

# SpaceLogic MP500C-SR

IP54 (NEMA 2) and IP65 (NEMA 4) Spring Return Actuators

**⚠ CAUTION**

**SPRING TENSION PRESENT**

**DISCONNECT POWER FOR MANUAL OVERRIDE OPERATION**

- During manual override be aware of spring tension and hex key movement with this actuator. If the hex key remains in the hex drive socket it will rotate due to spring tension and/or power re-engaging.
- A pinch-point exists during installation of adapter/valve positioning during the manual override.

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

**⚠ CAUTION**

**RISK OF BURNS OR FLYING PARTS**

If the valve stem, spindle, or plug has been damaged, it may blow out under pressure while servicing the actuator.

- Isolate and depressurize the valve before servicing.
- Manually check valve stem, spindle, or plug integrity by moving it within the valve. If the part can be removed, replace the valve assembly.

**Failure to follow these instructions may result in death or serious injury.**

## Spring Return Direction vs Valve Function

	Stem Up	Stem Down
	MP500C-SRU, MP500C-SRU-W	MP500C-SRD, MP500C-SRD-W
VP220 Valve Body	Valve Open	Valve Closed

## Manual Override Operation

Replace caps after operating manual override and lock.

a. 5mm (3/16") Hex (Allen) Key  
b. Lock screw. Flat screwdriver slot  
c. Manual override drive socket

	SRD	SRU
Stem Up		
Stem Down		

## Mounting

**MP500C-SRD ONLY**

- Operate the Manual Override to retract the actuator Screw Jack.
- Lock the manual override.

- Mount the lower stem coupler on the valve.
- Slide the upper stem coupler into the actuator brace.
- Position the actuator onto the valve neck.
- Slide in the U bolt brace.
- Screw and tighten the U-bolt mounting nuts, 20-25 N-m.
- MP500C-SRD(-W):  
 10°  
Release the manual override for the actuator to self-drive the jack screw downward until the two couplers are connected.
- MP500C-SRU(-W):  
  
Operate the manual override to extend the jack screw downwards until the two couplers are connected.

7. Exchange one of the Green indicators for a red (hot valve application) or blue (cold valve application).

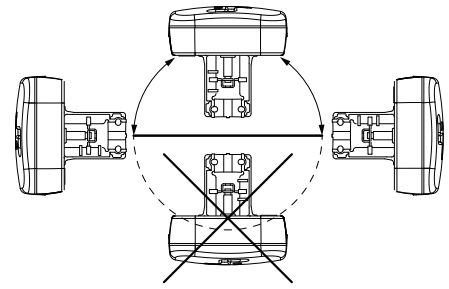
Slide colored markers to either side of the H brace.

During calibration the actuator will reposition markers to valve stop limits.

**Note:** End Stops indicators should not touch bumper stop.

## Mounting Orientation

The actuator can be mounted in the orientation as shown in the mounting diagram at right. Maximum actuator ambient temperature is 50° C (122° F) for chilled water media. Maximum actuator ambient temperature is 46° C (115° F) when media temperature is 120° C (248° F).

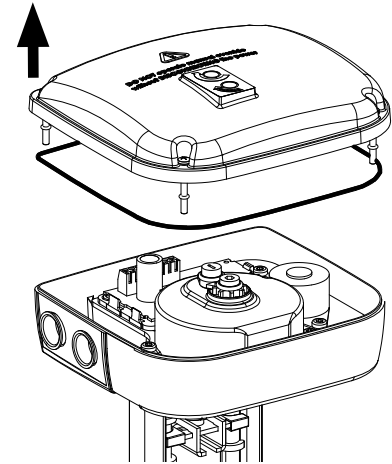


## Cover Removal

1. Loosen retaining screws (Phillips No. 2) and remove cover; a small tap may be required to dislodge a tight fitting cover.

**Note:** Screws are retained inside the cover by rubber o-rings. Do not allow these o-rings to fall inside actuator once the cover is replaced.

