Möhlenhoff

Building your digital future

More comfort in homes, less energy consumption



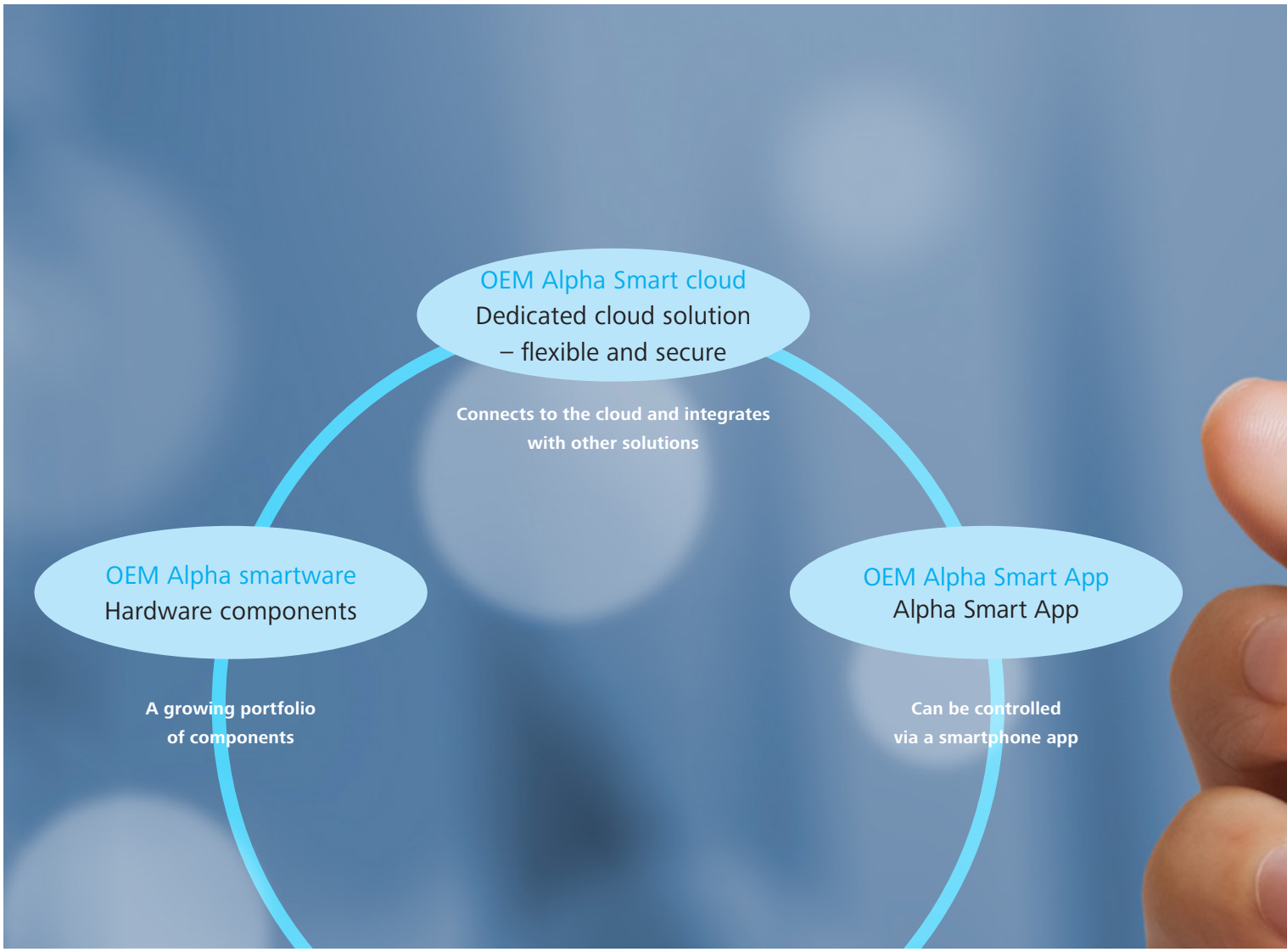
OEM ALPHA SMART SYSTEM

Hardware, software, and cloud solutions for smart buildings

→ www.moehlenhoff.de

OEM Alpha smart system

The optimum solution for embracing smart building management.



