



ZEPHYR PLUS

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ZEPHYR PLUS



DECENTRALIZED VENTILATION WITH HEAT RECOVERY



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INTRODUCTION

Healthy indoor environments depend on a balance between air quality, thermal comfort, and energy efficiency. As modern buildings become increasingly airtight, controlled ventilation has become an essential component of maintaining healthy living and working spaces.

Effective ventilation systems help remove indoor pollutants while ensuring a continuous supply of fresh outdoor air. By managing airflow and environmental conditions, modern ventilation technologies support both occupant well-being and long-term building performance.

Indoor Air Quality and Ventilation

Indoor air quality plays a critical role in human health, comfort, and overall well-being. Modern buildings are designed to be increasingly airtight in order to improve energy efficiency and reduce heat loss. While this improves thermal performance, it also limits natural air exchange between indoor and outdoor environments.

As a result, indoor pollutants such as carbon dioxide, volatile organic compounds, excess humidity, and airborne particles may accumulate over time. Without proper ventilation, these conditions can negatively affect both occupant comfort and indoor air quality.

Controlled ventilation helps maintain a healthy indoor environment by continuously replacing stale indoor air with fresh outdoor air. By ensuring balanced air exchange, ventilation systems support both improved air quality and long-term building performance.

Decentralized Ventilation Systems

Decentralized ventilation systems provide an effective solution for maintaining indoor air quality without the need for complex ductwork or centralized mechanical infrastructure.

Unlike traditional centralized systems, decentralized units operate independently within individual rooms, enabling targeted ventilation where it is needed most. This approach allows for easier installation, improved flexibility, and efficient ventilation in both new buildings and renovation projects.

By combining heat recovery technology with controlled airflow, decentralized ventilation systems help reduce energy losses typically associated with conventional ventilation while maintaining a stable indoor climate.

This balance between energy efficiency and indoor comfort makes decentralized ventilation an increasingly preferred solution in modern residential and light commercial buildings.



ZEPHYR PLUS

Zephyr Plus is a decentralized heat recovery ventilation device designed to provide continuous fresh air in residential and light commercial environments without the need for a central ventilation system.

By combining energy-efficient airflow management with heat recovery technology, the system reduces heat loss while maintaining a healthy indoor climate.

Using a ceramic heat exchanger and reversible fan operation, Zephyr Plus alternates between extracting stale indoor air and supplying fresh outdoor air. This process ensures continuous ventilation while preserving indoor temperature stability.

Key Features

Decentralized heat recovery ventilation system

Up to 90% heat recovery efficiency

Ceramic heat exchanger technology

Reversible fan operation

Multiple ventilation modes

Humidity control functionality

Wireless pairing between multiple units

Remote management via BSK Connect mobile application

ModBus-enabled for BMS monitoring and control

System Concept

Zephyr Plus is designed as a decentralized ventilation solution installed directly through an exterior wall. The device integrates a ventilation capsule that allows air exchange between indoor and outdoor environments through alternating airflow cycles.

Fresh air supply and exhaust airflow occur through the same unit, eliminating the need for duct networks while ensuring continuous air renewal.

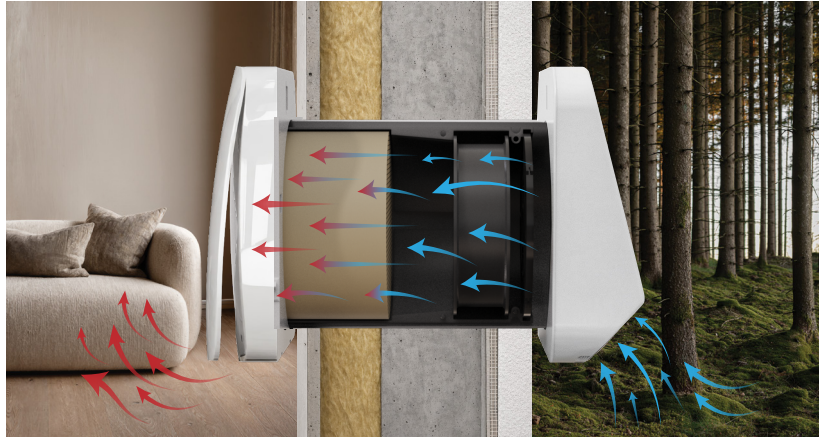
Multiple Zephyr units can be distributed across different rooms and wirelessly connected to operate as a coordinated ventilation system.





