

MP300-SR

Spring Return Multi-signal Actuators for VP228E/VP229E SmartX PIBCV, DN10-32



Product Description

MP300-SR actuators with Floating and Proportional control are low voltage motoric actuators for the Smart X PIBCV DN10-32 Valves. These actuators have a spring return safety function that provides for an open or close valve in the event of power loss. The Spring return safety function should not be used for two position control.

Specifications

Power supply	24 V; +10...-15 %; AC
Power consumption	9 VA
Frequency	50/60 Hz
Control input Y	0...10 (2...10) V 0...20 (4...20) mA
Output signal U	0...10 (2...10) V
Closing force	300 N
Max. stroke	5.5 mm
Speed	11.75 (50 hz) s/mm 14 (60 hz) s/mm
Max. medium temperature	120 °C
Ambient temperature	0 ... 55 °C
Storage and transport temp.	-40 ... 70 °C
Grade of enclosure	IP 54
Weight	0.8 kg
CE marking in accordance with standards	Low voltage directive (LVD) 2006/95/EC: EN 60730-1, EN 60730-2-14 EMC Directive 2004/108/EC: EN 61000-6-2, EN 61000-6-3

Part Numbers

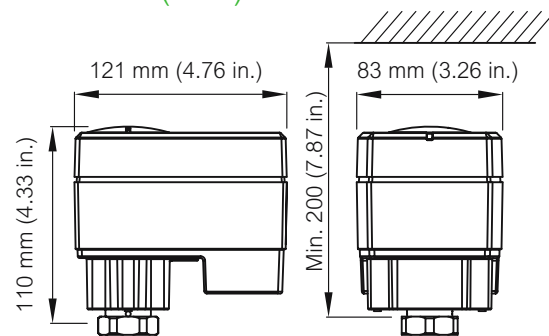
Part Number	Spring Return Direction	Linkage (included with actuator)
MP300-SRU	Up - Normally Open	Adapter *
MP300-SRD	Down - Normally Closed	Spacer

* Total height of the valve/actuator assembly increases with the use of the Adapter model.

Features

- The advanced design incorporates load related 'switch-off' to ensure that actuators and valves are not exposed to overload.
- The advanced design incorporates a diagnostic LED, operational data capture and self stroking feature.
- Low weight and robust.
- Spring Return operation in the event of power failure.

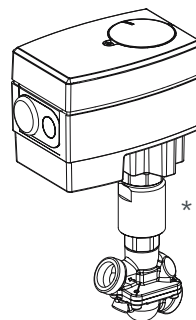
Dimensions (mm)



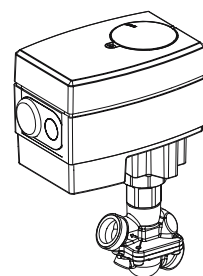
Actuator Valve Combinations

MP300-SRU for a normally open valve.

MP300-SRD for a normally closed valve.



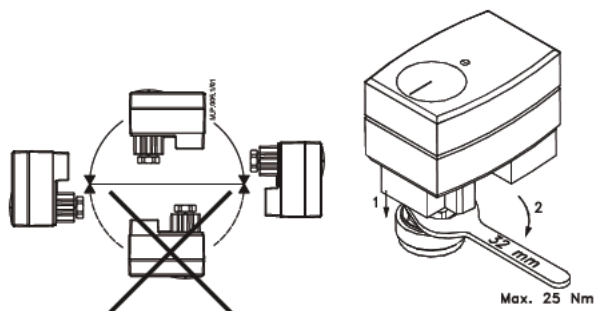
MP300-SRU +
VP228E, VP229E



MP300-SRD +
VP228E, VP229E

Mounting and Installation

The actuator should be mounted with the valve stem in a horizontal position, or pointing upwards. The actuator is fixed to the valve body by means of a mounting nut which requires a 32 mm screw key. The nut should be tightened with a torque of max. 25 Nm. Depending on the model, either an Adapter or Spacer is required for mounting.



Automatic self-stroking feature

When power is first applied, the actuator will automatically adjust to the length of the valve stroke. Subsequently, the self stroking feature can be re-initialized by changing position of DIP SW9.

