



OEM product range

Valve actuators and single room temperature control

→ www.moehlenhoff.de

Möhlenhoff GmbH

Your OEM partner for heating and air conditioning technology



Möhlenhoff GmbH is one of the most innovative companies in heating, ventilation and air-conditioning equipment. The family-run company has been an original equipment manufacturer (OEM) for more than 30 years and is a sought-after provider of control technology product and system solutions on the international market. Focusing on future technologies and market requirements, the company is successful with its durable, innovative and energy-saving products with a wide range of services. Its corporate philosophy is characterised by treating its business partners and employees fairly and honestly, by its social commitment and by assuming corporate responsibility.

Möhlenhoff has been the global market leader for thermal valve actuators for decades. Möhlenhoff products are used in construction projects around the world for a wide range of heating, cooling and ventilation requirements. As an OEM, the company offers device and system manufacturers its expertise as a specialist in control technology components and systems – supporting them in the entire process from coming up with ideas and product development to special product design, customer-specific production and technical support.

This OEM product range gives you an overview of the thermal valve actuators and motoric valve drives available and the systems and components for single room temperature control. Detailed information on the products can be found in the relevant product brochures or online at: **www.moehlenhoff.com**

What our partnership with our OEM customers means to us:

- Offering customers customised and high-quality solutions
- Maintaining a long-term partnership with customers
- Strengthening our personal contacts
- Protecting our mutual interests
- Maintaining an open and collaborative approach
- Creating a win-win concept through a common objective
- Offering a high level of quality and innovation

Möhlenhoff GmbH offers its customers:

- Sophisticated knowledge of product and software development
- Latest technology and product innovations
- Production of customer-specific products
- Device qualification and testing
- A customised manufacturing process for a comprehensive range of OEM systems
- Various system solutions from a single source
- Full service with personal support and technical advice
- Connection to established bus systems and smart home systems

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OEM Actuator 5

A world of valve drive technology



The fifth generation of the OEM Actuator is the culmination of two decades of experience at Möhlenhoff. Tried-and-tested functions have been improved once again and ensure users feel comfortable using the product. The OEM Actuator 5 is completely compatible with its predecessor, as the connector concept, valve adapter concept and operating behaviour are the same. The energy requirement has shrunk by around 45%.

The OEM Actuator 5 product family is available in various models, types, versions and variants for almost all small valves in underfloor heating/cooling and the building management system in thermal or motoric versions.

1 watt
Maximum performance
45% less energy
360° installation
economical
Fits 99%
of all valves
compact
versatile



Key features at a glance



Product differentiation through:

- Tailored design of the housing and colour
- Customer-specific logo printing
- Customised labels, item numbers, barcodes and packaging

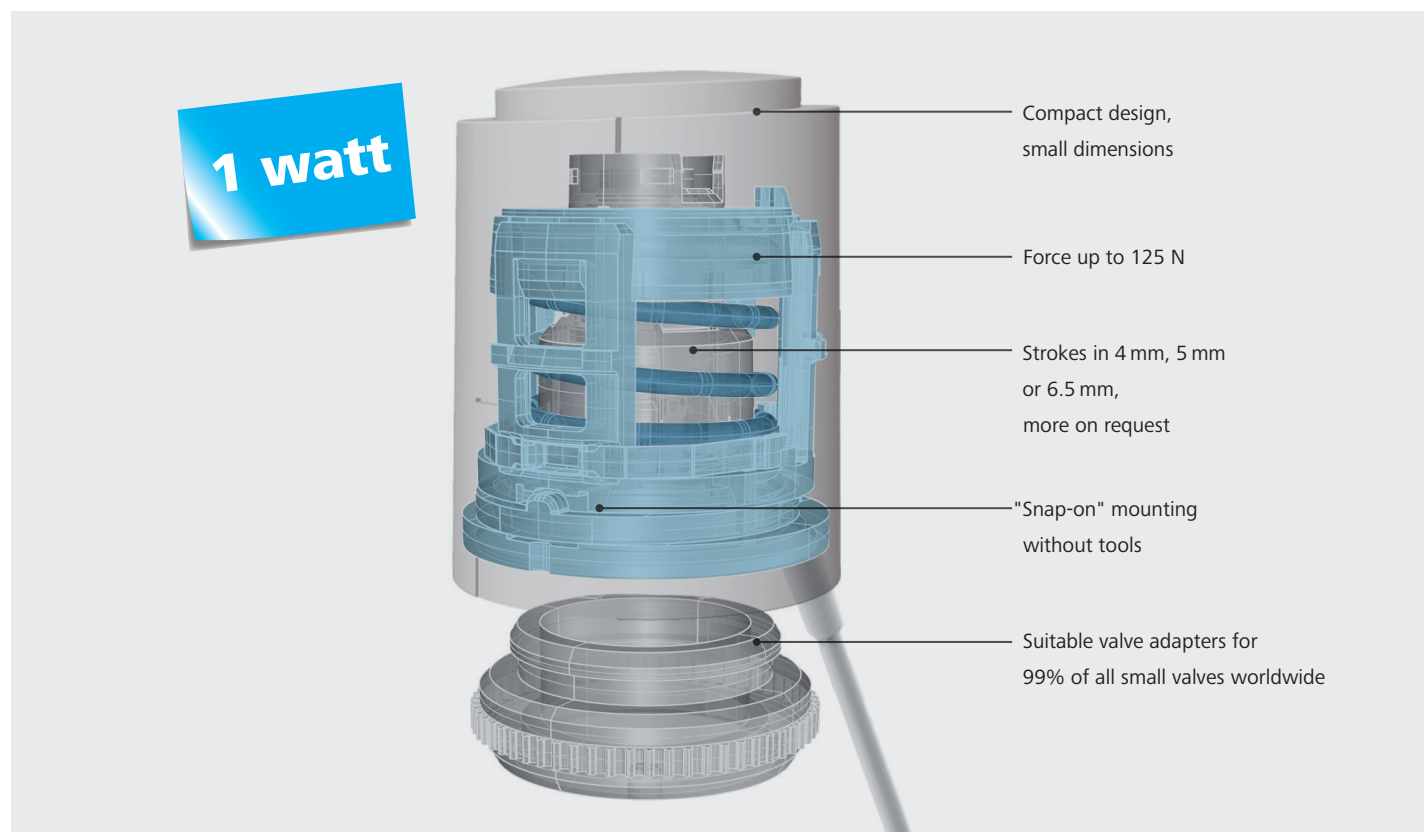
Support with market launches:

- Providing product information, such as data sheets, manuals, product photos and assembly videos
- Support in creating customer-specific literature and with marketing

- Standard product design for all types
- OEM design
- Normally closed (NC) or normally open (NO) variants
- Valve adapter system – covers 99 % of all small valves on the market
- Only 1 or 1.2 watts power consumption
- Width under 40 mm on request
- 360° assembly – 100% waterproof (IP 54)
- Different stroke variants: 4 mm, 5 mm, and 6.5 mm
- Up to 8.5 mm stroke for motoric valve drives
- Force – Up to 125 N for thermal valve actuators and up to 200 N for motoric valve drives
- All-round function indicator (for thermal valve actuators)
- Overvoltage protection guarantee
- LC display for motoric valve drives
- Adjustment guide on valve
- FirstOpen function
- Adjustment control
- Pluggable connecting cable (depending on type)

Underfloor heating technology

The most energy-efficient actuator on the market



The classic one – OEM Actuator 5

The OEM Actuator 5 product family contains thermal valve actuators that are frontrunners the world over. The actuators are also used in panel heating systems and stand out for their exceptional quality, sophisticated capabilities, durability,

easy assembly and attractive designs. Due to their modular structure and flexible production method, they are easy to customise to suit your individual market presence. Benefit from our experience.

The traditional product for panel heating systems is now even better and still 100% compatible with

the valve adapter system and the connection cable from the previous generation.

		OEM Actuator 5: Standard	OEM Actuator 5: with plug	OEM Actuator 5: End switch
Voltage	230 V	●	●	●
	24 V	●	●	●
	120 V	●	●	●
Operating principle	NC	●	●	●
	NO	●	●	—
Stroke	4 mm	●	●	●
	5 mm	●	●	●
	6.5 mm	●	●	—
Force	100 N	●	●	●
	125 N	●	●	—

Thermal valve actuators

OEM Actuator 5: Standard



Thermal valve actuator for opening and closing small valves and valves on heating manifolds of panel heating and cooling systems. The main area of application is energy-efficient single room temperature control in the building services and building automation sector.

Simple plug-in assembly with valve adapter, see Seite 22 (to be ordered separately).

- Normally closed (NC) or normally open (NO) version
- 1 watt power consumption (6.5 mm = 1.2 W)
- Simple plug-in assembly
- Patented 100% protection for leaking valves
- NC: Adjustment control on the valve
- All-round function indicator
- Overvoltage guarantee (230 V version)
- TÜV and NRTL certified

Protection type: IP 54
 Cable cross-section: 2 x 0.75 mm²
 Connection cable: 1 m, permanently installed
 Housing colour: light grey (RAL 7035)

230 V version

Type	Operating principle	Stroke	Force	Item description
A 20405-00N	NC	4 mm	100 N	with FirstOpen function, neutral
A 20505-00N	NC	5 mm	100 N	with FirstOpen function, neutral
A 20625-00N	NC	6.5 mm	125 N	with FirstOpen function, neutral
A 21405-10N	NO	4 mm	100 N	neutral
A 21505-10N	NO	5 mm	100 N	neutral
A 21625-10N	NO	6.5 mm	125 N	neutral

24 V version

Type	Operating principle	Stroke	Force	Item description
A 40405-00N	NC	4 mm	100 N	with FirstOpen function, neutral
A 40505-00N	NC	5 mm	100 N	with FirstOpen function, neutral
A 40625-00N	NC	6.5 mm	125 N	with FirstOpen function, neutral
A 41405-10N	NO	4 mm	100 N	neutral
A 41505-10N	NO	5 mm	100 N	neutral
A 41625-10N	NO	6.5 mm	125 N	neutral

120 V version

Type	Operating principle	Stroke	Force	Item description
A 10405-00N	NC	4 mm	100 N	with FirstOpen function, neutral
A 10505-00N	NC	5 mm	100 N	with FirstOpen function, neutral
A 10625-00N	NC	6.5 mm	125 N	with FirstOpen function, neutral

Available as an option

Cable lengths	Standard	2 m in grey – 2 x 0.75 mm ² , custom lengths on request
	halogen-free	1 m, 2 m in white – 2 x 0.75 mm ² , to fulfil fire protection and environmental requirements.
Valve adapter	For precise and easy installation thanks to click mechanism (see Seite 22)	
Packaging	Packaging can be customised and printed according to requirements.	
Printing on the housing	Laser printing of the company sign (e.g. logo) and the individual type	
Housing colour	Homogeneous colouring, colour of the function display or function cap to match the corporate design or product design	
Housing	Short housing for special heating manifolds on request	
NRTL approval	Approval according to UL specification (for 24 and 120 V variants with UL cables)	
Voltage supply	Other voltage version (12 V) on request	
Protection cap	For protection against theft and vandalism for actuators with stroke of 4 mm and 5 mm	

Thermal valve actuators

OEM Actuator 5: Standard with pluggable connecting cable



Thermal valve actuator for opening and closing small valves and valves on heating manifolds of panel heating and cooling systems. The main area of application is energy-efficient single room temperature control in the building services and building automation sector.

Simple plug-in assembly with valve adapter, see Seite 22 (to be ordered separately).

- Normally closed (NC) or normally open (NO) version
- 1 watt power consumption (6.5 mm = 1.2 W)
- Pluggable connecting cable
- Patented 100% protection for leaking valves
- Adjustment control on the valve
- All-round function indicator
- Overvoltage guarantee (230 V version)
- TÜV certified

Protection type: IP 54 (only with cable plugged in)
 Cable cross-section: 2 x 0.75 mm²
 Connection cable: 1 m
 Housing colour: white (RAL 9003)

230 V version

Type	Operating principle	Stroke	Force	Item description
AST 20405-00N	NC	4 mm	100 N	with FirstOpen function, neutral
AST 20505-00N	NC	5 mm	100 N	with FirstOpen function, neutral
AST 20625-20N	NC	6.5 mm	125 N	with FirstOpen function, with removal protection, neutral
AST 21405-10N	NO	4 mm	100 N	neutral
AST 21505-10N	NO	5 mm	100 N	neutral
AST 21625-30N	NO	6.5 mm	125 N	with removal protection, neutral

24 V version

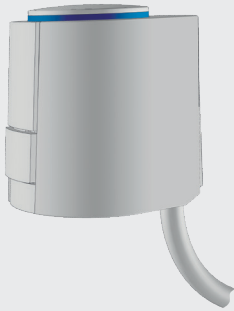
Type	Operating principle	Stroke	Force	Item description
AST 40405-00N	NC	4 mm	100 N	with FirstOpen function, neutral
AST 40505-00N	NC	5 mm	100 N	with FirstOpen function, neutral
AST 40625-20N	NC	6.5 mm	125 N	with FirstOpen function, with removal protection, neutral
AST 41405-10N	NO	4 mm	100 N	neutral
AST 41505-10N	NO	5 mm	100 N	neutral
AST 41625-30N	NO	6.5 mm	125 N	with removal protection, neutral

Available as an option

Cable lengths	Standard	2 m in grey – 2 x 0.75 mm ² , custom lengths on request
	halogen-free	1 m, 2 m, 3 m, 5 m, in white – 2 x 0.75 mm ² , to fulfil fire protection and environmental requirements
Valve adapter	For precise and easy installation thanks to click mechanism (see Seite 22)	
Packaging	Packaging can be customised and printed according to requirements	
Printing on the housing	Laser printing of the company sign (e.g. logo) and the individual type	
Housing colour	Homogeneous colouring, colour of the function display or function cap to match the corporate design or product design	
Voltage supply	Other voltage version (12 V) on request	
Protection cap	For protection against theft and vandalism for actuators with stroke of 4 mm and 5 mm	

Thermal valve actuators

OEM Actuator 5: End switch



Thermal valve actuator for opening and closing small valves and valves used in heating, ventilation and air-conditioning equipment.

The integrated microswitch with potential-free contact makes it possible to switch a pump or fan control on/off directly.

Simple plug-in assembly with valve adapter, see Seite 22 (to be ordered separately).

- Integrated microswitch with potential-free contact
- Normally closed (NC) version
- 1 watt power consumption
- Simple plug-in assembly
- Patented 100% protection for leaking valves
- Adjustment control on the valve
- All-round function indicator
- Overvoltage guarantee (230 V version)
- TÜV and NRTL certified

Protection type: IP 54
 Cable cross-section: 4 x 0.75 mm²
 Connection cable: 1 m
 Housing colour: light grey (RAL 7035)

230 V version

Type	Operating principle	Stroke	Force	Item description
AES 20405-00N	NC	4 mm	100 N	Microswitch switching current: 5 A resistive load, 1 A inductive load, with FirstOpen function, neutral
AES 20505-00N	NC	5 mm	100 N	Microswitch switching current: 5 A resistive load, 1 A inductive load, with FirstOpen function, neutral

24 V version

Type	Operating principle	Stroke	Force	Item description
AES 40405-00N	NC	4 mm	100 N	Microswitch switching current: 3 A resistive load, 1 A inductive load, with FirstOpen function, neutral
AES 40505-00N	NC	5 mm	100 N	Microswitch switching current: 3 A resistive load, 1 A inductive load, with FirstOpen function, neutral

Version 24 V NRTL

Type	Operating principle	Stroke	Force	Item description
AEF 40405-00N	NC	4 mm	100 N	Microswitch switching current: 0.5 A resistive load, with FirstOpen function, neutral
AEF 40505-00N	NC	5 mm	100 N	Microswitch switching current: 0.5 A resistive load, with FirstOpen function, neutral

Available as an option

Cable lengths	1 m, PVC H05V2V2-F in grey – 4 x 0.75 mm ²
	AEF: 1 m, PVC 2 x 0.75 + 2 x 0.34 mm ²
Valve adapter	For precise and easy installation thanks to click mechanism (see Seite 22)
Packaging	Packaging can be customised and printed according to requirements.
Printing on the housing	Laser printing of the company sign (e.g. logo) and the individual type
Housing colour	Homogeneous colouring, colour of the function display or function cap to match the corporate design or product design
Protection cap	For protection against theft and vandalism for actuators with stroke of 4 mm and 5 mm

