

# SpaceLogic™ MP125

## Proportional/Modulating Actuator



### Product Description

The **SpaceLogic** MP125 is a proportional thermoelectric valve actuator for continuous control of heating and cooling systems.

The actuator's position is directed by a 0-10 Vdc signal from the controller or thermostat.

The MP125 has valve stroke calibration, allowing it to be used on:

- VP228E and VP229E PIBCV Valves
- VZ22, VZ32, VZ42 Zone Valves
- TRV-4 Radiator Valves from Drayton

The MP125 is silent in operation allowing for use in quiet applications, such as hotel guest rooms.

### Features

- Modern sleek design suitable for living spaces
- 1.0 to 6.5 mm (0.04 to 0.3 in) adjustable stroke length
- Normally Closed (NC) and Normally Open (NO) variants
- Only 1.2 watts of power input
- Control by a 0 – 10 Vdc signal
- Automatic stroke calibration on the first power up
- Short response times, for improved control response
- 360° installation position
- IP 54 protection in case of leaky valves
- Plug-in connecting cable
- Compact size, small dimensions
- Visible stroke position indicator
- Noiseless and maintenance-free
- High functional safety and long expected service life
- 24 Vdc Normally Closed (NC) variant

### Available Models

Product Number	Operating Voltage	Control Voltage	Closing Force	Control Direction	Average Actuation Delay
MP125NC24M <sup>a</sup>	24 Vac	0-10 V	125 N	NC	30 s/mm
MP125NO24M <sup>a</sup>	24 Vac	0-10 V	125 N	NO	30 s/mm
MP125NC24DCM <sup>a</sup>	24 Vdc	0-10 V	125 N	NC	30 s/mm

- a. Includes adapter for the VP228E/VP229E/TRV-4 valves, 1 m cable, and installation instructions.

### Accessories

Product Number	Description
MP125ADZ80	Adaptor for VZ22, VZ32, VZ42 – 20 pcs
MPCAB10M	10 m cable – 5 pcs

### Operation

The actuator mechanism in the MP125 Actuator comprises a PTC resistor heated elastic element and a compression spring.

As the elastic element is heated, it expands against the compression spring, regulating the power supply into the element from the 0-10 Vdc signal will control the actuator position and in turn the valve opening and closing position.

With no motors used in the actuator construction, the operation is entirely silent.

#### First Open Position

In a factory setting, both NC and NO actuators will keep the valve open when first mounted on a valve, this allows the hydronic network to be primed and flushed. The NC actuator is latched out of this open position after powering up for the first time.

#### Valve Stroke Calibration

All versions of the MP125 Actuator will calibrate to the valves as soon as power is first applied. It is therefore essential that the valve flow rate has been set (for PIBCV valves) and the actuator is mounted securely beforehand.

Calibration determines both the valve closing point as well as the valve full open point. Once the stroke position and limits are known the actuator becomes operational.

The stroke limits are recorded to memory and used in the positional control of the valve during normal operation and after any voltage interruption. The valve stroke is also checked during normal operation and adapted as needed to ensure reliable long-term use.

Once the stroke has been calibrated, the actuator will respond to the control signal and after a predetermined dead time will move precisely to the calculated position and drive the valve accordingly.

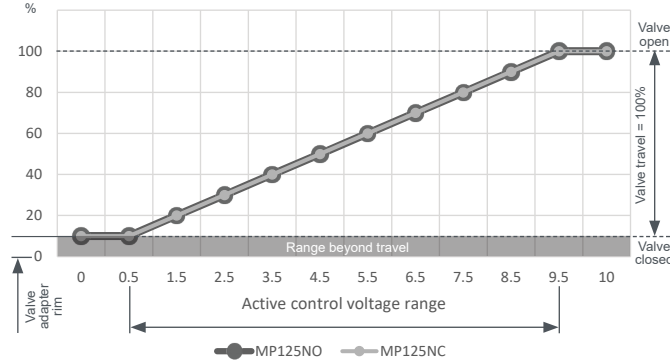
An internal position detection system controls the temperature required for the stroke and consequently the energy intake of the elastic element. No excess energy is stored inside the elastic element. If the control voltage is reduced, the electronic control system immediately adapts the heat input to the elastic element.

In the range of 0 – 0.5 Vdc, the actuator remains in a quiescent state in order to ignore ripple voltage occurring in long cables (rpm). The closing force of the compression spring keeps the valve closed when de-energized (normally closed variants).

### Valve Path Recognition

Note in the chart how the actuator calculates the stroke and automatically adapts the active control voltage range to this. This allows even more precise control of the valve. The complete voltage range of the 0 – 10 Vdc controller/thermostat is used for flow control.