The future of indoor climate solutions lies in smart systems based on user requirements. Modular systems that are scalable, flexible, and sustainable.

Years of expertise in high-quality, sophisticated heating control technologies coupled with innovative software expertise are solid foundations for our new product range. Möhlenhoff's OEM Alpha smart system with cloud-compatible product- and system-solutions meets all the demands of future-proof technology for the internet of things.



OEM Alpha smart system – fully automatic and under control
Our end-to-end package of hardware/software and cloud solutions gives you everything you need: the perfect route to your digital portfolio for a modern smart home.

Highlights at a glance

Offline installation and commissioning possible
- No internet access on the building site required
- Consumers can scale up the solution to include cloud operation later

Easy to control via a free smartphone app
- Compatible with iOS and Android

Standalone possible – easy to upgrade to a cloud/app solution later on
- Installed as a conventional, standalone solution to start with, but can be upgraded to an app/cloud solution at any time

Multi-object management
- Several locations can be managed

Fail-safe
- Devices can communicate with each other and guarantee functionality even if the cloud fails

Future-proof design
- Frequent firmware updates via the cloud
- OEM product services
- Customised modifications: app, packaging, logo, instructions, marketing literature

The future of connected buildings

Smart home automation systems for maximum comfort



Ready for the digital transformation?
Nowadays, indoor climate control, which usually takes place automatically in the background, promises superb comfort for the user and energy efficiency. Customers' requirements are changing all the time. To meet these demands, Möhlenhoff consistently gears its developments to future-proof digital technologies, in this case in the new OEM Alpha smart system.

This strategy is underpinned by the foundation of a new subsidiary that's dedicated to developing cloud-based and digital product solutions. As a result, OEM customers have a strong partner at their side to help them create and expand their own digital product portfolio.

Perfect market access with Möhlenhoff
The basic OEM Alpha smart system range for radiant heating systems allows you to access the smart building management segment. It offers flexibility and can be upgraded at any time.

Customised modifications and cloud solutions give OEM customers huge flexibility and the confidence. They can also rely on robust security and their products' fitness for tomorrow's world too.

Product portfolio constantly growing
Our strategy is to provide integrated, automatic, and sustainable building solutions at all times. Which is why we're constantly developing and expanding our smart product range.

As a result, Möhlenhoff's solutions are always state of the art and can help design your customised portfolio of intelligent building control offerings.

OEM Alpha Smart system for radiant heating systems

A basic range of intelligent and practical heating control



Smart home solution for heating systems with underfloor heating

Because of the energy efficiency required, new detached homes usually have underfloor heating systems. The OEM Alpha smart system for radiant heating systems is the ideal solution in these cases and for legacy systems that frequently have inadequate control. The system can also be used offline in standalone mode, but enables upgrades to a cloud-based smart home system at any time.

Overview of components

1 OEM Alpha smartware base station

- 230 V
- 6 and 10 channels with 10 and 14 actuators each
- In standard and premium versions

2 OEM Alpha smartware room-control devices

- (1) LC display with backlight | With and without design panel
- (2) LED display with touch control
- Temperature and humidity measurement
- Expandable with connection set

3 OEM Alpha smartware IoT gateway

- Interface between OEM Alpha smartware devices and the OEM Alpha smart cloud
- WiFi

Commissioning and operational options

Step 1 – offline, standalone

- Devices can be paired locally via an operational concept
- The system can be tested
- Standalone usage possible
- As a result, technicians can carry out commissioning offline

Step 2 (optional) – online, cloud operation

- Integration into the OEM Alpha smart cloud possible
- Configuration of the OEM Alpha smartware IoT gateway
- Transfer of the OEM Alpha Smartware devices to the OEM Alpha smart cloud via the Alpha Smart App (assigning, room allocation)
- Full system set-up of the standalone solution is carried out
- The end customer can commission online operation without a technician

