PERFACTORY

Sensorsystems

We make air quality measurable.

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Welcome

Perfactory Sensorsystems produce high-quality sensor products for ventilation systems which are unrivalled in terms of the performance and design.

The produced systems are virtually maintenance-free, exceed the current energy efficiency values, thus setting new standards in terms of ecology, cost-effectiveness and direct benefits for the user.

With our air quality sensors, we make your lives healthier and more comfortable, whether at work, at home or out and about.

I am pleased to have this opportunity to present our company and our solutions to you.

Best regards,

Axel Gehnich
Owner

US

Us

When friends visit Axel Gehnich, the owner of Perfactory Sensorsystems, they always find a couple of drawings and sketches of new projects on the large wooden dining table – this has always been the case. Off-the-peg technology and design do not often satisfy his demands.

So he designs and builds many things himself and has realised many individual solutions so far. The things that develop in his mind do not normally exist already or not in the desired perfection at least.

When planning the ventilation system of his home, he quickly determined that the control system must be efficient and demand-based, meaning it is not feasible without air quality sensors. Research showed that the few devices available on the market did not meet his requirements - too high energy consumption, too high procurement costs, insufficient design and still only equipped with one measurable quantity (VOC or temperature or humidity).

So work was started on the development and production of his own sensor devices, which can be integrated into virtually any switch series - with a fraction of the energy consumption normal on the market and the integration of many measurable parameters into one device. Be it duct sensor, wall-mounted or flush-mounted versions, appliance integration – anything is possible.

As there were still questions from many sides in the run-up to production (ventilation system constructor, architects, passive house builder, ventilator companies), the idea was conceived to manufacture the sensor appliances in series and found a company: Perfactory Sensorsystems.

Highlights

- Can be integrated into the switch series of leading manufacturers (VoCup)
- Multi-sensors for VOC, temperature, humidity, pressure, brightness
- Aesthetics due to lineal and modern design
- Automatically self-calibrating and practically maintenance-free
- Extremely low energy consumption of sensors
- Made in Germany

APPLICATION

Sensor Solutions

In terms of energy-efficient building, the issue of indoor air quality (IAQ) is becoming ever more important.

Modern buildings are becoming denser and denser and natural air exchange, e.g. through leaky windows and uninsulated walls, no longer occurs. Demand-based and intelligently-controlled ventilation systems should ensure a high air quality.

Our multi-sensor devices gather the entire spectrum of the indoor air quality in order to guarantee a healthy and comfortable living and working climate. By recording multiple parameters in one device, there is no need for expensive single sensor solutions and demand-based ventilation is possible with a minimal installation cost.

We focus here mainly on the stated VOCs (volatile organic compounds). Sources of VOCs include plastics, building materials, furniture, floor coverings, cleaning agents, tobacco smoke as well as human odours.
In higher concentrations, these reduce the feeling of well-being, restrict performance and lead to illnesses, such as allergies and the „sick building syndrome”.

FIELDS OF USE

Public Spaces

Large rooms (classrooms, lecture halls, conference rooms, fitness studios, etc.). Do you know the feeling of unbearably heavy air in a conference room, lecture halls or open-plan office?

The ventilation system seems to be unable to cope or was switched on too late to overcome the multitude of odours. The odours of many people, perfumes, cleaning agents, and the exhaust air from several computers make you tired and listless. Our sensors recognise the air pollution, even before it is perceived, and instruct the ventilation system to deliver fresh air. So you can easily stay receptive, concentrated and healthy.

Transportation

Do you know the odour that you come across on a damp winter's day in an overheated form of public transport?

Controlled by our VOC sensors, the ventilation can provide fresh air on demand. So that your evening's leisure time can begin on your way home.

Energy-Efficient Living Rooms

Has your ventilation system been adjusted to the appropriate spatial use and number of people?