With an operating sound level of approximately 13 dB, ZEPHYR Plus runs quieter than most everyday indoor sounds. For comparison, natural breathing is around 10 dB, rustling leaves about 20 dB, a quiet whisper around 30 dB, normal conversation about 60 dB, and a hair dryer can reach up to 90 dB. This exceptionally low noise level allows ZEPHYR Plus to maintain fresh air circulation while preserving a calm and undisturbed indoor environment.

Heat Recovery Ventilation (HRV) technology allows fresh air to enter indoor spaces while minimizing energy loss during the ventilation process.



Heat Recovery Ventilation

In conventional ventilation systems, warm indoor air is simply exhausted and replaced with colder outdoor air during winter, or warm outdoor air during summer. This process can lead to significant energy loss and increased heating or cooling demand.

Zephyr Plus uses heat recovery technology to transfer thermal energy from outgoing air to incoming fresh air. By reusing this energy, the system helps maintain indoor temperature stability while continuously supplying fresh air.

This approach improves indoor air quality while reducing energy consumption and supporting more efficient building performance.

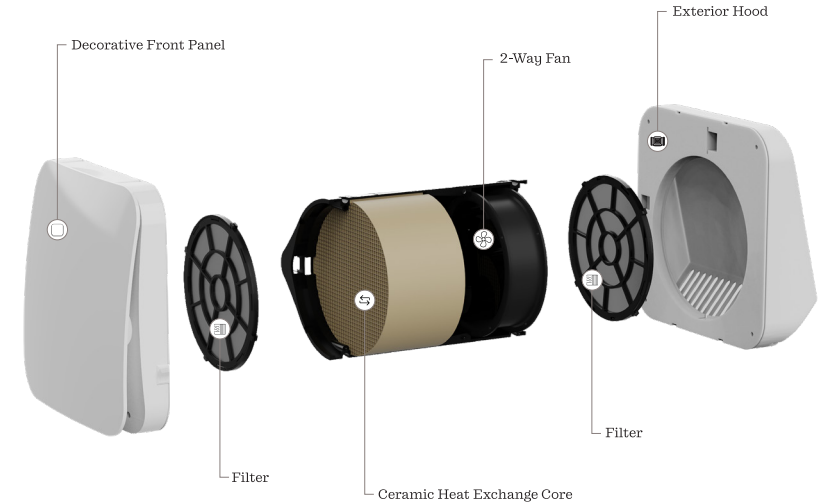
How Heat Recovery Works

During operation, Zephyr Plus alternates between extracting stale indoor air and supplying fresh outdoor air.

When indoor air is exhausted, the ceramic heat exchanger captures and stores its thermal energy. After a short cycle, the airflow direction reverses and fresh outdoor air passes through the same ceramic core. The stored heat energy is then transferred to the incoming air, pre-conditioning it before it enters the room.

This alternating airflow process allows the system to continuously refresh indoor air while significantly reducing heat loss.

Exploded View



Ceramic Heat Exchanger

At the core of Zephyr Plus is a high-efficiency ceramic heat exchanger. The ceramic material is capable of absorbing and storing thermal energy from the outgoing air stream. When airflow direction reverses, the stored heat is transferred to the incoming air.

This process enables the system to achieve up to **90% heat recovery efficiency**, significantly improving energy performance compared to conventional ventilation methods.

The ceramic structure is also highly durable and resistant to environmental conditions, ensuring reliable long-term operation.