OEM Alpha Smartware base station

Overview of functions

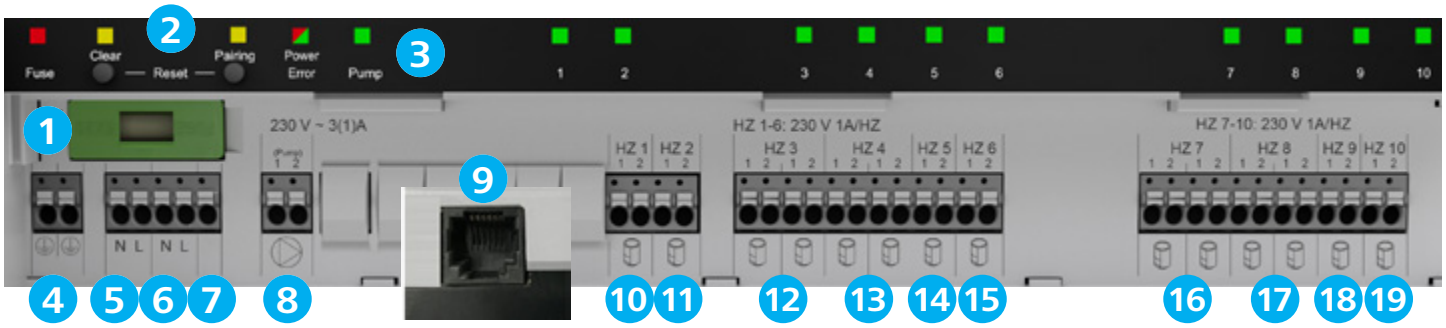
- Tried-and-trusted Möhlenhoff control algorithm
- Valve protection/pump protection
- Emergency operation
- Frost protection
- First Open unlocking
- Load balancing
- Smart Start / Stop function
- Local pairing of room-control device and base station
- Timing functions (can be used with the cloud)
- For heating mode
- For NC valve actuators
- Clear, easy-to-read LED status displays



Central connection unit

The OEM Alpha smartware base station is the OEM Alpha smart system's core connection unit. The base station is easy to wire with all system components such as valve actuators. All the room-control devices' data is transmitted wirelessly to the base station. The base station analyses this information to provide customised, energy-efficient temperatures in each room.

Connections



1. Fuse
2. Clear button and pairing button for local operation
3. LED for fuse, power, error, pump and heating zones
4. Protective conductor connection with through-wiring option
5. L and N mains connection
6. 230 V connection option for external components (pump)
7. Clamping point with no function
8. Output, pump request potential-free contact
9. Universal bus (currently with no function, RJ12 jack for future applications)
10. – 19. Valve actuator outputs (230V on/off) with plug-in terminal contacts

OEM Alpha Smartware base station

Premium

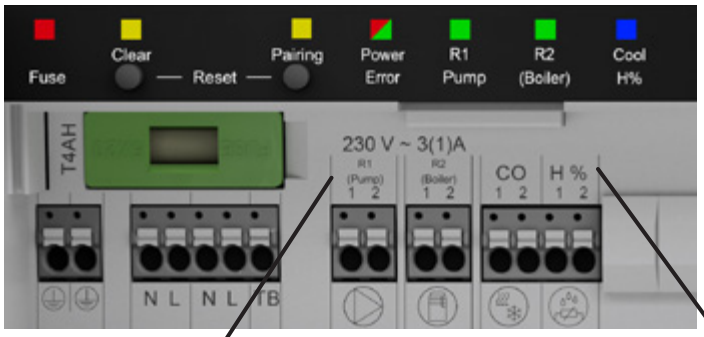
Extra functions in the premium version:

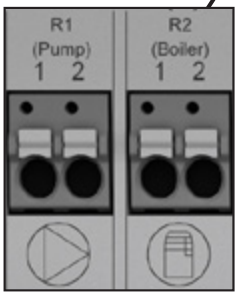
- Heating/cooling function with connection for CO
- Port for a dewpoint sensor
- Pump switching output
- Boiler switching output
- Dehumidifier control
- Switch over heating cooling output (CO pilot)
- LED display boiler, CO



Central connection unit with premium functions

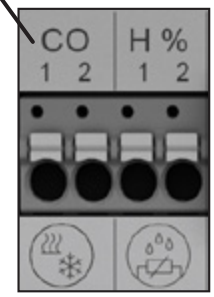
The OEM Alpha Smartware base station premium adds cooling to the OEM Alpha Smart world. Further inputs and outputs with lots of extra functions support the cooling option perfectly. The combination of the OEM Alpha Smartware base station premium with the connection set with an external sensor for the OEM Alpha Smartware room-control device means that further functions such as floor temperature control, room-control device and dewpoint sensor are possible.





