

MP300-SRU/SRD

Spring Return Multi-signal Actuators
for VP228E/VP229E PIBCV, DN10-32 (½"-1¼")



Product Description

MP300-SRU/SRD actuators with Floating and Proportional control are low voltage motoric actuators for the **SpaceLogic** PIBCV DN10-32 (½"...1¼") 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 (-15...+10%) 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 (67 lbf) |
| Max. stroke | 5.5 mm (0.22 in.) |
| Speed | 11.75 (60 hz) s/mm 14 (50 hz) s/mm |
| Max. medium temperature | 120 °C (248 °F) |
| Ambient temperature | 0...55 °C (32...131 °F) |
| Storage and transport temp. | -40...70 °C (-40...158 °F) |
| Grade of enclosure | IP 54 (NEMA 3) |
| Sound power level (Running/ Spring Return) ** | 40 dB (A) |
| ** Consideration should be given to the noise of mechanical spring return actuators in hotel guest rooms or other applications requiring silent operation. | |
| Weight | 0.8 kg (1.77 lb) |
| EMC Directive & Standards | 2014/30/EU EN 61000-6-2 & EN 61000-6-3 |
| LVD Directive & Standards | 2014/35/EU EN 60730-1 & EN 60730-2-14 |
| RoHS2 Directives | 2011/65/EU & RoHS2 Amendment 2015/863/EU |
| UL CSA | c-UL-us LISTED using UL 60730-1 & -2 -14 and CSA/CAN E60730-1A & -2 -14 |

Part Numbers

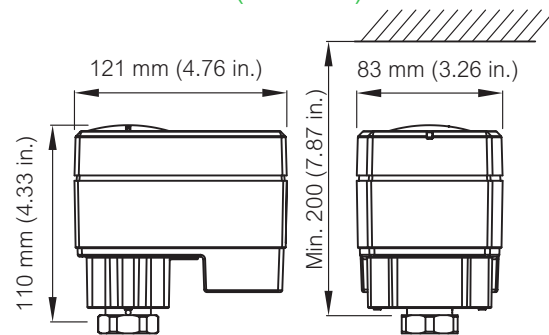
| Part Number | SR Direction | Linkage (incl. with actuator) |
|-------------|------------------------|-------------------------------|
| MP300-SRU | Up - Normally Open | Adapter * |
| MP300-SRD | Down - Normally Closed | Spacer |

* Total height of the 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.

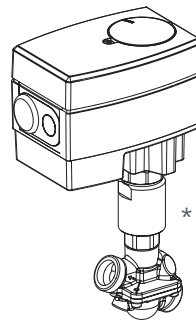
Dimensions mm (inches)



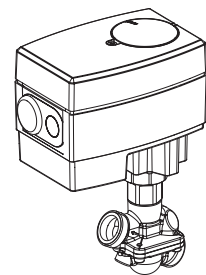
Actuator Valve Combinations

MP300-SRU for a normally open valve.

MP300-SRD for a normally closed valve.



MP300-SRU +
VP228E, VP229E

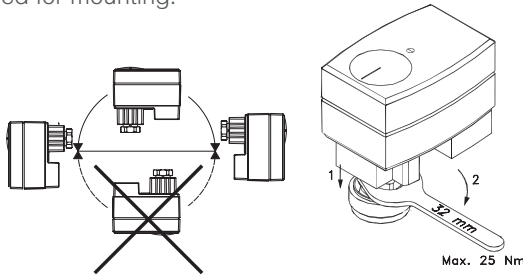


MP300-SRD +
VP228E, VP229E

Mounting and Installation

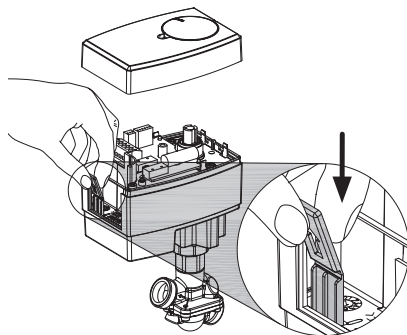
The flow should always be set on the valve before the actuator is mounted and calibrated. In the case of assemblies from North America, the flow is already set as per the tag. Any flow adjustment to an assembly already made will require a disassembly of the actuator, changes on the valve to be made, then a reassembly and calibration.

The actuator should be mounted with the valve pointing upwards whenever possible, if not the actuator should be orientated so the electrical cable entry is not prone to water ingress. The actuator is fixed to the valve body by means of a mounting nut which requires a 32 mm screw key. It is possible to re-position the actuator by slightly loosening the mounting nut sufficiently to allow the actuator to rotate. 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.



MP300-SRD removal from valve and reinstallation note

If the MP300-SRD is to be removed from the valve and reinstalled (e.g. for valve max. flow adjustments), the red spring lock must be reinstalled to put the spring into place. Wind the spring full CCW with the manual override, then hold in place and repower the actuator with 24 Vac which will allow you to push in the red spring lock. Red spring should be saved for future use.



MP300-SRD

Automatic self-stroking feature

When power is first applied, the actuator will automatically adjust to the closing point and the length of the nominal valve stroke. This valve stroke is defined by switch 8. 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 and Calibration

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

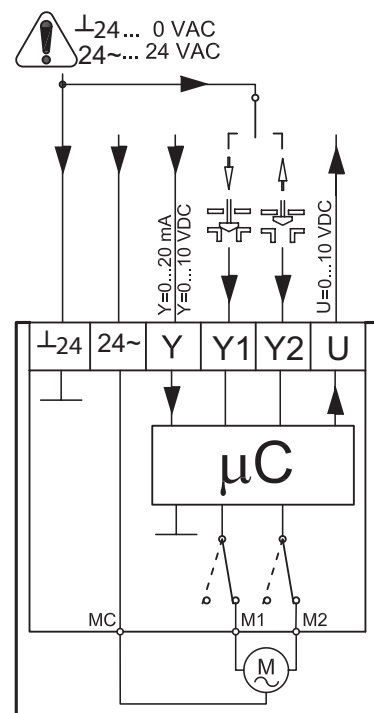
- Isolate control medium (e.g. self stroking in a pressurized hot temperature application without suitable mechanical isolation could cause a hazard).
- Apply the power. Note: upon first power up after factory delivery the actuator will perform self-stroking function. Self-stroking can be reinitialized thereafter using Dip Switch No 9.
- 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.