2. Wire actuator accordingly.
3. Make necessary Dip Switch changes (Switch 1-8).
4. Operate Switch 9 to calibrate actuator to the valve stroke and register any adjustments to dip switches.
5. Replace Cover. Check the cover gasket is in place before securing.



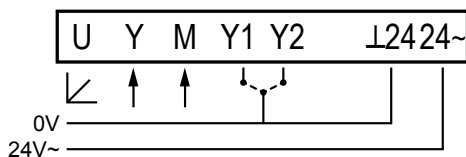
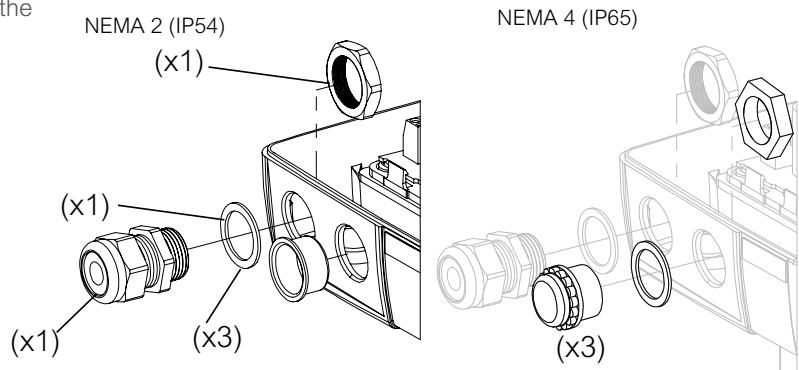
## Electrical Connection

The actuator must be mechanically connected to the valve before the electrical power is applied.

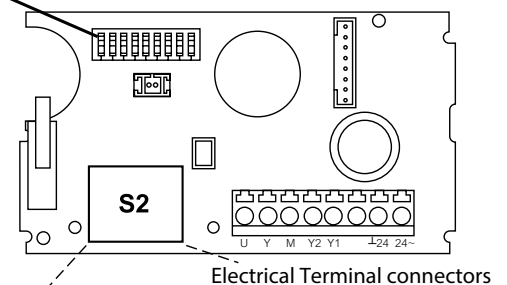
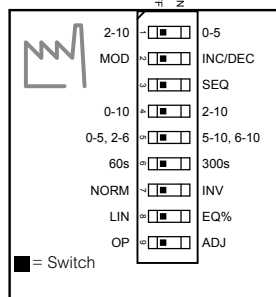
### Terminal Connections

Terminal	Function	Description
24~	24 Vac/dc	Supply voltage
⊥24	Ground	
Y	Input	Modulating Control signal
M	Input, neutral	
Y2	Increase	3-point Floating/Digital input control (Y1, Y2 connected to ⊥24)
Y1	Decrease	
U	0...100% (2...10 Vdc)	Feedback signal (reference to ⊥24)

24~, ⊥24= Max 100 m (328ft.), 1.5 mm<sup>2</sup> (AWG 16)  
 Other cables: Max 200 m (656 ft.) 0.5 mm<sup>2</sup> (AWG 20)

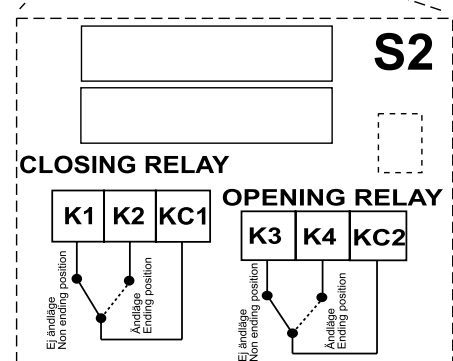


### Configuration of Dip Switches



Optional S2 Auxiliary Switch unit, accessory (Part No. 8800104000)

KC1 to K2 makes upon a fully closed valve.  
 KC2 to K4 makes upon a fully open valve.