Diagnostic LED

The red diagnostic LED is located on the pcb under the cover. It provides indication of three operational states: Actuator Healthy (Permanently ON), Self Stroking (Flashes once per second), Error (Flashes 3 times per second - seek technical assistance).

Commissioning

Complete the mechanical and electrical installation and perform the necessary checks and tests:

- Isolate control medium. (e.g. self stroking in a steam application without suitable mechanical isolation could cause a hazard).
- Apply the power. Note that the actuator will now perform the self stroking function.
- Apply the appropriate control signal and check the valve stem direction is correct for the application.
- Ensure that the actuator drives the valve over its full stroke, by applying the appropriate control signal. This action will set the valve stroke length.

Commissioning/testing feature

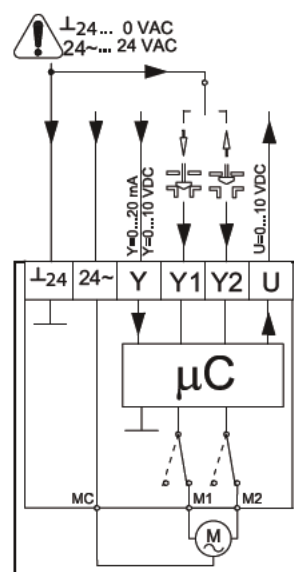
The actuator can be driven to the fully open or closed positions by connecting Source.

Wiring and Connections

Electrical connections can be accessed by removing the cover. Two M16×1.5 cable entries are provided. However, in order to maintain the enclosure IP rating an appropriate cable gland must be used.

Wiring length	Recommended square of the wiring
0...50 m	0,75 mm ²
> 50 m	1.5 mm ²

24~	24 Vac Power supply
⊥24	0 V Common
Y	0...10 V Input signal (2...10 V) 0...20 mA (4...20 mA)
U	0...10 V Output signal (2...10 V)



Manual Override

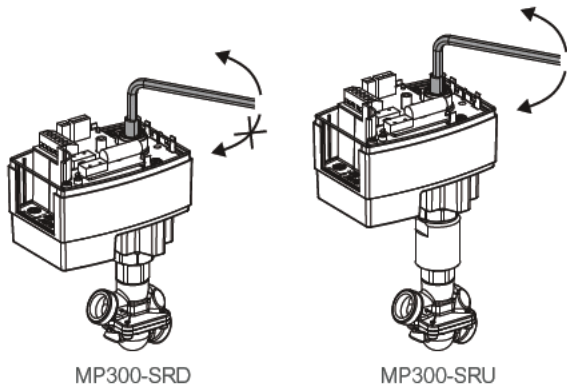
⚠ WARNING

DISCONNECT POWER

- Disable power to the actuator prior to operating the manual override.
- If the hex key is left in the hex manual override drive socket, the hex key will rotate as the actuator is driven. This is not recommended and damage could occur if the key is not free to rotate.

Failure to follow this instruction may result in equipment damage or personal injury.

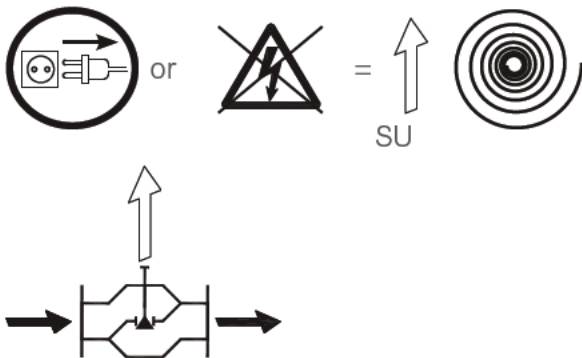
On spring versions manual override is achieved by disconnecting the power supply, removing the cover and inserting a 6 mm Allen key (not supplied) into the top of the positioning spindle and turning the key against the spring. Observe the direction of rotation symbol. To hold a manual override position, the key must be wedged. If manual override has been used then X and Y signal are not correct until the actuator reaches its end position. If this is not accepted reset the actuator.



