

# Climeo<sup>®</sup> Solutions



THE WAY OF INDOOR CLIMATE

# Indoor climate is quality of life

Modern man spends up to 90% of his life in enclosed spaces. At the same time, our building envelopes are becoming ever denser for energy reasons and need ventilation.

Residential ventilation is a blessing for the inhabitants, especially for those suffering from allergies. Nevertheless, only about half of all new living rooms have residential ventilation and even fewer, to be precise, 330 apartments have room-oriented, needs-based ventilation control.

As a pioneer, Climeo Solutions offers just that: room-oriented ventilation and heating control. The Climeo system combines residential ventilation with heating control and ensures an optimum indoor climate. The system measures and controls temperature, humidity, air quality and air quantity. The climate for each room can be individually adjusted on the web app or on a clear display. Thanks to a demand-driven supply for each room, Climeo Solutions also saves energy consumption, saving up to 70% for the ventilation alone.



# Advantages of the Climeo system



## **Quality of life**

The Climeo system ensures an optimal indoor climate  
Measurement of temperature, humidity, air quality and air flow  
Control of temperature and air flow for every room



## **Simplicity**

Centralised control of the climate in every room  
Clear display for direct operation  
Comprehensive control via the web app  
Easy installation



## **Cost-effectiveness**

Climeo Solutions reduces energy consumption  
Required optimisation of heating and ventilation  
Excellent for the needs of new buildings



## **Maintenance**

Actually, the Climeo system doesn't need maintenance  
But thanks to the many visible parameters and measurements, it quickly becomes an indispensable partner in the treatment of problems, helping you to solve a problem quickly and easily. It's also easy to measure energy consumption.



## **Future**

Climeo Solutions is a smart home for multi-family homes. The current system is just the beginning. We will create additional features for users that make it easier or better to use the Climeo system: Direct control of the flaps (for special occasions or applications). Manually adjust the ventilation unit if it produces too little air or too much noise.

# The Climeo System:

A system that solves the problems of the residential climate easily, intelligently and sustainably.

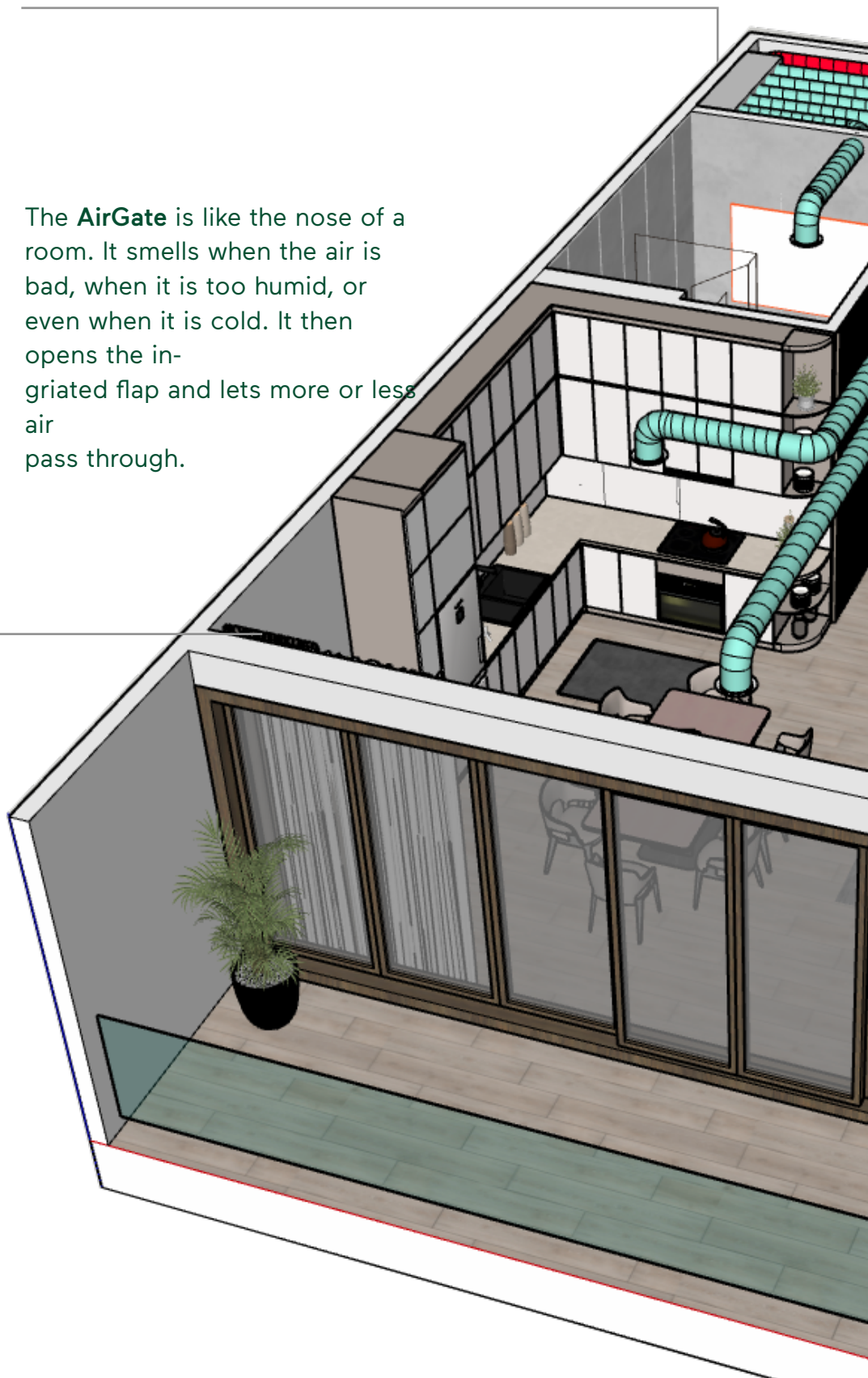


The **AirGate** controls and measures the air in each room: temperature, humidity, quality and airflow. It is the innovative, central element of the Climeo system.



The **AirGate** is like the nose of a room. It smells when the air is bad, when it is too humid, or even when it is cold. It then opens the integrated flap and lets more or less air pass through.