Connection cable



Pluggable connecting cable for OEM Actuator 5 (NC or NO):
- ASTN

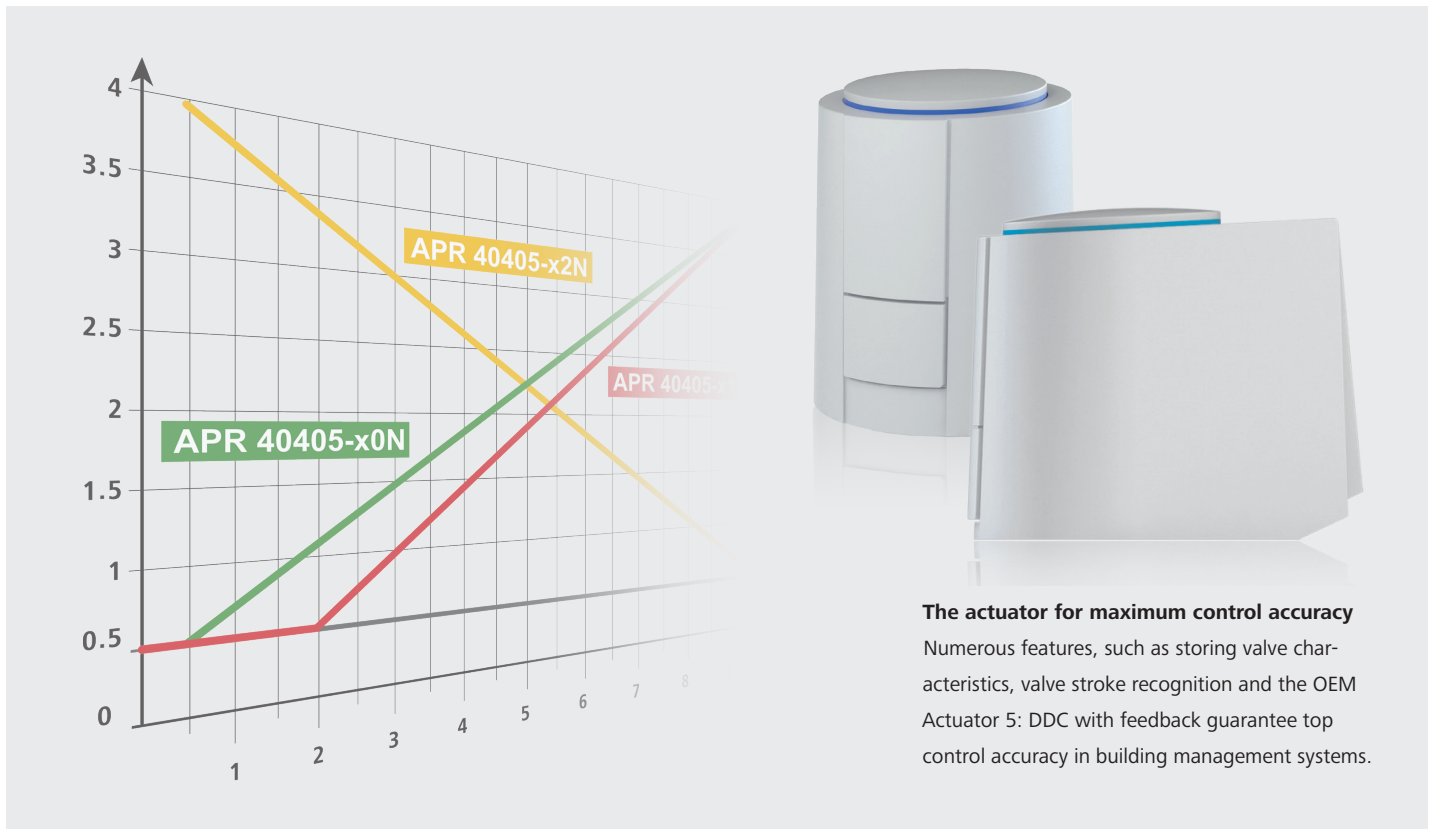
- 2 x 0.75 mm²
- Wound
- One end with plug, one end with ferrules

Type	Item description
ASL 2-100-1	Connection cable 1 m, light grey
ASL 2-200-1	Connection cable 2 m, light grey
ASL 2-300-1	Connection cable 3 m, light grey
ASL 2-500-1	Connection cable 5 m, light grey
ASL 2-100-1H	Connection cable 1 m, light grey, halogen-free
ASL 2-200-1H	Connection cable 2 m, light grey, halogen-free
ASL 2-300-1H	Connection cable 3 m, light grey, halogen-free
ASL 2-500-1H	Connection cable 5 m, light grey, halogen-free

Other lengths on request

Building management system

Actuators for maximum control accuracy



The clever one – OEM Actuator 5: DDC

The Möhlenhoff OEM actuators for more energy efficiency in offices and admin buildings offer high-tech solutions even where space is at a premium. They are the foundation for reliable,

precise control of almost any small valve. Three selectable control voltage ranges offer optimum control accuracy. The range of benefits is perfectly rounded off with optional extras, such as storing

valve characteristics in the memory, automatic valve stroke recognition and monitoring thanks to feedback technology.

OEM Actuator 5		DDC Proportional	DDC Pulse-Proportional	DDC Proportional Feedback	6.5 mm Standard	6.5 mm with plug
Voltage	24 V a.c. / d.c.	—	—	●	●	●
	24 V a.c.	●	●	—	—	—
	24 V d.c.	●	●	—	—	—
	230 V	—	—	—	●	●
Control voltage	0–10 V	●	●	●	—	—
Operating principle	NC	●	●	●	●	●
	NO	●	●	●	●	●
Stroke	4 mm	●	●	—	—	—
	5 mm	●	●	—	—	—
	6.5 mm	●	●	●	●	●
Force	100 N	●	●	—	—	—
	125 N	●	●	●	●	●
Valve stroke recognition		●	—	●	—	—
Removal protection		●	—	●	—	●



OEM Actuator 5: 6.5 mm

- For more force and stroke
- Ideal for standard valves, circuit control valves, larger balanced valves, multiway valves
- Power consumption of just 1.2 W for 24 V and 230 V
- 125 N force with 6.5 mm stroke
- All-round function indicator
- Removal protection for plug variants

Thermal valve actuators

OEM Actuator 5: Proportional



Continuous, thermal valve actuator for heating and cooling applications. The actuator is controlled by a 0–10 V d.c. signal from a central DDC system or a room thermostat. The main area of application is building management systems.

Simple plug-in assembly with valve adapter, see Seite 22 (to be ordered separately).

- Stroke variants 4.0 mm / 5.0 mm / 6.5 mm
- Normally closed (NC) versions
- Activation with a 0–10 V d.c. signal
- 1 watt power consumption (6.5 mm = 1.2 W)
- Short response times and thus improved control behaviour
- Closing point control with adjustment during operation
- Full compatibility with the valve adapter system
- Pluggable connecting cable
- 360° assembly
- Patented 100% protection for leaking valves
- TÜV and NRTL certified

Protection type: IP 54
 Cable cross-section: 3 x 0.22 mm²
 Connection cable: 1 m
 Housing colour: white (RAL 9003)

APR version: 24 V a.c.

Type	Control voltage	Operating principle	Stroke	Force	Item description
APR 40405-00N	0–10 V	NC	4 mm	100 N	with FirstOpen function, neutral
APR 40505-00N	0–10 V	NC	5 mm	100 N	with FirstOpen function, neutral
APR 40625-20N	0–10 V	NC	6.5 mm	125 N	with FirstOpen function, with removal protection, neutral

APR version: 24 V d.c.

Type	Control voltage	Operating principle	Stroke	Force	Item description
APR 42405-00N	0–10 V	NC	4 mm	100 N	with FirstOpen function, neutral
APR 42505-00N	0–10 V	NC	5 mm	100 N	with FirstOpen function, neutral
APR 42625-20N	0–10 V	NC	6.5 mm	125 N	with FirstOpen function, with removal protection, neutral

Available as an option

Cable lengths	Standard	2 m, 3 m, 5 m; in white – 3 x 0.22 mm ² (custom lengths up to 20 m)
	halogen-free	1 m, 2 m, 3 m, 5 m, in white – 3 x 0.22 mm ² , to fulfil fire protection and environmental requirements.
Valve adapter	For precise and easy installation thanks to click mechanism (see Seite 22)	
Packaging	Packaging can be customised and printed according to requirements.	
Printing on the housing	Laser printing of the company sign (e.g. logo) and the individual type	
Housing colour and cable	Homogeneous colouring, colour of the function display or function cap to match the corporate design or product design	
Protection cap	For protection against theft and vandalism for actuators with a stroke of 4 mm and 5 mm	
Control voltage	Other active control voltage ranges on request	

OEM Actuator 5: Proportional with valve stroke recognition



Continuous, thermal valve actuator for heating and cooling applications. The actuator is controlled by a 0–10 V d.c. signal from a central DDC system or a room thermostat. The main area of application is building management systems.

The integrated valve stroke recognition automatically determines the valve stroke. This enables optimum utilisation of the active control voltage range.

Simple plug-in assembly with valve adapter, see Seite 22 (to be ordered separately).

- Stroke variants 4.0 mm / 5.0 mm / 6.5 mm
- Normally closed (NC) or normally open (NO) versions
- 1 watt power consumption (6.5 mm = 1.2 W)
- Activation with a 0–10 V d.c. signal
- Short response times and thus improved control behaviour
- Closing point control with adjustment during operation
- Full compatibility with the valve adapter system
- Pluggable connecting cable
- 360° assembly
- Patented 100% protection for leaking valves
- TÜV and NRTL certified

Protection type: IP 54
 Cable cross-section: 3 x 0.22 mm²
 Connection cable: 1 m
 Housing colour: white (RAL 9003)

APV version: 24 V a.c.

Type	Control voltage	Operating principle	Stroke	Force	Item description
APV 40505-00N	0–10 V	NC	5 mm	100 N	with valve stroke recognition, with FirstOpen function, neutral
APV 40625-20N	0–10 V	NC	6.5 mm	125 N	with valve stroke recognition, with FirstOpen function, with removal protection, neutral
APV 41405-10N	0–10 V	NO	4 mm	100 N	with valve stroke recognition, neutral
APV 41625-30N	0–10 V	NO	6.5 mm	125 N	with valve stroke recognition, with removal protection, neutral

APV version: 24 V d.c.

Type	Control voltage	Operating principle	Stroke	Force	Item description
APV 42505-02N	0–10 V	NC	5 mm	100 N	with valve stroke recognition, with FirstOpen function, neutral
APV 42625-00N	0–10 V	NC	6.5 mm	125 N	with valve stroke recognition, with FirstOpen function, with removal protection, neutral
APV 43405-10N	0–10 V	NO	4 mm	100 N	with valve stroke recognition, neutral
APV 43625-30N	0–10 V	NO	6.5 mm	125 N	with valve stroke recognition, with removal protection, neutral

Available as an option

Cable lengths	Standard	2 m, 3 m, 5 m; in white – 3 x 0.22 mm ² (custom lengths up to 20 m)
	halogen-free	1 m, 2 m, 3 m, 5 m, in white – 3 x 0.22 mm ² , to fulfil fire protection and environmental requirements.
Valve adapter	For precise and easy installation thanks to click mechanism (see Seite 22)	
Packaging	Packaging can be customised and printed according to requirements.	
Printing on the housing	Laser printing of the company sign (e.g. logo) and the individual type	
Housing colour and cable	Homogeneous colouring, colour of the function display or function cap to match the corporate design or product design	
Protection cap	For protection against theft and vandalism for actuators with stroke of 4 mm and 5 mm	
Control voltage	Other active control voltage ranges on request	

OEM Actuator 5: Proportional with feedback



Continuous, thermal valve actuator for heating and cooling applications. The actuator is controlled by a 0–10 V d.c. signal from a central DDC system or a room thermostat. The actuator has a feedback signal for outputting a 0–10 V signal. This provides the DDC system with information about the current valve position and any errors that may occur. The main area of application is building management systems.

The integrated valve stroke recognition automatically determines the valve stroke. This enables optimum utilisation of the active control voltage range.

Simple plug-in assembly with valve adapter, see Seite 22 (to be ordered separately).

- Normally closed (NC) or normally open (NO) versions
- Operation on a.c. and d.c. voltage sources
- Activation with a 0–10 V d.c. signal
- 0–10 V feedback for position and status evaluation
- Closing point and valve stroke control with adjustment during operation
- Compatibility with the valve adapter system
- Pluggable connecting cable
- 360° assembly
- Patented 100% protection for leaking valves
- TÜV and NRTL certified

Protection type: IP 54
 Cable cross-section: 4 x 0.22 mm²
 Connection cable: 1 m
 Housing colour: white (RAL 9003)

APO version: 24 V a.c. / d.c.

Type	Control voltage	Operating principle	Stroke	Force	Item description
APO 44625-20N	0–10 V	NC	6.5 mm	125 N	With feedback signal, with valve stroke recognition, with FirstOpen function, with removal protection, neutral
APO 45625-30N	0–10 V	NO	6.5 mm	125 N	With feedback signal, with valve stroke recognition, with removal protection, neutral
APO 44625-22N	10–0 V	NC	6.5 mm	125 N	With feedback signal, with valve stroke recognition, with FirstOpen function, with removal protection, neutral
APO 45625-32N	10–0 V	NO	6.5 mm	125 N	With feedback signal, with valve stroke recognition, with removal protection, neutral

Available as an option

Cable lengths	Standard	2 m, 3 m, 5 m; PVC in signal white – 4 x 0.22 mm ² (custom lengths up to 20 m)
	halogen-free	1 m, 2 m, 3 m, 5 m, in white – 4 x 0.22 mm ² , to fulfil fire protection and environmental requirements.
Valve adapter	For precise and easy installation thanks to click mechanism (see Seite 22)	
Packaging	Packaging can be customised and printed according to requirements.	
Printing on the housing	Laser printing of the company sign (e.g. logo) and the individual type	
Housing colour and cable	Homogeneous colouring, colour of the function display or function cap to match the corporate design or product design	
Control voltage	Other active control voltage ranges on request	

Thermal valve actuators

OEM Actuator 5: Pulse-Proportional



Continuous, thermal valve actuator for heating and cooling applications. The actuator is controlled by a 0–10 V d.c. signal from a central DDC system or an appropriate room thermostat. The main area of application is building management systems.

The special control behaviour of the OEM Actuator 5: Pulse-Proportional enables problem-free parallel operation of several actuators, regardless of the valve characteristics.

Easy plug-in assembly with valve adapter, see Seite 22 (to be ordered separately).

- Perfected parallel behaviour
- Normally closed (NC) version
- Power consumption just 1 watt
- Activation with a 0–10 V d.c. signal
- Short response times and thus improved control behaviour
- Closing point control with adjustment during operation
- Full compatibility with the valve adapter system
- Pluggable connecting cable
- 360° assembly
- Patented 100% protection for leaking valves
- FirstOpen function
- TÜV and NRTL certified

Protection type: IP 54
 Cable cross-section: 3 x 0.22 mm²
 Connection cable: 1 m
 Housing colour: white (RAL 9003)

APP version: 24 V a.c.

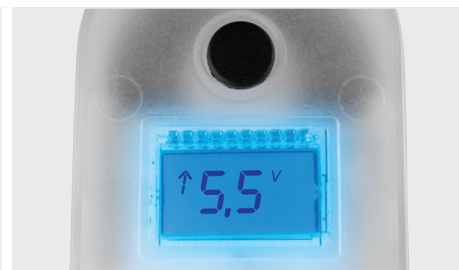
Type	Control voltage	Operating principle	Stroke	Force	Item description
APP 40405-00N	0–10 V	NC	4 mm	100 N	with FirstOpen function, neutral

Available as an option

Cable lengths	Standard	2 m, 3 m, 5 m; in white – 3 x 0.22 mm ² (custom lengths up to 20 m)
	halogen-free	1 m, 2 m, 3 m, 5 m, in white – 3 x 0.22 mm ² , to fulfil fire protection and environmental requirements.
Valve adapter	For precise and easy installation thanks to click mechanism (see Seite 22)	
Packaging	Packaging can be customised and printed according to requirements	
Printing on the housing	Laser printing of the company sign (e.g. logo) and the individual type	
Housing colour and cable	Homogeneous colouring, colour of the function display or function cap to match the corporate design or product design	
Protection cap	To protect against theft and vandalism	
Control voltage	Other active control voltage ranges on request	

Building management systems

The new Motoric Valve Drive 6 – Innovative, powerful, reliable



OEM Motoric Valve Drive 6

The world market leader in thermal actuators is expanding its range of motoric linear valve drives with the OEM Motoric Valve Drive 6.

This product innovation also brings many OEM Actuator 5 product highlights, such as the valve adapter system, the plug-in cable and IP 54 for 360° assembly, and much more.

Failsafe variants

If the operating voltage fails, the OEM Motoric Valve Drive 6 Failsafe moves to a park position until the operating voltage is applied again. It draws the necessary energy from an internal battery, which is charged gently. This keeps the inrush current low.

Variety of types

Available as a continuous 0–10V drive or as a 2/3-point drive, the OEM Motoric Valve Drive 6

covers all applications. The product is available with 100, 125, 150 or 200 N force, actuating times of 30 or 15 s/mm and a maximum stroke of 8.5 mm, depending on the valve and application.

Service packages full of ideas

Depending on the type of OEM Motoric Valve Drive 6, various customisation options are available for customer-specific applications.

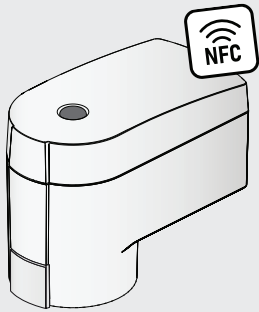
OEM Motoric Valve Drive		24 V 3-point	24 V Proportional	Modbus
Voltage	24 V a.c. / d.c.	●	●	●
Control voltage	0–10 V	—	●	—
Stroke	8.5 mm	●	●	●
Force	100, 125, 150, 200 N	●	●	●
Valve stroke recognition (optional)		●	●	●
Removal protection		●	●	●
Feedback signal (optional)		—	●	—
Failsafe (optional)		●	●	—

Highlights at a glance

- Customer-specific valve characteristics and voltage ranges (optional)
- Maximum energy efficiency due to full motor control via a microcontroller
- Easy, tool-free, plug-in assembly
- High functional reliability and long lifespan
- Very low standby power consumption
- Infinitely variable, constant valve positioning
- Sensor-led switch-off when the end stops or valve opening position are reached
- De-energised: self-locking gear in all positions

Motoric Valve Drives

Motoric Valve Drive 6: 3-Point



Motoric valve drive for opening and closing valves for heating and cooling systems.

It is controlled via an appropriate room thermostat. The valve drive has an LED for function signalling and manual valve adjustment.

The main area of application is energy-efficient valve control in the field of domestic technology, building automation and industrial applications.

Easy plug-in assembly with valve adapter, see Seite 23 (to be ordered separately).