Reversible Airflow Operation

Zephyr Plus operates using a reversible fan that periodically changes the direction of airflow. In the default cycle mode, the device alternates between supply and exhaust phases approximately every **70 seconds**.

During the exhaust phase, stale indoor air passes through the ceramic heat exchanger and transfers its heat energy to the core. When the airflow reverses, fresh outdoor air passes through the same core and absorbs the stored heat.

This continuous cycle allows the system to maintain fresh indoor air while preserving indoor temperature balance throughout the year.

Ventilation Modes

Zephyr Plus offers multiple ventilation modes designed to adapt to different indoor air conditions and user needs. These modes allow the device to balance fresh air supply, indoor air extraction and humidity control. Users can easily switch between modes depending on environmental conditions or ventilation requirements. Each mode is designed to provide flexible control while maintaining energy-efficient operation.

Cycle Mode (Default Mode)

Cycle Mode is the standard operating mode of Zephyr Plus. In this mode, the airflow direction alternates automatically between air extraction and fresh air supply approximately every **70 seconds**.

During the exhaust phase, stale indoor air passes through the ceramic heat exchanger, transferring its heat energy to the core. When the airflow reverses, fresh outdoor air passes through the same ceramic core and absorbs the stored heat before entering the room.

This alternating airflow process allows Zephyr Plus to continuously renew indoor air while maintaining energy-efficient heat recovery.

Supply Mode

Supply Mode provides continuous fresh air supply from the outside environment.

In this mode, the device operates by drawing outdoor air into the room for a fixed duration of approximately **30 minutes**. After this period, the system automatically returns to Cycle Mode.

Heat recovery is not active during Supply Mode, as the airflow direction remains constant.

This mode can be useful when additional fresh air is required in a short period of time.



IR Remote Control

Zephyr Plus can be controlled locally using the supplied Infrared (IR) Remote Control. The remote provides quick access to the main ventilation functions, allowing users to switch the unit on or off, adjust fan speeds and select different ventilation modes.

Users can activate **cycle**, **supply** or **exhaust** modes, as well as select the **night mode** for quieter operation. The remote control also allows users to configure humidity monitoring levels that automatically trigger ventilation adjustments when required.

This simple and intuitive control interface enables convenient day-to-day operation of the Zephyr Plus ventilation system.

Exhaust Mode

Exhaust Mode focuses on removing indoor air from the space.

The device extracts stale indoor air and directs it outside for approximately **30 minutes**, helping remove accumulated pollutants, odors or excess humidity. After the timed operation is completed, Zephyr Plus automatically returns to Cycle Mode.

Heat recovery is not active in this mode because the airflow direction does not alternate.

Humidity Boost

Zephyr Plus includes an automatic humidity control function designed to manage excess moisture inside buildings.

The device continuously monitors indoor humidity levels using its integrated humidity sensor. Users can select one of three humidity thresholds: **40%**, **60%** or **80%**.

When the selected humidity level is exceeded, the system automatically switches to **exhaust mode** to remove excess moisture from the indoor environment. Once the humidity level drops below the selected threshold, the device returns to its normal operating mode.

This automatic humidity response helps prevent condensation problems and supports healthier indoor environments.

Multi-Unit Ventilation System

Zephyr Plus units can operate individually or as part of a coordinated multi-device ventilation system. Thanks to the integrated wireless communication module, multiple Zephyr units can be connected and synchronized within the same building. This allows ventilation to be distributed across different rooms while maintaining balanced airflow throughout the space.

By coordinating airflow direction and operating modes between devices, the system ensures continuous ventilation and improved air circulation between rooms. This flexible architecture makes Zephyr Plus suitable for both single-room installations and larger residential or light commercial environments.