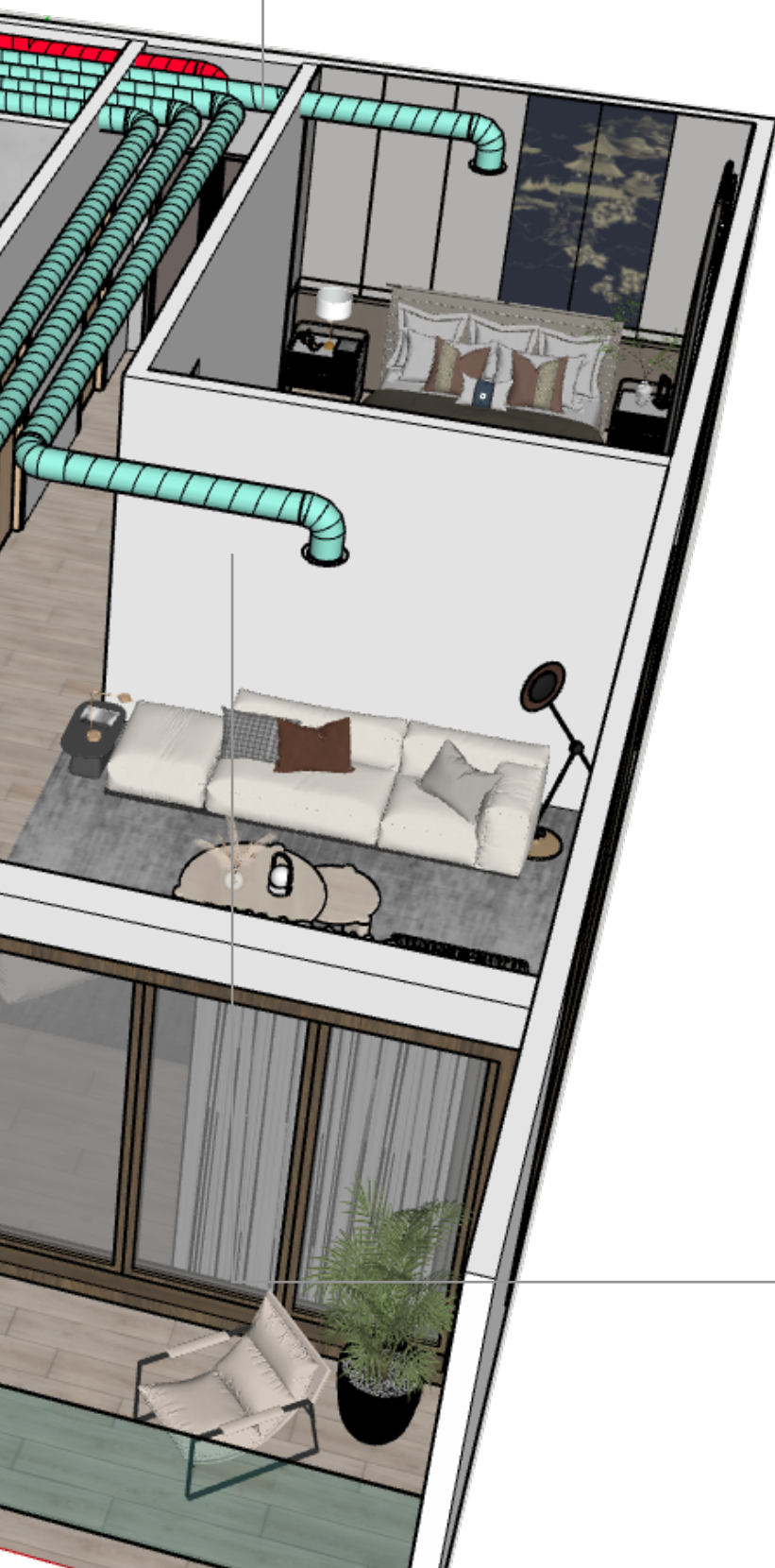
With the **RoomMaster**, the setpoint values of the rooms can be set even without the internet. It is simple in its operation and in its appearance quite elegant.



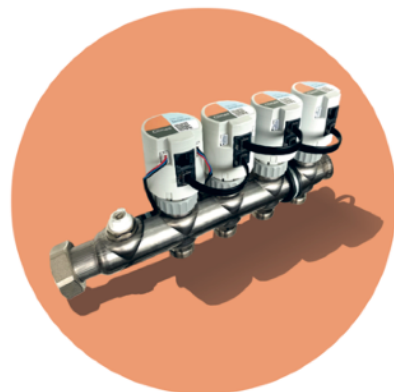
The **FlatMaster** is power supply, controller for all rooms and communication hub for the home in one. It integrates WiFi, Bluetooth, Ethernet and ModBus in one device.



Several FlatMasters are connected to a building network and the corresponding requirements are transmitted to the control panels.



The **TempGate** complements the AirGate. It controls the temperature (heating/cooling) in up to 32 rooms and is compatible with existing installations in Europe. Again, there is no need for commissioning, because the TempGate also measures the flow rate in its standard configuration, which means that the time-consuming and error-prone adjustment can be omitted.