- Drive configuration possible via NFC and Motoric Drive app
- Low power consumption
- Function signalling via LED
- TÜV and NRTL certified
- Maximum energy efficiency due to full motor control via a microcontroller
- Self-locking gear (de-energised) in all positions
- Time-dependent switch-off on overload or when the end stop or closing position is reached
- Manual valve adjustment
- Simple, optimised plug-in assembly via valve adapter
- Patented 100% protection for leaking valves
- 360° assembly
- Optionally with failsafe function
- With valve stroke recognition

Actuating time:	15 s/mm, 30 s/mm
Stroke:	8.5 mm
Force:	100 N, 125 N, 150 N, 200 N
Protection type:	IP 54
Connection cable:	1 m
Housing cover:	transparent

Version: 24 V a.c. / d.c.

Type	Stroke	Force	Actuating time	Item description
M3P 46806-20N	8.5 mm	100 N	30 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral
M3P 46826-20N	8.5 mm	125 N	30 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral
M3P 46836-20N	8.5 mm	150 N	30 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral
M3P 46846-20N	8.5 mm	200 N	30 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral
M3P 46806-30N	8.5 mm	100 N	15 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral
M3P 46826-30N	8.5 mm	125 N	15 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral
M3P 46836-30N	8.5 mm	150 N	15 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral
M3P 46846-30N	8.5 mm	200 N	15 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral

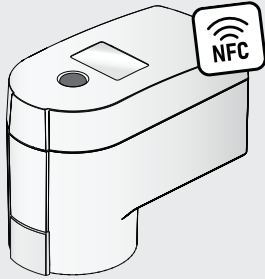
Version: 24 V a.c. / d.c.

Type	Stroke	Force	Actuating time	Item description
M3V 46806-20N	8.5 mm	100 N	30 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral, with valve stroke recognition
M3V 46826-20N	8.5 mm	125 N	30 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral, with valve stroke recognition
M3V 46836-20N	8.5 mm	150 N	30 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral, with valve stroke recognition
M3V 46846-20N	8.5 mm	200 N	30 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral, with valve stroke recognition
M3V 46806-30N	8.5 mm	100 N	15 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral, with valve stroke recognition
M3V 46826-30N	8.5 mm	125 N	15 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral, with valve stroke recognition
M3V 46836-30N	8.5 mm	150 N	15 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral, with valve stroke recognition
M3V 46846-30N	8.5 mm	200 N	15 s/mm	Plug-in cable, 3 x 0.22 PVC, with removal protection, neutral, with valve stroke recognition

Available as an option

Cable lengths	24 V: 2 m, 3 m, 5 m; PVC in white – 3 x 0.22 mm ² (custom lengths up to 20 m)
Halogen-free cable	24 V: 1 m, 2 m, 3 m, 5 m, in white – 3 x 0.22 mm ² , to fulfil fire protection and environmental requirements
Valve adapter	Available for almost all valves
Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing of the company sign (e.g. logo) and the individual type
Housing colour and cable	Homogeneous colouring to match the corporate design or product design

Motoric Valve Drive 6: Proportional with and without valve stroke recognition



Motoric valve drive for opening and closing valves for heating and cooling systems.

It is controlled via a building management system or an appropriate room thermostat. The valve drive has an LC display and an LED for function signalling as well as manual adjustment.

The main area of application is energy-efficient valve control in the field of domestic technology, building automation and industrial applications.

Simple plug-in assembly with valve adapter, see Seite 23 (to be ordered separately).

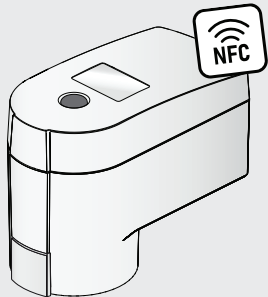
- Drive configuration possible via NFC and Motoric Drive app
- Low power consumption
- Function signalling via LC display and LED
- TÜV and NRTL certified
- Maximum energy efficiency due to full motor control via a microcontroller
- Self-locking gear (de-energised) in all positions
- Time-dependent switch-off on overload or when the end stop or closing position is reached
- Manual adjustment
- Simple, optimised plug-in assembly via valve adapter
- Patented 100% protection for leaking valves (IP 54)
- 360° assembly
- With valve stroke recognition

Actuating time:	15 s/mm, 30 s/mm
Stroke:	8.5 mm
Force:	100 N, 125 N, 150 N, 200 N
Protection type:	IP 54
Connection cable:	1 m
Housing cover:	transparent

Version: 24 V a.c. / d.c.

Type	Control voltage	Stroke	Force	Actuating time	Item description
MPR 46806-20N	0–10 V	8.5 mm	100 N	30 s/mm	proportional, neutral
MPR 46826-20N	0–10 V	8.5 mm	125 N	30 s/mm	proportional, neutral
MPR 46836-20N	0–10 V	8.5 mm	150 N	30 s/mm	proportional, neutral
MPR 46846-20N	0–10 V	8.5 mm	200 N	30 s/mm	proportional, neutral
MPV 46806-20N	0–10 V	8.5 mm	100 N	30 s/mm	proportional with valve stroke recognition, neutral
MPV 46826-20N	0–10 V	8.5 mm	125 N	30 s/mm	proportional with valve stroke recognition, neutral
MPV 46836-20N	0–10 V	8.5 mm	150 N	30 s/mm	proportional with valve stroke recognition, neutral
MPV 46846-20N	0–10 V	8.5 mm	200 N	30 s/mm	proportional with valve stroke recognition, neutral
MPO 46806-20N	0–10 V	8.5 mm	100 N	30 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPO 46826-20N	0–10 V	8.5 mm	125 N	30 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPO 46836-20N	0–10 V	8.5 mm	150 N	30 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPO 46846-20N	0–10 V	8.5 mm	200 N	30 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPR 46806-30N	0–10 V	8.5 mm	100 N	15 s/mm	proportional, neutral
MPR 46826-30N	0–10 V	8.5 mm	125 N	15 s/mm	proportional, neutral
MPR 46836-30N	0–10 V	8.5 mm	150 N	15 s/mm	proportional, neutral
MPR 46846-30N	0–10 V	8.5 mm	200 N	15 s/mm	proportional, neutral
MPV 46806-30N	0–10 V	8.5 mm	100 N	15 s/mm	proportional with valve stroke recognition, neutral
MPV 46826-30N	0–10 V	8.5 mm	125 N	15 s/mm	proportional with valve stroke recognition, neutral
MPV 46836-30N	0–10 V	8.5 mm	150 N	15 s/mm	proportional with valve stroke recognition, neutral
MPV 46846-30N	0–10 V	8.5 mm	200 N	15 s/mm	proportional with valve stroke recognition, neutral
MPO 46806-30N	0–10 V	8.5 mm	100 N	15 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPO 46826-30N	0–10 V	8.5 mm	125 N	15 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPO 46836-30N	0–10 V	8.5 mm	150 N	15 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPO 46846-30N	0–10 V	8.5 mm	200 N	15 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole

Motoric Valve Drive 6: Proportional Failsafe



Motoric valve drive for opening and closing valves for heating and cooling systems.

It is controlled via a building management system or an appropriate room thermostat. The valve drive has an LC display and an LED for function signalling as well as manual adjustment.

The main area of application is energy-efficient valve control in the field of domestic technology, building automation and industrial applications.

Simple plug-in assembly with valve adapter, see Seite 23 (to be ordered separately).

- Drive configuration possible via NFC and Motoric Drive app
- Low power consumption
- Function signalling via LC display and LED
- TÜV and NRTL certified
- Maximum energy efficiency due to full motor control via a microcontroller
- Self-locking gear (de-energised) in all positions
- Time-dependent switch-off on overload or when the end stop or closing position is reached
- Manual adjustment
- Simple, optimised plug-in assembly via valve adapter
- Patented 100% protection for leaking valves (IP 54)
- 360° assembly
- Failsafe function thanks to integrated industrial battery
- Various special failsafe functions
- With valve stroke recognition

Actuating time: 15 s/mm, 30 s/mm
 Stroke: 8.5 mm
 Force: 100 N, 125 N, 150 N, 200 N
 Protection type: IP 54
 Connection cable: 1 m
 Housing cover: transparent

Version: 24 V failsafe

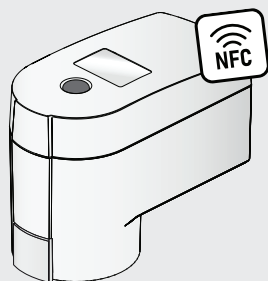
Type	Control voltage	Stroke	Force	Actuating time	Item description
MPRF 46806-20N	0–10 V	8.5 mm	100 N	30 s/mm	proportional, neutral
MPRF 46826-20N	0–10 V	8.5 mm	125 N	30 s/mm	proportional, neutral
MPRF 46836-20N	0–10 V	8.5 mm	150 N	30 s/mm	proportional, neutral
MPRF 46846-20N	0–10 V	8.5 mm	200 N	30 s/mm	proportional, neutral
MPVF 46806-20N	0–10 V	8.5 mm	100 N	30 s/mm	proportional with valve stroke recognition, neutral
MPVF 46826-20N	0–10 V	8.5 mm	125 N	30 s/mm	proportional with valve stroke recognition, neutral
MPVF 46836-20N	0–10 V	8.5 mm	150 N	30 s/mm	proportional with valve stroke recognition, neutral
MPVF 46846-20N	0–10 V	8.5 mm	200 N	30 s/mm	proportional with valve stroke recognition, neutral
MPOF 46806-20N	0–10 V	8.5 mm	100 N	30 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPOF 46826-20N	0–10 V	8.5 mm	125 N	30 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPOF 46836-20N	0–10 V	8.5 mm	150 N	30 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPOF 46846-20N	0–10 V	8.5 mm	200 N	30 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPRF 46806-30N	0–10 V	8.5 mm	100 N	15 s/mm	proportional, neutral
MPRF 46826-30N	0–10 V	8.5 mm	125 N	15 s/mm	proportional, neutral
MPRF 46836-30N	0–10 V	8.5 mm	150 N	15 s/mm	proportional, neutral
MPRF 46846-30N	0–10 V	8.5 mm	200 N	15 s/mm	proportional, neutral
MPVF 46806-30N	0–10 V	8.5 mm	100 N	15 s/mm	proportional with valve stroke recognition, neutral
MPVF 46826-30N	0–10 V	8.5 mm	125 N	15 s/mm	proportional with valve stroke recognition, neutral
MPVF 46836-30N	0–10 V	8.5 mm	150 N	15 s/mm	proportional with valve stroke recognition, neutral
MPVF 46846-30N	0–10 V	8.5 mm	200 N	15 s/mm	proportional with valve stroke recognition, neutral
MPOF 46806-30N	0–10 V	8.5 mm	100 N	15 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPOF 46826-30N	0–10 V	8.5 mm	125 N	15 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPOF 46836-30N	0–10 V	8.5 mm	150 N	15 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole
MPOF 46846-30N	0–10 V	8.5 mm	200 N	15 s/mm	proportional with feedback signal 0–10 V, with valve stroke recognition, 4-pole

Available as an option

Cable lengths	MPR / MPRF / MPV / MPVF: 2 m, 3 m, 5 m; PVC in white – 3 x 0.22 mm ² (custom lengths up to 20 m) MPO / MPOF: 2 m, 3 m, 5 m; PVC in white – 4 x 0.22 mm ² (custom lengths up to 20 m)
Halogen-free cable	MPR / MPRF / MPV / MPVF: 1 m, 2 m, 3 m, 5 m, in white – 3 x 0.22 mm ² to fulfil fire protection and environmental requirements MPO / MPOF: 1 m, 2 m, 3 m, 5 m, in white – 4 x 0.22 mm ² to fulfil fire protection and environmental requirements
Valve adapter	Available for almost all valves
Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing of the company sign (e.g. logo) and the individual type
Housing colour and cable	Homogeneous colouring to match the corporate design or product design
Stroke	MPR / MPRF can be parametrised ex works between 2 and 8.5 mm
Control voltage	Other active control voltage ranges on request

Motoric valve drives

Motoric Valve Drive 6 Modbus RTU



Motoric valve drive for opening and closing valves for heating and cooling systems.

It is controlled via Modbus RTU. The valve drive has an LC display and an LED for function signalling as well as manual adjustment.

The main area of application is energy-efficient valve control in the field of domestic technology, building automation and industrial applications.

Simple plug-in assembly with valve adapter, see Seite 23 (to be ordered separately).

- Drive configuration possible via NFC and Motoric Drive app
- Modbus RTU interface
- Low power consumption
- Function signalling via LC display and LED
- TÜV and NRTL certified
- Maximum energy efficiency due to full motor control via a microcontroller
- Self-locking gear (de-energised) in all positions
- Time-dependent switch-off on overload or when the end stop or closing position is reached
- Manual adjustment
- Simple, optimised plug-in assembly via valve adapter
- Patented 100% protection for leaking valves (IP 54)
- 360° assembly

Actuating time:	15 s/mm, 30 s/mm
Stroke:	8.5 mm
Force:	100 N, 125 N, 150 N, 200 N
Protection type:	IP 54
Connection cable:	1 m
Housing cover:	transparent

Version: 24 V a.c. / d.c.

Type	Control voltage	Stroke	Force	Actuating time	Item description
MPM 46846-20N	0–10 V	8.5 mm	200 N	30 s/mm	Modbus RTU

Available as an option

Cable lengths	MPM: 2 m, 3 m, 5 m; PVC in white – 4 x 0.22 mm ² (custom lengths up to 20 m)
Halogen-free cable	MPM: 1 m, 2 m, 3 m, 5 m, in white – 4 x 0.22 mm ² to fulfil fire protection and environmental requirements
Valve adapter	Available for almost all valves
Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing of the company sign (e.g. logo) and the individual type
Housing colour and cable	Homogeneous colouring to match the corporate design or product design

Connection cable



Pluggable connecting cable for OEM Actuator 5: DDC and motoric variants

- APRN
- APVN
- APPN
- MPR
- M3P (24 V)
- MPV

- 3 x 0.22 mm²
- Wound
- One end with plug, one end with ferrules

Type

Item description

ASL 3-100-1	Connection cable 1 m, signal white
ASL 3-200-1	Connection cable 2 m, signal white
ASL 3-300-1	Connection cable 3 m, signal white
ASL 3-500-1	Connection cable 5 m, signal white
ASL 3-100-1H	Connection cable 1 m, signal white, halogen-free



Pluggable connecting cable for OEM Actuator 5: DDC and motoric variants

- APON
- MPO

- 4 x 0.22 mm²
- Wound
- One end with plug, one end with ferrules

Type

Item description

ASL 4-100-1	Connection cable 1 m, signal white
ASL 4-200-1	Connection cable 2 m, signal white
ASL 4-300-1	Connection cable 3 m, signal white
ASL 4-500-1	Connection cable 5 m, signal white
ASL 4-1000-1	Connection cable 10 m, signal white
ASL 4-1500-1	Connection cable 15 m, signal white
ASL 4-2000-1	Connection cable 20 m, signal white
ASL 4-100-1H	Connection cable 1 m, signal white, halogen-free

Other lengths on request

Protection cap

Type

Item description

AA SK 1004



Protection cap to protect against vandalism for the OEM Actuator 5.

The protection cap must be ordered with the VA xx H-SK valve adapter!

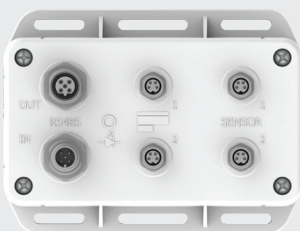
- Can be used for the following types **with 4 mm and 5 mm stroke**:
 - A...
 - AST...
 - AES...
 - APR...
 - APV...
 - APP...
- Installation on radiators or valves

Available as an option

Printing on the housing

Printing of your company sign on the housing in the original colours (also multicoloured) or a special type designation.

Modbus converter



Modbus converter for connecting thermal valve actuators and motoric valve drives to an RS-485 system. The Modbus RTU variant controls up to 30 converters in series with two valve actuators/drives and two sensors per Modbus address on one voltage supply.

- Scope of delivery:
- Modbus converter
 - 4 dust caps (3x M8, 1x M12)
 - Instructions

Type

Item description

KM 43001-00N	Modbus converter
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Valve adapter overview for thermal valve actuators

OEM Actuator 5

Manufacturer	Type	Thread size	Adapter colour	Pin colour
Beulco (before 2005)	VA 04 H	M 30 x 1.0	Dust grey	Light blue
Beulco (from 2005)	VA 10	M 30 x 1.5	Light grey	
Böhnisch SBK (from 1998)	VA 80 H	M 30 x 1.5	Dust grey	White grey
Cazzaniga	VA 50	M 30 x 1.5	Dark grey	
Comap	VA 70 H	M 28 x 1.5	Dust grey	Yellow
Danfoss RA	VA 78	Flange	Pure white RAL 9010	
Danfoss RAV / L	VA 59	Flange	Light grey	
Danfoss RAV	VA 72	Flange	Light grey	White grey
Dumser	VA 10	M 30 x 1.5	Light grey	
Giacomini	VA 26	Flange	Dust grey	
Giacomini Eckventil (angle valve)	VA 26 H	Flange	Dust grey	Light blue
Heimeier	VA 80	M 30 x 1.5	White grey	
Herz	VA 16	M 28 x 1.5	Red	
Herz	VA 16 H	M 28 x 1.5	Dust grey	Red
Honeywell & Braukmann	VA 50	M 30 x 1.5	Dark grey	
IVAR	VA 80	M 30 x 1.5	White grey	
Kermi (compact radiators)	VA 81 H	M 30 x 1.5	Pure white (RAL 9010)	Light green
MMA	VA 54	M 28 x 1.5	Dark blue	
MNG (from 1998)	VA 80	M 30 x 1.5	White grey	
Onda	VA 80	M 30 x 1.5	White grey	
Oventrop (from 1997)	VA 80	M 30 x 1.5	White grey	
Polytherm	VA 16 H	M 28 x 1.5	Dust grey	Red
Reich (distributor)	VA 50	M 30 x 1.5	Dark grey	
Rotex	VA 94	M 30 x 1.0	Dust grey	Light yellow
Schlösser (before 93)	VA 20 H	M 30 x 1.5	Dust grey	Yellow
Schlösser (from 93)	VA 80	M 30 x 1.5	White grey	
Siemens	VA 80	M 30 x 1.5	White grey	
Strawa (from 2003)	VA 80	M 30 x 1.5	White grey	
Taco	VA 80	M 30 x 1.5	White grey	
Temset	VA 97	Flange	Dust grey	Light blue
Thermotechnik Edelstahl (stainless steel)	VA 91	M 30 x 1.5	Light blue	
Tour & Anderson	VA 32	M 28 x 1.5	Light green	
Tour & Anderson	VA 80	M 30 x 1.5	White grey	
Universa (before 1999)	VA 70 H	M 28 x 1.5	Dust grey	Yellow
Universa (from 1999)	VA 62 H	M 30 x 1.5	Dust grey	Orange
Velta	VA 02	M 30 x 1.5 external thread	Dust grey	Carmine red
Viega Messing (brass)	VA 20 H	M 30 x 1.5	Dust grey	Yellow
Viega Edelstahl (stainless steel)	VA 10	M 30 x 1.5	Light grey	

Adaptations on request to valve or distributor manufacturers that are not mentioned. E-mail: service@moehlenhoff.de or telephone: +49 (0) 5341/8475 - 470.

