Translation from Romanian

DATA SHEET

1W THERMOELECTRIC HEAD

Internal code: CAPA20405MK

1. DESCRIPTION AND USE

The standard 230 V variant is a thermoelectric actuator for valves, intended to open and close the valves on the distributors of heating circuits of underfloor heating or cooling systems. The main field of application is the energy-efficient control of room temperature in building management and home automation systems. The 230 V thermoelectric actuator can be controlled by a 230 V room thermostat with on-off output or by pulse width modulation.

2. PRODUCT RANGE

The standard 230 V thermoelectric actuator is supplied with a fixed connection cable, with a blue operation indicator, with a valve mounted adapter and a laser marking.

Type of product:

230 V variants:	Stroke	Actuation force	Power failure status	Closing and opening duration	"First-open" function	The contents of the delivered equipment
CAPA20405MK	4.0 mm	100 N	NC	~ 3.5 min	Yes	Standard 230 V thermoelectric actuation in one set 1 meter of grey connection cable, PVC H03VV 2 x 0.75 mm^2 Installation manual VA90 valve mounted adapter

3. TECHNICAL CHARACTERISTICS

3.1 General technical characteristics

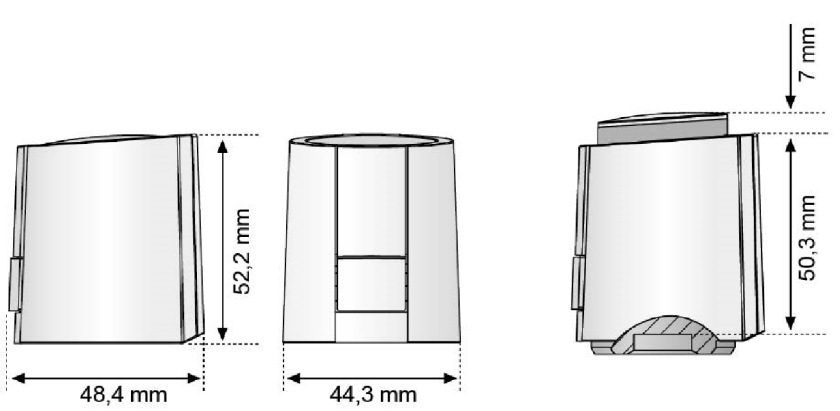
Working voltage	230 VAC, +10%...–10%, 50/60 Hz	
Maximum starting current	< 550 mA for max. 100 ms	
Working power	1 W [1)]	
Stroke (movement of the thermoelectric actuator)	4.0 mm	
Actuation force	100 N ± 5%	
Fluid temperature	0 to +100 °C [2)]	
Storage temperature	-25 °C to +60 °C	
Ambient temperature	0 to +60 °C	
Protection rating	IP 54 [3)]/II	
CE conformity as per	EN 60730	
Housing material/housing colour	Polyamide/light grey (RAL 7035)	
Connection cable/colour	2 x 0.75 mm^2 PVC/light grey (RAL 7035)	- Measured using the LMG95 reference and precision instrument
Cable length	1 m	
Weight with connection cable (1 meter)	100 g	- It can be even higher, depending on the adapter
Voltage peak protection according to EN 60730-1	Min. 2.5 kV	- In all installation positions

- Details
- Compact and robust design
- Self-adaptive 4.00 mm stroke (5.00 mm on request)
- Normally closed (NC) variant
- 1 W power consumption
- Full compatibility with the valve adapter system
- Simple snap-on mounting
- Mounting position rotated up to 360°
- Patented system for 100% protection against leaking valves
- First-open function
- Check adaptation on the valve
- Aid for alignment on the valve
- Compact construction, small dimensions
- Operating indicator visible from any angle
- It does not generate noise and it does not require maintenance
- High operating safety and long expected life
- Guaranteed protection against voltage peaks
- TÜV certified

3.2 Certificates

The thermoelectric actuation is certified by TÜV Süd.

