

Actuator: 24 V Standard

The Actuator: 24 V Standard is a thermoelectric actuator for opening and closing valves and small valves on heating circuit distributors of surface heating and cooling systems. The predominant area of application is the energy-efficient room-by-room temperature control in the area of building services and automation. The Actuator 24 V Standard is controlled by a 24 V room thermostat with two-point output or pulse-width modulation.

The Actuator of the 5th generation has been specially developed for the customer-specific use in OEM businesses. The modular structure offers diverse differentiation possibilities for customer-specific designs.



1.1 Features

- Modern OEM design
- Travel path variants 4.0 mm (further variants on request)
- Design "normally closed" (NC)
- Power consumption 1 watt
- Complete compatibility to the valve adapter system
- Simple plug-in installation
- 360° installation position
- Patented 100% protection in case of leaky valves
- "First open" function
- Adaptation check on the valve
- Alignment aid on the valve
- Compact size, small dimensions
- All around function display
- Noiseless and maintenance-free
- High functional safety and long expected service life
- Certified by the TÜV

1.2 Variants

24 V types*:	Stroke	Closing force	Control direction	Running times OPEN / CLOSED	"First Open" function	Scope of supply
A404	4.0 mm	100 N	NC	approx. 3.5 min	yes	

- Actuator 24 V in individual packaging
- 1 m connection line, grey PVC H03VV 2 x 0.75 mm²
- Installation instructions in 12 languages

The following extension possibilities resp. differentiations from the basic version are available optionally:

Cable	Standard	2 m, 3 m, 5 m, PVC H03VV in grey – 2 x 0.75 mm ² (special lengths shorter than 25 m)
	Non-halogen	1 m, 2 m, 3 m, 5 m, Hal F H03Z1Z1 in white – 2 x 0.75 mm ² For the compliance with fire protection and environmental regulations.
Valve adapters	adapters are available for all valves and distributors	
Packaging	Packaging can be manufactured and printed individually according to requirements.	
Imprint on casing	Laser marking of the company logo and the individual type designation	
Colour of casing and cable	Homogeneous colouring, colour of the function display or function cap matching your product design or corporate design	
NRTL approval	Approval according to UL specification	
Please contact us if you have further wishes.		

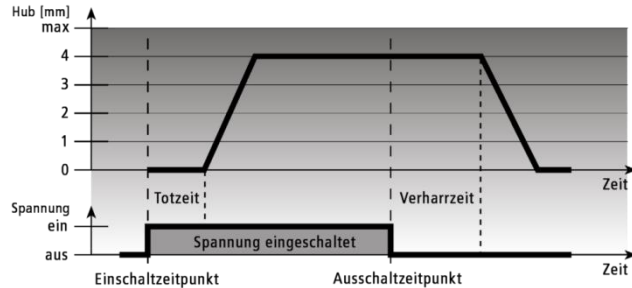
Accessories

- Protection cap SK 1004

2 Function

The actuator mechanism of the Actuator uses a PTC resistor-heated elastic element and a compression spring. The elastic element is heated by applying the operating voltage and moves the integrated plunger. The force generated by this movement is transferred to the plunger, thus opening or closing the valve.

2.1 Version NC: Normally closed (valve closed)



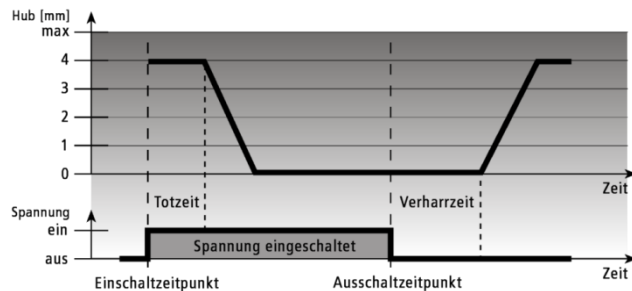
In case of the normally closed version, the valve is opened steadily by the plunger motion upon switching on the operating voltage and after expiry of the dead time.

After the operating voltage is cut and after expiry of the hold time the valve is closed evenly by the closing force of the compression spring.