Valve adapter overview for motoric valve drives

OEM Motoric Valve Drive 6

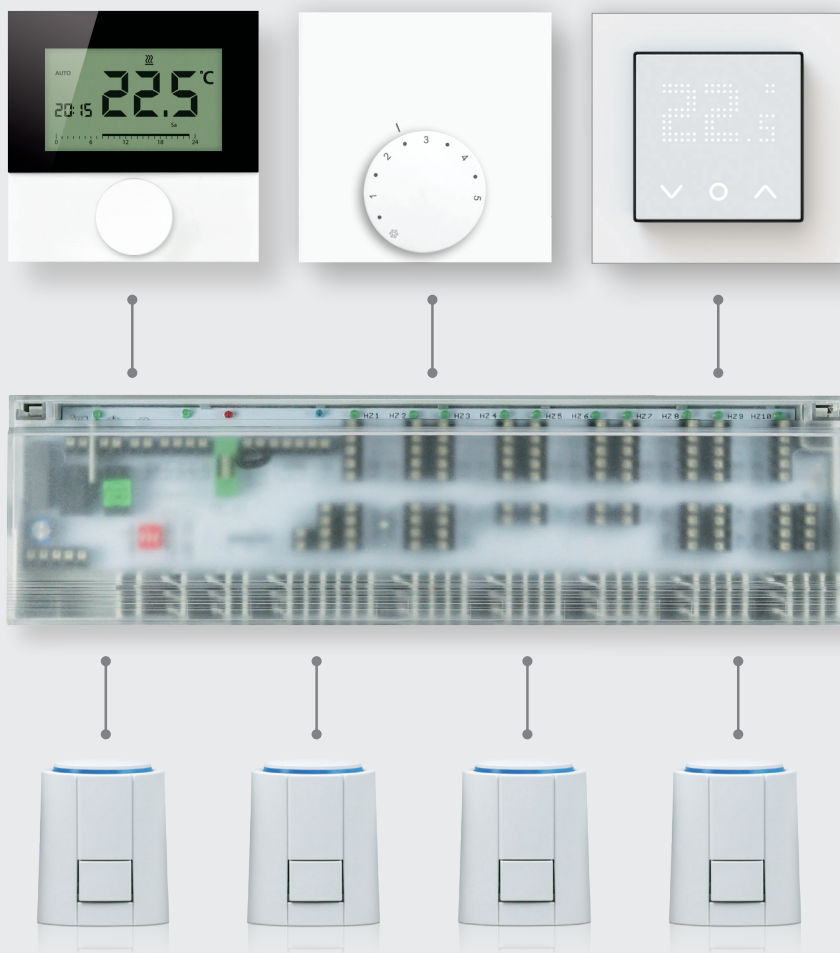
Valve adapter	Minimum closing dimension with OEM Motoric Valve Drive 6: 24 V Proportional	Valve manufacturer
VA 80 – M30 x 1.5	8.5 mm	Danfoss, ABQM, Flowcon, Frese, Herz, Honeywell, IVAR, JCI, Oventrop, Sauter, Siemens, TA, Wats
VA 33 – M28 x 1.5	8 mm	Herz, JCI
VA 64 – M28 x 1.5	15.8 mm	Pettinaroli
VA 67 – M30 x 1.5	11 mm	Controlli

OEM Alpha direct: System

Single room temperature control for underfloor heating



The OEM Alpha direct: System is a wired single room temperature control system by Möhlenhoff with a modern design. All the components in this traditionally wired single room temperature control can be used independently or as part of a system. The control types and base station designs can be combined into one single room temperature control system. The result is a response to both simple and complex requirements for heating and cooling applications that ticks all the boxes.



OEM Alpha Room thermostat direct

- For heating and cooling applications
- A slender, high-quality design
- A broad range of devices for different applications
- User-friendly and intuitive to operate
- Easy to install

24 V / **230 V**

OEM Alpha Base station direct

- 24 V and 230 V versions, optionally with 6 or 10 zones
- Pump relay/boiler relay directly on-board
- Suitable for heating and cooling
- Tried-and-tested, easy installation

OEM Actuator 5

- 24 V and 230 V, normally closed (NC) or normally open (NO)
- Power consumption just 1 watt
- 100% waterproof regardless of 360° assembly
- Tried-and-tested adapter system for 99% of all valves

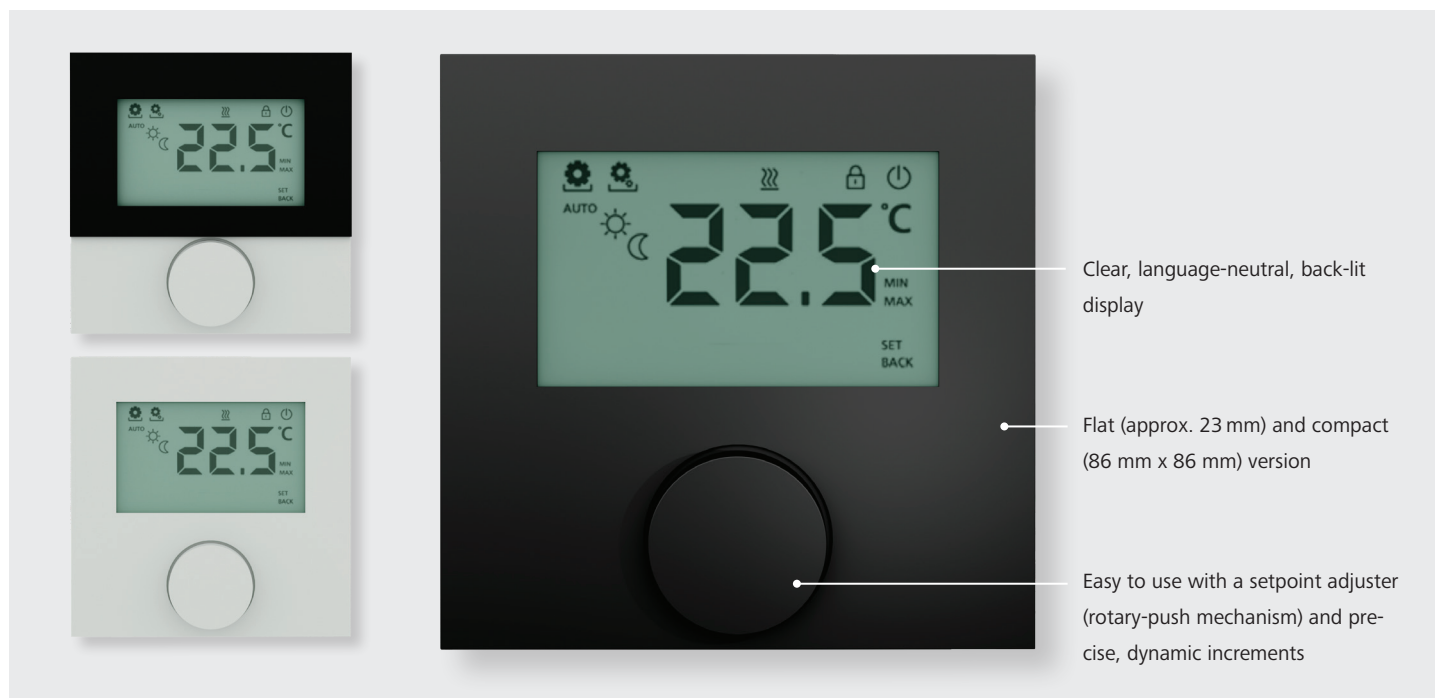
Key features at a glance



- 24 V or 230 V, 6 to 10 zones – Your requirements, your system
- A maximum of 21 connections for up to 18 valve actuators per base station or 5 per room thermostat
- Very good value
- Standardised, certified components
- As a system or stand-alone solution
- Intelligent control with very precise control accuracy
- Smart Start/Smart Stop technology for even greater energy savings
- Intuitive and easy to install
- Out-of-the box functionality
- Easy to operate
- Standardised, modern design series with OEM Alpha Smart system

OEM Alpha Room thermostat direct Display

High control accuracy in a modern design



OEM Alpha Room thermostat direct Display

The OEM Alpha Room thermostat direct Display is Möhlenhoff's new generation of high-quality room thermostats with displays. The thermostat looks impressive, with its restrained, timeless design, as well as its generous, language-neutral LC display and practical setpoint adjuster with precise dynamic increments. The intuitive concept takes the user through the menu structure and allows easy navigation with a rotary-push mechanism. This allows direct access to functions like operating mode and holiday. The integrated weekly time switch allows the user to program

customised temperature profiles, ensuring user comfort every day and providing energy-efficient heating and cooling.

Smart Start/Smart Stop

Smart Start/Smart Stop technology is another highlight. Based on each room's ambient conditions, it recognises when it's time to start heating or cooling and adjusts itself exactly to the required temperature at the right time. And, during the process, it only uses as much energy as is necessary.

A versatile device

The thermostat is designed to handle any situation – as a stand-alone thermostat with up to 5 valve actuators connected, or in a system with the OEM Alpha Base station direct. It comes in various designs.

Highlights at a glance

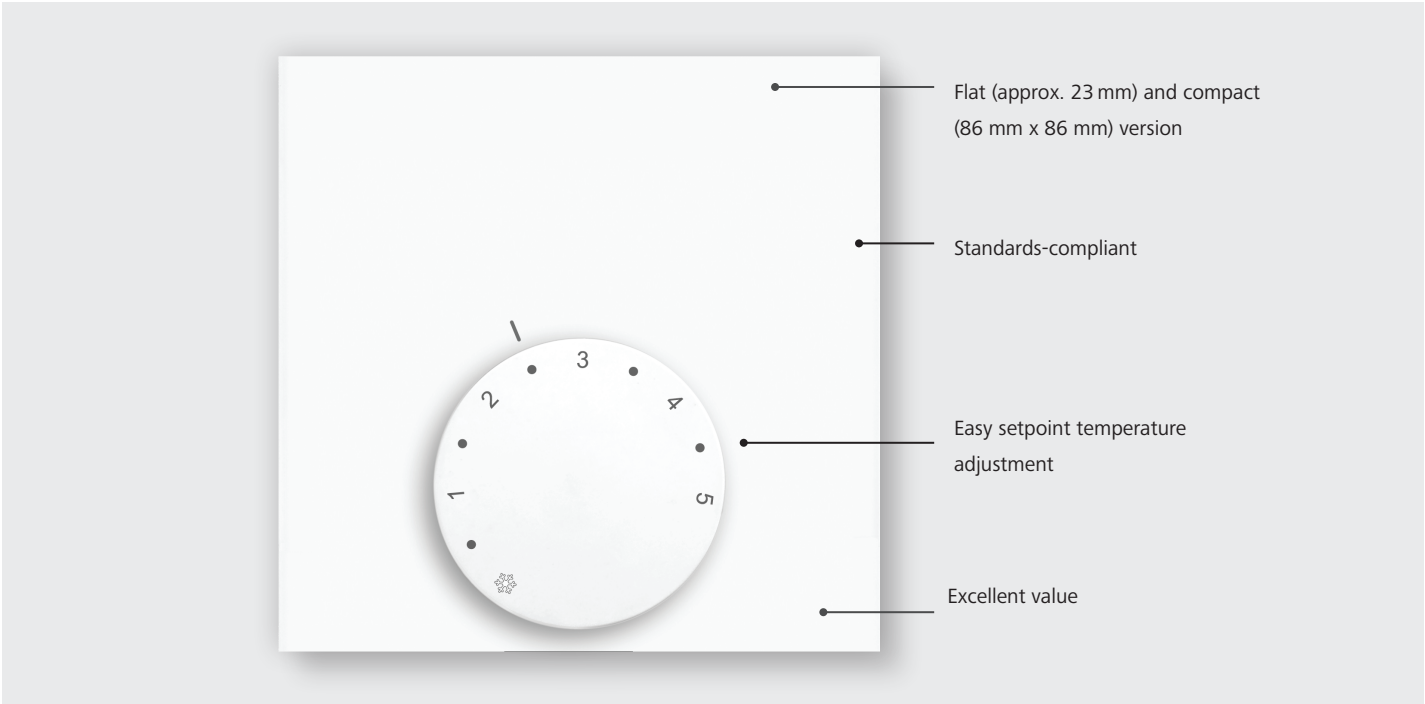
- Control behaviour: PI
- Compliant with DIN EN 60730-1
- Smart Start/Smart Stop function
- Control algorithm to match heating system can be selected
- Adjustment of setpoint/actual value
- Block cooling
- Target temperature adjustable in 0.5 K increments
- Temperature range 5 to 30°C
- Frost and valve protection function
- Wall mounted/fitted on a flush-mounted box
- Easy, intuitive installation
- Intuitive user navigation and operation
- Can be used as a stand-alone or system solution
- Heating and cooling program settings exact to the day
- Also available in deep black RAL 9005

	Standard	Comfort	Control
24 V / 230 V			
Switching output display	•	•	•
Setpoint limiter	•	•	•
Internal weekly time switch	–	–	•
Adjustable setback temperature	–	•	•
Heating/cooling (changeover)	–	•	•
Variant – NC / NO selectable	–	•	•
Smart Start/Smart Stop	–	–	•
Timer output	–	–	•

OEM Alpha Room thermostat direct Analog

Möhlenhoff

Concentrating on the essentials



OEM Alpha Room thermostat direct Analog

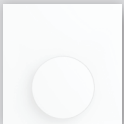
In the heating and heating/cooling versions, the room thermostat OEM Alpha Room thermostat direct Analog concentrates on the essentials in terms of functionality. This adds up to temperature control that’s highly precise. The slim, modern design integrates superbly with any interior. The setpoint temperature is adjusted by a convenient rotatable setpoint adjuster with easy-to-read numbers. Below the setpoint adjuster, there is

also an actuator for the setpoint calibration and setpoint limiter (optional). When the user is absent, the thermostat temperature is reduced via the timer input.

As a stand-alone device, the OEM Alpha Room thermostat direct Analog can also control up to 5 valve actuators, or is used as part of a system with the OEM Alpha Base station direct.

Heating and cooling

The OEM Alpha Room thermostat direct Analog HK is mainly used for heating and cooling in panel heating. The change over input automatically switches the device between the two operating modes. If required, the cooling function on the device can be blocked in a particular room (e.g., a bathroom). In this version, the thermostat has a frost and a valve protection function.

	Analog	Analog HK	Analog with remote sensor	Room sensor	Room sensor HK
24 V / 230 V					
Heating	●	●	●	●	●
Cooling	—	●	—	—	●
Heating/cooling (changeover)	—	●	●	—	●
Fixed setback temperature	●	●	●	●	●
Timer input	●	●	●	●	●
Setpoint calibration/ setpoint limiter*	●	●	●	—	—
Valve protection function	—	●	●	—	●
Frost protection function	●	●	●	●	●

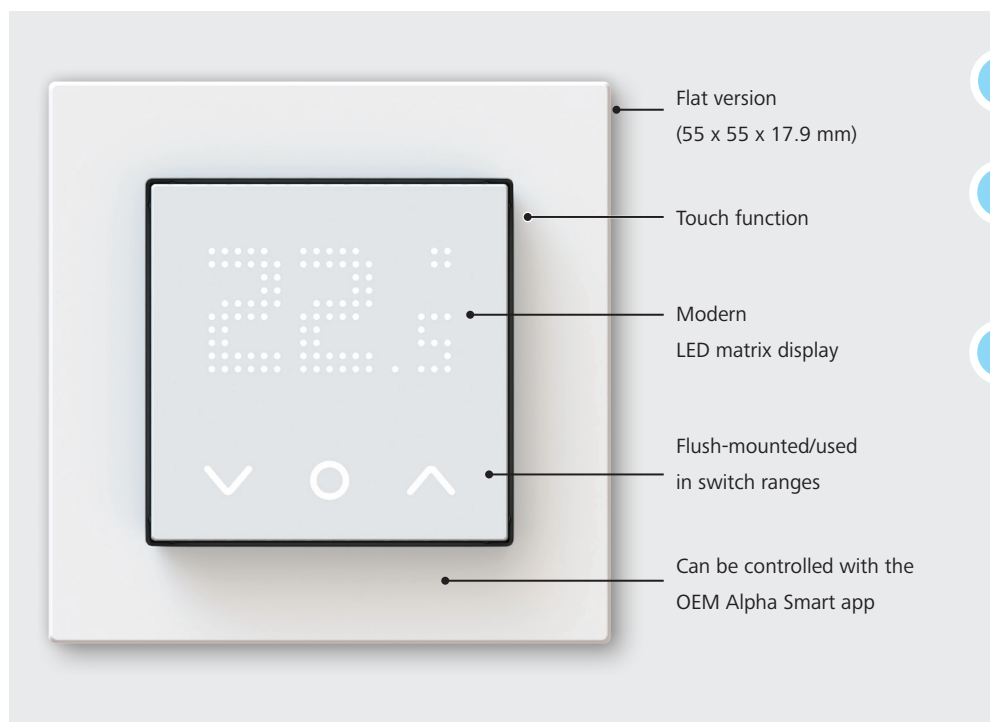
* on request

Highlights at a glance

- Control behaviour: PI
- Compliant with DIN EN 60730-1
- Block cooling
- Finely adjustable by ¼ degrees
- Setpoint calibration
- Frost and valve protection function
- Easy, intuitive installation
- Wall mounted/fitted on a flush-mounted box
- Optimum value

OEM Alpha Room thermostat direct 55 Matrix Möhlenhoff

For hydronic and electrical panel heating



- ! Can also be operated via the OEM Alpha Smart app – the easy way to get started with your smart home.
- ! 55 mm frame – compatible with standard switch ranges and can be seamlessly integrated into any home.
- ! With 16 A relay – ideal for controlling electrical panel heating systems.