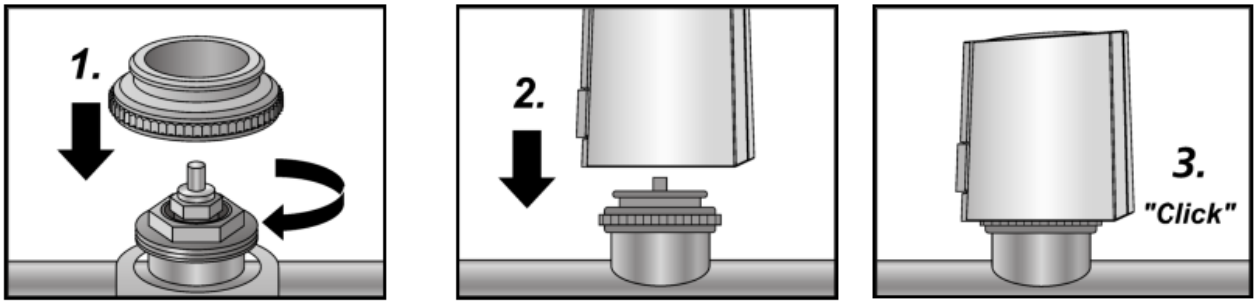
3.3 Dimensions



Dimensions **Installation height**

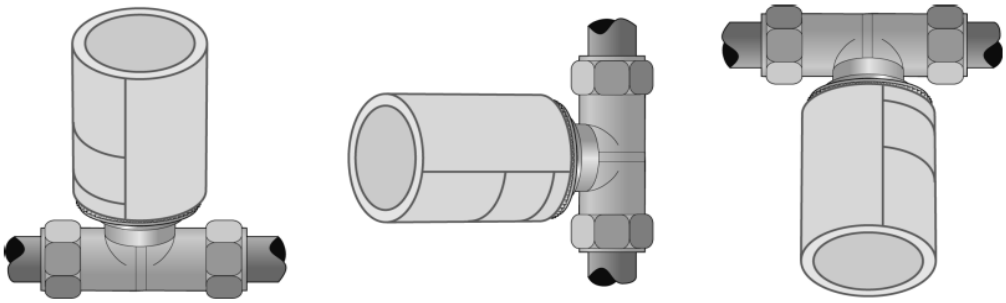
4. USE AND MOUNTING RULES

4.1 Installation with valve adapter



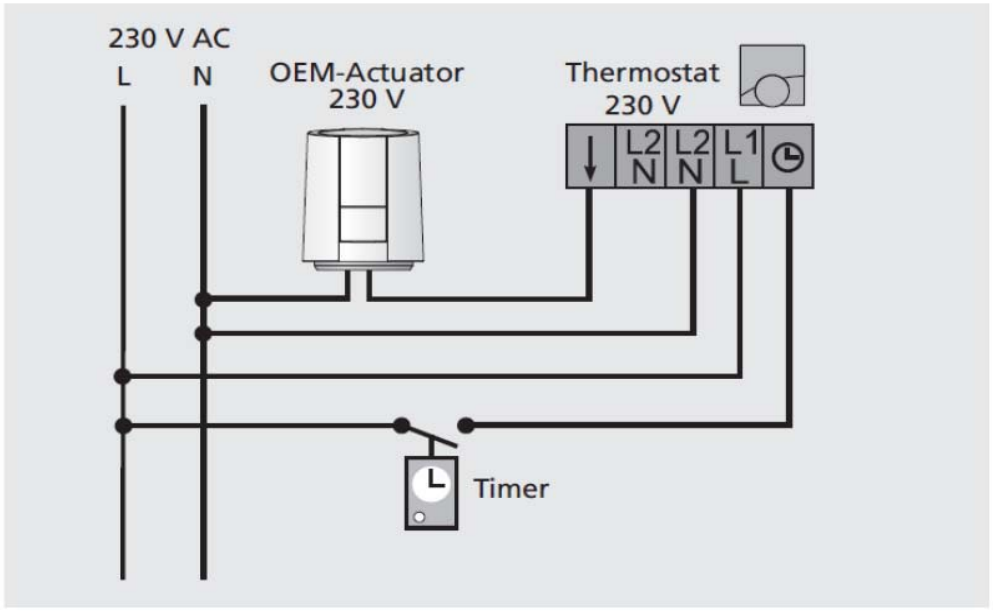
- First screw the adapter onto the valve by hand.
- Position the thermoelectric actuator vertically on the valve adapter.
- Press manually vertically downwards, and the thermoelectric actuator snaps on with a click on the valve adapter.

