled Ventilation, fan control, damper control, air conditioning control, CO₂ level indicator, etc.
- BMS: CO₂ level indicator, Indoor air quality monitoring, etc.

Specially suitable for: large commercial facilities, offices, classrooms, bedrooms, living room, kitchens and bathrooms.

WARNINGS

PLEASE READ THE FOLLOWING INSTRUCTIONS BEFORE THE INSTALLATION:

- In case of non-compliance with advice and warnings contained in this manual, the manufacturer can not be considered responsible for damages to persons or property.
- The installation and electrical connections must be carried out by a qualified technician according to the manufacturer's instructions and in compliance with the characteristics of the product
- Before carrying out any operation on the appliance, unplug or disconnect it from the power supply, and ensure it can not be accidentally restored.
- Power cable modification or replacement must only be carried out by qualified personnel or by After-sales Service.

INSTALLATION

Sensors must be installed on the wall, at a height of at least 1.5 meters from the floor, or at the ceiling, and must respect the following recommendations:

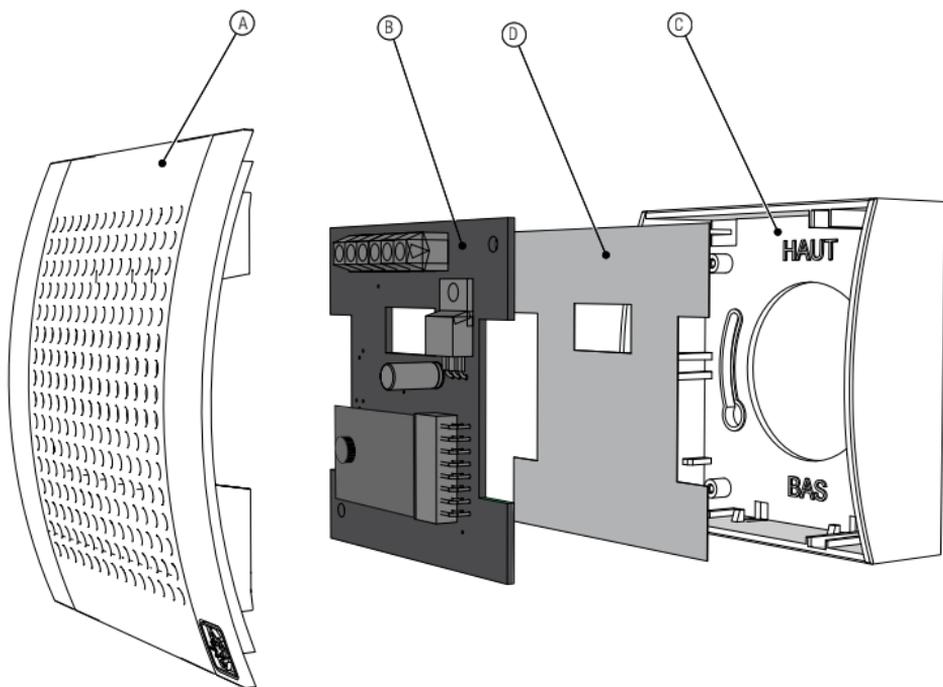
- keep the sensor away from any direct solar radiation,
- keep the sensor away from draughts (door, window, supply, etc.),
- avoid placing the sensor in dead zones (behind curtains, furniture),
- keep the sensor away from heat sources and from occupants
- if the sensor is located at the ceiling, keep it away from any air supply unit.

CAUTION!

- **The very first time the sensor is powered on it will display a constant value for 6 hours (22,5 % for PWM output and 2,25 V for 0-10 V output). This burning-in time enables the sensing element to clean its sensitive layer. Thereafter each time the module is powered on again, the cleaning period will only last 15 minutes (displaying a constant value).**
- **In order to have the sensor responding to pollution events in the room, it must be connected to a ventilation system so that the sensitive layer sees good air quality on a regular bases (once every 1 or 2 days like at night in an office). This will enable the module to achieve good self calibration.**

TECHNICAL DATA

Measurement principle	Micro-machined metal oxide semiconductor (MOS) technology
Working range	0...2 000 ppm CO ₂ eq
Measurement reporting interval	60s
Supply voltage	12 VDC +/- 10 %
Average power consumption	40 mA
Max. peak current	1 A (use for fuse sizing)
Enclosure Protection	IP 20
Storage conditions	-25...50°C 5...95 % RH (without condensating) 85...110 kPa
Working conditions	0...50°C 5...95 % RH (without condensating) 85...110 kPa
PWM digital output	
Output data	0 to 100 % 0 % = 0 ppm CO ₂ eq ; 100 % = 2 000 ppm CO ₂ eq
Voltage (S2)	12V DC +/- 10 %
Frequency (S2)	1 KHz
0-10 V analog output	
Output data	0 to 10 V 0 V = 0 ppm CO ₂ eq ; 10 V = 2 000 ppm CO ₂ eq
Voltage (S4)	0 to 10 V
Impedence (S4)	>1MΩ



CAUTION!

Never connect the 12 VDC supply to S1 or S2 and the 0 V supply to GND, otherwise S1 and S2 output will be crashed.

A protection is implemented to protect the product in case of wrong connection, when the following mistakes occur:

- Inversion of the supply wires (GND and V+).
- 12 V supply connected to S3 and S4 and 0 V supply on GND.

STEPS

1. Remove the front cover (A).
2. Unclip the electronic card (B) and the plastic protection (D) from the base (C).
3. Fix the base (C) by the mean of 2 screws (not supplied). The screws and plug must be chosen according to the type of the support.
4. Connections : use PVC wires S minimum = 0.25 mm² for all the wires.
On the electronic card (B), connect the wires as follows:

Connectors >	V+	S1	S2	S3	S4	GND
Supply (2 wires)	12 VDC					0 V
PWM output (2 wires)			PWM n.1			PWM n.2
0-10 V output (2 wires)					10 V	0 V

- PWM output : 0 % = 0 ppm CO₂ eq; 100 % = 2 000 ppm CO₂ eq
 - 0 - 10 V output : 0 V = 0 ppm CO₂ eq; 10 V = 2 000 ppm CO₂ eq
- PWM and 0-10 V output can be use simultaneously.

5. Clip the electronic card (B) with the plastic protection (D) inside the base (C)
6. Put the cover (A) on the base (C)
7. Connect the wires to the external devices (12 VDC supply and device driven by the PWM or 0-10 V output) with >1MΩ impedance on S2 and S4
8. Only once all the connections have been made, plug on the supply of the system.

MAINTENANCE

Check frequently that the product is clean and remove dust if needed. No calibration required. **Caution: Never touch the sensing element otherwise the detection may be damaged.**

WARRANTY

The product is guaranteed two years. Its validity is submitted to conformed installation, use and maintenance.

This product is manufactured by Aereco S.A. in France

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The sensor is manufactured in Germany.