OEM Alpha Smartware Base Station

The Alpha Smartware Base Station is the central connection and control unit for precise centralized room-by-room temperature control system of surface heating systems.

The Base Station processes the registered target and actual temperatures of connected Alpha Smartware room control units. According to this information, the rooms are always set to the specified temperature via the connected thermal actuators.

The premium version offers full equipment with extensive connection options for various applications. A standard version with pump control is available as an alternative.

Alpha Smartware components can be installed and operated standalone without an Internet connection. Alternatively, there is the option of expansion and integration into the cloud-based Alpha Smart System and thus intelligent control and individual configuration via Alpha Smart App.

1.1   Features

- High-quality, modern OEM design
- OEM differentiation of appearance and function
- Perfect for the use in detached and multi-family houses
- Uses the 868.3 and 869.525 MHz SRD band
- Secure encryption of user data with AES 128
- 230 V versions with 6 or 10 zones
- Proven cable guide and strain relief
- Screwless plug-in/clamping connection technique
- Connection of a maximum of 14 actuators (1 - 2 per zone)
- Integrated pump module
- The following functions can be assigned to two switching outputs: pump control, boiler control, change over pilot or dehumidifier control*
- Change over and dew point monitor input*
- Perfect control algorithm thanks to years of experience.
- Automatic load balancing for balanced heating medium flow. Ideal for heat pumps
- Automatic hydraulic balancing (TÜV Rheinland certified)

- Heating profiles with different temperatures and switching times
- Operating modes (frost protection, automatic, emergency, vacation)
- Smart Start/Stop function with self-learning effect for an even more energy-efficient operation
- Valve protection and pump protection function
- For actuators with control direction NC
- Typical radio range in free field: 270 m.
- Secure radio technology for optimal positioning without cabling effort
- Proven, easy installation and maintenance
- Easy operation and commissioning
- Universal bus for future extensions
- Compatible with Alpha Cloud Services. Subsequent expansion of standalone operation to a comprehensive smart home solution via IoT gateway

The Möhlenhoff OEM product quality ensures easy, intuitive installation, operation and maintenance of the entire system.

1.2   Versions and scope of delivery

The basic version of the Alpha Smartware Base Station Standard or Premium is supplied in gray as a neutral version without a logo.

The Quick Install Guide for installation and commissioning is included in the following 11 languages:

- German
- English
- French
- Dutch
- Italian
- Spanish
- Danish/Norwegian
- Finnish
- Swedish
- Polish

For more details on the products, system and cloud solutions, visit www.alphasmartware.de.

Version	Option	Operating voltage	Zones	Scope of supply
BSS 21001-06N2	Standard	230 V	6	
BSS 21001-10N2	Standard	230 V	10	OEM Alpha Smartware Base Station in individual packaging
BSS 21101-06N2	Premium	230 V	6	Commissioning instructions in 11 languages
BSS 21101-10N2	Premium	230 V	10	

1.3   Alpha Smartware accessories: Base Station

- Thermal valve drives 230 V

1.4 Optional extensions or differentiations to the basic version

Packaging	Packaging can be manufactured and printed individually according to requirements.
Imprint on casing	Pad printing of the company mark (e. g. logo), the individual type designation and your device designation
Light strip	Individual colour adaptation
Casing	Bottom – adaptation of colour, marked casing lines on request Cover – individual colour and transparency, shape and discontinuation by casing lines
DIN rail	The scope of delivery is extended by a DIN rail for installation in the heating circuit distributor
Please contact us if you have further wishes.	