Two applications in one

Möhlenhoff's OEM Alpha Room thermostat direct 55 Matrix gives you a simple solution for two applications: This thermostat enables single room temperature control for hydronic and electrical panel heating systems. The modern design LED matrix display allows intuitive operation of the device via a touch screen. Connected to the WiFi in just a few steps, the OEM Alpha Room thermostat direct 55 Matrix is also easy to operate via

the OEM Alpha Smart app.

Versatile integration

The OEM Alpha Room thermostat direct 55 Matrix is all about versatility: It can be fitted to all international flush-mounted boxes and be used in all standard switch ranges with 55 mm frames. If you don't want to fit the thermostat to the range of frames, the scope of delivery includes a replaceable frame if the thermostat is to be used

on its own.

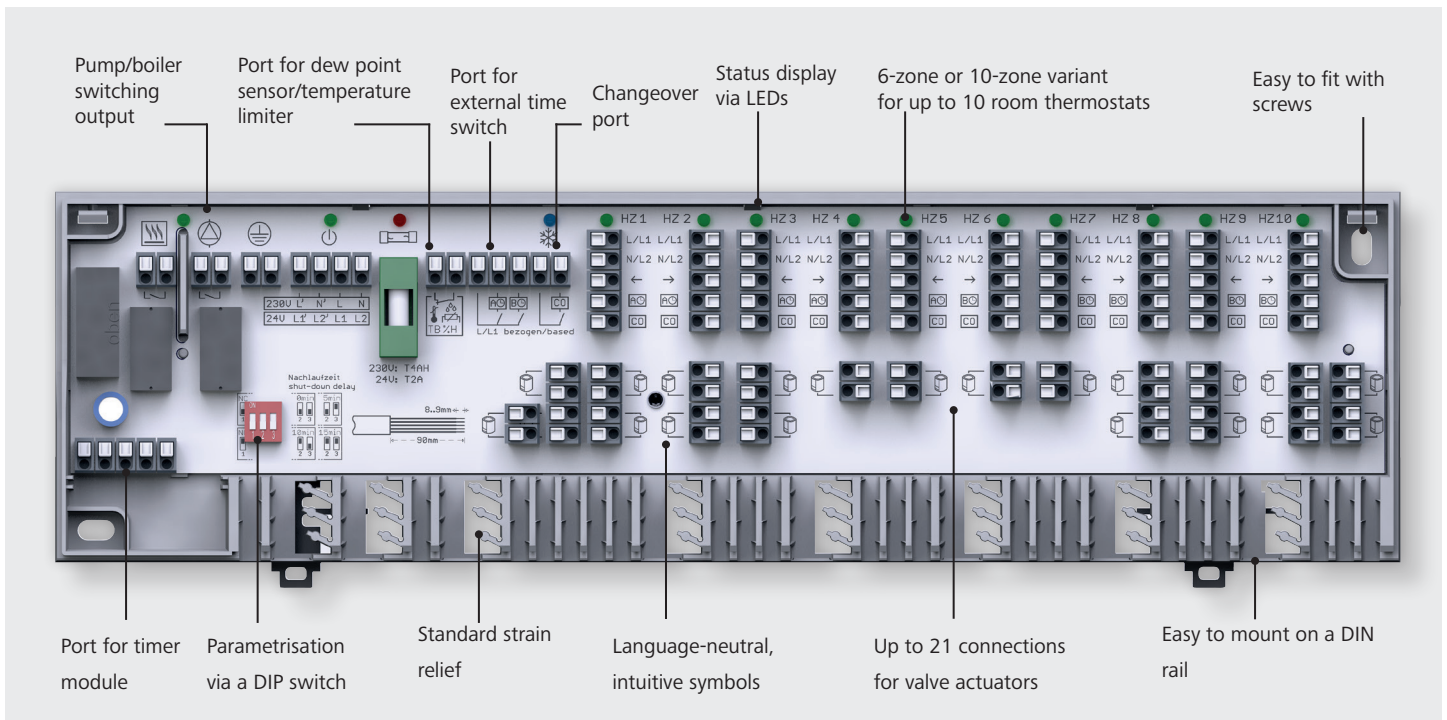
Highlights at a glance

- For hydronic and electrical panel heating
- Modern design with an LED matrix display and touch buttons
- WiFi functionality allows fast integration into the smart home
- Can be operated via the OEM Alpha Smart app
- Can be used on its own or in a switch range
- Weekly programmes with up to 6 switching times per day
- Setpoint temperature range: 5 to 30°C
- Heats and cools when used in hydronic systems (connection for changeover)
- Cooling mode can be deactivated for sensitive areas
- Connections for a floor temperature sensor and an external temperature sensor
- Optimum value
- Can be used in the OEM Alpha direct: System
- Cannot be combined with the OEM Alpha Smartware base stations

	For hydronic system	For electrical heating
230 V		
Heating	•	•
Cooling	•	–
Variant – NC / NO selectable	•	–
Setpoint calibration/ setpoint limiter	•	•
Internal daily/weekly programmes	•	•
Holiday function	•	•
Autom. winter/summer time switchover (if connected in app)	•	•
Connection for a floor sensor/ external sensor	•	•

OEM Alpha Base station direct

Optimum connections



Perfectly in tune

The OEM Alpha Base station direct is the central connection unit and provides a voltage supply for all OEM Alpha System: direct components. Valve actuators and thermostats are easily and conveniently connected with one another in a clear layout. The tried-and-tested wire management system and standard-compliant strain relief, as well as the plug-in / clamp connection method guarantee reliable and fast wiring. It is possible to choose between a 6 or 10 heat-

ing/cooling-zone version for the OEM Alpha Base station direct. A maximum of 10 room thermostats and 18 valve actuators (21 connections) are supplied with voltage. In the Comfort version, the device has ports to connect a pump and a boiler, or another electrical consumer.

Inputs for external time switches, which feature timer signals on room thermostats and (in the

maximum configuration) a timer module in the cover of the housing, allow time-controlled reduction of the room temperature. A DIP switch adapts the device to NC or NO systems and adjusts the pump's pre-run and follow-up times. The CO input makes this control system suitable for heating and cooling.

- Up to 5 connections for valve actuators/zones
- Change over input for heating/cooling

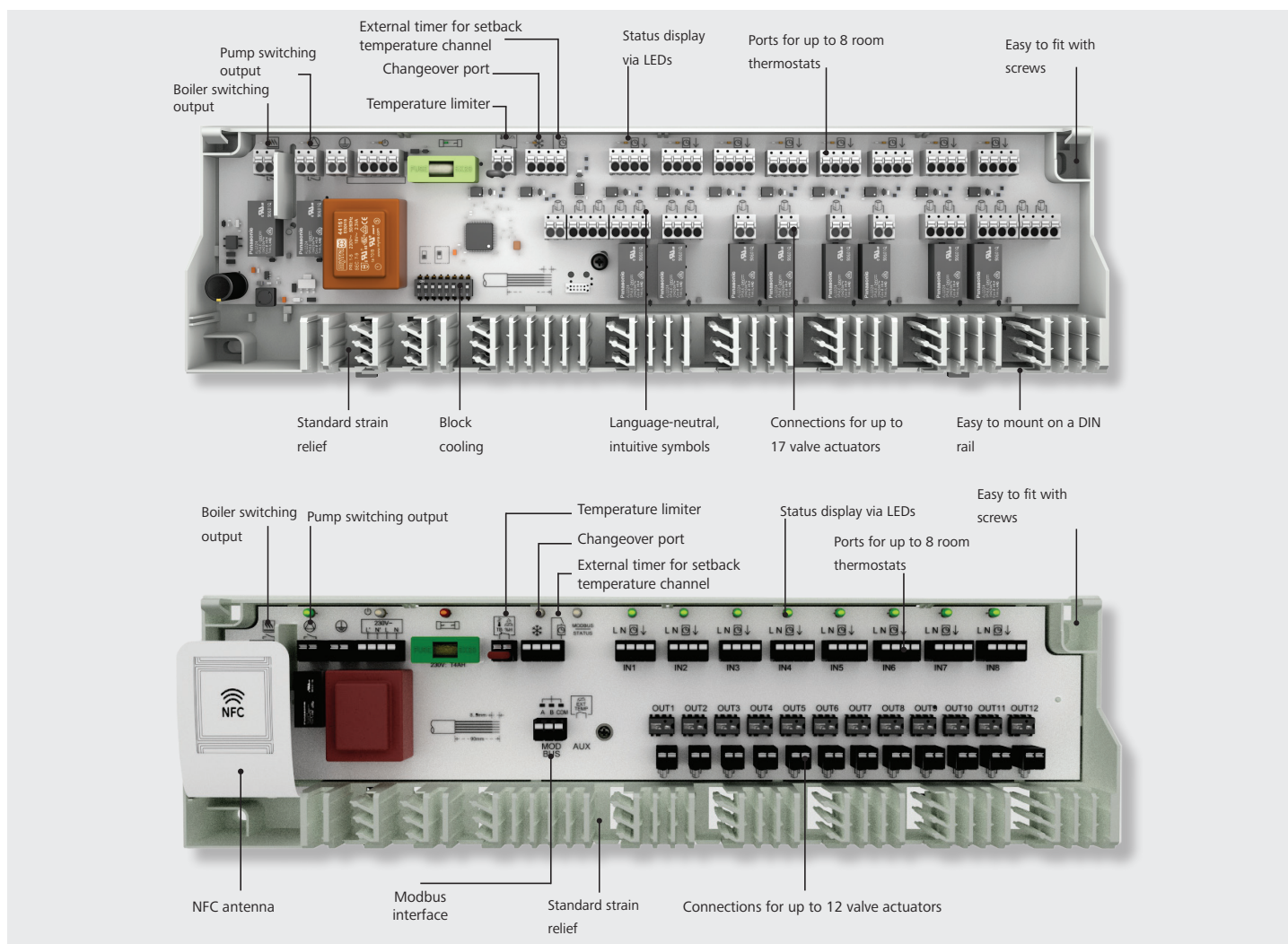
Key features at a glance



- Wall-mounted or on a DIN rail
- Easy, intuitive installation with a screwless plug-in / clamp connection method
- Connections clearly laid out
- Automatic temperature setback for 2 heating programmes is possible via an external digital time switch
- Standard-compliant transformer (optional), standby < 0.3 watts
- Standard-compliant strain relief integrated as per DIN EN 60730-1

OEM Alpha Base station direct Balance

The intelligent base station for convenient single room temperature control



Intelligent control for comfort and efficiency

The OEM Alpha direct Balance base station is the intelligent single room temperature control for the future, ensuring maximum comfort and energy efficiency for panel heating systems. It combines the advantages of OEM Alpha direct base stations and adds additional features, such as TÜV-certified automatic hydraulic balancing. The OEM Alpha direct Balance base stations supply up to 8 room thermostats and a maximum of 12 or 17 valve actuators. The base stations are designed for NC systems and can also cool without a heating/cooling thermostat by inverting the thermostat signals.

In the Switch and Switch Modbus version, the valve actuators can be freely assigned to the various heating zones, which can be named. In addition to the option of parametrising pre-run and follow-up times, and pump and valve protection functions, it is also possible to parametrise and

execute special functions such as ManualOpen and FirstOpen.

Parametrisation is carried out via the NFC app or, in the case of the Modbus version, also via the Modbus interface on a higher-level building management system.

Highlights at a glance

Balance

- TÜV-certified automatic hydraulic balancing
- Up to 5 connections for valve actuators/zones
- Change over input for heating/cooling
- Wall-mounted or on a DIN rail
- Easy, intuitive installation with a screwless plug-in / clamp connection method
- Connections clearly laid out
- Standard-compliant strain relief integrated as per DIN EN 60730-1

Balance Switch (Modbus)

- TÜV-certified automatic hydraulic balancing
- NFC app and optional Modbus interface
- Free assignment of valve actuators to the zones
- Change over input for heating/cooling
- Wall-mounted or on a DIN rail
- Easy, intuitive installation with a screwless plug-in / clamp connection method
- Connections clearly laid out
- Standard-compliant strain relief integrated as per DIN EN 60730-1
- Block cooling can be activated individually for each output

OEM Alpha Base station direct

Overview of types

	Standard	Standard Plus	Comfort
24 V / 230 V			
Setback temperature channel	●	●	●
Heating	●	●	●
Cooling	—	●	●
Input for temperature limiter/dew point sensor	—	●	●
Variant – NC / NO	NC/NO	NC**	selectable
Pump/boiler switching output	—/—	●/—	●/●
LED status displays	●***	—	●
Hydraulic balancing	—	—	—
NFC app	—	—	—
Modbus	—	—	—

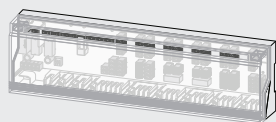
	Balance	Balance Switch	Balance Switch Modbus
24 V / 230 V			
Setback temperature channel	●	●	●
Heating	●	●	●
Cooling	●	●	●
Input for temperature limiter/dew point sensor	●	●	●
Variant – NC / NO	NC	NC	NC
Pump/boiler switching output	●/●	●/●	●/●
LED status displays	●	●	●
Hydraulic balancing	●	●	●
NFC app	—	●	●
Modbus	—	—	●

**without pump control also NO

*** only for type B 20322

OEM Alpha direct: System

OEM Alpha Base station direct: 24 V a.c. / 230 V



The OEM Alpha Base station direct is the high-quality, wired connection unit for the modern Alpha direct single room temperature control system. It serves to maximise comfort and energy-efficient use in panel heating for heating systems.

The system components are supplied directly via the OEM Alpha Base station direct voltage supply. All switching commands from the thermostats are forwarded to the connected components and valve actuators without delay.

It is suitable for systems that operate with normally open (NO) or normally closed (NC) components.

- Version with 6 or 10 zones
- Up to 21 connection terminals for connecting a maximum of 18 valve actuators (depending on variant)
- Screwless plug-in / clamp connection method
- Tried-and-tested wire management system and standard-compliant strain relief
- Clearly arranged connection terminals
- Simple, intuitive installation and operation
- One housing for all variants
- High-quality, modern OEM design
- OEM differentiation through appearance and function
- High functional reliability
- Maintenance-free
- Suitable for NC and NO actuators
- Status display signalled via LEDs*

Version: 230 V, standard with LED*

Type	Item description
B 20322-06N	6-zone, heating, status display
B 20322-10N	10-zone, heating, status display

Version: 24 V / 230 V, standard, 6-zone

Type	Item description
B 50302-06N	Heating, without transformer

Version: 24 V / 230 V, standard, 10-zone

Type	Item description
B 50302-10N	Heating, without transformer

Available as an option

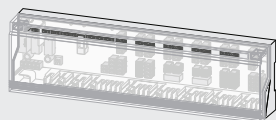
Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing the company sign (e.g. logo), the individual type and your device name
Housing	Lower part (adapting the colour, distinctive housing lines on request)
	Cover (completely comprehensive cover, individualised colour, transparency and shape)

Accessories

ST 20402-00N	Safety transformer to EN 61558 for 24 V version, primary 230 V 50/60 Hz, secondary 24 V 36 VA, no-load power <1 W
ALE 20001-00N3	Connection cable with Euro plug for 230 V version
TM 50502-00N0	Timer module (housing cover with integrated system clock for upgrading the Comfort version to the Control version)
HUS 326	DIN rail 326 mm, neutral, for mounting in the heating manifold

OEM Alpha direct: System

OEM Alpha Base station direct: 230 V



The OEM Alpha Base station direct is the high-quality, wired connection unit for the modern Alpha direct single room temperature control system. It serves to maximise comfort and energy-efficient use in panel heating for heating and cooling systems.

The system components are supplied directly via the OEM Alpha Base station direct voltage supply. All switching commands from the thermostats are forwarded to the connected components and valve actuators without delay.

The fully equipped OEM Alpha Base station direct has connections for connecting a pump, a boiler and other electrical consumers. It is suitable for systems that operate with normally open (NO) or normally closed (NC) components.

- Version with 6 or 10 zones
- Up to 21 connection terminals for connecting a maximum of 18 valve actuators (depending on variant)
- Screwless plug-in / clamp connection method
- Tried-and-tested wire management system and standard-compliant strain relief
- System clock integrated in the housing cover (timer module) for time-controlled lowering of the room temperature
- Pump and boiler control
- Adjustable follow-up time for pump and boiler control
- Connection for a temperature limiter or dew point sensor
- Status display signalled via LEDs
- Clearly arranged connection terminals
- Simple, intuitive installation and operation
- Equipment for heating and/or cooling systems
- One housing for all variants
- High-quality, modern OEM design
- OEM differentiation through appearance and function
- High functional reliability
- Maintenance-free
- Suitable for NC and NO actuators
- Operating principle (NO or NC) of the switching outputs and the pump run-on time can be configured via DIP switch.