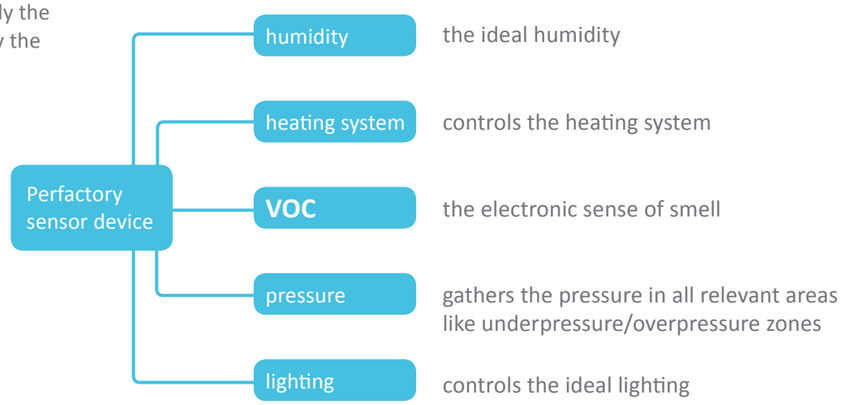
Then it moves heated or air-conditioned, unused air outside even when the rooms are unused. Our sensors regulate how much fresh air is needed while you sleep peacefully or chat cosily with friends. And if there is no-one at home, only the odours of home furnishings and pets are ventilated.

So you always have fresh air, save system power, energy losses when heating and air-conditioning and reduce the maintenance costs of your ventilation system to a minimum.

DEMAND-BASED SOLUTIONS

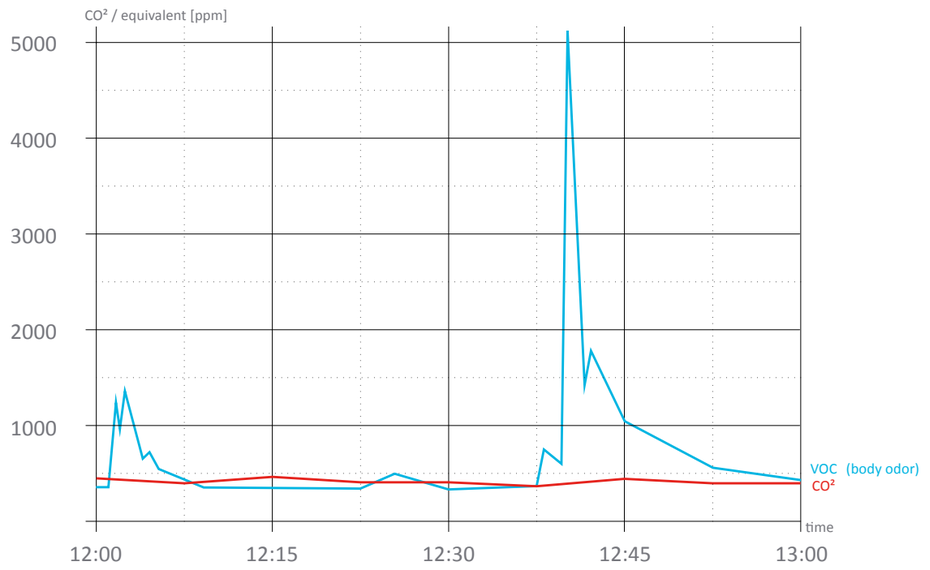
Demand-Based Solutions

Standardised solutions often have limits, but our demand-based solutions can individually and cost-effectively adapt to the conditions of the customer. This means only the sensor technology needed by the customer is used.



Facts and Figures

You can see as an example in the following graphs that a single measurement of the carbon dioxide concentration of the in-door air does not correlates well to the drop in the air quality levels.
Most air pollution is only recognised by a high-performance VOC sensor.



PRODUCT OVERVIEW

Product Overview

Features of the Perfactory products

VoCan

The multi-sensor duct sensor for ventilation duct installation

VoCup

The flush-mounted sensor, which can be integrated into all common switch series

VoCap

The sensor for any area

custom cases

VoCan

Duct Multi-Sensor

With 0...10 VDC output, for installation in ventilation ducts

Description

The „VoCan" air quality sensor for installation in ventilation ducts is available with a 0-10 VDC output signal, with or without a VOC light.