The closing force of the compression spring is matched to the closing force of commercially available valves and keeps the valve closed when de-energised.

Figure: Example with respect to the travel path of 4 mm. The characteristic curve of the travel path of 5 mm is the result.

2.2 Version NO: Normally open (valve open)



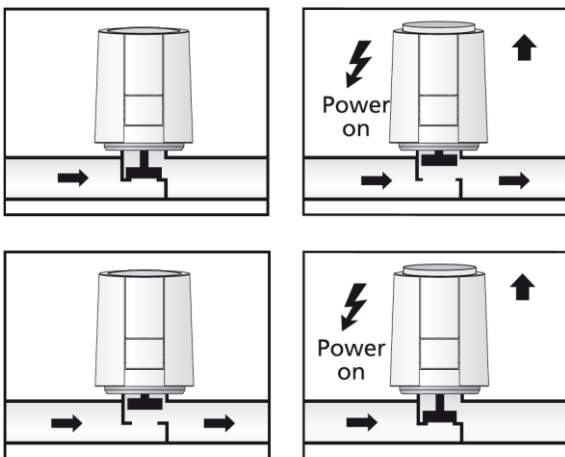
In case of the normally open version, the valve is closed steadily by the plunger motion upon switching on the operating voltage and after expiry of the dead time.

After the operating voltage is cut and after expiry of the hold time the valve is opened evenly by the closing force of the compression spring.

Figure: Example with respect to the travel path of 4 mm. The characteristic curve of the travel path of 5 mm is the result.

2.3 Function display

The function display (all around display) of the Actuator shows at the first glance whether the valve is open or closed; this can also be felt in the dark.



- For the **version NC: Normally closed** extracts the function display when the valve opens.
- For the **version NO: Normally open** extracts the function display when the valve is closed.

2.4 "First Open" function (for NC variants only)

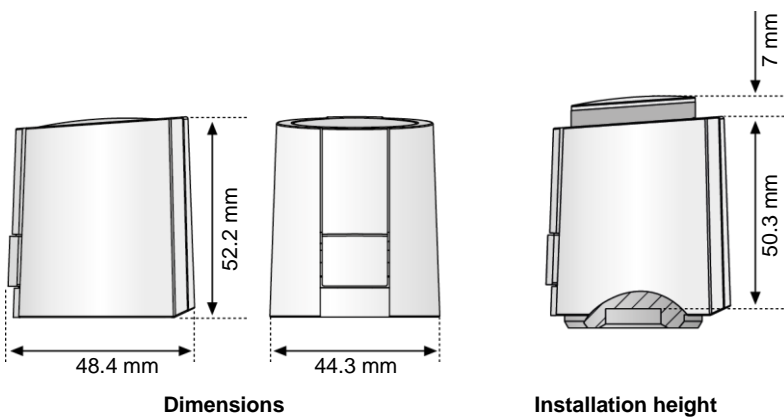
In its delivery condition, the Actuator is normally open due to the "First Open" function. This enables heating operation during the carcass construction phase even when the electric wiring of the room-by-room temperature control is not yet complete. When commissioning the system at a later date, the "First Open" function is automatically unlocked by applying the operating voltage (for more than 6 minutes) and the actuator is fully operable.

3 Technical data

Voltage	24 V AC/DC, +20%...-10%	
Max. inrush current	< 300 mA during max. 2 min.	
Operating power	1 W ¹⁾	
Stroke	4.0	
Actuation force	100 N +5 %	
Fluid temperature	0 to +100 °C ²⁾	
Storage temperature	-25 °C to +60 °C	
Ambient temperature	0 to +60 °C	
Protection class	III	
Degree of protection	IP 54 ³⁾	
CE conformity according to	EN 60730	
Casing	Material	Polyamide
	Colour	Light grey (RAL 7035)
Connection line	Type	2 x 0.75 mm ² PVC
	Colour	Light grey (RAL 7035)
	Length	1 m
Weight with connection cable (1 m)	100 g	
Surge strength according to EN 60730-1	2.5 kV	

1) measured with precision power meter LMG95
2) or higher, depending on the adapter
3) in all installation positions

3.1 Dimensions



3.2 Certificates



The Actuator 5 is certified by TÜV Süd

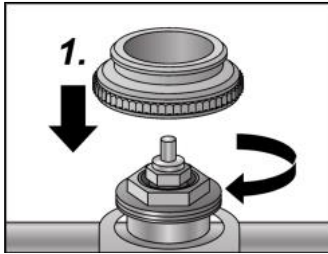


The EU Directive 2012/19/EG controls the return and the environment-compatible disposal of electric and electronic devices.