R1 and R2 switching outputs with the following functions:

- Pump control
- Boiler control
- Dehumidifier control
- CO pilot



Heating and cooling:

- CO input
- Dewpoint sensor

OEM Alpha Smartware base station

Overview of functions

Base station variant	Standard	Premium
Base station functions		
230 V mains connection	●	●
Mains switching pump outlet	●	●
Protective conductor connection with through-wiring option	●	●
Fuse	●	●
LED display heating zones, fuse, power, pump, pairing	●	●
LED display boiler, CO	–	●
6/10 zones with 10/14 actuators each	●	●
Heating/cooling function with a CO connection	–	●
Dewpoint sensor connection (floating contact)	–	●
Pump switching output	●	●
Boiler switching output	–	●
Dehumidifier control	–	●
Switch over heating cooling output (CO pilot)	–	●
Pump protection function	●	●
Valve protection function	●	●
Frost protection function	●	●
Emergency operation	●	●
First Open unlocking	●	●
Smart Start / Stop	●	●
Standalone usage without app possible	●	●
2-point control after manual setpoint change	●	●
Load balancing function	●	●
Room-control device functions		
LC display | Backlighting | With and without design panel	●	●
LED Display | Touch control	●	●
Temperature and humidity measurement	●	●
Optional connection set for external sensor	–	●
Min/max floor temperature monitoring via a connection set	–	●
Room sensor using connection set	–	●
Dewpoint sensor connection via a connection set	–	●
Switchover heating cooling (CO pilot)	–	●
Disabling heating/cooling	–	●
Parameterisation via room-control device	–	●
Additional function with app		
Time profiles	●	●
Auto/manual mode	●	●
Holiday function	●	●
Switchover heating cooling (CO pilot)	–	●
Time on the room-control device	●	●
Operating lock function for the room-control device	●	●
Setpoint temperature limitation for the room-control device	●	●
OTAU base station and room-control device	●	●
Parameterisation for the technician	–	●
Location management and transfer	●	●

OEM Alpha Smartware room-control device LCD

Overview of functions

- Display and recording of room temperature, humidity, setpoint temperature, radio strength, battery level, errors
- When connected to the IoT Gateway, additional functions are available:
  - Time, weekday and operating status are displayed
  - Operation lock and setpoint temperature limiter on the room-control device
  - Holiday mode can be deactivated on the room control unit
- 1 room-control device can be connected to several heating zones
- Display illumination
- Lock heating/cooling room-by-room

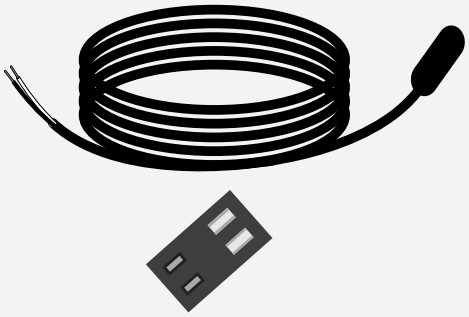


Easy operation and functional data capture

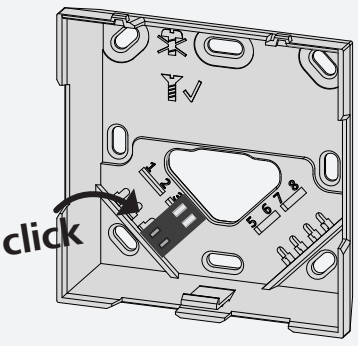
Developed for day-to-day usage, the room-control device has user friendly functions. In addition to the room temperature, it also captures the relative humidity in the room concerned. All information can be synchronised via the OEM Alpha smart cloud. Consequently, the OEM Alpha smart system can be used as a standalone or cloud solution.