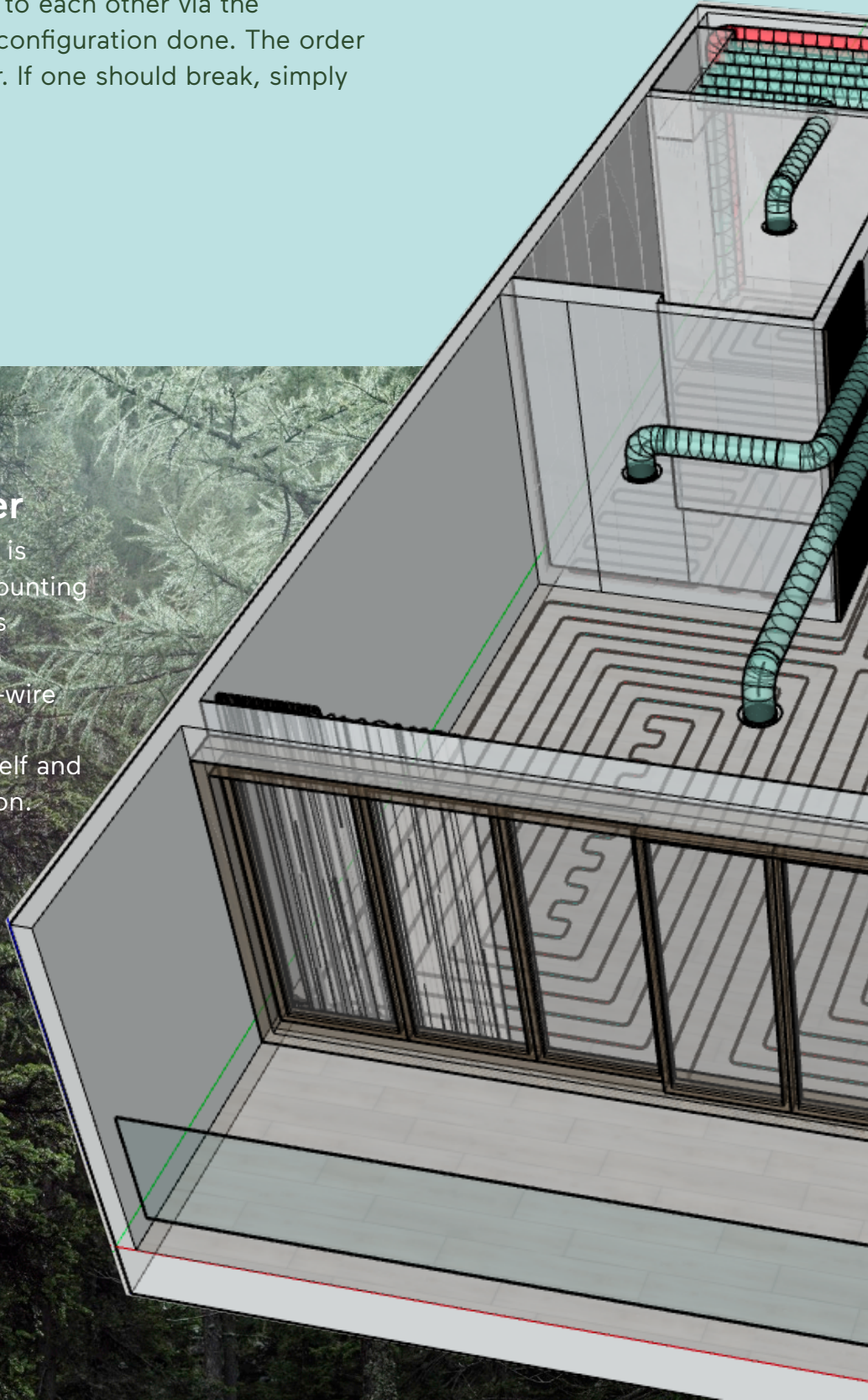




## AirGate

The AirGate is installed in the air distribution boxes – by adjusting the plate, the air flow can be continuously controlled (see picture). In combination with the volume flow measurement, a pressure-independent control valve is created.

The AirGates are simply connected to each other via the supplied RJ12 cables. No setup or configuration done. The order gives the address for the FlatMaster. If one should break, simply replace it, no hassle of configuring.

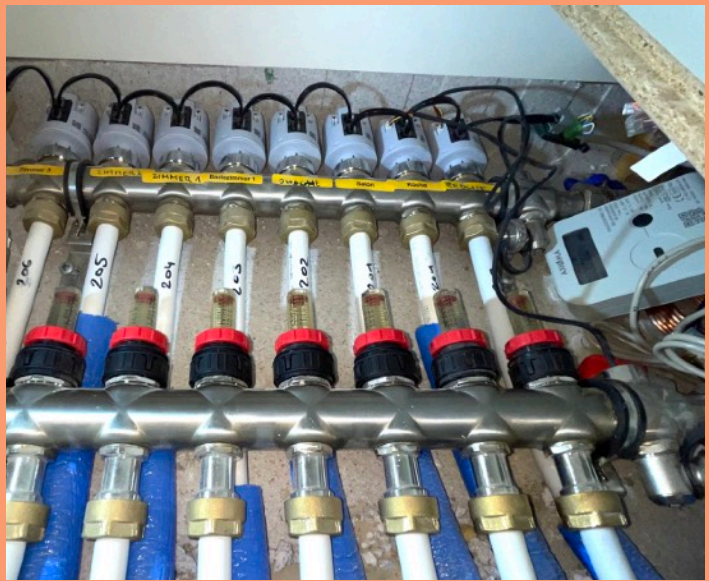


## RoomMaster

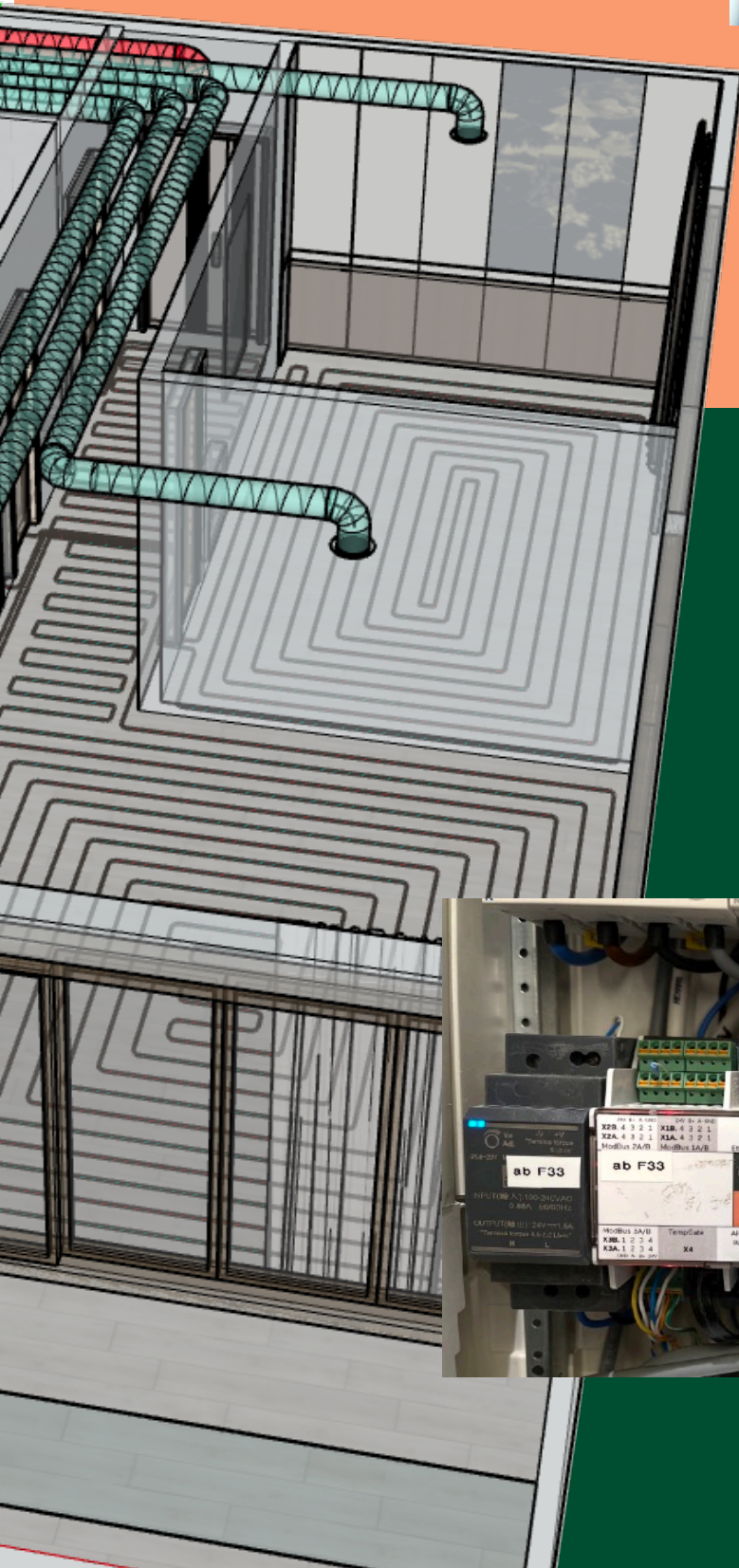
The RoomMaster is mounted on a mounting plate in flush. It is connected to the FlatMaster via a 4-wire ModBus connection. It gets its configuration from FlatMaster itself and does not require any configuration.