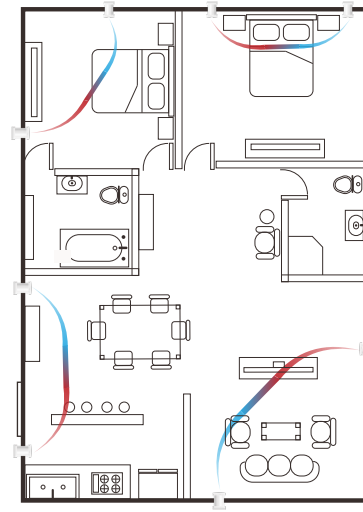
Aspiration Phase

Ventilation Phase



For 70 seconds, device will **extract warm** inside air, charging the ceramic heat exchanger core. The core will heat up.

For 70 seconds, device will supply **fresh air** from outside, heating it up with the stored energy in the ceramic heat exchanger.



Wireless Device Pairing

Each Zephyr Plus unit contains a built-in wireless communication module that enables local pairing between devices.

Through this wireless connection, multiple units can communicate directly with each other without requiring an internet connection. One device can be designated as the master unit, while the remaining units synchronize their operation based on the master device.

This local communication allows users to control multiple units simultaneously while maintaining stable and reliable system performance.

All paired units can also be managed through the IR remote control or the BSK Connect mobile application.

Parallel and Reverse Operation

When multiple Zephyr units are connected, they can operate in either **parallel mode** or **reverse mode**, depending on the ventilation strategy.

In parallel mode, all units operate in the same airflow direction simultaneously. This mode is useful when consistent ventilation is required within a single space. In reverse mode, units alternate between supply and exhaust operation. While one device extracts indoor air, another unit supplies fresh outdoor air.

This coordinated airflow creates balanced air circulation between rooms and improves overall ventilation efficiency.

Ventilation Zones

The ability to connect multiple Zephyr units also allows the creation of **separate ventilation zones** within a building. Different rooms or areas can be configured with independent airflow speeds, ventilation modes or scheduling programs.

This zoning capability enables more precise control of indoor air conditions while improving energy efficiency and occupant comfort.

For larger residential environments or light commercial spaces, ventilation zones allow the system to adapt to different room usage patterns and air quality requirements.

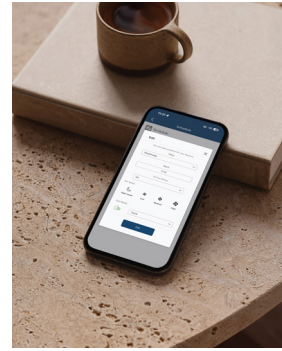
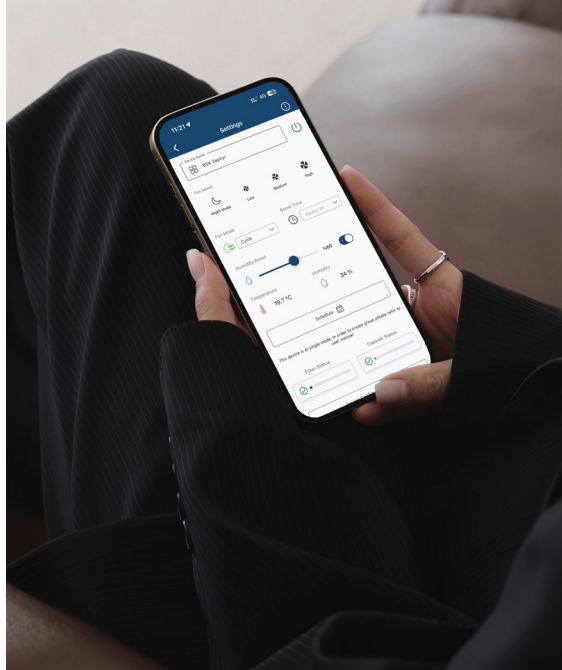
BSK Connect App

The BSK Connect mobile application provides an intuitive interface for controlling and monitoring Zephyr Plus ventilation devices.

Through the application, users can access and manage their ventilation system remotely, adjust airflow settings and monitor device performance in real time.