It saves energy on the sensor system due to its extremely low energy consumption (just 14 mA @ 24 VDC).

Technical Data

Measuring element

VOC Sensor	Metal oxide sensor with automatic calibration
Interior operating range	0...50 °C, 5...95% r.h. (without dew permeation)
Measuring range	450...2000 ppm Co2 equivalent

Electronics

Operating voltage	12...25 VAC or 12...25 VDC
Power consumption	14 mA @ 24 VDC
Output signal	0-10 VDC (further options in development, please enquire)
Warm-up time	15 minutes after power connection

Dimensions

Casing dimensions (depending on design)	80 x 60 x 25 cm (W x H x D, mm)
Sensor pipe length	From 90 mm and longer
Connections	Plug with screw terminals for 0.25...1.5 mm²
Casing colour	Pure white plastic

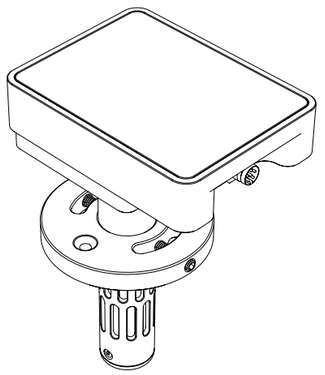
Temperature and relative humidity option

Temperature range	-20...80 °C, +/- 0.5 °C @ 25°C
Humidity range	0...95% r.h. +/- 2% r.h. @ 25°C
Power consumption	approx. 4 mA @ 24VDC

Light option

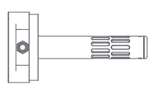
LED red / yellow / green

Various sensor pipe lengths

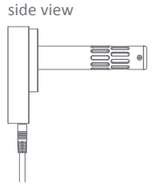


top view

front view



side view



VoCup

Flush-Mounted VOC Sensor
(soon to be available as a multi-sensor as well)

with 0...10 VDC output

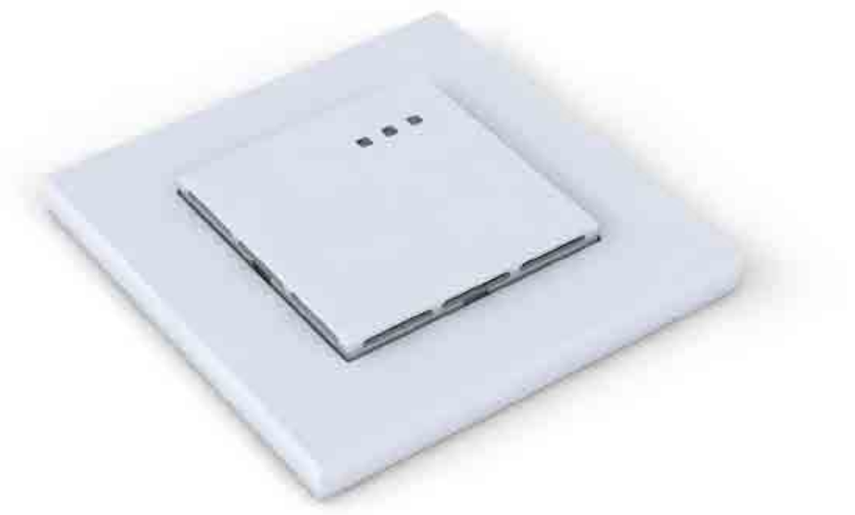
Description

The „VoCup" air-quality sensor is available with a 0-10 VDC output signal, with or without a VOC light.

It saves energy on the sensor system due to its extremely low energy consumption (just 14 mA @ 24 VDC) and can be combined with the switch series of leading manufacturers.

The standard colour is pure gloss white; on request, it can also be delivered in pure matt white.