Version: 230 V, Standard plus

Type	Item description
B 21402-06N	6-zone, heating, cooling, pump control
B 21402-10N	10-zone, heating, cooling, pump control

Version: 230 V, comfort

Type	Item description
B 20502-06N	6-zone, heating/cooling, pump and boiler control, status display
B 20502-10N	10-zone, heating/cooling, pump and boiler control, status display

Available as an option

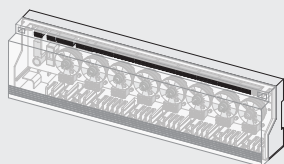
Packaging	Packaging can be customised and printed according to requirements.
Printing on the housing	Printing the company sign (e.g. logo), the individual type and your device name
Housing	Lower part (adapting the colour, distinctive housing lines on request)
	Cover (completely comprehensive cover, individualised colour, transparency and shape)

Accessories

ALE 20001-00N3	Connection cable with Euro plug for 230 V version
HUS 326	DIN rail 326 mm, neutral, for mounting in the heating manifold

OEM Alpha direct: System

OEM Alpha Base station direct switch: 230 V



The OEM Alpha Base direct switch is the central connection unit of a single room temperature control system for panel heating in heating and cooling systems.

This OEM Alpha Base station direct is available with 8 zones in 230 V. The OEM Alpha Base direct switch is wired to all system components, such as thermostats and valve actuators, with minimal effort. The system components are supplied directly via the OEM Alpha Base direct switch voltage supply. All switching commands from the thermostats are forwarded directly to the connected system components via the OEM Alpha Base direct switch.

To meet the desired installation requirements, the switch version has rotary switches to flexibly assign thermostats to valve actuators.

The OEM Alpha Base direct switch allows you to secure an optimum market position with its numerous options for differentiation. You can offer your customers simple installation and maximum comfort in panel heating systems.

- Version with 8 zones
- Connections for up to 16 valve actuators
- Screwless plug-in / clamp connection method
- Tried-and-tested wire management system and standard-compliant strain relief
- Pump or boiler control
- Setback temperature channel for time-controlled lowering of the room temperature
- Connection for a temperature limiter or dew point sensor
- Status display signalled via LEDs
- Clearly arranged connection terminals
- Simple, intuitive installation and operation
- Equipment for heating and/or cooling systems
- Assignment of the thermostats to the valve actuators via rotary switches
- High-quality, modern OEM design
- OEM differentiation through appearance and function
- High functional reliability
- Maintenance-free
- Suitable for NC, without pump control also NO

Version: 230 V

Type	Item description
B 21702-08N2	8-zone, heating, cooling, pump control, status display

Available as an option

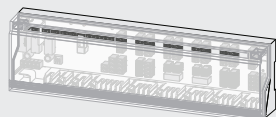
Packaging	Packaging can be customised and printed according to requirements.
Printing on the housing	Printing the company sign (e.g. logo), the individual type and your device name
Housing	Lower part (adapting the colour, distinctive housing lines on request)
	Cover (completely comprehensive cover, individualised colour, transparency and shape)

Accessories

ALE 20001-00N3	Connection cable with Euro plug for 230 V version
HUS 326	DIN rail 326 mm, neutral, for mounting in the heating manifold

OEM Alpha direct: System

OEM Alpha Base station direct: 24 V a.c.



The OEM Alpha Base station direct is the high-quality, wired connection unit for the modern Alpha direct single room temperature control system. It serves to maximise comfort and energy-efficient use in panel heating for heating and cooling systems.

The system components are supplied directly via the OEM Alpha Base station direct voltage supply. All switching commands from the thermostats are forwarded to the connected components and valve actuators without delay.

The fully equipped OEM Alpha Base station direct has connections for connecting a pump, a boiler and other electrical consumers. It is suitable for systems that operate with normally open (NO) or normally closed (NC) components.

- Version with 6 or 10 zones
- Up to 21 connection terminals for connecting a maximum of 18 valve actuators (depending on variant)
- Screwless plug-in / clamp connection method
- Tried-and-tested wire management system and standard-compliant strain relief
- System clock integrated in the housing cover (timer module) for time-controlled lowering of the room temperature
- Pump and boiler control
- Adjustable follow-up time for pump and boiler control
- Connection for a temperature limiter or dew point sensor
- Status display signalled via LEDs
- Clearly arranged connection terminals
- Simple, intuitive installation and operation
- Equipment for heating and/or cooling systems
- One housing for all variants
- High-quality, modern OEM design
- OEM differentiation through appearance and function
- High functional reliability
- Maintenance-free
- Suitable for NC and NO actuators
- Operating principle (NO or NC) of the switching outputs and the pump run-on time can be configured via DIP switch.

Version: 24 V, Standard Plus

Type	Item description
B 41402-06N	6-zone, heating, cooling, pump control
B 41402-10N	10-zone, heating, cooling, pump control

Version: 24 V, comfort

Type	Item description
B 40502-06N	6-zone, heating/cooling, pump and boiler control, status display
B 40502-10N	10-zone, heating/cooling, pump and boiler control, status display

Available as an option

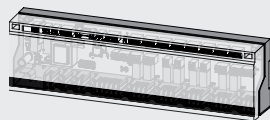
Packaging	Packaging can be customised and printed according to requirements.
Printing on the housing	Printing the company sign (e.g. logo), the individual type and your device name
Housing	Lower part (adapting the colour, distinctive housing lines on request)
	Cover (completely comprehensive cover, individualised colour, transparency and shape)

Accessories

ST 20402-00N	Safety transformer to EN 61558 for 24 V version, primary 230 V 50/60 Hz, secondary 24 V 36 VA, no-load power <1 W
HUS 326	DIN rail 326 mm, neutral, for mounting in the heating manifold

OEM Alpha direct: System

OEM Alpha direct Balance base station: 24V a.c. / 230 V



The OEM Alpha direct Balance base station is the intelligent single room temperature control for the future, ensuring maximum comfort and energy efficiency for panel heating systems.

It also has an integrated, TÜV-certified automatic hydraulic balancing function and carries out balancing from the heating manifold completely independently and without additional hardware being connected.

The thermostat signals are also continuously analysed during operation and changes in the control behaviour are implemented.

It is suitable for systems that work with normally closed (NC) components.

- Version in 24 V / 230 V 8 zones/room thermostat
- Integrated, TÜV-certified automatic hydraulic balancing
- Fulfills the requirements of the German Building Energy Act (GEG)
- Automatically detects the thermostats connected
- Simple, intuitive installation and operation, without flow and return sensors
- Status signalling via LEDs
- Connection for up to 17 valve actuators
- Initial state NC
- Pump and boiler control
- No calibration necessary
- Block cooling possible zone by zone
- Connection for dew point sensor and setback temperature input
- Tried-and-tested wire management system and strain relief
- Screwless plug-in / clamp connection method
- Clearly arranged connection terminals
- High functional reliability
- Maintenance-free

Version: 24 V

Type	Item description
B 41902-08N2	8-zone, heating, cooling, pump and boiler control, status display

Version: 230 V

Type	Item description
B 21902-08N2	8-zone, heating, cooling, pump and boiler control, status display

Available as an option

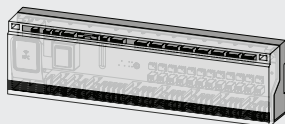
Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing the company sign (e.g. logo), the individual type and your device name
Housing status display	Lower part (adapting the colour, distinctive housing lines on request)
	Cover (completely comprehensive cover, individualised colour, transparency and shape)

Accessories

ST 20402-00N	Safety transformer to EN 61558 for 24 V version, primary 230 V 50/60 Hz, secondary 24 V 36 VA, no-load power <1 W
HUS 326	DIN rail 326 mm, neutral, for mounting in the heating manifold

OEM Alpha direct: System

OEM Alpha direct Balance Switch base station: 24 V a.c. / 230 V



The OEM Alpha direct Balance Switch base station is the intelligent single room temperature control for the future, ensuring maximum comfort and energy efficiency for panel heating systems.

The OEM Alpha direct Balance Switch base station with integrated, TÜV-certified automatic hydraulic balancing carries out the balancing from the heating manifold completely independently and without additional hardware being connected.

Parameters, settings and comfort programmes can be changed or executed via the NFC app. The set parameters and settings can be read out via NFC and can be sent via e-mail and other methods.

The OEM Alpha direct Balance Switch base station can also map cooling by inverting the input signals of standard heating thermostats. Customary heating room thermostats can be connected.

- Version with 24 V or 230 V 8 zones/room thermostats
- Integrated, TÜV-certified automatic hydraulic balancing
- Fulfills the requirements of the German Building Energy Act (GEG)
- Automatically detects the thermostats connected
- Simple, intuitive installation and operation, without flow and return sensors
- Block cooling can be defined per output/valve actuator
- Special functions (factory reset, ManualOpen, FirstOpen)
- Switch functionality
- Status signalling via LEDs
- Connection for up to 12 valve actuators (can be freely assigned)
- Pump and boiler control
- Connection for dew point sensor and setback temperature input
- No initialisation or calibration necessary
- App functionality
- Tried-and-tested wire management system and strain relief
- Screwless plug-in / clamp connection method
- Clearly arranged connection terminals
- High functional reliability
- Maintenance-free

Version: 24 V

Type	Item description
B 41903-08N2	8-zone, switch, heating, cooling, pump and boiler control, status display

Version: 230 V

Type	Item description
B 21903-08N2	8-zone, switch, heating, cooling, pump and boiler control, status display

Available as an option

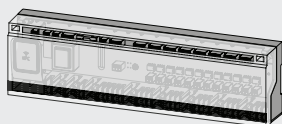
Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing the company sign (e.g. logo), the individual type and your device name
Housing status display	Lower part (adapting the colour, distinctive housing lines on request)
	Cover (completely comprehensive cover, individualised colour, transparency and shape)

Accessories

ST 20402-00N	Safety transformer to EN 61558 for 24 V version, primary 230 V 50/60 Hz, secondary 24 V 36 VA, no-load power <1 W
HUS 326	DIN rail 326 mm, neutral, for mounting in the heating manifold

OEM Alpha direct: System

OEM Alpha direct Balance Switch Modbus base station: 24V a.c. / 230 V



The OEM Alpha direct Balance Switch Modbus base station is the intelligent single room temperature control for the future, ensuring maximum comfort and energy efficiency for panel heating systems. The OEM Alpha direct Balance Switch Modbus base station with integrated, TÜV-certified automatic hydraulic balancing carries out the balancing from the heating manifold completely independently and without additional hardware being connected.

Thanks to the Modbus RTU interface, the base station can be easily connected to a building management system. This ensures permanent communication with the higher-level control technology, which can read and change all the necessary data in real time.

Outputs can be dynamically assigned to any heating zones via Modbus. Parameters, settings and comfort programmes can be changed or executed via Modbus. The set parameters, settings and values can be read out and changed in real time via Modbus.

The OEM Alpha direct Balance Switch base station can also map cooling by inverting the input signals of the heating thermostats. Customary heating thermostats can be connected. This means that no special heating/cooling thermostats are required. The NC version of customary thermal valve actuators are used as final control elements.

- Modbus RTU interface
- Compliant with GEG (German Building Energy Act) Section 71a
- Block cooling can be defined per output/valve actuator
- Special functions (factory reset, ManualOpen, FirstOpen)
- App functionality (NFC)
- Integrated, TÜV-certified automatic hydraulic balancing
- Automatically detects the thermostats connected
- Simple, intuitive installation and operation, without flow and return sensors
- Status signalling via LEDs
- Connection for up to 12 valve actuators
- Suitable for NC actuators
- Parameterisable pump and boiler control
- Connection for dew point sensor and setback temperature input
- Tried-and-tested wire management system and strain relief
- Screwless plug-in / clamp connection method
- Clearly arranged connection terminals
- High functional reliability
- No initialisation or calibration necessary
- Maintenance-free

Version: 24 V

Type	Item description
BM 41903-08N2	8-zone, switch, heating, cooling, pump and boiler control, status display, Modbus RTU

Version: 230 V

Type	Item description
BM 21903-08N2	8-zone, switch, heating, cooling, pump and boiler control, status display, Modbus RTU

Available as an option

Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing the company sign (e.g. logo), the individual type and your device name
Housing status display	Lower part (adapting the colour, distinctive housing lines on request) Cover (completely comprehensive cover, individualised colour, transparency and shape)

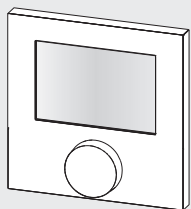
Accessories

ST 20402-00N	Safety transformer to EN 61558 for 24 V version, primary 230 V 50/60 Hz, secondary 24 V 36 VA, no-load power <1 W
HUS 326	DIN rail 326 mm, neutral, for mounting in the heating manifold

OEM Alpha direct: System

OEM Alpha Room thermostat direct: 230 V

230 V version: with digital display



The OEM Alpha Room thermostat direct Display is a high-quality room thermostat for recording and controlling the desired room temperature to maximise user comfort. Directly connected valve actuators already enable simple single room temperature control. The setpoint adjuster with push-and-turn mechanism and fine adjustment is used for operation and to set the desired room temperature. The symbols are always clearly shown on the easy-to-read, language-neutral, high-quality display.

- Flat version and small dimensions
- Available as a version for heating and cooling systems
- Standalone control or control implemented in a system
- Setpoint adjuster with turn-and-push mechanism and fine adjustment
- Setting range 5 to 30°C
- Setpoint calibration
- Setpoint limiter
- Valve and frost protection function
- Input for a change over signal
- Input for time-controlled lowering of the room temperature
- Simple, intuitive installation and operation

230 V version: Standard with digital display

Type	Item description
RD 20203-11N4	Heating, variant NC, fixed setback temperature, setback temperature input, switching output display, setpoint calibration and limiter, valve protection function, switching output can be deactivated, frost protection function, operation lock, color signal white RAL 9003
RD 20203-11N5	As RD20203-10N4 but including design panel
RD 20203-11N3	As RD20203-11N4 but color deep black RAL 9005

230 V version: Comfort with digital display and heating/cooling function

Type	Item description
RD 25203-40N4	Heating/cooling, variant NC/NO, changeover, heating system selectable, adjustable setback temperature, setback temperature input, switching output display, setpoint calibration and limiter, block cooling function, valve protection function, switching output can be deactivated, frost protection function, operation lock, backlight, color signal white RAL 9003
RD 25203-40N5	As RD25203-40N4 but including design panel
RD 25203-41N3	As RD25203-41N4 but color deep black RAL 9005

230 V version: Control with digital display, heating/cooling function and temperature schedule

Type	Item description
RD 25203-60N4	Heating/cooling, variant NC/NO, changeover, heating system selectable, Smart Start/Stop, setback temperature output, adjustable setback temperature, switching output display, setpoint calibration and limiter, day and night setpoint specification, block cooling function, valve protection function, switching output can be deactivated, frost protection function, operation lock, backlight, pilot timer output, integrated and configurable temperature schedule, color signal white RAL 9003
RD 25203-60N5	As RD25203-60N4 but including design panel
RD 25203-61N3	As RD25203-61N4 but color in deep black RAL 9005

Available as an option

Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing the company sign on the housing (e.g. logo), the individual type and your device name
Mounting base	Colour adaptation, change of shape
Housing	Individualised design, e.g. square, upright, horizontal format, individualised colour
Setpoint adjuster	Individualised colour adjustment
Design panel	High-quality front panel for the room-control device display
Display	Backlight for Standard version

Accessories

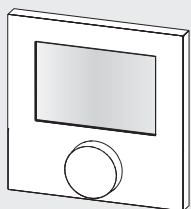
Type	Item description	
ES 1000	NTC, 3 m, 2 x 0.75 mm ² for connection to Alpha direct Control	Temperature sensor: NTC with 22k Ohm at 25°C ± 2% Cable length / type: 3 m /H03VVH2-F; 2x0.75 mm ² Operating temperature range: 0 to 50°C Protection type: IP 67 Max. measuring voltage: 12 V Insulation: designed for 230 V applications



OEM Alpha direct: System

OEM Alpha Room thermostat direct: 24 V a.c.

24 V version: with digital display



The OEM Alpha Room thermostat direct Display is a high-quality room thermostat for recording and controlling the desired room temperature to maximise user comfort. Directly connected valve actuators already enable simple single room temperature control. The setpoint adjuster with push-and-turn mechanism and fine adjustment is used for operation and to set the desired room temperature. The symbols are always clearly shown on the easy-to-read, language-neutral, high-quality display.