Functions:

- Room sensor
- Floor sensor (minimum and maximum floor temperature monitoring)
- Dewpoint sensor



Connection set with external sensor for OEM Alpha Smartware room-control device LCD



Simply insert spring clip into the open room-control device

OEM Alpha Smartware room-control device LED

Overview of functions

- LED display
- The most important functions can be operated by touching the device.
- Display and recording of room temperature, setpoint temperature, radio strength, battery level, errors
- Humidity measurement and display in the Alpha smart app
- When connected to the IoT Gateway, additional functions are available:
  - Display of operating status
  - Operation lock and setpoint temperature limiter on the room-control device
  - Holiday mode can be deactivated on the room control unit
- 1 room-control device can be connected to several heating zones
- Lock heating/cooling room-by-room

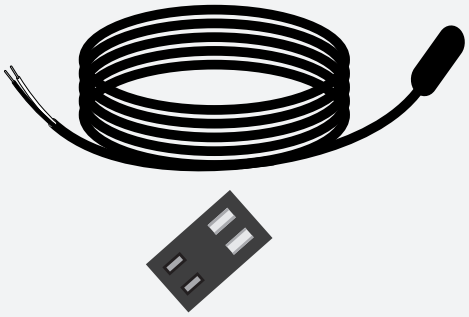


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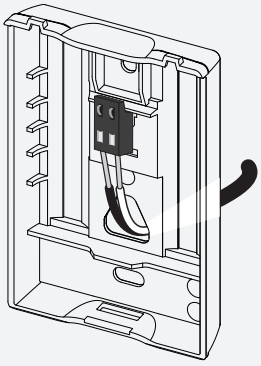
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Functions:

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Connection set with external sensor for OEM Alpha Smartware room-control device LED



Simply insert spring clip into the open room-control device

OEM Alpha Smartware IoT gateway

Overview of functions



- OEM Alpha smartware IoT gateway for encrypted communication of the wirelessly connected Alpha smartware devices with the Alpha smart cloud
- Several OEM Alpha smartware IoT gateways function perfectly with one another, providing excellent wireless coverage, even in large properties
- OEM Alpha smartware IoT gateways can be managed in several properties from one app

Smart network hub

The OEM Alpha smartware IoT gateway links all smart devices securely with the OEM Alpha smart cloud. It's a basic requirement for connecting OEM Alpha smartware components with the Alpha smart cloud. The OEM Alpha smartware IoT gateway enables configuration and control of the OEM Alpha smart system with the OEM Alpha Smart App.





Automatic hydraulic balancing

Perfect control for greater energy efficiency and comfort



Advantages of the OEM Alpha smart system with automatic hydraulic balancing from the distribution manifold:

- Heating requirements spread over a defined period
- Constant heat transfer medium flow, ideal for heat pumps

Automatic hydraulic balancing from the distribution manifold

Hydraulic balancing of a heating system leads to an increase in energy efficiency and improved living comfort. According to the German Building Energy Act (GEG), hydraulic balancing is a legal requirement in Germany for new buildings and renovations.

By temporarily disconnecting some heating zones, automatic load balancing is carried out. As a result, the system improves the heating's hydraulic balance and ensures it operates at maximum efficiency.

The OEM Alpha Smartware base station with integrated 'automatic hydraulic balancing' carries out balancing from the distribution manifold completely independently and without the connection of additional hardware.

OEM Alpha Smart app

Simple and intuitive to configure and operate





- Free app for iOS and Android in the standard version
- Customised app variants possible (at a cost)
- GDPR compliant
- Available in 20 languages

ANDROID APP ON Google play

Available on the iPhone App Store

The free OEM Alpha Smart App's intuitive user interface allows easy configuration and control of the whole system:

- User management
- Device management (assigning, room allocation)
- Location management and transfer
- Setpoint temperature can be changed
- Displays room temperature, humidity, battery level, wireless connections, errors
- Over The Air Update function (OTAU)
- Time-based functions:
  - Configuring and changing heating and cooling times
  - (week program, 7 days, 6 switching times per day)
  - Automatic/manual mode
  - Holiday mode



At a glance
Clear overview of rooms and devices. Customised setting for the most important rooms and devices on a favourites screen.