## TempGate

The TempGate controls the temperature of up to 12 heating/cooling circuits. The TempGate is compatible with existing installations and also suitable for retrofit. The TempGate is based on the common technology of independent actuators that allow continuous control of 4 to 12 valves. The TempGate can optionally be equipped with a heat



meter, which can then be read out comfortably and without further configuration via the FlatMaster.



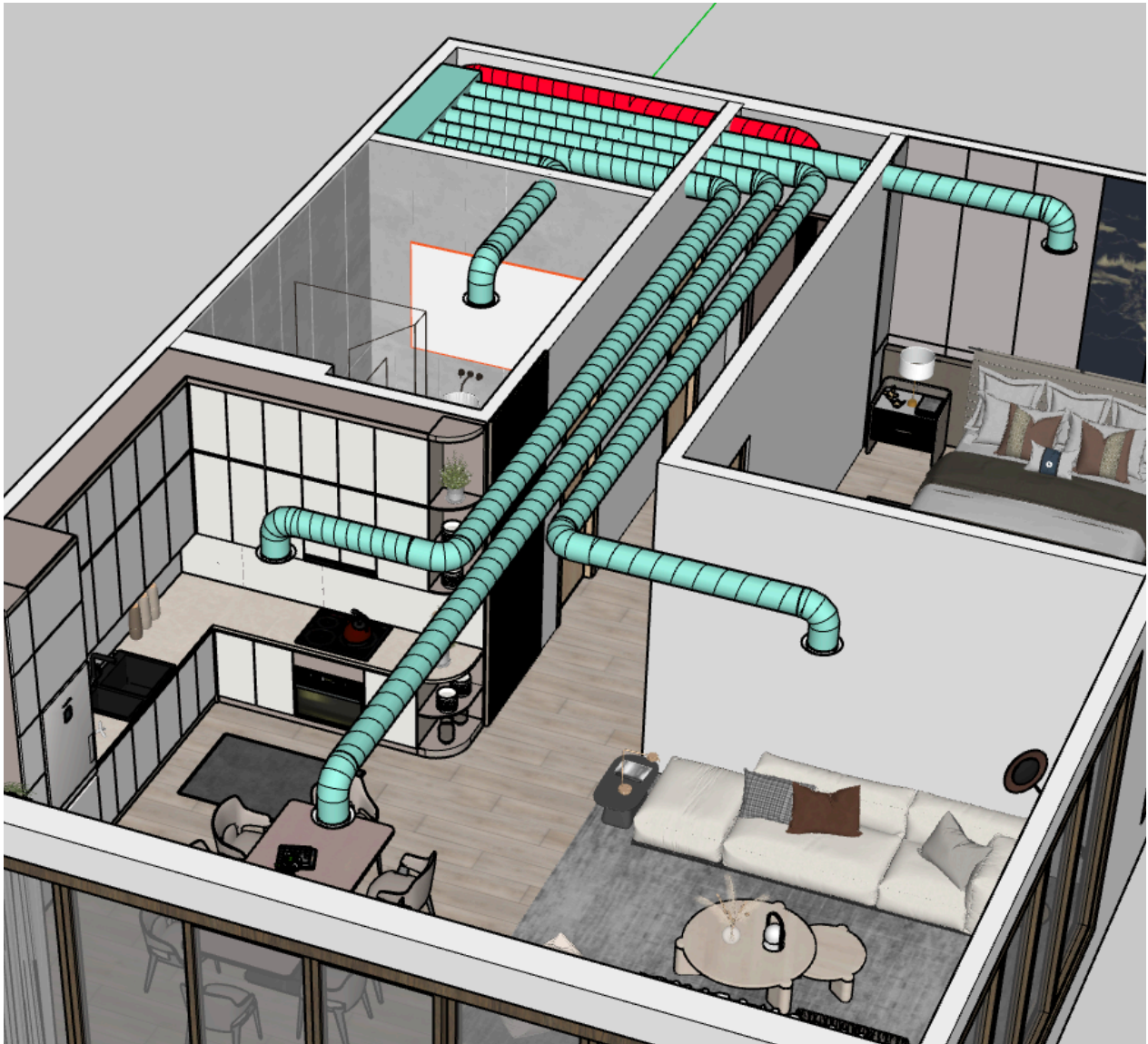
## FlatMaster

The FlatMaster is installed in the electrical distribution cabinet. Next to it is a 24V power supply that feeds the entire system. The FlatMaster is connected to the Internet via an Ethernet cable, so that its data can be accessed on the server at any time. Once the FlatMaster is online, all configurations and updates can be downloaded via the Internet, including those for the RoomMaster. In addition to the RoomMaster, heat meter and ventilation unit are connected via ModBus. The latter can also be connected via a 0-10V signal.



## Centralized supply air, exhaust air for all rooms

The Climeo system is suitable for various setups. The differences lie in whether a centralized ventilation unit or decentralized ventilation units are used, as well as whether there is centralized supply and exhaust air in all rooms or a mixed system where air is drawn through multiple rooms.