Special colours, such as silver, anthracite, etc., individual colour or material requirements and adaptation to specific switch series of various manufacturers are possible – please ask us.



Technical Data

Measuring element

VOC Sensor	Metal oxide sensor with automatic calibration
Interior operating range	0...50 °C, 5...95% r.h. (without dew permeation)
Measuring range	450...2000 ppm Co2 equivalent

Electronics

Operating voltage	12...25 VAC or 12...25 VDC
Power consumption	14 mA @ 24 VDC
Output signal	0-10 VDC (further options in development, please enquire)
Warm-up time	15 minutes after power connection

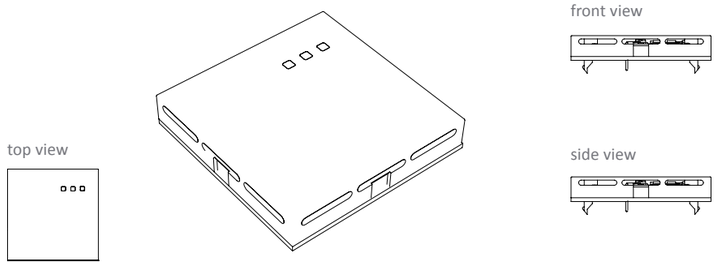
Dimensions

Casing dimensions	55 x 55 x approx. 10 (W x H x D, mm)
Wall fixing	In mounting box with a 60 mm diameter with steel mounting plate
Connections	Plug with screw terminals for 0.25...1.5 mm²
Casing colour	Pure matt white plastic or special colours

Light option

LED red / yellow / green

Can be integrated into diverse switch series



VoCap

Wall-Mounted VOC Sensor
(soon to be available as a multi-sensor as well)

with 0...10 VDC output

Description

The „VoCap" air-quality sensor is available with a 0-10 VDC output signal, with or without a VOC light.

It saves energy on the sensor system due to its extremely low energy consumption (just 14 mA @ 24 VDC).

If you are unable to install our VOC-flush-mounted sensor, then try our wall-mounted solution.

The standard colour is pure matt white. Special casings in stainless steel and individual colours using the RAL colour scheme are possible.

customized casing

Technical Data

Measuring element

VOC Sensor	Metal oxide sensor with automatic calibration
Interior operating range	0...50 °C, 5...95% r.h. (without dew permeation)
Measuring range	450...2000 ppm Co2 equivalent

Dimensions

Casing dimensions	approx. 80 x 80 x 25 (W x H x D, mm)
Connections	Plug with screw terminals for 0.25...1.5 mm²
Casing colour	Pure matt white plastic or special colours

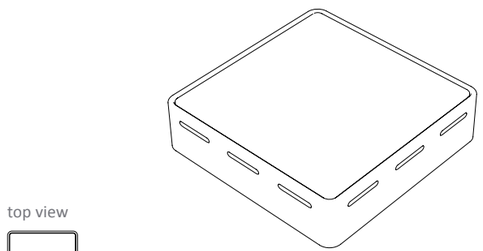
Electronics

Operating voltage	12...25 VAC or 12...25 VDC
Power consumption	14 mA @ 24 VDC
Output signal	0-10 VDC (further options in development, please enquire)
Warm-up time	15 minutes after power connection