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

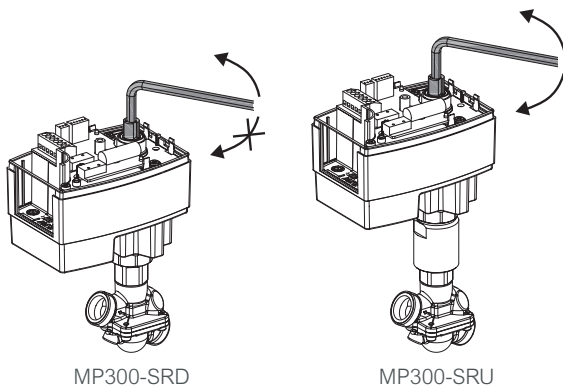
⚠ WARNING

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.

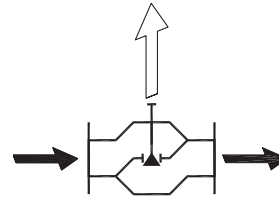
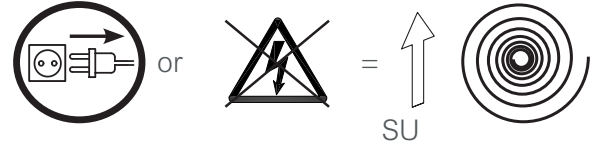
On spring versions, the manual override is achieved by disconnecting the power supply, removing the cover and inserting a 6 mm Allen key (not supplied) into the top of the positioning spindle and turning the key against the spring. Observe the direction of rotation symbol. To hold a manual override position, 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.



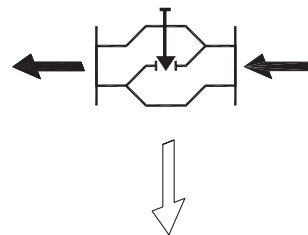
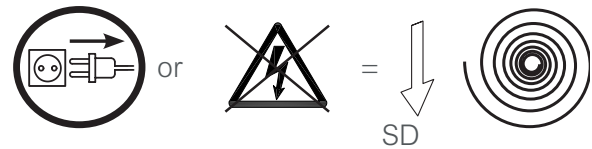
Safety Function

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)

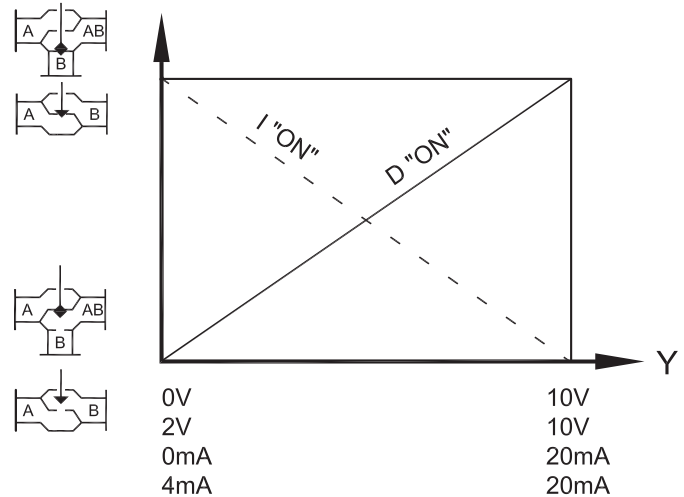


DIP Switch Setting

| | OFF ← | → ON | |
|----------------|-------|------|-----------------------|
| V | → | █ | mA |
| 2V...---V | ∞ | █ | 0V...---V |
| Direct | ↺ | █ | Inverse |
| --- | ↻ | █ | Sequential |
| 0(2)V...5(6)V | ↻ | █ | 5(6)V...10V |
| Proportional | ○ | █ | 3 point/RL |
| LOG | ↘ | █ | LIN |
| DN 10-20 LF&SF | ∞ | █ | DN 25-32 & DN 15-32HF |
| Reset | ↻ | █ | Reset |

█ = Switch

See the North American NPT to DN Metric to Sizing Reference below for DN (international valve sizes) and North American NPT sizes.



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 or equal percentage flow through valve selector.**
 - If set to OFF position, the flow through of 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 the OFF position, the actuator will modulate to a stroke of 2.5mm for the VP228E valves (DN10-20 Standard flow).
 - If set to the ON position, the actuator will modulate to a stroke of 4.5mm for the VP229E valves. (DN25-32 standard flow and DN15-32 high flow).
- **SW9: Reset:** Changing this switch position will cause the actuator to refresh the switch settings and a recalibration to the closing point of the valve.

North American NPT to DN Metric Sizing Reference

| | |
|-----|--------------|
| ½" | = DN10, DN15 |
| ¾" | = DN20 |
| 1" | = DN25 |
| 1¼" | = DN32 |

For the DN10 (½") to DN32 (1¼") PIBCV Valves, the 5th character in the second valve body part number field indicates it's valve flow rate type (L = Low, S = Standard, H = High), all flow rates are not available with all valve sizes.