

# MODELS 106-2SC-PCO / 206-2SC-PCO DUAL SOLENOID CONTROL FOR POSITIONING AND SCADA CONTROLS

## KEY FEATURES

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



## PRODUCT OVERVIEW

The Singer models 106-2SC-PCO and 206-2SC-PCO dual solenoid electronic valves are based on the Singer model 106-PG or 206-PG main valve.

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 energized period.

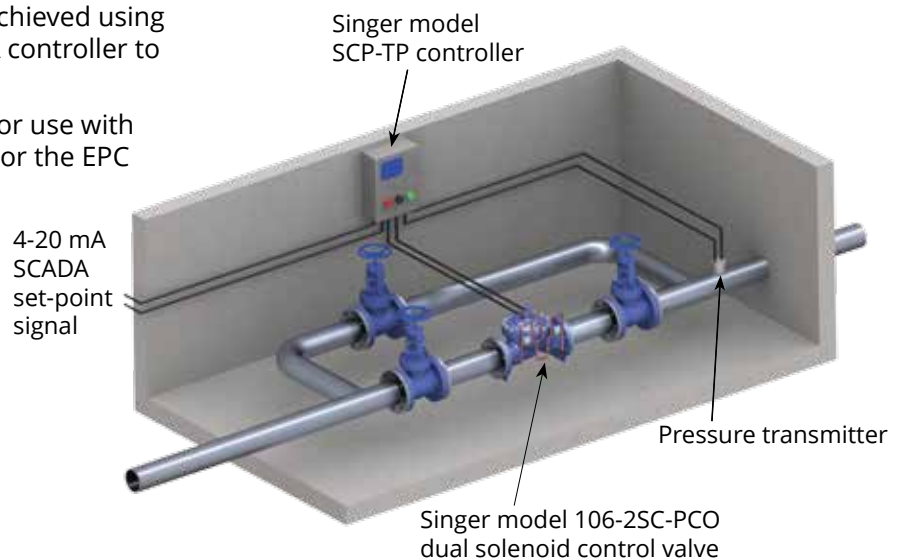
The electronic control determines the valve function. Virtually any hydraulic function can be achieved using the "open-close" output from the SCADA controller to the valve.

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

## 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".



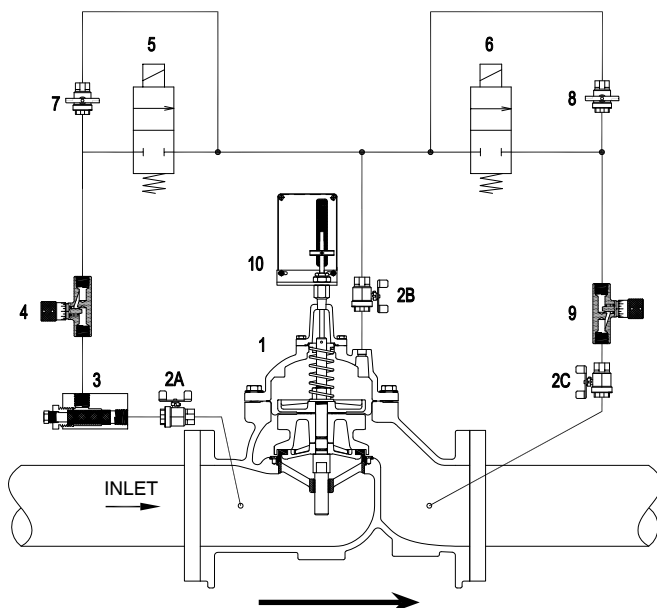
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## SCHEMATIC DRAWING

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 2 1/2 in / 65 mm to 4 in / 100 mm and all 206 series 4 in / 100 mm to 6 in / 150 mm will be fitted with heavy springs.

Note: SRD shown is available for 6" 106-PG and larger.



Schematic A-7637A

## 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

## 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 20 ft / s / 6 m / s - (refer Technical & Sizing Section, page 231).
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.
  - for compatible electronic controls, refer to Singer Process Control Panels, pages 203, 204
  - for applications requiring high pressure drops, refer to Singer model 106-AC, page 78.
  - standard hydraulic pilots can provide back-up control should the system go off limits
  - for applications where electric service and electronic controls are unsuitable, refer to the standard hydraulic model
  - addition of Position Transmitter and Differential Pressure Transmitter or SPI-MV are required for metering function.

## ORDERING INSTRUCTIONS

Refer to page 244 for the order form and ordering instructions.

Additionally, include the following information for this product:

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
  - a. Fail open on power failure
  - b. Fail close on power failure

106-2SC-PCO	Flow Capacity (See 106-PG in Main Valve section for other valve data)											
	2-1/2 in	3 in	4 in	6 in	8 in	10 in	12 in	14 in	16 in	20 in	24 in	36 in
Size (inches)	2-1/2 in	3 in	4 in	6 in	8 in	10 in	12 in	14 in	16 in	20 in	24 in	36 in
Size (mm)	65 mm	80 mm	100 mm	150 mm	200 mm	250 mm	300 mm	350 mm	400 mm	500 mm	600 mm	900 mm
Minimum (USGPM) Flat Diaphragm	CF	CF	10	20	40	-	-	-	-	-	-	-
Minimum (USGPM) Rolling Diaphragm	-	-	-	1	1	3	3	3	3	10	10	20
Minimum (L/s) Flat Diaphragm	CF	CF	0.63	1.26	2.52	-	-	-	-	-	-	-
Minimum (L/s) Rolling Diaphragm	-	-	-	0.1	0.1	0.2	0.2	0.2	0.2	0.6	0.6	1.3
Maximum Continuous (USGPM)	CF	CF	800	1800	3100	4900	7000	8500	11000	17500	25000	55470
Maximum Continuous (L/s)	CF	CF	50	114	196	309	442	536	694	1104	1577	3500

206-2SC-PCO	Flow Capacity (See 206-PG in Main Valve section for other valve data)															
	3 in	4 in	6 in	8 in	10 in	12 in	16 in	18 in	20 in	24 x 16 in	24 x 20 in	28 in	30 in	32 in	36 in	40 in
Size (inches)	3 in	4 in	6 in	8 in	10 in	12 in	16 in	18 in	20 in	24 x 16 in	24 x 20 in	28 in	30 in	32 in	36 in	40 in
Size (mm)	80 mm	100 mm	150 mm	200 mm	250 mm	300 mm	400 mm	450 mm	500 mm	600 x 400 mm	600 x 500 mm	700 mm	750 mm	800 mm	900 mm	1000 mm
Minimum (USGPM) Flat Diaphragm	CF	5	10	20	40	-	-	-	-	-	-	-	-	-	-	-
Minimum (USGPM) Rolling Diaphragm	-	-	-	-	-	3	3	3	3	3	3	10	10	10	10	20
Minimum (L/s) Flat Diaphragm	CF	0.3	0.6	1.3	2.5	-	-	-	-	-	-	-	-	-	-	-
Minimum (L/s) Rolling Diaphragm	-	-	-	-	-	0.19	0.19	0.19	0.19	0.19	0.19	0.63	0.63	0.63	0.63	1.3
Maximum Continuous (USGPM)	CF	580	1025	2300	4100	6400	9230	16500	16500	16500	21700	33600	33650	33700	33800	62000
Maximum Continuous (L/s)	CF	37	65	145	260	404	582	1040	1040	1040	1370	2120	2123	2126	2132	3912

Note: CF = Consult Singer Valve on all sizes 3" (80 mm) and under