

Dual Solenoid Control for Positioning and SCADA Controls

Flexible, direct, electronic control for use with SCADA, telemetered systems, IoT, modulating control, and local control.



TECHNICAL GUIDE: **VH1.22**

Applications

Potable water
Pressure control
Municipal
Mining Applications
Irrigation Applications

Product Attributes

Precise control from remote locations
Process controller compatible
Minimal power needed for stand-by operation
Manual controls for emergencies

Approvals/Standards

AS 5081:2008
Flanges to AS/NZS 4087 Fig. B5
Coating complies with AS/NZS 4158

Quality

ISO 9001:2015 Quality Management Systems



Licence Number:
WMK/SMK26726

The Singer Dual Solenoid Electronic Valve is designed to be accurately positioned within the full stroke of the valve to provide precise remote control.

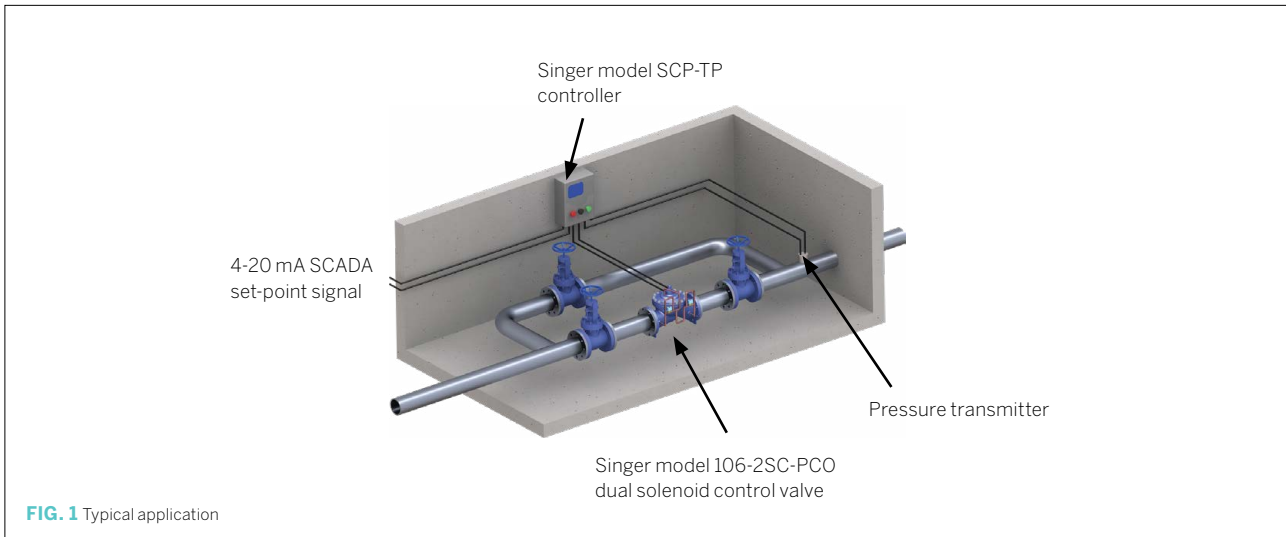


FIG. 1 Typical application

The flow into and out of the upper operating chamber is controlled by the two pilot solenoids. The electronic control determines whether the opening solenoid or the closing solenoid is operated. The change in valve position is dependent upon which solenoid is operated and the duration of the energised period. The electronic control determines the valve function. Virtually any hydraulic function can be achieved using the “open-close” output from the SCADA controller to the valve.

The Singer Model 2SC-PCO is designed for use with Singer MCP Multi-Process Control Panel or the EPC Single-Process Control Panel.

STANDARD MATERIALS

Standard materials for pilot system components are:

- ASTM B-16 brass
- AISI 316 or 18-8 stainless steel trim
- NEMA 4X rated solenoid coils

TYPICAL APPLICATION

The two pilot solenoids are operated to keep two independent signals matched. In this case, the valve is operated to ensure the “process variable signal” follows the “SCADA set-point command signal”.

Typically this mode is used when the process variable signal is from a flow meter, pressure sensor or similarly quick changing process. This is referred to as “set-point control”.

SELECTION SUMMARY

1. Select a valve with sufficient capacity, using the allowable operating pressure drop across the valve.
2. Usually operating in the continuous, “C”, service range up to 6 m/s
3. If the outlet pressure is less than 35% of the inlet pressure, check for cavitation.
4. Ensure the max working pressure rating of the valve exceeds the max operating pressure.
5. Ensure the solenoid coils are compatible with the electronic controllers - 120 VAC / 60 Hz standard.
6. Verify that the electronic controls are properly configured to provide the functions required.
 - a. For compatible electronic controls, refer to Singer Process Control Panels
 - b. For applications requiring high pressure drops, refer to Singer model 106-AC
 - c. Standard hydraulic pilots can provide back-up control should the system go off limits
 - d. For applications where electric service and electronic controls are unsuitable, refer to the standard hydraulic model
 - e. Addition of Position Transmitter and Differential Pressure Transmitter or SPI-MV are required for metering function.

