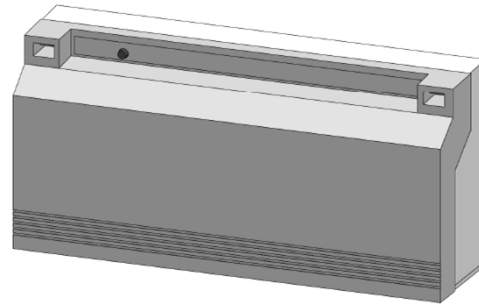


OEM Alpha RF light base station

The OEM Alpha RF light base station is the central connection and control unit for the precise, centrally controlled single room temperature control of panel heating systems.

The OEM Alpha RF light base station automatically performs hydraulic balancing on water-based heating systems from the heating manifold onwards, without the need for additional equipment such as flow limiters. The performance of automated hydraulic balancing using this control system is considered to be at least equivalent to conventional hydraulic balancing and is certified by TÜV Rheinland.

By intelligently distributing the available flow rates over time, the OEM Alpha RF light base station ensure that the individual heating circuits are supplied according to their requirements. The time-delayed control of the thermal valve actuators ensures an even distribution of heat to all panel heating circuits, even if they are not optimally pre-set hydraulically. This operating principle is only used in slow-responding heating systems such as panel heating.



1.1 Key features

- simple control system for panel heating
- 868 MHz radio technology for installation without cable laying
- simple, intuitive installation, operation and maintenance
- tried-and-tested wire management system and strain relief
- 8 zones for up to 12 valve drives (1 to 2 per zone)
- screwless plug-in/clamp connection method
- fuse
- various LEDs for operating status indication
- Automated hydraulic balancing, certified by TÜV Rheinland (→ Chapter 5)
- integrated pump module including pump protection function
- emergency mode, frost protection function, valve protection function on all outputs
- optimised for operation with locally installed pumps (pump contact is supplied directly with voltage)
- 2-point operation after manual setpoint change (function test, assignment test room-control device – heating zones)
- unlocking FirstOpen
- mounting via DIN rail or screws

1.2 Scope of delivery

- OEM Alpha RF light base station in individual packaging
- 2 sliders for DIN rail installation
- Quick Installation Guide

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

- | | | |
|-----------|--------------------|-----------|
| • German | • Italian | • Swedish |
| • English | • Spanish | • Polish |
| • French | • Danish/Norwegian | • Greek |
| • Dutch | • Finnish | • Turkish |

1.3 Optional extensions or differentiations to the basic version

Packaging	Packaging can be customised and printed according to requirements.
Printing on the housing	Laser marking of the company logo (e.g. Logo), the individual type and their device name
Housing	Lower section: Colour customisation, distinctive housing lines on request Cover: custom colour and transparency, shape and interruptions by housing lines
DIN rail	The scope of delivery is expanded to include a DIN rail for mounting in the heating manifold

Please contact us if you have any further requests.

2 Technical data

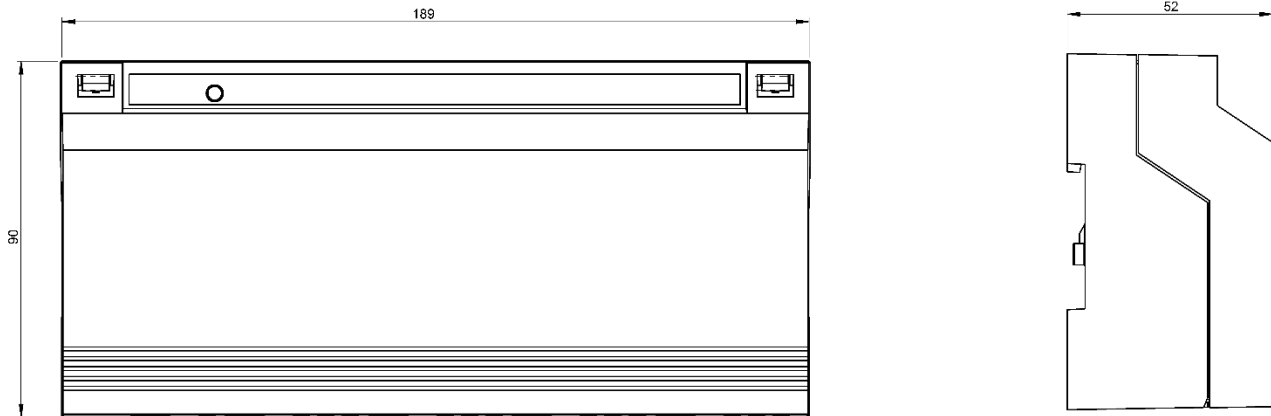
BSL 21001-08N2	
Operating voltage	230 V
Operating voltage (tolerance)	±10 %
Operating voltage (frequency)	50 Hz
Operating voltage (voltage type)	a.c.
Fuse	T5AH
Overload protection	Current limitation via device fuse
Version of switching element	Relay
Power consumption (idle)	< 0.2 W (power LED on, HZ LEDs off, all relay off)
Power consumption (max.)	< 300 W
Pump contact connection	Contact: 1A (direct pump feed, normally open contact, single-pole switching)
Radio frequency	868.3 MHz SRD band
Radio protocol	proprietary
Maximum number of heating zones	8
Switching capacity per heating zone	HZ 1 – 8: 230 V 1A / HZ
Maximum number of valve drives	12
Max. nominal load of all actuators	24 W
Max. switching capacity of heating zones (total)	4 A
Typical free-field radio range	250 m
Protection class	1
Protection type	IP20
Lead time pump contact	2 min.
Pump contact follow-up time	2 min.
Switching capacity pump contact	3 A at cos φ = 1 / inductive max. 200 VA
Connection terminals	Plug-in terminal
Conductor cross-section: solid	0.25 to 1.5 mm ²
Conductor cross-section: finely stranded with ferrule (ADH) with/without plastic collar	0.75 mm ²
Wire stripping length	9 ... 10 mm
Permitted ambient temperature	0 ... 60 °C
Permitted ambient humidity	5 ... 80 %, non-condensing
Storage/transport temperature	-25 °C ... 70 °C
Material (housing, cover)	PC+ABS, PC
Housing colour (housing, cover)	RAL7035 (light grey), transparent
Dimensions (W × H × D)	189 × 90 × 52 mm
Dimensions packaging (W × H × D)	215 × 95 × 63 mm
Weight	328 g
Service life	60000 h
Function	Type 1.C
Contamination degree	2
Rated impulse voltage	2500 V
ERP class	1=1 % in EU 811/2013
Power supply version	Terminals, 3 x 1.5 mm ²
Control behaviour	PI / 2-point for 30 minutes after setpoint change*