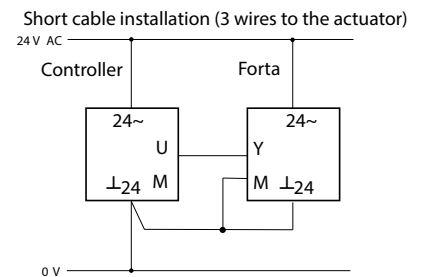
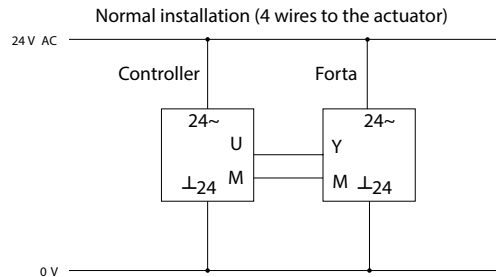
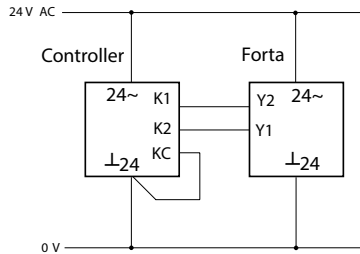
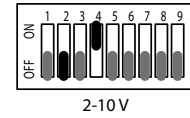
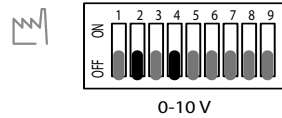
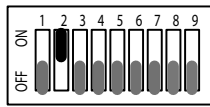


# Wiring

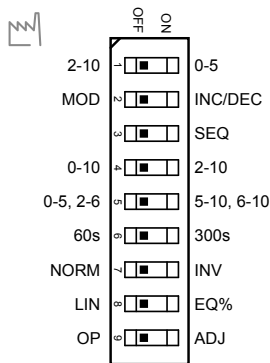
50 VA transformer required per actuator

## Increase/Decrease (Floating)

## Modulating (Proportional)



## Dip Switch Settings



Sw	Description	Off Position	On Position
1	Feedback signal	2...10 Vdc	0...5 Vdc
2	Control mode	Modulating (proportional) signal	Increase / Decrease (Floating signal)
3	Sequence operation	--- Normal operation (no sequencing)	SEQ. SW 2 off, SW 3 on, SW 4 select base range (0...10 or 2...10) SW 5 select sequence range.
4	Input voltage range	0...10 Vdc	2...10 Vdc
5	Operational Working voltage range (if SW3, SEQ selected)	0...5 Vdc or 2...6 Vdc	5...10 Vdc or 6...10 Vdc
6	Running time (increase/decrease control only)	60 sec.	300 sec.
7	Direction of movement	NORM. Actuator spindle extends downwards with a decreasing control signal. (Normal operation for VP220x PIBCV)	INV. Actuator spindle retracts upwards with a decreasing control signal
8	Linearization	Linear Flow (Normal)	EQ
9	Stroke Calibration	OP (Normal operation)	ADJ. Calibrate valve stroke limits

■ = Switch

There is a 9 switch configuration block on the circuit board. The factory setting is all switches in the “OFF” position. Adjust these settings prior to engaging power, any subsequent changes to the DIP switches will not be registered until the power is interrupted, or when switch No. 9 is initiated (Stroke Calibration) causing the actuator to re-learn the limit stops of the valve.