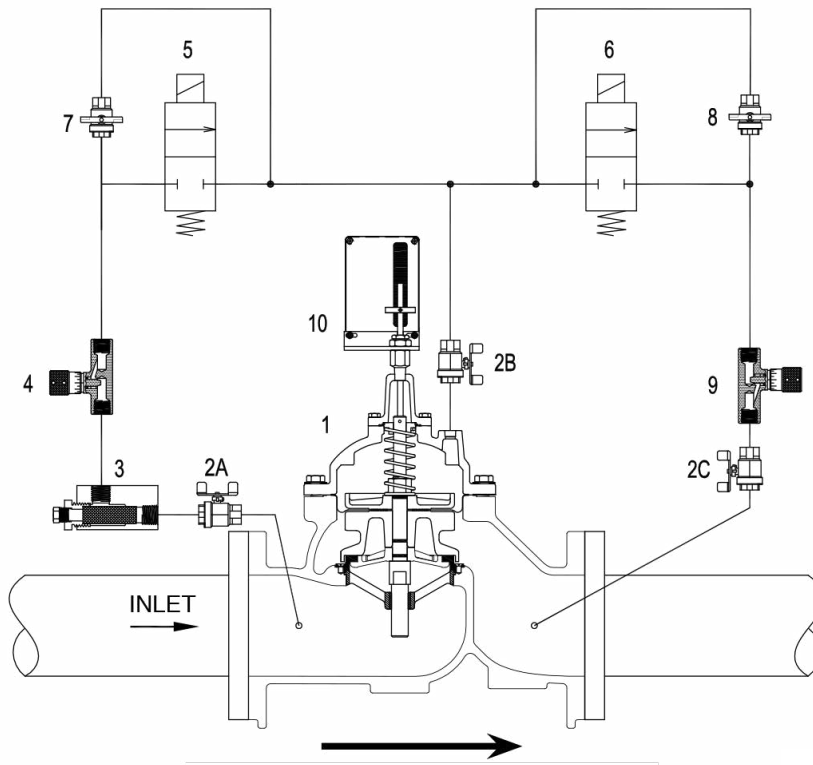


FIG. 2 Schematic A-7637A

SCHEMATIC DRAWING

1. Main Valve - 106-PG or 206-PG
2. Isolating Valves - (2A, 2B, 2C)
3. Strainer - 40 mesh stainless steel screen
4. Closing Speed Control - micrometer needle valve
5. Closing Solenoid Pilot Valve - 120 VAC / 60 Hz standard, other voltages available
6. Opening Solenoid Pilot Valve - 120 VAC / 60 Hz standard, other voltages available
7. Manual Closing Bypass
8. Manual Opening Bypass
9. Opening Speed Control - micrometer needle valve
10. Optional X156 Analog Position Transmitter (4 to 20 mA)

Note:

All 106 series 65 mm to 100 mm and all 206 series 100 mm to 150 mm will be fitted with heavy springs. Singer Rolling Diaphragm shown is available for 150mm 106-PG and larger.

ORDERING INSTRUCTIONS

Refer to the order form and ordering instructions.

1. Single Chamber (106) or (206)
2. Inlet/outlet pressure range
3. Solenoid voltage
4. Standard power failure mode is fail at last position - specify options
5. Fail open on power failure
6. Fail close on power failure

TABLE 1 106-2SC-PCO and 206-2SC-PCO Flow Capacity

Size (mm)	Minimum (L/s) Flat Diaphragm		Minimum (L/s) Rolling Diaphragm		Maximum Continuous (L/s)	
	106-2SC-PCO	206-2SC-PCO	106-2SC-PCO	206-2SC-PCO	106-2SC-PCO	206-2SC-PCO
65	CF	-	-	-	CF	-
80	CF	CF	-	-	CF	CF
100	0.63	0.3	-	-	50	37
150	1.26	0.6	0.1	-	114	65
200	2.52	1.3	0.1	-	196	145
250	-	2.5	0.2	-	309	260
300	-	-	0.2	0.19	442	404
350	-	-	0.2	-	536	-
400	-	-	0.2	0.19	694	582
450	-	-	-	0.19	-	1040
500	-	-	0.6	0.19	1104	1040
600	-	-	0.6	-	1577	-
600 x 400	-	-	-	0.19	-	1040
600 x 500	-	-	-	0.19	-	1370
700	-	-	-	0.63	-	2120
750	-	-	-	0.63	-	2123
800	-	-	-	0.63	-	2126
900	-	-	1.3	0.63	3500	2132
1000	-	-	-	1.3	-	3912

Note: CF = Consult Hygrade on all sizes 3" 80mm and under



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