2 Function

Standalone operation (local pairing) without connection to Alpha Cloud Services

- **Simple pairing at the touch of a button**
  - Fast allocation of room control units to the desired zones
  - No internet connection required for commissioning and use

- **Control via room control unit radio with display**
  - Comfortable commissioning of the system without auxiliary material
  - The most important functions are accessible with the room control unit display

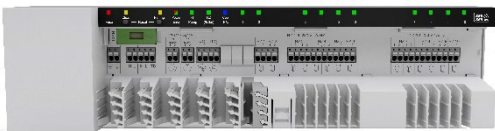**Extension of system functions by means of IoT gateway**

- **Upgrade via IoT Gateway**
  - Adding an IoT gateway enables access to the Internet
  - Thus, full access to the system is achieved via the Alpha Smart App

- **Control via Alpha Smart App**
  - Convenient parameterization and configuration of the system via app
  - Maximum comfort feeling in every room
  - App available for iOS and Android
  - User-friendly, intuitive operation
  - Access the system from anywhere
  - Ability to react quickly and flexibly to changes

- **Individual software application**
  - Customer-specific software solutions/parametrisations for an optimum adjustment of your overall system including unique position characteristics

Regulation and control functions

- **Automatic load balancing**
  - Thanks to state-of-the-art control, the heating medium flow is controlled in such a way that load peaks and sinks are almost completely eliminated. Thus, a more continuous flow of heating medium is obtained, which keeps the power generator in the optimal working range.

- **Integrated pump module including pump protection function**
  - Pump activation via potential-free contact
  - Base station as interconnected 230 V source for a direct connection of the pump.
  - Starting and coasting delay predefined with 2 minutes
  - Cyclic switching of the pump in order to avoid damage during longer times of standstill

- **Free assignment of the functions to the 2 switching outputs***
  - Parameterizable pump control
  - Parameterizable boiler control
  - Change over pilot control
  - Dehumidifier control

- **Inputs***
  - Change over
  - Dew point monitor control

- **Emergency operation**
  - Cyclic triggering of the actuators of a zone if no signal is received from it for a prolonged time (e. g. due to empty batteries).
  - Prevents a complete cooling of the affected zone.

- **Antifreeze protection**
  - Avoids the freezing of lines during times without temperature control (e. g. in case of absence)

- **Valve protection function at all outputs**
  - Cyclical triggering of actuators
  - Avoids the clogging of valves in times without temperature control

- **Smart Start function**
  - With self-learning effect
  - Automatic calculation of the required heating lead times and heating lag times
  - Exact provision of the temperature desired by the user at the set point of time with as low energy consumption as possible
  - No over-heating of rooms

- **Möhlenhoff OEM Online Service**
  - Download of comprehensive product documentation from www.alphasmart-ware.de

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Möhlenhoff

Operation and indication

- **Programming and operation via pushbuttons**
  - Convenient programming and operation of the base stations via 2 buttons (always accessible even when the lid is closed)
- **Clearly arranged, always well visible LED status indications for**
  - Operating status (on/off)
  - Fuse
  - System pairing
  - System errors
  - One status LED per heating zone
  - Switching state of the pump output and boiler output*
  - Operating state heating/cooling*
  - Poor reception
  - Pairing with room control units

Connections (inputs and outputs)

- **Comfortable plug-in/clamping technology**
  - Quick connections of up to 14 actuators
  - Minimum effort for pump control integration
  - For solid and flexible cables 0.2 - 1.5 mm²
- **Outputs:**
  - Up to 14 thermal actuators (up to two actuators per zone)
  - Pump control
- **2 switching outputs with free function selection*:**
  - Pump control
  - Boiler control
  - Change over pilot control
  - Dehumidifier control
- **Inputs*:**
  - Change over
  - Dew point monitor control
- **Other connections:**
  - Universal bus for future extensions
  - Mains connection
  - Mains connection tap (e. g. for the supply of a pump)
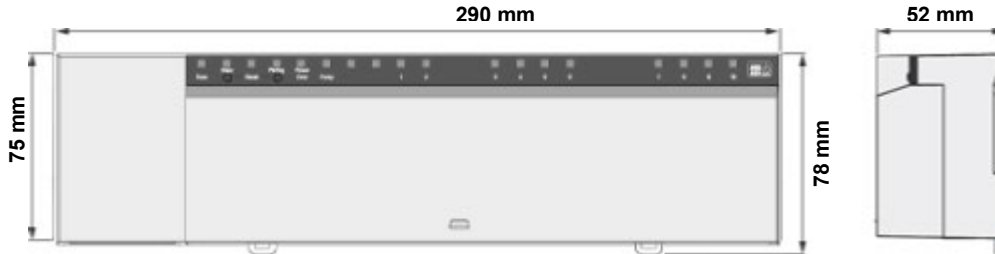- Combination of several heating circuits with only one room control unit in large rooms

*Function is only available in the premium variant. The Premium variant will be available from Q1/2024.