The platform allows multiple Zephyr units to be connected and managed within a single interface, enabling coordinated operation across different rooms or ventilation zones.

By combining device control, scheduling and maintenance monitoring, the BSK Connect App transforms Zephyr Plus into a fully connected indoor ventilation system.



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Remote Access and Control

The BSK Connect App allows users to access and control Zephyr Plus devices from anywhere with an internet connection.

Through the main interface, users can turn devices on or off, monitor operating status and switch between ventilation modes.

This remote accessibility enables users to maintain optimal indoor air conditions even when they are away from home or office.

Airflow and Speed Control

Users can adjust airflow direction and fan speed directly through the application.

The system supports multiple fan speed settings including **high**, **medium**, **low** and **night mode**, allowing ventilation intensity to be adapted to different indoor conditions.

Users can also switch between **supply**, **exhaust** and **cycle modes** depending on the ventilation needs of the space.

Weekly Scheduling

The application includes a programmable scheduling system that allows users to define automatic ventilation routines.

Users can create weekly schedules with specific start and end times, enabling devices to operate automatically based on daily occupancy patterns or indoor air quality requirements.

Automated scheduling improves energy efficiency while ensuring consistent ventilation throughout the week.

Maintenance and Device Sharing

The BSK Connect App also supports device maintenance monitoring and multi-user access. The system provides notifications for **filter replacement** and **capsule cleaning**, based on device operating hours. These reminders help maintain optimal ventilation performance over time.

Users can also share device access with other individuals through **QR codes** or **secure sharing links**, allowing multiple users to manage the same ventilation system when needed.

Smart Home Integration

Zephyr Plus ventilation systems can be integrated into modern smart home environments, allowing users to monitor and control indoor ventilation through connected home automation platforms.

By supporting widely used smart home ecosystems, Zephyr Plus enables ventilation management to become part of a broader home automation infrastructure. Through this integration, users can monitor device status, adjust ventilation settings, and incorporate ventilation control into automated home scenarios.



Smart home compatibility enhances both convenience and system flexibility. Ventilation can operate alongside other connected systems such as climate control, humidity monitoring, and energy management, helping create a more responsive and comfortable indoor environment.

With smart home integration, Zephyr Plus becomes part of a connected living space where indoor air quality can be managed intelligently and efficiently.



Home Assistant

Zephyr Plus can be integrated with the Home Assistant smart home platform, enabling advanced automation and centralized control.

Through Home Assistant, users can monitor device status, adjust ventilation settings, and include the system in custom automation scenarios within their home automation environment. The platform allows ventilation behavior to be linked with other smart home devices such as humidity sensors, temperature controls, or occupancy detection systems.

For example, ventilation speed can automatically increase when humidity levels rise or when a room becomes occupied. These automated responses allow the ventilation system to adapt dynamically to changing indoor conditions.

Home Assistant integration provides a flexible and customizable environment for users who prefer to manage their indoor climate through a centralized smart home platform.

Google Home

Zephyr Plus also supports integration with Google Home, allowing users to control their ventilation devices through the Google Home application or via Google Assistant voice commands.

By connecting Zephyr Plus to the Google Home ecosystem, users can activate ventilation modes, adjust airflow settings, and monitor system status using simple voice commands or mobile controls. This integration enables convenient hands-free interaction with the ventilation system while allowing it to operate alongside other connected devices in the home.

Google Home compatibility makes everyday ventilation control simpler and more intuitive, while supporting a seamless smart home experience.



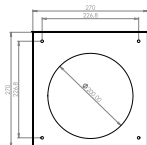
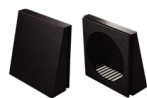
Accessories

Zephyr Plus ventilation systems can be complemented with a range of exterior accessories designed to improve both architectural integration and system protection.

These components provide protection against outdoor elements while maintaining optimal airflow performance. At the same time, their refined metal construction allows the ventilation outlets to blend more naturally with different façade materials and building styles.