### Advantages

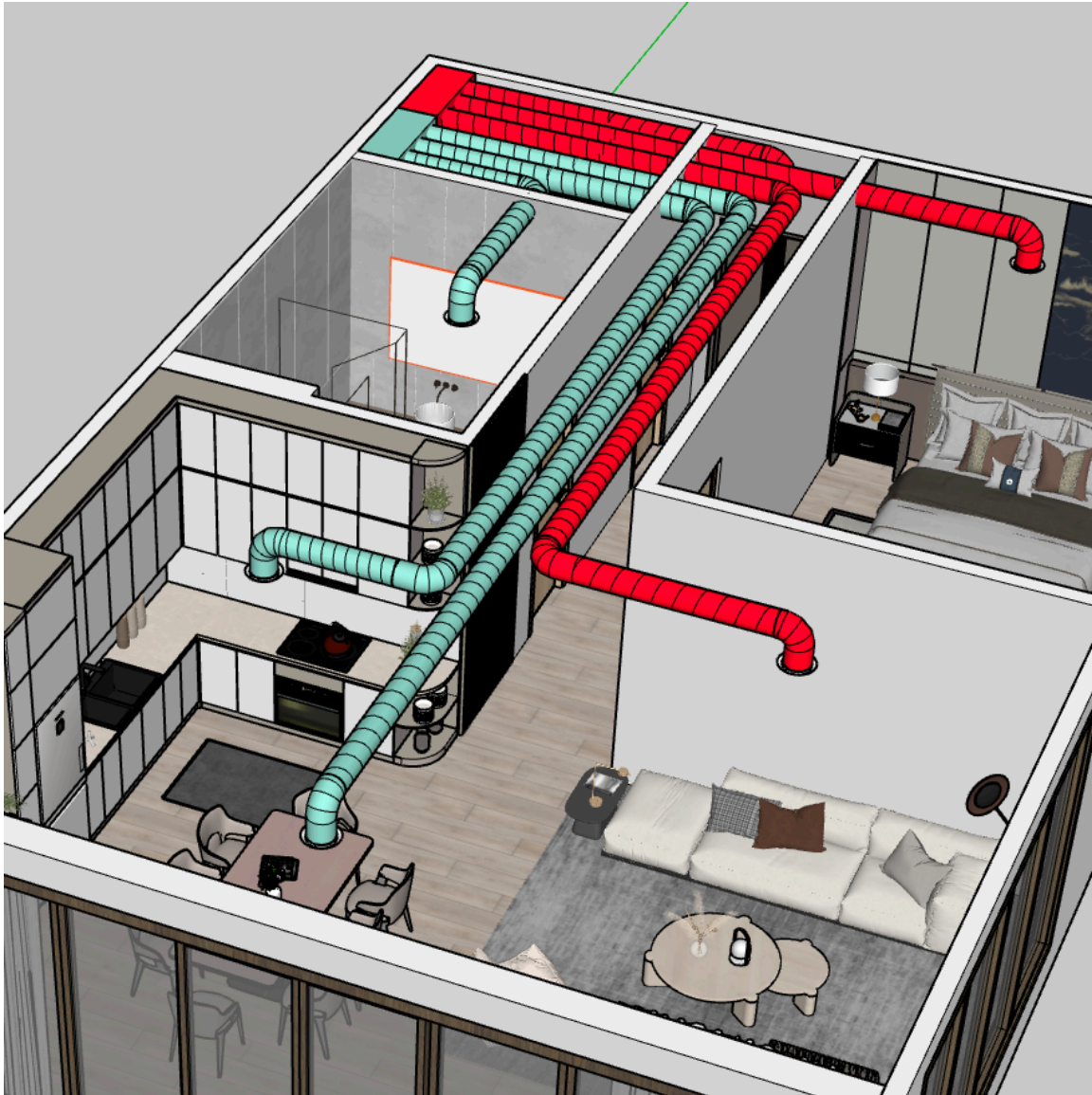
- Each room has its own air quality data measurement and can therefore be individually controlled.
- There is no mixing of air between rooms, meaning that air from one room (e.g., bedroom) does not flow into another room (e.g., kitchen/living room).
- Exhaust air generally produces less noise.
- Simple ducting without intersections allows for thinner ceilings.

### Disadvantages

- Requires a central supply air system to bring the entire air volume flow into the apartment. With good planning, noise can be avoided.
- Tends to require a slightly higher air volume flow overall, as each room must be supplied with a minimum air volume.
- Not suitable for all apartment sizes; for very large apartments, it is advisable to plan for multiple supply air locations.

## Some rooms supply air, some exhaust

Since Climeo can only measure air properties (T, H, VOC) in the exhaust air, the supply air rooms must be controlled using other factors. These can be time schedules or "empathetic control" (similar to other rooms). Room sensor units are also possible.



### Advantages

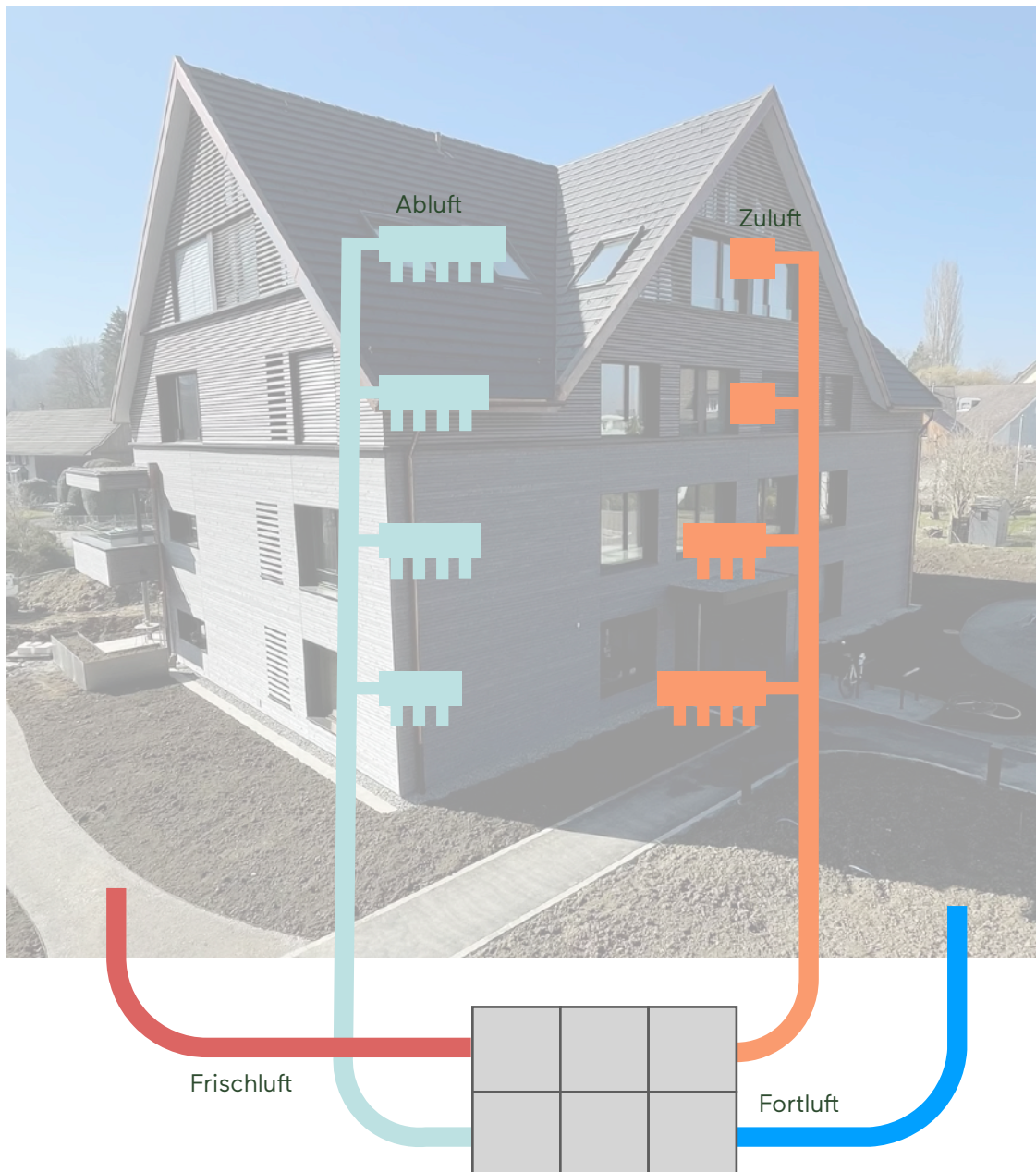
- Optimized air volume since the air flows through multiple rooms.\*\*
- Ductwork can be adapted to the existing conditions to avoid intersections.\*\*
- Multiple supply air points, which helps avoid noise. However, be aware that supply air points are more likely to generate noise than exhaust air.