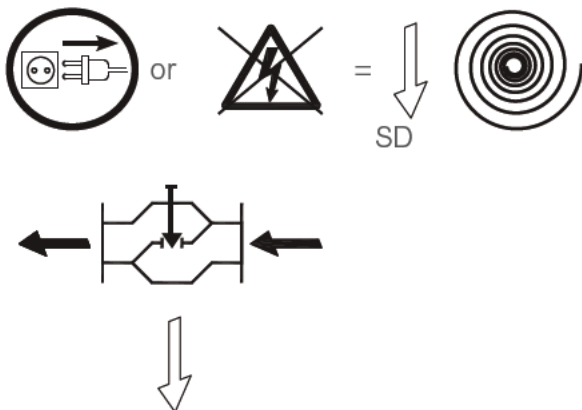
Safety Function

The safety function will fully open or close the valve when the power is removed, depending upon the spring action selected.

Spring UP (Normally Open)

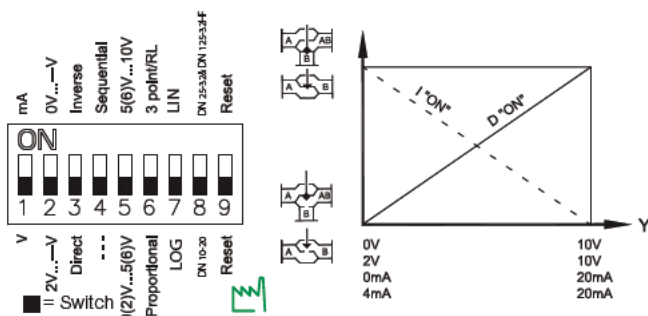


Spring DOWN (Normally Closed)



DIP Switch Setting

The actuator has a function selection DIP switch under the removable cover. In particular, if SW3 is set to ON, the actuator will perform as a 3-point actuator.



The switch provides the following functions:

- **SW1: V/mA - Input signal type selector:**
 - If set to OFF position, voltage input is selected.
 - If set to ON position, current input is selected.
- **SW2: 2V-10/0V-10 - Input signal range selector:**
 - If set to OFF position, the input signal is in the range from 2...10 V (voltage input) or from 4...20 mA (current input).
 - If set to ON position, the input signal is in the range from 0...10 V (voltage input) or from 0...20 mA (current input).
- **SW3: D/I - Direct or inverse acting selector:**
 - If set to OFF position, the actuator is direct acting (stem lowers as voltage increases).
 - If actuator is set to ON position the actuator is inverse acting (stem raises as voltage increases).
- **SW4: .../Sequential mode selector:**
 - If set to OFF position, the actuator is working in range 0(2)...10 V or 0(4)...20 mA. If set to ON position, the actuator is working in sequential range; 0(2)...5 (6) V or 0(4)...10 (12) mA or (5(6)...10 V) or (10(12)...20 mA).
- **SW5: 0...5 V/5...10 V - Input signal range in sequential mode:**
 - If set to OFF position, the actuator is working in sequential range 0(2)...5(6) V or 0(4)...10(12) mA.
 - If set to ON position, the actuator is working in sequential range; 5(6)...10 V or 10(12)...20 mA.
- **SW6: Prop./3-pnt - Modulating or 3-point mode selector:**
 - If set to OFF position, the actuator is working normally according to control signal.
 - If set to ON position, the actuator is working as 3-point actuator.
- **SW7: LOG/LIN: Linear of equal percentage flow through valve selector.**
 - If set to OFF position, the flow through the valve is equal percentage to the control signal.
 - If set to ON, the flow through the valve is linear according to the control signal.
- **SW8: DN 10-20/DN25-32 & DN15-32 HF.**
 - If set to ON position, MP300 can be mounted on valves from DN10-15 normal flow. The actuator will modulate on maximum stroke of 2.5mm.
 - If set to OFF position, MP300 can be mounted on valves from DN25-32 normal flow and valves from DN15-32 high flow. The actuator will modulate on maximum stroke of 4.5mm.
- **SW9: Reset/Calibrate:** Changing this switch position will cause the actuator to go through a self calibration cycle.