- Flat version and small dimensions
- Available as a version for heating and cooling systems
- Standalone control or control implemented in a system
- Setpoint adjuster with turn-and-push mechanism and fine adjustment
- Setting range 5 to 30°C
- Setpoint calibration
- Setpoint limiter
- Valve and frost protection function
- Input for a change over signal
- Input for time-controlled lowering of the room temperature
- Simple, intuitive installation and operation

24 V version: Standard with digital display

Type	Item description
RD 40203-10N4	Heating, variant NC, fixed setback temperature, setback temperature input, switching output display, setpoint calibration and limiter, valve protection function, switching output can be deactivated, frost protection function, operation lock
RD 40203-10N5	As RD40203-10N4 but including design panel
RD 40203-10N3	As RD40203-10N4 but color deep black RAL 9005

24 V version: Comfort with digital display and heating/cooling function

Type	Item description
RD 45203-40N4	Heating/cooling, variant NC/NO, changeover, heating system selectable, adjustable setback temperature, setback temperature input, switching output display, setpoint calibration and limiter, block cooling function, valve protection function, switching output can be deactivated, frost protection function, operation lock, backlight
RD 45203-40N5	As RD45203-40N4 but including design panel
RD 45203-40N3	As RD45203-40N4 but color in deep black RAL 9005

24 V version: Control with digital display and heating/cooling function

Type	Item description
RD 45203-60N	Heating/cooling, variant NC/NO, changeover, heating system selectable, Smart Start/Stop, adjustable setback temperature, setback temperature output, switching output display, setpoint calibration and limiter, day and night setpoint specification, block cooling function, valve protection function, switching output can be deactivated, frost protection function, operation lock, backlight
RD 45203-60N5	As RD45203-60N4 but including design panel
RD 45203-60N3	As RD45203-60N4 but color deep black RAL 9005

Available as an option

Packaging	Packaging can be customised and printed according to requirements.
Printing on the housing	Printing the company sign on the housing (e.g. logo), the individual type and your device name
Mounting base	Colour adaptation, change of shape
Housing	Individualised design, e.g. square, upright, horizontal format, individualised colour
Setpoint adjuster	Individualised colour adjustment
Design panel	High-quality front panel for the room-control device display
Display	Backlight for Standard version

Accessories

Type	Item description		
ES 1000	NTC, 3 m, 2 x 0.75 mm ² for connection to Alpha direct Control	Temperature sensor:	NTC with 22k Ohm at 25°C ± 2%
		Cable length / type:	3 m /H03VVH2-F; 2x0.75 mm ²
		Operating temperature range:	0 to 50°C
		Protection type:	IP 67
		Max. measuring voltage:	12 V
		Insulation:	designed for 230 V applications

OEM Alpha direct: System

OEM Alpha Room thermostat direct 55 Matrix

OEM Alpha Room thermostat direct 55 Matrix



The OEM Alpha Room thermostat direct 55 Matrix is a high-quality room thermostat for recording and controlling the desired room temperature for hydronic and electrical panel heating. Directly connected valve actuators already enable simple single room temperature control. Combining this with the OEM Alpha Base station direct connection unit achieves a perfectly coordinated overall system for panel heating. Ideally suited for flush-mounted boxes and ranges of frames in 55 mm dimensions. Three touch buttons are used to set the desired room temperature and for operation. The menu items are always clearly displayed on the easy-to-read, language-neutral and high-quality matrix display. The thermostat can be operated alone or integrated into the home network and operated via the Alpha Smart app. The OEM Alpha Room thermostat direct 55 Matrix receives supply voltage via the OEM Alpha Base station direct or a separate voltage source.

- Wired room thermostat 230 V
- Flat device version (55 mm x 55 mm x 17.9 mm)
- Suitable for hydronic and electrical panel heating up to 16 A
- Modern design with an LED matrix display and touch buttons
- WiFi functionality allows fast integration into the smart home
- Can be operated via the Alpha Smartware app or OEM customer app
- Can be used alone or in the switch range with 55 mm frame
- Weekly programmes with up to 6 switching times per day
- Setpoint temperature range 5.0. to 30.0°C
- Heats and cools when used in hydronic systems (connection for changeover)
- Connections for floor temperature sensor and external temperature sensor in the electric heating application
- Can be used in the OEM Alpha direct System
- Cannot be combined with OEM Alpha Smartware base stations

Type	Item description
RDWM 21051-N1	For hydronic underfloor heating: Heating/cooling, variant NC/NO parametrisable, heating/cooling changeover, setpoint limiter, block cooling function, weekly programmes with up to 6 switching times per day, frost protection function, operation lock For electrical underfloor heating: Heating, setpoint limiter, safety switch-off in the event of overheating, weekly programmes with up to 6 switching times per day, frost protection function, operation lock, connection of safety temperature limiter, connection of external temperature sensor Note: In this version, the room thermostat is preset for use with hydronic underfloor heating.

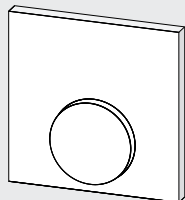
Available as an option

Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Laser printing of the company logo on the housing (e.g. logo), the individual type and your device name
Frame colour	Colour adaptation, change of shape
Temperature limiter/ external temperature sensor	Available with specific cable lengths

OEM Alpha direct: System

OEM Alpha Room thermostat direct: 230 V

230 V version: Analog



The OEM Alpha Room thermostat direct Analog is a high-quality thermostat with a modern design for recording and controlling the desired room temperature. Simple single room temperature control is possible with an OEM Alpha Room thermostat direct Analog and with valve actuators connected directly to the thermostat. In conjunction with the OEM Alpha Base station direct, it forms a perfectly harmonised single room temperature control system for maximum user comfort in panel heating systems.

- Flat version and small dimensions
- Available as a version for heating and cooling systems
- Standalone control or control implemented in a system
- Easy-to-read scale with fine adjustment
- Setting range 10 to 28°C
- Setpoint calibration
- Setpoint limiter
- Valve and frost protection function
- Input for a change over signal
- Input for time-controlled lowering of the room temperature
- Simple, intuitive installation and operation
- Maintenance-free
- High-quality, modern OEM design
- Optimum value
- OEM differentiation through appearance and function
- High functional reliability

230 V version: Analog

Type	Item description
R 20203-10N4	Heating, fixed setback temperature, setback temperature input, setpoint calibration

230 V version: Analog with heating/cooling function

Type	Item description
R 20203-40N4	Heating/cooling, fixed setback temperature, setback temperature input, change over input, block cooling function, setpoint calibration, valve protection function, frost protection function

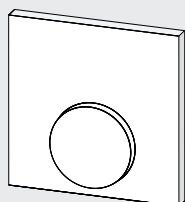
Available as an option

Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing the company sign on the housing (e.g. logo), the individual type and your device name
Mounting base	Colour adaptation, change of shape
Housing	Individualised design, e.g. square, upright, horizontal format, individualised colour
Setpoint adjuster	Individualised colour adjustment
Setpoint limiter	Insertable limiter tabs for limiting the temperature range

OEM Alpha direct: System

OEM Alpha Room thermostat direct: 230 V

230 V version: Analog with remote sensor



The OEM Alpha Room thermostat direct Analog with remote sensor is a high-quality thermostat with a modern design for recording and controlling the desired room temperature. Simple single room temperature control is possible with an OEM Alpha Room thermostat direct Analog and with valve actuators connected directly to the thermostat. In conjunction with the OEM Alpha Base station direct, it forms a perfectly harmonised single room temperature control system for maximum user comfort in panel heating systems. The remote or floor sensor enables the actual value to be recorded in the heating surface to prevent the heating surface from cooling down when other heat sources come into play. This sensor also allows the measuring point to be shifted to avoid spatial influences on the measurement result.

- With remote or floor sensor
- Flat version and small dimensions
- Available as a version for heating and cooling systems
- Standalone control or control implemented in a system
- Easy-to-read scale with fine adjustment
- Setting range 10 to 28°C
- Setpoint calibration
- Setpoint limiter
- Valve and frost protection function
- Input for a change over signal
- Input for time-controlled lowering of the room temperature
- Simple, intuitive installation and operation
- Maintenance-free
- High-quality, modern OEM design
- Optimum value
- OEM differentiation through appearance and function
- High functional reliability

230 V version: Analog with remote sensor

Type	Item description
R 20213-10	Heating, fixed setback temperature, setback temperature input, setpoint calibration, remote or floor sensor

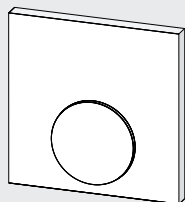
Available as an option

Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing the company sign on the housing (e.g. logo), the individual type and your device name
Mounting base	Colour adaptation, change of shape
Housing	Individualised design, e.g. square, upright, horizontal format, individualised colour
Setpoint adjuster	Individualised colour adjustment
Setpoint limiter	Insertable limiter tabs for limiting the temperature range

OEM Alpha direct: System

OEM Alpha Room thermostat direct: 230 V

230 V version: Room sensor



The OEM Alpha direct room sensor is a high-quality room sensor with a modern design for recording the desired room temperature. Simple single room temperature control is possible with an OEM Alpha direct room sensor and with valve actuators connected directly to the room sensor. In conjunction with the OEM Alpha Base station direct, it forms a perfectly harmonised single room temperature control system for maximum user comfort in panel heating systems.

- Flat version and small dimensions
- Available as a version for heating and cooling systems
- Standalone control or control implemented in a system
- Setting range 10 to 28°C
- Valve and frost protection function
- Input for a change over signal
- Input for time-controlled lowering of the room temperature
- Simple, intuitive installation and operation
- Maintenance-free
- High-quality, modern OEM design
- Optimum value
- OEM differentiation through appearance and function
- High functional reliability
- Concealed operation

230 V version: Room sensor

Type	Item description
R 20003-10N4	Heating, fixed setback temperature, setback temperature input

230 V version: Room sensor with heating/cooling function

Type	Item description
R 20003-40N4	Heating/cooling, fixed setback temperature, setback temperature input, change over input, block cooling function, valve protection function, frost protection function

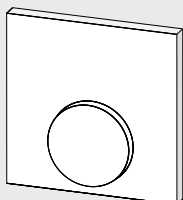
Available as an option

Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing the company sign on the housing (e.g. logo), the individual type and your device name
Mounting base	Colour adaptation, change of shape
Housing	Individualised design e.g. square, upright, horizontal format, individualised colour

OEM Alpha direct: System

OEM Alpha Room thermostat direct: 24 V a.c.

24 V version: Analog



The OEM Alpha Room thermostat direct Analog is a high-quality thermostat with a modern design for recording and controlling the desired room temperature. Simple single room temperature control is possible with an OEM Alpha Room thermostat direct Analog and with valve actuators connected directly to the thermostat. In conjunction with the OEM Alpha Base station direct, it forms a perfectly harmonised single room temperature control system for maximum user comfort in panel heating systems.

- Flat version and small dimensions
- Available as a version for heating and cooling systems
- Standalone control or control implemented in a system
- Easy-to-read scale with fine adjustment
- Setting range 10 to 28°C
- Setpoint calibration
- Optional setpoint limiter
- Valve and frost protection function
- Input for a change over signal
- Input for time-controlled lowering of the room temperature
- Simple, intuitive installation and operation
- Maintenance-free
- High-quality, modern OEM design
- Optimum value
- OEM differentiation through appearance and function
- High functional reliability

24 V version: Analog

Type	Item description
R 40203-10N4	Heating, fixed setback temperature, setback temperature input, timer input, setpoint calibration

24 V version: Analog with heating/cooling function

Type	Item description
R 40203-40N4	Heating/cooling, fixed setback temperature, setback temperature input, change over input, block cooling function, setpoint calibration, valve protection function, frost protection function

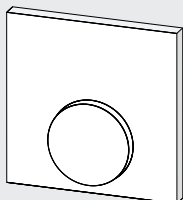
Available as an option

Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing the company sign on the housing (e.g. logo), the individual type and your device name
Mounting base	Colour adaptation, change of shape
Housing	Individualised design, e.g. square, upright, horizontal format, individualised colour
Setpoint adjuster	Individualised colour adjustment
Setpoint limiter	Insertable limiter tabs for limiting the temperature range

OEM Alpha direct: System

OEM Alpha Room thermostat direct: 24 V a.c.

24 V version: Analog with remote sensor



The OEM Alpha Room thermostat direct Analog with remote sensor is a high-quality thermostat with a modern design for recording and controlling the desired room temperature. Simple single room temperature control is possible with an OEM Alpha Room thermostat direct Analog and with valve actuators connected directly to the thermostat. In conjunction with the OEM Alpha Base station direct, it forms a perfectly harmonised single room temperature control system for maximum user comfort in panel heating systems. The remote or floor sensor enables the actual value to be recorded in the heating surface to prevent the heating surface from cooling down when other heat sources come into play. This sensor also allows the measuring point to be shifted to avoid spatial influences on the measurement result.

- With remote or floor sensor
- Flat version and small dimensions
- Available as a version for heating and cooling systems
- Standalone control or control implemented in a system
- Easy-to-read scale with fine adjustment
- Setting range 10 to 28°C
- Setpoint calibration
- Setpoint limiter
- Valve and frost protection function
- Input for a change over signal
- Input for time-controlled lowering of the room temperature
- Simple, intuitive installation and operation
- Maintenance-free
- High-quality, modern OEM design
- Optimum value
- OEM differentiation through appearance and function
- High functional reliability

24 V version: Analog with remote sensor

Type	Item description
R 40213-10	Heating, fixed setback temperature, setback temperature input, setpoint calibration, remote or floor sensor

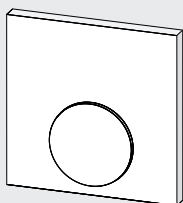
Available as an option

Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing the company sign on the housing (e.g. logo), the individual type and your device name
Mounting base	Colour adaptation, change of shape
Housing	Individualised design e.g. square, upright, horizontal format, individualised colour
Setpoint adjuster	Individualised colour adjustment
Setpoint limiter	Insertable limiter tabs for limiting the temperature range

OEM Alpha direct: System

OEM Alpha Room thermostat direct: 24 V a.c.

24 V version: Room sensor



The OEM Alpha room sensor direct is a high-quality room sensor with a modern design for recording the desired room temperature. Simple single room temperature control is possible with an OEM Alpha direct room sensor and with valve actuators connected directly to the room sensor. In conjunction with the OEM Alpha Base station direct, it forms a perfectly harmonised single room temperature control system for maximum user comfort in panel heating systems.

- Flat version and small dimensions
- Available as a version for heating and cooling systems
- Standalone control or control implemented in a system
- Setting range 10 to 28°C
- Valve and frost protection function
- Input for a change over signal
- Input for time-controlled lowering of the room temperature
- Simple, intuitive installation and operation
- Maintenance-free
- High-quality, modern OEM design
- Optimum value
- OEM differentiation through appearance and function
- High functional reliability
- Concealed operation

24 V version: Room sensor

Type	Item description
R 40003-10N	Heating, fixed setback temperature, setback temperature input

24 V version: Room sensor with heating/cooling function

Type	Item description
R 40003-40N	Heating/cooling, fixed setback temperature, setback temperature input, change over input, block cooling function, valve protection function, frost protection function

Available as an option

Packaging	Packaging can be customised and printed according to requirements
Printing on the housing	Printing the company sign on the housing (e.g. logo), the individual type and your device name
Mounting base	Colour adaptation, change of shape
Housing	Individualised design e.g. square, upright, horizontal format, individualised colour

The future of networked buildings

OEM Alpha Smart system for maximum comfort



The future of indoor climate solutions is smart systems that are optimally customised to user requirements, enable modular expansion, and are flexible and sustainable.

Years of expertise in high-quality, sophisticated heating control technologies coupled with innovative software expertise provide the ideal basis for our new product range: The OEM Alpha Smart system from Möhlenhoff with cloud-compatible product and system solutions fulfils all the requirements of future-oriented technology for the Internet of Things.



Key features at a glance



- Installation and commissioning without an Internet connection
- No Internet connection required on the construction site
- Possible to subsequently expand to cloud operation by end customers
- Simple control via free smartphone app (Available for iOS and Android)
- Standalone possible – straightforward to expand to cloud/app solution later
- A conventional installation as a stand-alone system can be extended to the app / cloud solution at any time
- Multi Object Management
- Enables management of different locations
- Fault safeguard (communication between devices guarantees functionality even in the event of a cloud failure)
- Futureproof (Continual firmware updates via the cloud)
- OEM product services
- Customer-specific adaptations: app, packaging, logo, instructions, marketing materials

OEM Alpha Smart system

OEM Alpha Smart system panel heating system

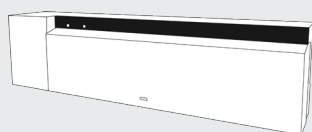
Functional overview



Base station variant	Standard	Premium
Base station functions		
230 V power supply	•	•
Power supply for pump output	•	•
Protective earth connection with through-wiring option	•	•
Fuse	•	•
LED display for heating zones, fuse, power, pump, pairing	•	•
LED display for boiler, CO	–	•
6/10 zones with 10/14 actuators each	•	•
Heating / cooling function with connection for CO	–	•
Connection for dew point monitor (potential-free contact)	–	•
Pump switching output	•	•
Boiler switching output	–	•
Dehumidifier control	–	•
Switch heating / cooling output (CO pilot)	–	•
Pump protection function	•	•
Valve protection function	•	•
Frost protection function	•	•
Emergency mode	•	•
Unlocking FirstOpen	•	•
Smart Start / Stop	•	•
Standalone, useable without app	•	•
2-point control after manual setpoint change	•	•
Load balancing function	•	•
TÜV certificate automatic hydraulic balancing	•	•

Room-control device functions		
LC display Backlight With and without design panel	•	•
LED display Touch operation	•	•
Temperature and humidity measurement	•	•
Optional connection set for external sensor	–	•
Min/max floor temperature monitoring via connection set	–	•
Room sensor via connection set	–	•
Connection of dew point monitor using connection set	–	•
Changeover heating / cooling (CO pilot)	–	•
Lock heating / cooling	–	•
Parametrisation via room-control device	–	•
Additional function with app	Standard	Premium
Time profiles	•	•
Operating mode Auto / Manu	•	•
Holiday function	•	•
Changeover heating / cooling (CO pilot)	–	•
Time on the room-control device	•	•
Operation lock for the room-control device	•	•
Setpoint temperature limiter for the room-control device	•	•
OTAU base station and room-control device	•	•
Parametrisation for technician	–	•
Location management and transfer	•	•

OEM Alpha Smartware base station Standard



The OEM Alpha Smartware base station Standard is the central connection and control unit for precise centralised single room temperature control of panel heating systems.

The base station utilises the recorded setpoint and current temperatures of connected OEM Alpha Smartware room-control devices. In accordance with these specifications, the rooms are always controlled to the specified temperature via the connected thermal valve actuators.

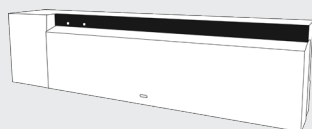
Alpha Smartware components can be installed and operated as standalone components without an Internet connection. Alternatively, they can be expanded and integrated into the cloud-based Alpha Smart Home system, enabling intelligent control and customised configuration via the OEM Alpha Smart app.