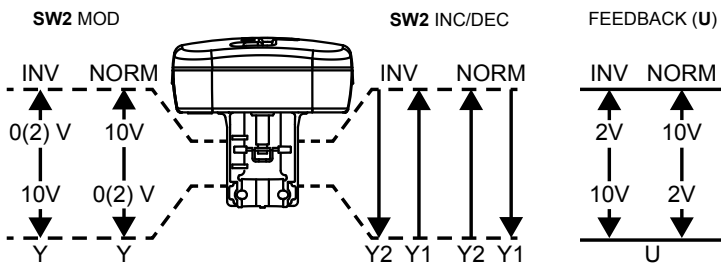
- **SW1 Feedback signal.** Select between 2...10 V and 0...5 V feedback voltage output.
- **SW2 Control signal MOD / INC.** MP500C-SR is either controlled by a proportional/modulating signal (MOD), or by a 3-point increase/decrease signal (INC).
- **SW3 Sequence or parallel control – / SEQ.** With sequence (or parallel) control (SEQ), two actuators/valves can be controlled by only one control signal. Depending on Switch 4 and 5, you can choose which part of the voltage range to use, the upper one, 5...10 V (6...10 V) or the lower one, 0...5 V (2...6 V). Note: If sequence or parallel control is not used, the switch – – / SEQ must be in the OFF position.
- **SW4 Input Voltage range 0...10 / 2...10.** Select whether to use the control signal voltage range 0...10 V or 2...10 V.
- **SW5 (0.5, 2..6 / 5-10, 6..10).** When switch 3 (SEQ) is ON select the operational voltage range.
  - OFF: low: 0...5 V (2...6 V)
  - ON: high: 5...10 V (6...10 V)

The bracketed control voltage is operational with switch 4 ON.

- **SW6 Running time 60 s / 300 s.** On increase/decrease control, this switch selects the running time between 60 s (Off) or 300 s (On). With modulating control, the running time is always 15 s.
- **SW7 Direction of movement NORM / INV.** The Norm / INV switch reverses the actuator direction of movement relative to signal change.
  - With the switch in the NORM position, the actuator spindle moves down when the signal decreases, this closes the VP220x on a 0V control signal).
  - With the switch in the INV, the actuator spindle moves up when the signal decreases. Thus on the VP220x valve, this setting will provide an open valve on 0V control signal).
- **SW8 Linearization LIN/EQ.** The motorized valve characteristics can be modified. The setting LIN/EQ will change the VP220x Valve from a linear flow characteristics to an equal percentage.
- **SW9 Input signal and stroke Calibration OP / ADJ.**
  - This switch is used to calibrate the stroke end positions.
  - To initiate, momentarily move the switch to the ON position then back to the OFF position. At the end of the adjustment all the other dip switch settings (1 to 8) will be registered again.

# Actuator Drive Direction (according to Switches 7 and 2)

FUNCTIONALITY ACCORDING TO SW7 INVERSE/NORMAL OPERATION



Commercial Reference	Range Name		Product Description			
880XXXXXXX MXXX(X)A(X)(X)(-S2)(-VB) MGXXX(-S(R)X)(-W) MPXXX(-SRX)(-W)	SPACELOGIC VALVES & ACTUATORS		SPACELOGIC 800 SERIES GLOBE VALVE ACTUATOR SR/NSR SPACELOGIC M SERIES GLOBE VALVE ACTUATOR SR/NSR SPACELOGIC MG SERIES GLOBE VALVE ACTUATOR SR/NSR SPACELOGIC MP SERIES PIBCV ACTUATOR SR/NSR			
有害物质 - Hazardous Substances						
部件名称 Part Name	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
属部件 Metal Parts	X	O	O	O	O	O
塑料部件 Plastic Parts	O	O	O	O	O	O
电子件 Electronic	X	O	O	O	O	O
触点 Contacts	O	O	O	O	O	O
线缆和线缆附件 Cable & Cabling Accessories	O	O	O	O	O	O
<p>本表格依据 SJ/T11364 的规定编制。                      O: 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。                      X: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。                      (企业可在此处, 根据实际情况对上表中打“X”的技术原因进行进一步说明。)</p> <p>This table is made according to SJ/T 11364.                      O: indicates that the concentration of hazardous substance in all of the homogeneous materials for this part is below the limit as stipulated in GB/T 26572.                      X: indicates that concentration of hazardous substance in at least one of the homogeneous materials used for this part is above the limit as stipulated in GB/T 26572</p>						

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