4.2 Installation positions



The preferred installation position of the thermoelectric actuator is vertical or horizontal. An upside down position may reduce the life of the product under certain special circumstances (e.g. in the presence of contaminated water).

4.3 Installation positions



We recommend using the following cables when installing in 230 V systems:

Lightweight cable, coated in 1.5 mm^2 NYM plastic

Flat cable for buildings, 1.5 mm^2 NYIF

5. FUNCTIONS

The thermoelectric actuator mechanism uses a wax element heated by a PTC resistor and a compression spring. The wax element is heated by applying the working voltage and moves the integrated piston. The force generated by this movement is transferred to the valve lifting device and opens or closes the valve.

5.1 Normally closed (closed valve)

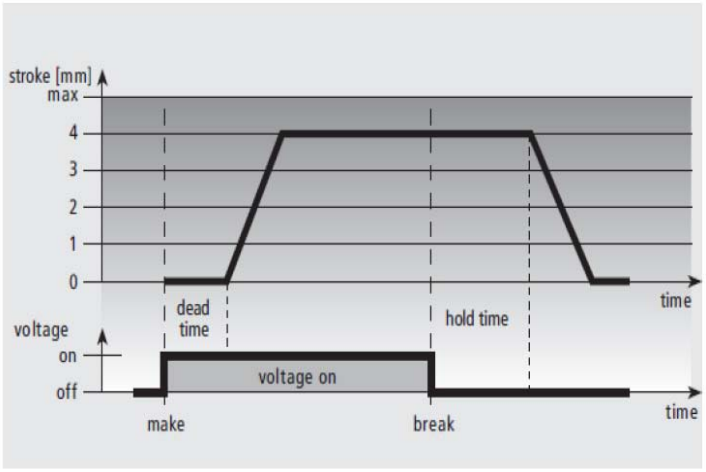


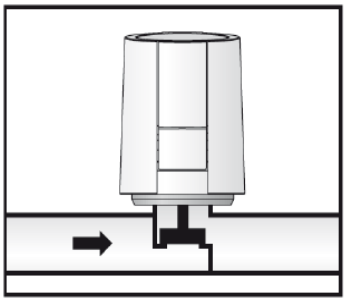
Figure: Example for a design with a 4 mm stroke.

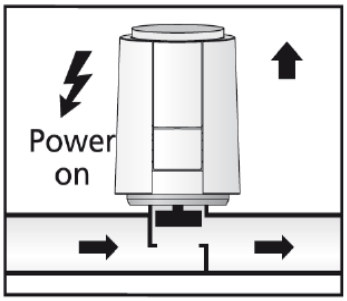
The actuator is normally closed; the valve is opened continuously by the movement of the piston after the application of the working voltage and after the dead time ends.
When the working voltage supply is off and the holding time ends, the valve closes smoothly due to the closing force of the compression spring.
The closing force of the compression spring is adapted to the closing force of commercially available valves and holds the valve in its normally closed state.

5.3 The operation indicator

The operation indicator of the thermoelectric actuator (visible from all angles) allows the identification at a glance of the operation status (valve open or closed). It is also possible to identify the operating status when the area is dark.

When the operation indicator is in the raised position, it indicates that the valve is open.





5.4 “First-open” function

Upon delivery, thanks to this function, the thermoelectric actuator is kept open when it is not powered. This allows the heating to operate during the construction phase of the building, even if the electrical system has not yet been completed. Upon the first power supply, the first-open function will be unlocked by keeping the electric voltage applied for more than 6 minutes. Afterwards, the thermoelectric actuator can be put into normal operation.

6. WARRANTY PERIOD

The warranty period is 36 months from the date of delivery, provided that the customer/user fully complies with the transport, handling and installation rules.