- High-quality, modern OEM design
- OEM differentiation through appearance and function
- Perfect for use in single-occupancy houses and apartment blocks
- Utilises the 868.3 and 869.525 MHz SRD band
- Secure thanks to AES 128 encryption of user data
- 230 V versions with 6 or 10 zones
- Status indicators via LED: 5 system LEDs / 1 LED per zone
- Tried-and-tested wire management system and strain relief
- Screwless plug-in / clamp connection method
- Connection for up to 14 valve actuators (1 to 2 per zone)
- Integrated pump switching output
- Perfect control algorithm thanks to years of experience.
- Automatic load balancing for a balanced flow of heating medium. Ideal for heat pumps
- Automatic hydraulic balancing (TÜV Rheinland certified)
- Heating profiles with different temperatures and switching times*
- Operating modes (frost protection, automatic*, emergency mode, holiday*)
- Smart Start / Stop function with self-learning effect for even more energy-efficient operation*
- Valve protection function and pump protection function
- For valve actuators with NC variant
- Typical radio range in free field: 270 m.
- Secure radio technology for optimum positioning without the need for cabling
- Tried-and-tested, simple installation and maintenance
- Easy operation, programming, initialisation
- Universal bus for future expansions
- Compatible with the OEM Alpha Cloud Services. Subsequent expansion of standalone operation to a comprehensive smart home solution via IoT gateway

Type	Item description
BSS 21001-06N2	Alpha Smartware base station 230 V Standard, 6 zones, light grey, neutral
BSS 21001-10N2	Alpha Smartware base station 230 V Standard, 10 zones, light grey, neutral

*Functionality only available with IoT gateway

OEM Alpha Smartware base station Premium



The OEM Alpha Smartware base station Premium is the central connection and control unit for precise centralised single room temperature control of panel heating systems – it can also be used for cooling applications and is therefore ideal for heat pumps.

The base station utilises the recorded setpoint and current temperatures of connected OEM Alpha Smartware room-control devices. In accordance with these specifications, the rooms are always controlled to the specified temperature via the connected thermal valve actuators.

The premium version offers a full range of features with extensive connection options for various applications.

Alpha Smartware components can be installed and operated as standalone components without an Internet connection. Alternatively, they can be expanded and integrated into the cloud-based Alpha Smart Home system, enabling intelligent control and customised configuration via the OEM Alpha Smart app.

- High-quality, modern OEM design
- OEM differentiation through appearance and function
- Perfect for use in single-occupancy houses and apartment blocks
- Utilises the 868.3 and 869.525 MHz SRD band
- Secure thanks to AES 128 encryption of user data
- 230 V versions with 6 or 10 zones
- Tried-and-tested wire management system and strain relief
- Screwless plug-in / clamp connection method
- Connection for up to 14 valve actuators (1 to 2 per zone)
- Heating / cooling function with connection for CO
- Connection for dew point monitor
- Integrated pump and boiler switching output
- Integrated dehumidifier control
- Output to switch between heating and cooling (CO pilot)
- Perfect control algorithm thanks to years of experience.
- Automatic load balancing for a balanced flow of heating medium. Ideal for heat pumps
- Automatic hydraulic balancing (TÜV Rheinland certified)
- Heating profiles with different temperatures and switching times*
- Operating modes (frost protection, automatic*, emergency mode, holiday*)
- Smart Start / Stop function with self-learning effect for even more energy-efficient operation*
- Valve protection function and pump protection function
- For valve actuators with NC function
- Typical radio range in free field: 270 m.
- Secure radio technology for optimum positioning without the need for cabling
- Tried-and-tested, simple installation and maintenance
- Easy operation, programming, initialisation
- Universal bus for future expansions
- Compatible with the OEM Alpha Cloud Services. Subsequent expansion of standalone operation to a comprehensive smart home solution via IoT gateway

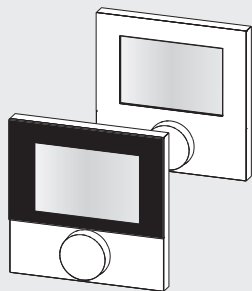
Type	Item description
BSS 21101-06N2	Alpha Smartware base station 230 V Premium, 6 zones, light grey, neutral
BSS 21101-10N1	Alpha Smartware base station 230 V Premium, 10 zones, light grey, neutral

*Functionality only available with IoT gateway

OEM Alpha Smart system

OEM Alpha Smartware components

OEM Alpha Smartware room-control device Display



The OEM Alpha Smartware room-control device Display records the room temperature and humidity and forwards these to the OEM Alpha Smartware base station, which ensures perfect room-by-room control of the underfloor heating. The settings are configured using the setpoint adjuster with push and turn mechanism and the display. It is also possible to operate the room-control device via the OEM Alpha Smart app.

- Flat version and small dimensions (86 mm x 86 mm)
- Self-explanatory, language-neutral operation and user guidance
- Large, clear LC display (33 mm x 57 mm) made of scratch-resistant plastic
- Displaying and recording room temperature, humidity, setpoint temperature, transmission power, operating status, battery level, errors
- If connected to IoT Gateway, additional functions are available:
 - Time, day of the week and operating status are displayed
 - Operation lock and setpoint temperature limiter on the room-control device
 - Holiday function can be deactivated on the room-control device
- Secure 868/869 MHz radio technology for optimum positioning without requiring cabling
- Easy to use with a setpoint adjuster (rotary-push mechanism and precise, dynamic increments)
- Setting range 5 to 30°C
- Wall and flush-mounted socket installation (DE & CH)
- High-quality design panel made of scratch-resistant plastic (optional)
- High-quality design with a variety of visual differentiation options

Additional functions when used with an OEM Alpha Smartware base station Premium:

- Parametrisation level for configuring the system
- Using an external sensor via the connection set
- The connection set supports the following functions:
 - Min. and max. floor temperature monitoring
 - Room sensor
 - Connection of a dew point monitor
- Block operating mode to exclude dedicated rooms from heating/cooling

Type	Item description
RDS 61011-N7	OEM Alpha Smartware room-control device Display, neutral, white
RDS 61011-N1	OEM Alpha Smartware room-control device Display with design panel, neutral, white

OEM Alpha Smartware room-control device LED



The Alpha Smartware room-control device LED records the room temperature and humidity in the room and controls the corresponding heating zone via the Alpha Smartware base station for the underfloor tempering system. The settings are made using the three touch buttons and the high-quality display, which is always easy-to-read and language-neutral. It is also possible to operate the room-control device via the Alpha Smart app.

- Flat version and small dimensions (86 mm x 58 mm)
- Self-explanatory, language-neutral operation and user guidance
- Large, clear LED display (32 mm x 40 mm) made of scratch-resistant plastic
- Displaying and recording room temperature, setpoint temperature, transmission power, operating status, battery level, errors
- Humidity detection and display in the Alpha Smart app
- If connected to IoT Gateway, additional functions are available:
 - Operating status is displayed
 - Operation lock and setpoint temperature limiter on the room-control device
 - Holiday function can be deactivated on the room-control device
- Secure 868/869 MHz radio technology for optimum positioning without requiring cabling
- Convenient operation via touch buttons
- Setting range 5 to 30°C
- Wall mounting
- High-quality design with a variety of visual differentiation options

Additional functions when used with an OEM Alpha Smartware base station Premium

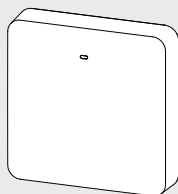
- Parametrisation level for configuring the system
- Using an external sensor via the connection set
- The connection set supports the following functions:
 - Min. and max. floor temperature monitoring
 - Room sensor
 - Connection of a dew point monitor
- Block operating mode to exclude dedicated rooms from heating/cooling

Type	Item description
RLDS 61071-N6	OEM Alpha Smartware room-control device LED, neutral, white

Accessories

Type	Item description
AT 61201-N	Connection set with external sensor for OEM Alpha Smartware room-control device
	

OEM Alpha Smartware IoT Gateway



The OEM Alpha Smartware IoT Gateway securely connects smart devices to the OEM Alpha Smart Cloud. It is required for connecting Alpha Smartware components to the OEM Alpha Smart Cloud. Data transmission is encrypted via the device to protect the data from unauthorised access. Data security is in line with the industry standard with end-to-end AES-128 hardware-based encryption between OEM Alpha Smartware devices and OEM Alpha Smart Cloud.

The OEM Alpha Smartware IoT Gateway enables the OEM Alpha Smart system to be set up and controlled using the OEM Alpha Smart app.

- High-quality, modern OEM design
- Perfect for use in single-occupancy houses and apartment blocks
- Utilises the 868.3 and 869.525 MHz SRD band and the particularly reliable and secure cSP-L radio protocol
- Establishes the secure connection between OEM Alpha Smartware components and the Möhlenhoff OEM Alpha Smart Cloud
- High security in line with the industry standard. Data is encrypted with AES 128
- Server location in Germany
- Configuration data and operating commands from mobile devices are exchanged with the Alpha Smartware components via the OEM Alpha Smart Cloud.
- Locally paired devices in standalone operation can be made compatible with the cloud / app at a later date simply by expanding them with the OEM Alpha Smartware IoT Gateway
- Automatic software updates for Alpha Smartware components to optimise and expand functionality. This keeps devices future-proof
- Wireless Internet connection via WiFi
- Multicoloured LED for displaying operating statuses

Type	Item description
IOTG 26001-N1	OEM Alpha Smartware IoT Gateway, neutral, white

General Terms and Conditions of Sale and Delivery

I. Validity

1. These General Terms and Conditions of Sale and Delivery apply to all business relationships, i.e. to all contracts and other services with our customers in the commercial sector (business people and companies).

Our Terms and Conditions apply exclusively unless otherwise agreed in writing.

2. Amendments or additions to these Terms and Conditions of Sale and Delivery as well as a waiver of the requirement for the written form must be made in writing.

II. Offers/concluding a contract

1. A contract (purchase or delivery contract) shall only be concluded upon written confirmation by us. This shall also apply if documents such as catalogues, brochures, photocopies, etc. are sent or handed over with the offer which only contain approximate descriptions or information.
2. Our offers are subject to change. We reserve the right to make changes to the delivery items due to further technical developments.
3. The right to make reasonable technical and design deviations from information in brochures, catalogues and written documents as well as model, design and material changes in the course of technical progress and further development is reserved without this giving rise to any rights against us.

III. Prices and payments

1. Our prices are quoted in EURO ex works plus statutory VAT including packaging.
2. Unless otherwise stated, we shall be bound by the prices contained in our offers 30 days from the date of the offer. Otherwise, the prices stated in our order confirmation plus the respective VAT shall apply.

Additional deliveries and services are invoiced separately.

3. Invoices are payable net, free of charges, within 30 days of the invoice date. Payments shall only be deemed to have been received on the day on which they are credited to our account by our bank.
4. Counterclaims disputed by us or not legally established shall not entitle the buyer to withhold or offset payment. This shall not apply to rights to refuse performance arising from the same contractual relationship.
5. If the term of payment is exceeded, we shall charge interest at a rate of 5% above the respective base rate of the European Central Bank (ECB) from the relevant date. We also reserve the right to charge any other costs incurred, such as charges for increased bank charges, etc.
6. In the event of payment arrears on the part of the buyer or a significant deterioration in the buyer's creditworthiness after conclusion of the contract, all claims shall become due immediately, even in the event of a deferral. Furthermore, in this case we shall be entitled to demand advance payment or the provision of security and to withdraw from all existing contracts after a reasonable grace period. The resulting costs shall be borne by the buyer.

IV. Deliveries

1. We endeavour to meet stated delivery times. The agreement of binding delivery dates or deadlines must be made in writing.
2. If specified delivery times or delivery dates or deadlines with binding agreement cannot be met or are extended in cases of force majeure, war, strike, lockouts, political unrest, transport obstacles, governmental directives, etc., any claims of the buyer resulting from the delay in delivery shall be excluded. The same applies to delays in delivery due to other unforeseeable hindrances, regardless of whether these occur in our factory or at our subcontractors (e.g., operational disruption, fire damage, unforeseeable difficulties in procuring materials, etc.).
3. Partial deliveries are permissible insofar as this is reasonable for the buyer.
4. In the event of a delay in delivery, we shall be liable to the buyer in accordance with the statutory provisions if the delay in delivery is due to an intentional or grossly negligent breach of duty for which we are responsible. If the delay in delivery is not due to an intentional or grossly negligent breach of contract, our liability shall be limited to the foreseeable damage that typically occurs.
5. We can only consider changes to the order before or after receipt of the order confirmation if any additional costs incurred as a result are borne by the buyer and a sufficient extension of the delivery time is granted.

V. Transfer of risk

1. Shipping is always at the risk of the buyer.
2. The risk shall pass to the buyer as soon as the consignment leaves our factory, even if freight-free delivery has been agreed. If dispatch is delayed at the buyer's request, the risk shall pass to the buyer upon notification of readiness for dispatch. At the buyer's request, the delivery shall be ensured against transport and fire damage at the buyer's expense.
3. The type of dispatch, dispatch route and packaging shall be selected at our discretion, at the buyer's expense and in accordance with standard commercial practice, unless otherwise instructed by the buyer.

VI. Warranty / compensation

1. Obvious defects in our delivery must be reported in writing immediately, but at the latest within 10 days of receipt of the goods. Non-obvious defects must be reported in writing within 10 days of discovery at the latest. Defective items must be kept ready for inspection by us or our authorised representatives in the condition in which they were at the time the alleged defect was discovered. Liability for normal wear and tear is excluded.
2. Legitimately asserted defects in our service shall be remedied by subsequent fulfilment. We shall be entitled to choose whether subsequent fulfilment is to be effected by remedying the defect or delivering a defect-free item. If the subsequent fulfilment fails within a reasonable period set for this purpose, the buyer may withdraw from the contract or reduce the price appropriately.
3. As a general rule, the warranty period is 36 months from the date of manufacture. Any differing warranty periods are noted separately in our offers.
4. Claims for damages by the buyer, regardless of the legal grounds, are excluded. This shall not apply to cases of intent or gross negligence due to injury to life, limb or health, to liability under the German Product Liability Act (Produkthaftungsgesetz), to any warranty assumed by us, for damage due to a culpable breach of essential contractual obligations or to other cases of mandatory statutory liability."

However, liability for breaching material contractual obligations shall be limited to compensation for foreseeable damage typical of the contract.

5. Warranty claims can only be made by the direct buyer and are not transferable.

VII. Retention of title

1. We retain the title to the delivery item until complete fulfilment of all claims to which we are entitled against the buyer from the entire business relationship.

The buyer must insure the reserved goods against theft, damage, destruction and accidental loss (in particular fire and water) and provide evidence of this on request. The buyer must provide us with information about the whereabouts of the goods supplied and allow us and our authorised representative to enter the storage location.

2. If the delivery item and its connection is processed, we shall acquire co-ownership of the new item produced in the ratio of the value of the goods supplied under retention of title to the value of the new item created through the processing. The invoice value, or alternatively the market value, shall be decisive for the value of the goods supplied under retention of title and the value of the new item, whereby the time of processing shall be decisive for the value of the processing. The buyer shall act on our behalf during processing without, however, acquiring any claims against us due to the processing.
3. The buyer is authorised to process or sell goods supplied under retention of title in the ordinary course of business as long as the buyer is not in default towards us. The buyer hereby assigns to us in full the claims to which the buyer is entitled from such sales by way of security. We revocably authorise the buyer to collect the assigned claims for the buyer's account in the buyer's own name. At our request, the buyer shall disclose the assignment and hand over the information and documents required.
4. If the securities exceed our claims by more than 25%, we shall be obliged to release the excess part of the securities to which we are entitled to the buyer at the buyer's request or at the request of the buyer's creditors.
5. The buyer must inform us immediately if enforcement is levied against goods supplied under retention of title or claims that have been transferred to us through advance assignments. Costs and damages shall be borne by the buyer.

VIII. Export orders

Deliveries to other countries shall be made exclusively on the basis of these Terms and Conditions of Sale and Delivery.

If the goods are delivered to another member state of the European Union (EU), the buyer is obliged to inform us of their VAT identification number, through which the delivery is processed, and their line of business before dispatch.

If the legislation of the buyer's country makes remittance of the purchase price to us difficult or if this country's foreign currency falls, we shall be entitled to refuse deliveries without liability for damages or to demand a corresponding amendment to the terms of purchase and delivery periods. The buyer is also obliged to compensate us immediately for any exchange rate fluctuations to our disadvantage if orders are paid in a currency other than euros.

Disputes shall be finally settled in accordance with the Rules of Conciliation and Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with these Rules, if both parties agree to this procedure.

IX. Design changes

We reserve the right to make design changes at any time, but are not obliged to make such changes to products that have already been delivered.

X. Copyright

If deliveries are made according to drawings, samples or other information provided by the buyer and if patent, design or trademark rights of third parties are infringed as a result, the buyer shall be liable to us for the resulting damage and loss of profit.

XI. Data protection

We work with an electronic data processing system. The buyer hereby gives us their express consent to process and store data that has become known to us in the context of contractual relationships and is necessary for order processing.

XII. Place of fulfilment and jurisdiction

The place of fulfilment for the delivery is the respective place of dispatch of the goods. The place of fulfilment for payment is the registered office of Möhlenhoff, Salzgitter.

For all disputes arising from the contractual relationship, the registered office of Möhlenhoff, Salzgitter is the agreed, exclusive place of jurisdiction.

XIII. Final provision

Should individual provisions of these Terms and Conditions of Sale and Delivery be or become invalid, this shall not affect the legal validity of the remaining provisions. The provision in question shall be replaced by a valid provision that comes as close as possible to the intended economic purpose. The same applies if there is a gap.

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