Light option

LED red / yellow / green

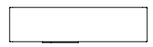
Simple wall-mounted assembly



top view

front view

side view



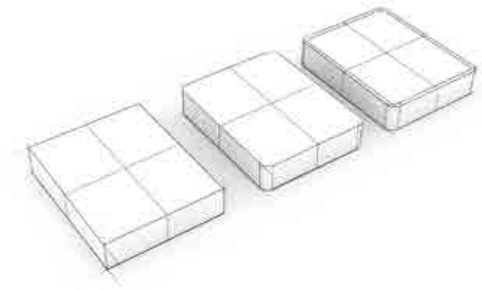
DESIGN PHILOSOPHY

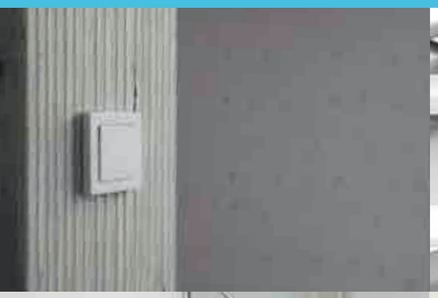
Design Philosophy

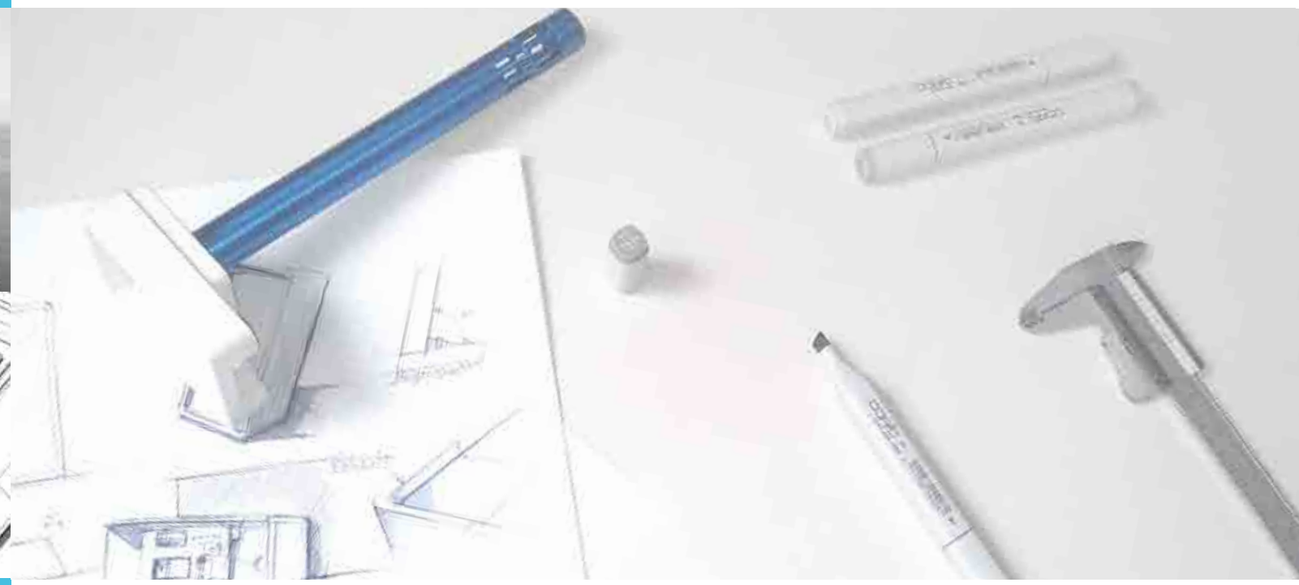
Perfactory Sensorsystems is committed to straightforward honest products without unnecessary shaping elements. A clear design idiom as well as the reduced appearance of our products are in focus of the design development process.

The aim is to integrate the sensor devices inconspicuously in each building.

Thereby our design meets all dimensions of the concept of sustainability. Through efficient design, we use fewer resources in production and by an attractive design that follows function, we make it to integrate air-quality measuring in the daily life of the people.







PRODUCTION

Production and Development

The production and development of our products takes place mainly within our company.

This means demand-based solutions are available to you from one single source, which satisfies the highest ecological and economical requirements.

In addition, we can react flexibly to customer requests and respond to developments in good time.

The multi-sensor will soon be expanded to include pressure, air quantity and brightness. A display to show the measurements, with touchscreen operation or USB, to parameterise the sensor technology (responding characteristics, switching value for relay version, etc.) will soon allow direct control of components such as ventilators and valve gears.

Keep your finger on the pulse with us –
We make air quality measurable.

CONTACT

Thank you for your interest. If you have any further queries please do not hesitate to contact us.

Contact

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PERFACTORY
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