Heating and coolingprofiles
Heating and cooling profiles can be customised and configured to suit preferences for each room.



Room menu
Room configuration, preferred setting for the room temperature required.

OEM Alpha Smart app

Tailored to your needs



Standard packages for customised apps:

- Customised look and feel to the app (graphics, logo, colours)
- Information about copyright, EULAs, licensing conditions
- Further corporate design modifications

Further options possible on request:

- Configuration of customer stores
- Login and publication in the app stores
- Solution maintenance
- Other solutions tailored to customer requirements



Ready to go in just a few steps

Devices easy to install via the OEM Alpha Smart App



1 Invoking the installation wizard

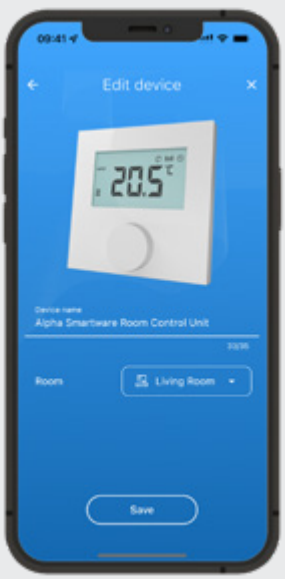
Starting up the cloud-based OEM Alpha smart system is child's play: The OEM Alpha smartware IoT gateway creates the link with the OEM Alpha smart cloud. The smartphone app configures and controls the system easily and intuitively. You can download the free OEM Alpha Smart App in the Google Play Store (for Android smartphones) or in the App Store (for iPhones) onto your smartphone.