### Disadvantages

- In rooms that only have supply air, the air quality and temperature cannot be measured with the AirGates, and additional room sensors may be required.
- The supply air in the rooms must be well-planned to avoid drafts or noise.

## Configuration with a central ventilation unit

The Climeo system is suitable for various types of ventilation systems. The decision whether to use a central ventilation unit or decentralized ventilation units for each apartment depends primarily on the future ownership structure. The Climeo system is equally suitable for both options. The example of a central ventilation system below is particularly suitable for rented properties.



### Advantages

- Central ventilation system with professional maintenance.
- Filter change only on one device.
- Simple, cheaper air ducting with fewer vertical (riser) and horizontal pipes.
- Therefore, less space required for these installations.

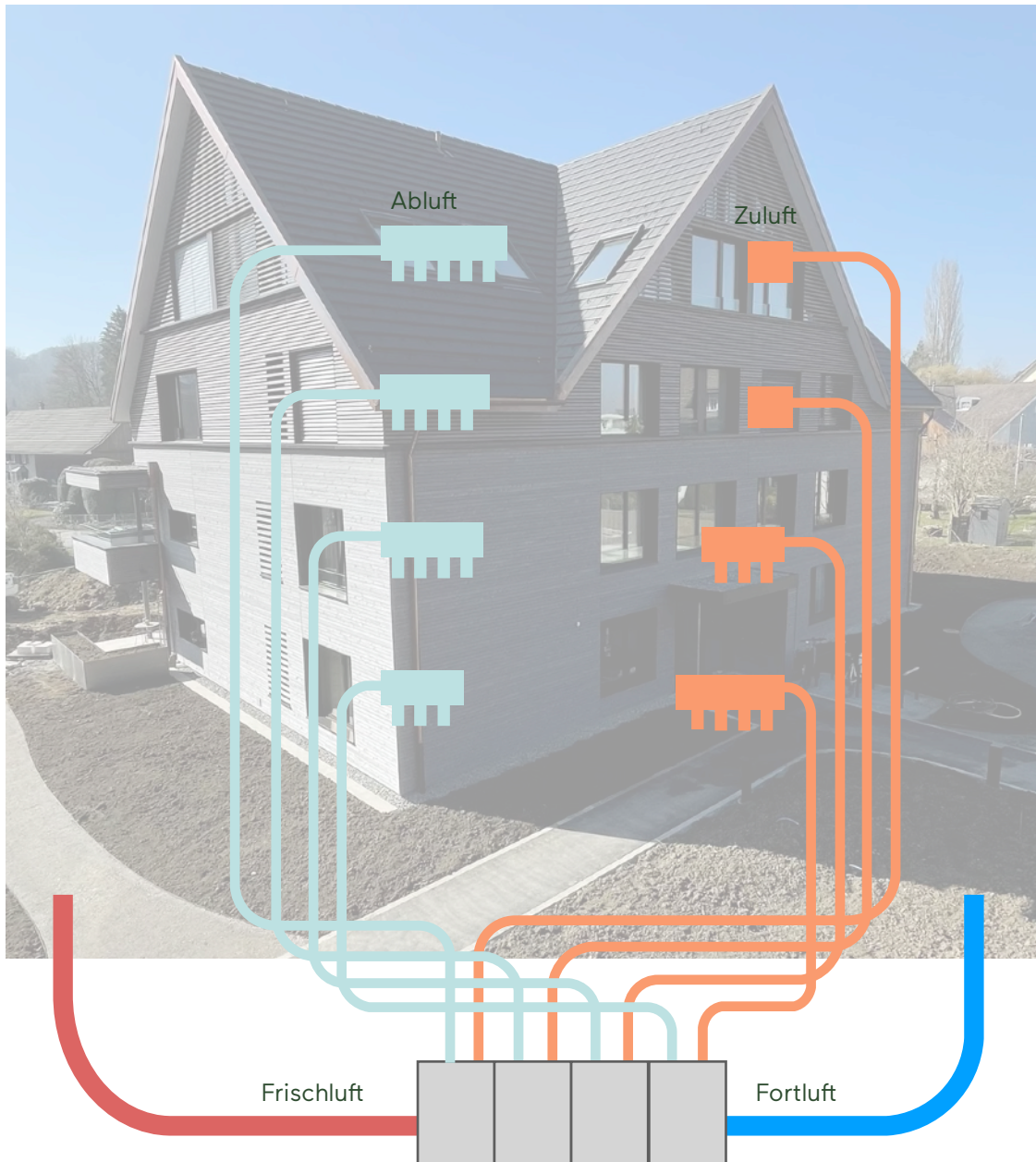
### Disadvantages

- In case of failure, there is no air in the entire house.
- When the ventilation is turned up, the noise level increases in all apartments, meaning the balance between noise and air volume must be correct for the entire building.
- More complex noise suppression required.
- Additional control unit (System Master) necessary, which calculates the air volume and controls the fans.

## Configuration with separate ventilation unit in each apartment

There isn't \*the\* optimal ventilation system. Each one has its pros and cons. But Climeo Solutions helps in any case to get the air where it is needed.

With a ventilation unit per apartment, the owner can, for example, determine the total airflow and therefore the noise level himself.



### Advantages

- Decentralized smaller apartment ventilation systems.
- If one unit fails, only one apartment is affected, and a replacement can be obtained more quickly.
- Each resident can determine the optimal noise/air volume range themselves.
- Resulting in less space required for these installations.

### Disadvantages

- Individual filter changes are required for many units.
- If the ventilation units are located in the basement, more complex ductwork with numerous risers and drops is necessary. This requires additional space and reduces air performance per apartment.
- If the ventilation units are located within the apartment, this requires valuable space and can create noise problems.

## Floor heating or cooling control

Using information about room temperature and humidity, the Climeo system can also control the underfloor heating/cooling in a precise manner.

### Temperature measurement

With a flow and return temperature sensor, the temperature difference, and thus a part of the heating output, is recorded. This also allows us to see very early on if the flow temperature is too low compared to the outside temperature."