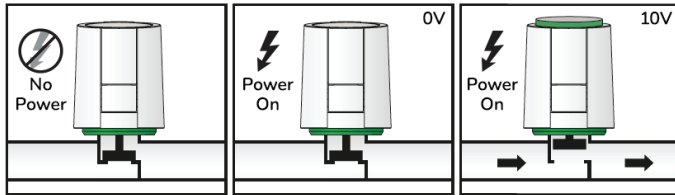
### MP125 Stroke vs Control Signal



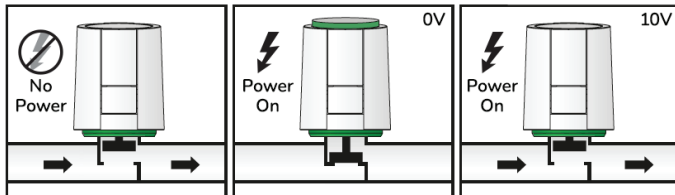
### Actuator Indicator & Valve Position

The position indication cap of the MP125 shows at the first glance whether the valve is open or closed. There are 2 clues to help determine the indication cap position: the visibility of the green-colored band on the cap and its height.

For the NC version: The position indication cap is extended fully when the valve is open at 10V.



For the NO version: The position indication cap is partially extended when the valve is closed, and is flush when the valve is open.



### “First Open” Position (for NC Variants Only)

In its delivery condition, the MP125 actuator when mounted on a valve, without any electrical power supplied, will provide a “First Open” mechanical position function to the valve. This allows the hydronic system to be primed, dosed, and perhaps flushed.

During commissioning, the “First Open” function is automatically unlocked after applying the power supply for 6 minutes. The valve stroke calibration process is performed thereafter and takes a further 19 minutes. After the full initialization time of 25 minutes, the actuator is fully operable.

### Antitheft Device



The MP125 actuator can be protected against unauthorized disassembly by removing the locking latch.

### Recalibration Process.

The MP125 can be recalibrated to the valve stroke length, regarding the VP228E and VP229E PIBCV valves, as the flow is adjusted on the scale plate, the MP125 will need to be recalibrated to valve stroke length every time the valve is adjusted.

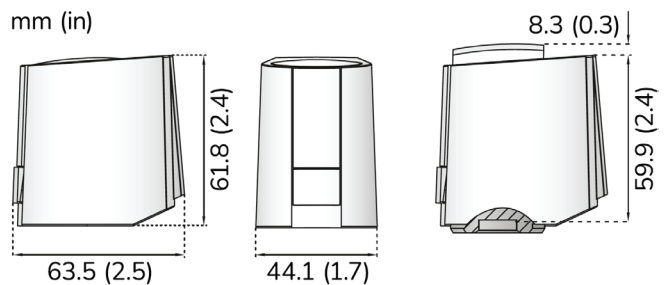
The recalibration process is initiated by cycling the power supply off and back on again, and fixing the control signal to 0 Vdc for a minimum of one hour, then to 10 Vdc for a minimum of one hour. After 8 hours the new stroke is registered in the actuator.

### Specifications

Operating voltage, AC	24 Vac, -10% to +20 %, 50-60 Hz
Operating voltage, DC <sup>1</sup>	24 Vdc +/- 15%
Control voltage range (according to model)	0 to 10 V (reverse polarity protected)
Max. inrush current	< 320 mA for max. 2 min.
Operating power	1.2 W
Resistance of control voltage input	100 kΩ
Max. stroke	6.5 mm (0.3 in)
Calibrated stroke range	1.0 to 6.5 mm (0.04 to 0.3 in)
Actuating force	125 N
Fluid temperature	0 to 100 °C (32 to 212 °F)
Storage temperature	-25 to 60 °C (-13 to 140 °F)
Ambient temperature	0 to 60 °C (32 to 140 °F)
Degree of protection	IP 54 <sup>2</sup>
Protection class	III
Electrical conformity	EN/UL 60730
Casing	Material: Polyamide Color: White Type: 3 x 0.22 mm <sup>2</sup> PVC
Connection	Color: White Length: 1 m
Weight	With connection cable (1 m): 111 g

- Any switch power supply must be in accordance with EN 61558-2-16 with a maximum output power of 100 VA
- In all installation positions with cable fully inserted

### Dimensions



### Certifications

UK Representative	Manufacturer
Schneider Electric Limited Stafford Park 5 Telford, TF3 3BL United Kingdom	Schneider Electric Fabriksvägen 1 137 37 Västerhaninge Sweden