2 Scan the device's QR code



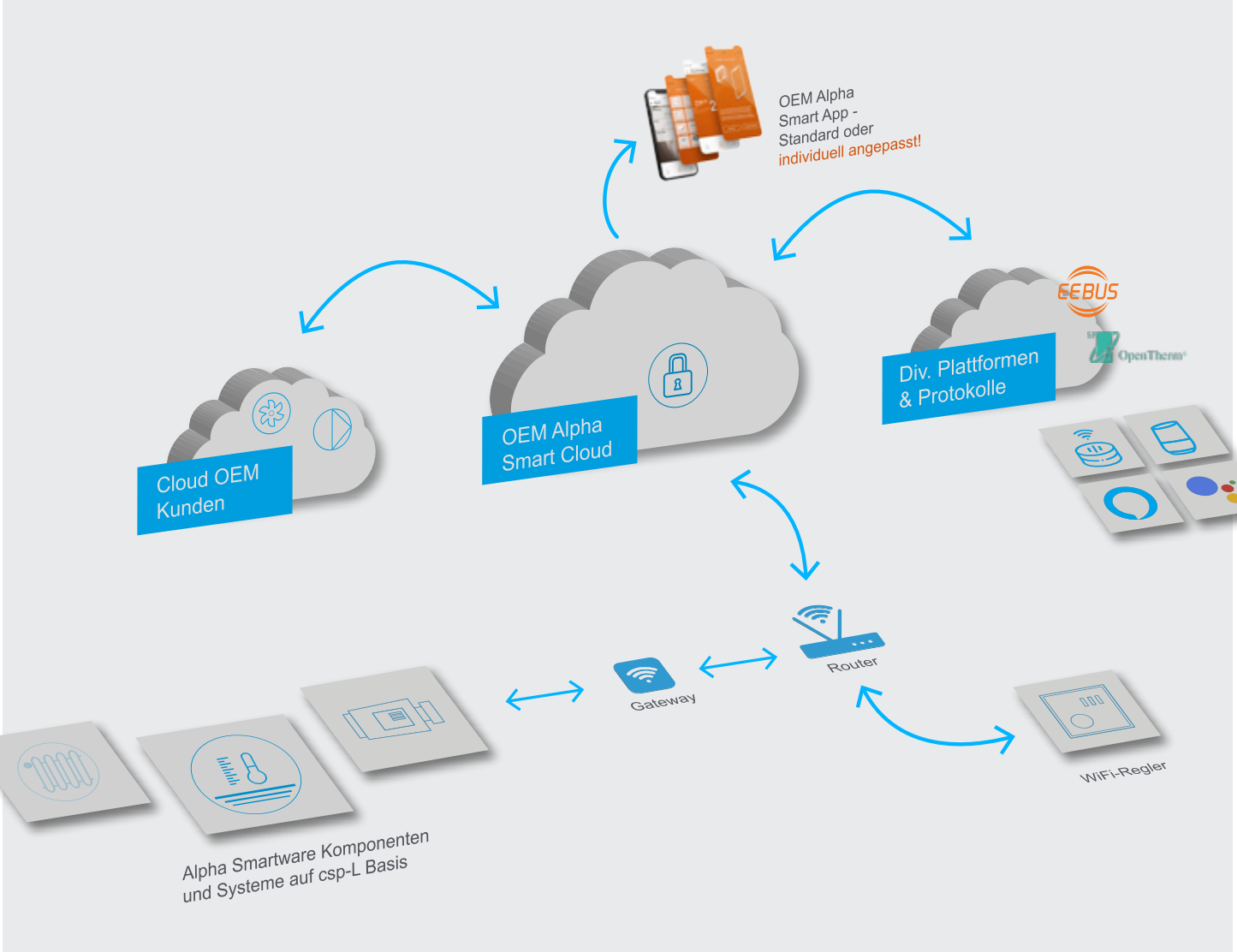
3 The device is detected automatically



4 Give the device a name and allocate it to a room

OEM Alpha Smart cloud

Professional cloud solutions for smart building management

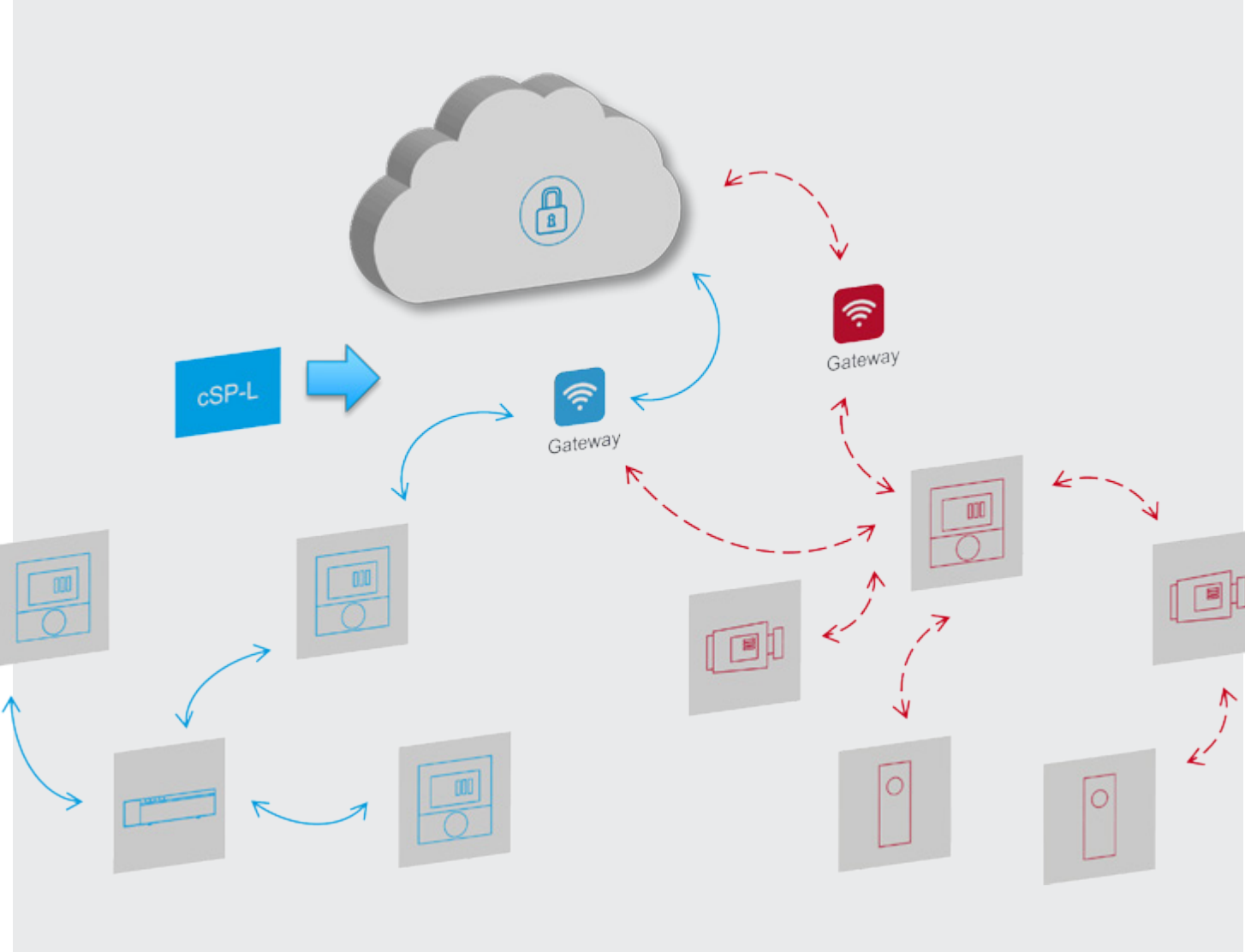


Highlights at a glance

- Dedicated cloud solution
- Hosted in Germany
- Flexibly scalable
- Integration of third-party products and into the Alpha Smart App possible
- Third-party protocols can be integrated
- Customised apps
- Firmware updates on the fly

A wireless protocol for superior requirements

The new standard of perfect connections



Highlights at a glance

The future-proof CSP-L wireless protocol meets top standards in terms of security and stability

- Very secure wireless transmission thanks to AES 128 encryption
- Exceptional wireless range due to 868 / 869 MHz frequency
- Protocol supports wireless firmware update of the devices
- Wireless communication between the devices makes the following possible:
  - Teach-in without an OEM IoT gateway and internet
  - Standalone mode without a cloud
  - Exceptionally reliable (works autonomously even if the internet is down)
  - Lower response times (latency) than online communication

First-class security

Möhlenhoff takes data protection very seriously



Outstanding security
The OEM Alpha smart system meets stringent security requirements.



Fail-safe

CSP-L is a perfect combination of wide range and fail-safe operation regarding WiFi, Bluetooth wireless technology and video-streaming systems.



Tamper-proof

During installation and operation, encrypted communication (to the AES-128 encryption standard in CCM mode) of the wireless components rules out unauthorised access.



Data protection