By combining functional airflow protection with clean exterior design, these accessories help ensure that ventilation performance and architectural aesthetics work together.

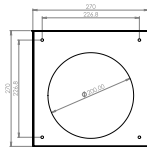
Zephyrplus/A/PSL



Zephyrplus/A/SSL



Zephyrplus/A/SNWL



Decorative Metal Exterior Hood

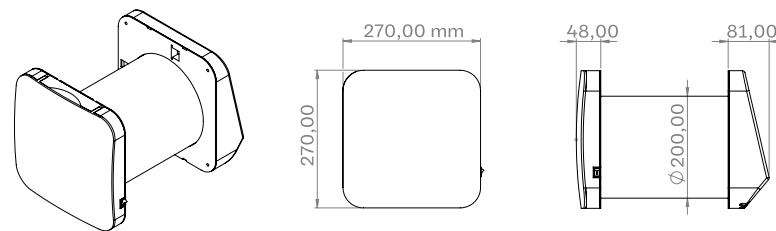
The Decorative Metal Exterior Hood is designed to protect the outdoor air outlet while improving the visual integration of the ventilation system with the building façade. Constructed from durable metal materials, the hood protects the ventilation opening from rain, wind and external debris while allowing unobstructed airflow. The robust construction makes it suitable for demanding outdoor environments. The exterior hood is available in stainless steel or galvanized steel options, and can be supplied in multiple color finishes to match the surrounding façade materials. Its minimal and architectural form allows the ventilation outlet to remain visually discreet while maintaining reliable protection and long-term performance.

The Thin Wall Metal Exterior

The Thin Wall Metal Exterior Louver is designed to provide installation flexibility in buildings where wall thickness is limited. This accessory extends the minimum wall thickness requirement of Zephyr Plus units to 150 mm by accommodating a wider exterior hood. The design allows the Zephyr Plus capsule to extend into the hood, enabling proper installation even in thinner wall structures. The louver construction prevents the direct entry of rain, insects and external particles while ensuring efficient airflow between indoor and outdoor environments. By enabling installation in a wider range of wall conditions, the thin wall louver offers a practical solution for projects where façade depth is restricted.

Technical Specifications

The technical specifications below summarize the key performance and operational characteristics of the BSK Zephyr Plus ventilation unit. These values define the device's airflow performance, heat recovery efficiency, electrical characteristics and environmental operating limits.



Performance Data

Parameter	Night Mode	Speed I	Speed II	Speed III
Airflow Rate (m ³ /h)	25	50	75	100
Electrical Power (W)	1.1	1.4	2.2	3.9
Sound Power (dB)	24.7	28.1	35.3	43
Sound Pressure at 1 m (dBA)	13.7	17.1	24.3	32
Sound Pressure at 3 m (dBA)	4.2	7.6	14.8	22.5

General Technical Data

Parameter	Value
Ventilation Type	Decentralized heat recovery ventilation
Heat Recovery Efficiency	Up to 90%
Heat Exchanger Type	Ceramic heat exchanger
Fan Type	2-way EC controlled 12 VDC axial fan
Electrical Connection	110–230 V / 50–60 Hz
Sensor Type	Temperature and humidity
Filter	2 × G3 (optional M5)
Protection Class	IPX4
Operating Temperature	-25 °C to +50 °C

BSK Indoor Air Quality Ecosystem

BSK indoor air quality solutions are designed as a connected ecosystem that combines ventilation, environmental monitoring, and intelligent control. Through the integration of ventilation devices and indoor air quality sensors, the system enables users to maintain healthier and more comfortable indoor environments.

Within this ecosystem, BSK ventilation systems provide continuous fresh air circulation, while Clervo monitoring devices track critical indoor air parameters. Together with smart control capabilities, these solutions create a comprehensive approach to indoor air quality management for modern residential buildings.