* with a setpoint change of at least 2 K

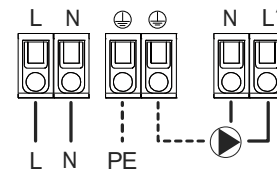
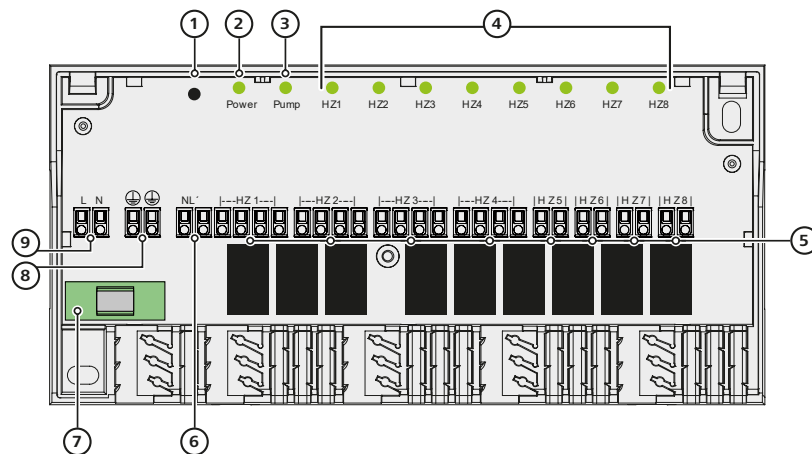
2.1 System boundaries

The maximum possible radio range inside buildings depends on the individual environmental factors at the location. This means that the actual radio range may differ significantly from the radio free-field range!

2.2 Dimensions



3 Electrical connection



Input / output

L	9	Power supply (230 V)
N		
PE	8	Voltage supply pump (L' switched)
N		
L'	6	
	5	Connections for NC (normally closed) actuators

1	Pairing button
2	LED Power
3	LED Pump
4	LED Heating zone
5	Connections for NC (normally closed) actuators
6	Voltage supply pump (L' switched)
7	Fuse
8	PE
9	Power supply (230 V)

4 Approvals and certificates

All Möhlenhoff products are extensively tested and certified by independent testing institutes.



The CE marking serves to certify that products placed on the market comply with the applicable guide-lines of the EU.



Automatisierter
hydraulischer
Abgleich
Anerkennung der
Gleichwertigkeit



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ID 000089976

The products are certified by TÜV Rheinland for the automated hydraulic balancing procedure for water-based underfloor heating systems and are therefore considered equivalent to manual hydraulic balancing.

5 Technical notes on automated hydraulic balancing

5.1 Automated hydraulic balancing procedure

The method developed provides a temperature-based alternative to hydraulic balancing, utilising a simultaneity-based optimisation method without the need for individual balancing of the heat transfer units in accordance with DIN 94679-4. The aim of the process is to distribute the heat generator's available heat output efficiently amongst several active heating circuits, thereby ensuring that the connected rooms are supplied with heat in line with their requirements, without limiting instantaneous flow rates. Optimisation is not achieved by directly controlling the flow rate of individual heating circuits, but by coordinating the timing of the valve openings. This specifically reduces the simultaneous demand for heat and prevents individual rooms from being under-supplied, even when several rooms are requesting heat at the same time. The system is designed to control thermally actuated valves which regulate the flow in surface heating systems (e.g. underfloor heating). It is particularly suitable for systems with several individual zones and slow-responding heat transfer elements.

Guidance on carrying out hydraulic balancing in accordance with Method B: It should be noted that the use of the OEM Alpha RF light base station does not fully replace the hydraulic balancing procedure in accordance with Method B. The base stations can only influence those sections of the pipework network that are located downstream of the distribution manifold. Technical information on carrying out hydraulic balancing in accordance with Method B is available via the following link:
<https://faqdoc.info/systemauswahl/arfl/automatic-hydraulic-balancing-arfl/>

5.2 Intended use

When using the device in conjunction with a heat pump: Follow the manufacturer's instructions for ensuring minimum volume flows! Additional hydraulic measures may need to be taken.

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