3   Technical data

	BSS 21001-06N2	BSS 21001-10N2	BSS 21101-06N2	BSS 21101-10N2
Max. number of heating zones	6	10	6	10
Max. Number of actuators	4x2 + 2x1	4x2 + 6x1	4x2 + 2x1	4x2 + 6x1
Operating voltage	230 V / ±10% / 50 ... 60 Hz			
Power consumption in idle operation	1.5 W			
max. power consumption (without pump)	50 W			
max. nominal load of all actuators	24 W			
Overcharge protection	Current limitation via device fuse			
Fuse	5 x 20 mm, T4AH			
Protection class/protection type	II / IP20			
Radio technology/radio protocol	868.3 and 869.525 MHz (SRD band) / cSP-L			
Max. transmission power	≤ 25 mW			
Typical free-field radio range	270 m			
Connections				
Switching element design/switching capacity per heating zone	Relay/ ax. 1 A permissible			
Pump connection	Contact: Single pole switching/closer relay/direct pump supply possible			
Turn-on delay/Pump follow-up time	2 minutes		parametrisable	parametrisable
Switching capacity of pump connection	3 A at cosj=1 / inductive max. 200 VA			
Boiler connection (R2)	-		Contact: Monopolar switching / normally open relay	
Turn-on delay / boiler follow-up time	-		parametrisable	parametrisable
Switching capacity of boiler connection (R2)	-		3 A at cosj=1 / inductive max. 200 VA	
Universal bus connection	RJ12			
Connection terminals	Plug-in terminal contact			
Cable cross-section: massive	0.2 to 1.5 mm²			
Cable cross-section: finely stranded with wire end ferrule without plastic collar	max. 1.0 mm²			
cable cross-section: finely stranded with wire end ferrule with plastic collar	max. 0.75 mm²			
Wire stripping length	8 to 9 mm			
Mains connection design	NYM connection terminals 3 x 1.5 mm²			
Display elements (LED)				
Heating zones	green (one LED per HZ)			
Fuse	red			
Pairing	yellow			
Clear	yellow			
Power / Error	green / red			
Pump	green			
Boiler	-		green	
Cooling / H%	-		blue	
Operating elements				
Set button Pairing and Set button Clear	available			
Control system				
Control response	PI / 2-point after manual target temperature change for 30 minutes			
Controlling precision of the set target value:	±1 K			
Typical control oscillation	±0.2 K			
Lifetime	60.000 h			
Function	Type 1.C			
Contamination degree	2			
Rated surge voltage	1500 V			
Admissible ambient temperature / - ambient humidity	0 ... 50 °C / 5 ... 80%, non-condensing			
Storage/transport temperature	-25 °C … +70 °C			
ERP class acc. to EU 811/2013	1=1 %			
Material	PC+ABS			
Colour	RAL7035 (light grey)			
Outer dimensions	290 x 52 x 75 mm			
Weight	670 g	700 g	680 g	710 g

3.1 System boundary

Maximum number of devices: A maximum of 50 Alpha Smartware devices may be used within a radius of 50 metres. A larger setup is technically possible but not currently validated.

3.2 Dimensions

3.2.1 6-zone base station/10-zone base station

3.3 Approvals and certificates

The CE identification documents that the products that the products placed on the market comply with the applicable requirements of the EU Directives.

Automatic hydraulic balancing certified by TÜV Rheinland