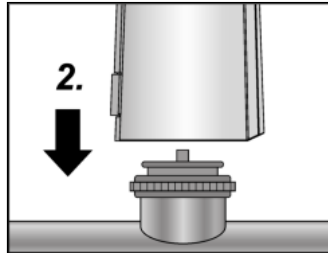
4 Installation notes

4.1 Installation with valve adapter

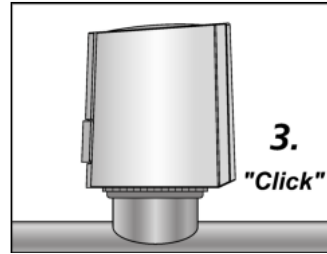
The valve adapter assortment guarantees a perfect match of the actuator to almost all valve bottoms and heating circuit distributors available on the market. The Actuator 5 is simply plugged on to the valve adapter previously installed manually.



1. Screw the valve adapter manually onto the valve.

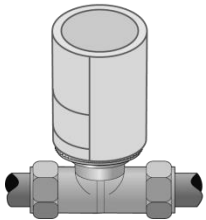


2. Position the Actuator manually in vertical position to the valve adapter.

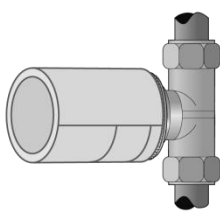


3. Latch the Actuator 5 to the valve adapter by manually applied vertical pressure until a clicking sound is heard.

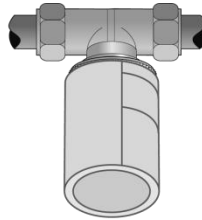
4.2 Installation position



vertical



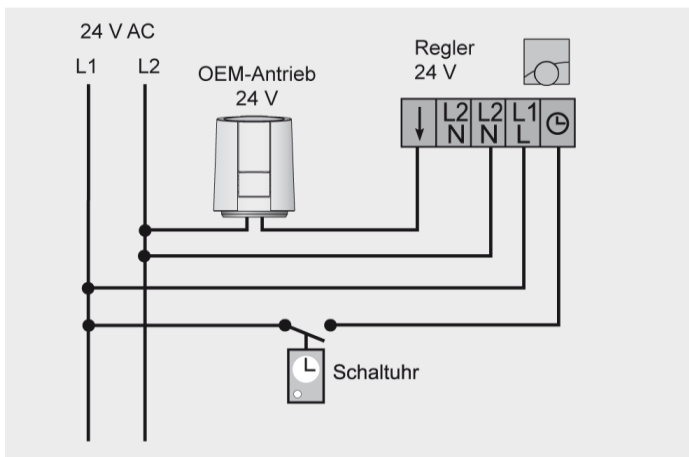
horizontal



“overhead”

The Actuator must be installed preferably in vertical or horizontal installation position. In case of “overhead” installation, special circumstances (e. g. drainwater) can reduce the lifetime of the actuator.

4.3 Electric connection



Cable

We recommend the following cable lengths for installing a 24 V system:

Cable	Section / diameter	Length
J-Y(ST)Y	0.8 mm	45 m
NYM / NYIF	1.5 mm ²	136 m

Transformer/power supply

A safety isolating transformer according to EN 61558-2-16 (for the AC variant) or a switching power supply according to EN 61558-2-16 (for DC variant) must always be used.

The dimensioning of the transformer or the switching power supply results from the making capacity of the Actuators:

Rule-of-thumb formula: $P_{\text{transformer}} = 6 \text{ W} \times n$
 n = number of OEM Actuators

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