Zephyr Ventilation Systems

The Zephyr product family consists of decentralized heat recovery ventilation units designed to provide continuous fresh air circulation while minimizing energy loss.

Using a ceramic heat exchanger and reversible airflow operation, Zephyr units recover heat from exhaust air and transfer it to incoming fresh air. This allows buildings to maintain healthy ventilation while preserving indoor thermal comfort and reducing energy consumption.

Different Zephyr models are developed to address various room sizes and ventilation needs across residential environments.



Zephyr Plus

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Different Zephyr models are developed to address various room sizes and ventilation needs across residential environments.



Zephyr (Standard Model)

The Zephyr Standard model offers a balanced solution for decentralized ventilation in residential environments. It provides reliable heat recovery performance and stable airflow while maintaining low noise levels and energy-efficient operation.

The unit can operate independently or as part of a multi-device ventilation network, allowing users to create customized ventilation zones across different rooms.



Zephyr Mini

Zephyr Mini is specifically designed for smaller spaces such as bathrooms, kitchens, dressing rooms, and utility areas where centralized ventilation is not available.

Despite its compact size, the unit delivers efficient heat recovery ventilation by using a ceramic heat exchanger and reversible airflow operation. The device alternates between exhaust and supply phases to maintain fresh air circulation while minimizing heat loss.



Clervo Monitoring Devices

Clervo monitoring devices are designed to continuously track key indoor air quality parameters and provide real-time insights into the indoor environment.

By measuring factors such as radon concentration, particulate matter, carbon dioxide levels, temperature, and humidity, Clervo devices help users understand the air quality conditions inside their homes. When integrated with BSK ventilation systems, these devices can also support automated ventilation responses based on measured environmental conditions.



Clervo Radon

Clervo Radon is a dedicated indoor monitoring device developed to continuously measure radon concentration in residential environments.

Radon is a naturally occurring radioactive gas that can accumulate inside buildings and pose long-term health risks. Because it is colorless and odorless, continuous monitoring is the only reliable method for detecting elevated radon levels.

The device also tracks indoor temperature and humidity, providing a broader understanding of environmental conditions that may influence indoor air quality.



Clervo IAQ Monitor

Clervo IAQ Monitor provides comprehensive monitoring of indoor air quality parameters in residential environments.

The device measures particulate matter, volatile organic compounds, carbon dioxide, carbon monoxide, temperature, and humidity. By combining multiple sensors in a single device, Clervo IAQ offers a holistic overview of indoor air conditions and helps users identify potential air quality risks.

Through integration with ventilation systems and mobile applications, the device enables data-driven indoor air quality management.

BSK Notus Ventilation Systems

BSK Notus ventilation systems are designed to provide continuous air circulation solutions for larger spaces and building-scale ventilation applications.

Complementing the decentralized Zephyr units, Notus systems offer additional ventilation capabilities that can be used in various residential or commercial environments. Together with Zephyr ventilation devices and CLERVO monitoring systems, the Notus product family expands the BSK ecosystem into a broader indoor air quality solution platform.



Within the BSK indoor air quality ecosystem, devices are designed to communicate with each other and operate as an integrated system. Ventilation units and monitoring devices continuously exchange data and can trigger automated actions based on real-time environmental conditions.

For example, when elevated radon levels or other indoor air quality risks are detected, Zephyr Plus and Notus ventilation systems can automatically increase ventilation performance to improve indoor air conditions. These actions can also be monitored and controlled remotely through connected platforms, ensuring that indoor environments remain protected even when occupants are away from home.

Beyond health protection, the ecosystem also supports maintaining balanced indoor environments during daily life or extended absences. Whether preserving fresh air circulation in living spaces or maintaining stable environmental conditions for plants and sensitive interior environments, the coordinated operation of BSK devices helps sustain healthy indoor air quality at all times.

Together, these integrated technologies form a connected ventilation and monitoring ecosystem designed to support healthier, safer, and more comfortable indoor environments.



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