### Outside temperature

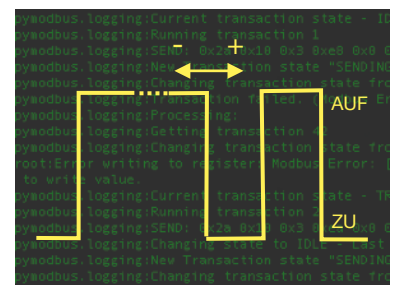
The outside temperature, especially its predicted changes, serves as another variable for adjusting the heating. This allows the inherently sluggish underfloor heating system to react faster to changes by increasing the heating power sufficiently early.

### Advantages

- Modern Heating Control
- Also compatible with existing heating distributors
- Web interface for setting the temperature
- A defective actuator can be easily replaced without configuration
- Cooling also possible, with automatic switching
- Data recording for monitoring
- Integrated simple energy monitoring

### PWM - continuous control

A sophisticated pulse-width modulation algorithm allows us to do two things: Firstly, very precise continuous control of the flow rate. Secondly, two clear working positions, ON and OFF. These two simple positions allow for an immediate check of the functionality.

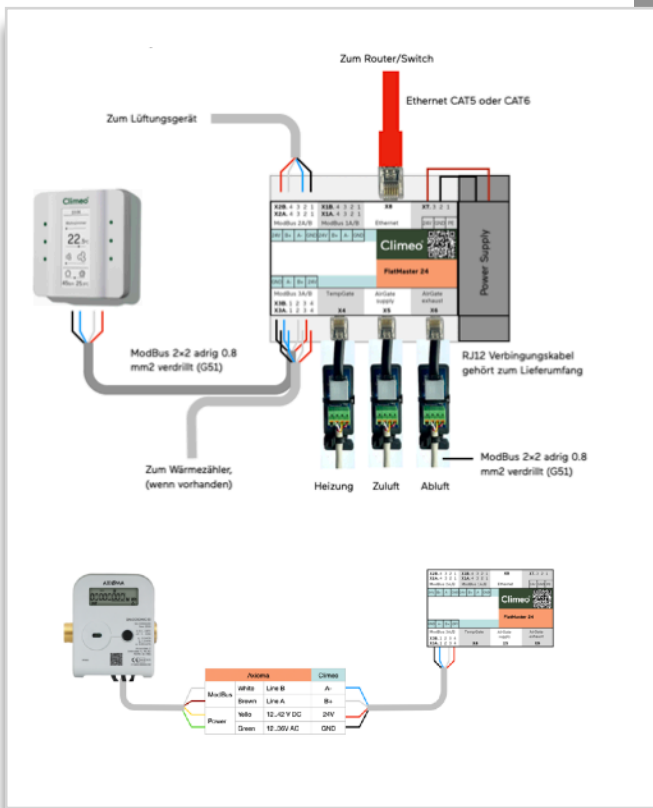
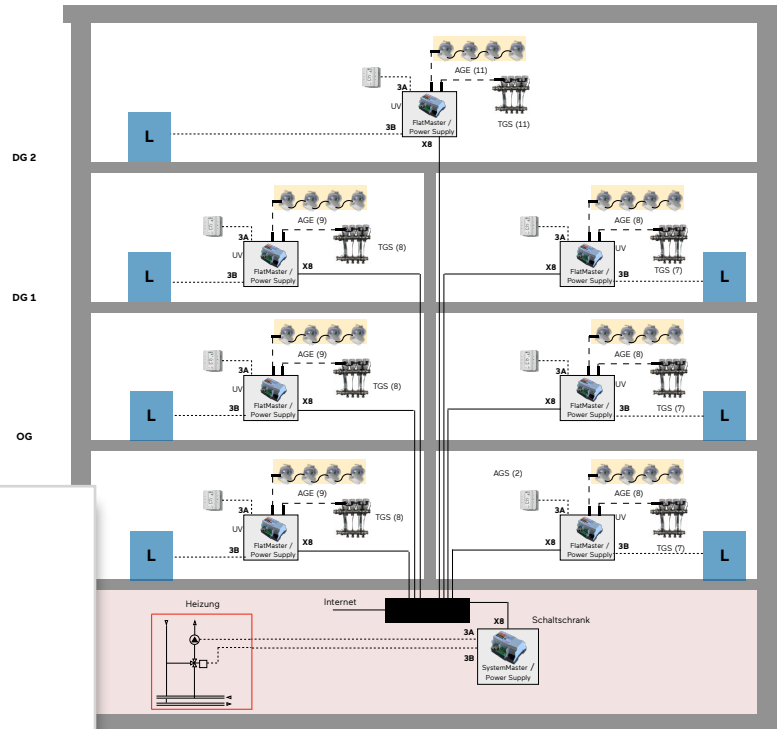


Combining the consideration of the differential temperature and the outside temperature creates a very stable active control system.

# Climeo Solutions helps with planning and commissioning

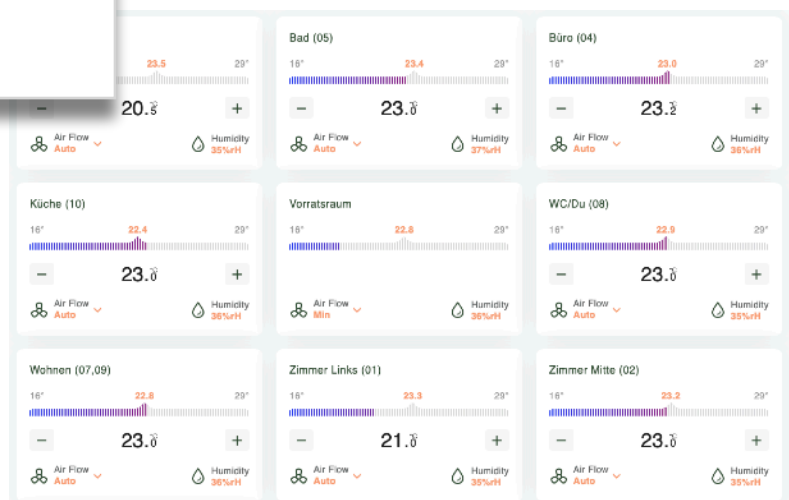
Climeo Solutions accompanies and supports every project from planning to operation. To this end, we are constantly developing new documentation and tools that make life easier for us and for you.

Climeo Solutions creates a corresponding wiring diagram for each project; this includes an overview diagram showing the entire building, as well as a detailed cabling guide for the system.