Only servers based in Germany are used to manage the data stored in the cloud. Therefore, our cloud services are governed solely by German law.

How OEM partners benefit



Our product and service offering
Providing application-driven advice and technical support for our products and systems are part of the services we deliver to our OEM customers. We also offer in-depth product information to assist in providing customised technical literature and advertising materials.



Quality pledge
Möhlenhoff has recognised testing, inspection and simulation devices that make our high level of quality and innovation possible. We underpin this high standard by providing a modern integrated management system.
We also ensure our staff have a strong focus on quality and the environment.



Tailored system modifications
We can offer different logos, casing designs, packaging, or additional functions. Möhlenhoff's OEM solutions enable you to present a customised image to the market. As a result, you can create a distinctive product portfolio, adapted exactly to your customers' wishes. Contact us for advice on how to make your products stand apart.

Your OEM partner
Möhlenhoff GmbH has been a well-known name on the international market for more than 40 years. Reliability, expertise, top OEM quality, innovative ideas, and a principle of fairness vis à vis our customers have made the company very successful the world over for years. As an OEM, Möhlenhoff GmbH supplies products and turnkey systems for heating, ventilation and air-conditioning equipment. Specialising in control components and systems, the company offers its control component expertise to machinery and equipment producers all over the world. Möhlenhoff GmbH is a global market leader in thermal valve actuators.

Möhlenhoff

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Subject to changes and errors.