

Macon ZMC - ES

Macon Model ZMC- ES 24V End switch is a thermoelectric valve drive for opening and closing valves and small valves used in the scope of HVAC technology. The integrated micro switch with floating contact allows direct operation of a pump or fan control unit. The Macon ZMC - ES 24V End switch is controlled by a 24 V room thermostat with two-point output or pulse-width modulation.



ELECTRIC
OPERATORS

1) Features

- 360° installation position
- Integrated switch with floating contact
- Patented 100% protection against leaky valves
- Available in normally closed (NC)
- Power consumption 1 watt
- Simple snap-on installation
- High functional safety and long expected service life

- First-Open function
- Adaptation check on valve
- Alignment aid on the valve
- Compact size, small dimensions
- All round function display
- Noiseless and maintenance-free

2) Function

The actuator mechanism of the Macon ZMC-ES with end switch uses a PTC resistor heated wax element and a compression spring. The wax element is heated by applying the operating voltage and moves the integrated ram. The force generated by this movement is transferred on the valve lifter and opens and closes the valve. The integrated micro switch allows the use of its switching signal depending on the opening of the valve.

2.1 Version NC: Normally Closed (valve closed)

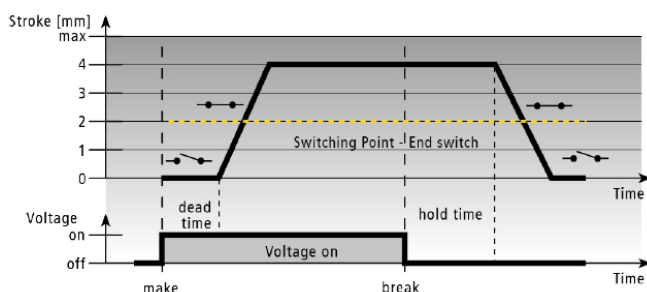


Figure: Example with respect to the travel path of 4 mm. The characteristic curves of the travel path of 5 mm result from this.

In case of the normally closed version, the valve is opened steadily by the ram motion upon switching on the operating voltage and after expiry of the dead time. The integrated micro switch is switched with a travel path of approx. 2 mm.

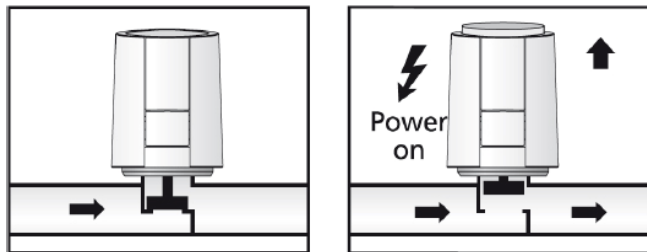
After the operating voltage is cut and after expiry of the hold time the valve is closed evenly by the closing force of the compression spring. The integrated switch is closed after an actuator travel of approx. 2 mm.

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



2.2 Function Display

The function indicator of the Macon ZMC - ES (all around view) allows identifying the operating condition (valve open or closed) at a glance. It is also possible to feel the current operating state when it's dark.



- In case of the NC version, an extended function display shows opening of the valve.

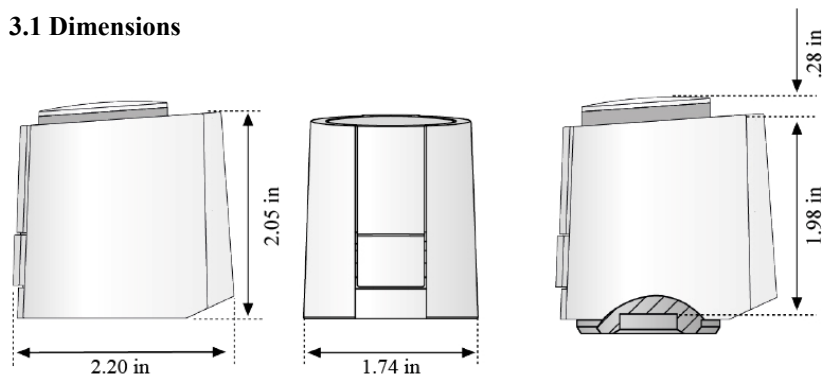
2.3 “First Open” function (for NC only)

In its delivery condition, the Macon ZMC - ES is kept open when de-energized due to the First-Open function. This enables heating operation during the construction phase even when the electric wiring of the individual room control is not yet complete. During the later electrical start-up, the First Open function is automatically unlocked by applying the operating voltage for more than 6 minutes. The valve drive is now fully operable.

3) Technical Data

Operating voltage	24 V AC/DC +20%...-10%	
Max. inrush current	< 300 mA during max. 2 min.	
Operating power	1 W ¹⁾	
Stroke (actuator travel)	4.0 / 5.0 mm	
Actuating force	100 N ±5%	
Switching current for micro switch	24 V AC: 3 A resistive load 1 A inductive load	
Switching point of micro switch NC	approx. 2 mm	
Fluid temperature	32° F - 212° F ²⁾	
Storage temperature	-130° F - 140° F	
Ambient temperature	32° F - 140° F	
Degree / class of protection	IP 54 ³⁾	
CE conformity according to	EN 60730	
Housing material / color	Polyamide / light grey (RAL 7035)	1) measured with precision reference meter LMG95
Connection line / color	4 x 0.75 mm ² PVC / light gray (RAL 7035)	2) depending on the adapter even higher
Cable length	3' 3"	3) in all installation positions
Weight with connecting cable (1 m)	approx. 5.3 oz	
Surge protection according to EN 60730-1	min. 2.5 kV	

3.1 Dimensions



Dimensions

Installation height



5) Accessories

- Protection Cap AA SK 1004



Protection against theft and vandalism, available for valve drives with a stroke of 4mm or 5mm