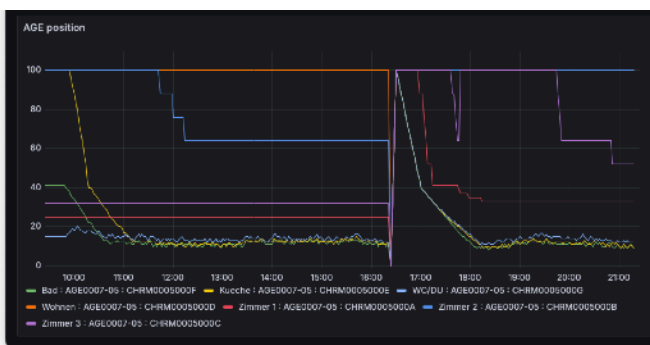
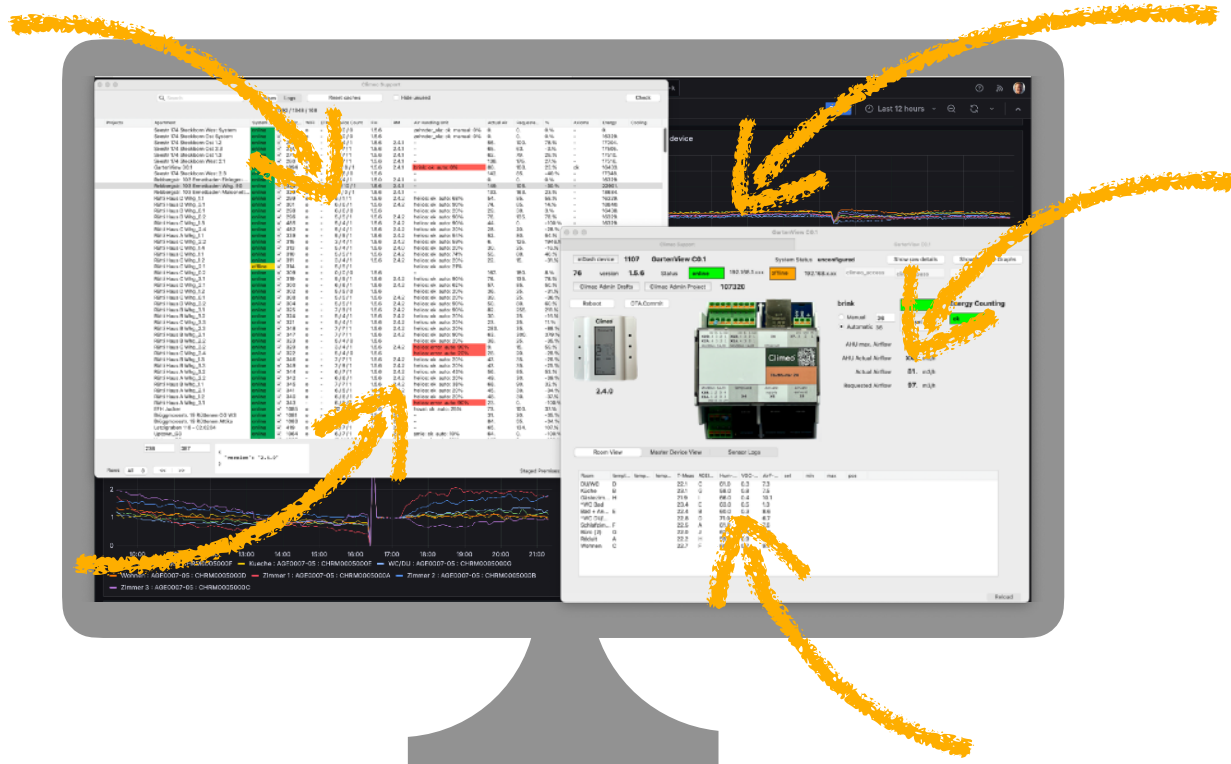
Our diagrams and plans are designed to be easily understood and to contain as much necessary information as possible. Once the systems are online, we can immediately see where corrections may still be needed, or if everything works right away.

The result of a successful configuration is a clean, easy-to-use settings panel on the internet, individually configured for your apartment.

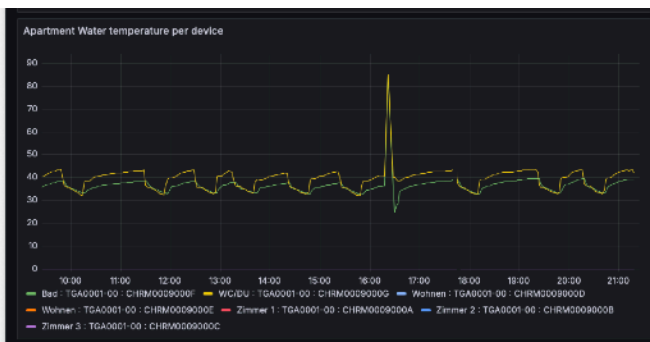


# Climeo Solutions helps to solve problems

For the Climeo system to function, with its web interface, local controller, optimizations, etc., it requires the internet with corresponding servers that store and make data retrievable. This data can also be used for troubleshooting. The history of the flow temperature tells us something about the heating system. We provide this data to our customers via appropriate interfaces.



The damper positions reveal information about the air system, pressure drops, open windows and doors, and much more. By comparing with other apartments, we can anticipate potential problems.



Not enough heat? The trend of the supply temperature tells us how well the heating system is working. It tells us what temperatures can even be set. The efficiency of free cooling can also be grasped at a glance.

## Advantages of the Climeo System at one glance

The system from Climeo Solutions has many advantages that aren't immediately apparent; here they are listed.



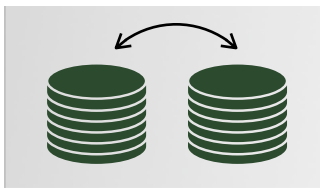
### No complex commissioning measurements required

Since each AirGate actively measures and regulates the volume flow, it is not necessary to repeat this measurement on site. Each AirGate has been previously calibrated in our production facility.



### No hydraulic balancing necessary

Since each valve in the chain is actively regulated, no hydraulic balancing is required.



### Automatic Data Storage

Once a system is online, the data is stored in the background. If you need it again for any reason, it's immediately available."



### Free Choice of Components

For all non-Climeo components, you have a free choice. We have already implemented a large number of ventilation units: Brink, Helios, Hoval, Nilan, Konfovent, Systemair, Drexel-Weiss, Zender, and the list is constantly growing. Ask for our compatibility list.



### Wiring = Configuration

The Climeo philosophy is to generate the configuration from the wiring. All data is already integrated into the wiring diagram. Why do things twice when you can do it in one go?



### Trouble-free Device Replacement

The SGAB (Small AirGate Bus) makes wiring Climeo devices child's play. The SAGB combines power, communication, and numbering. No configuration necessary. Plug it in and it works. Replacement is just as easy: unplug the old one, plug in the new one - done.

For the documentation: Subject to errors and technical changes. The information provided serves only for illustration and does not release the customer from independent application testing. Translated using Gemini by Google.

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