Models 106-2SC-MV / 206-2SC-MV
Electronic Flow Control and Metering System

106-2SC-MV Globe

KEY FEATURES

- Combines precise flow control with relatively accurate flow metering, save space / cost
- PLC-based control panel is compatible with your SCADA system
- Manual control is available in case of emergencies
- Re-transmission capabilities
- Can be field retrofitted to existing valves
- +/- 3% accuracy, certified by NIST approved testing laboratory (on select sizes)

Product Overview

The Singer models 106-2SC-MV and 206-2SC-MV electronic flow control and metering valves are based on the 106-PG or 206-PG main valve.

The pressure in the upper operating chamber is controlled by operating the pilot solenoids. The PLC within the MV1-TP control panel 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 Singer MV1-TP control panel computes the flow rate based on valve differential pressure and position and operates the pilot solenoids to match the flow rate to the customer's pre-determined (adjustable) set-point. Flow is totalized and displayed via panel readout. In addition, the MV1-TP panel includes a pre-programmed logic controller, touch screen display, labelled wiring and terminal strip.

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Typical Application

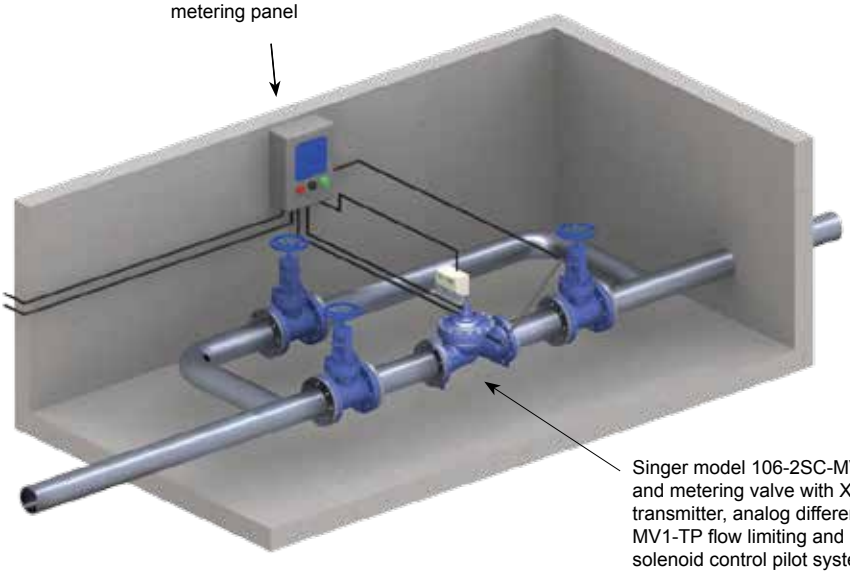
Singer model MV1 -TP electronic flow control and metering panel

Power supply: 120 VAC / 60 Hz

Set-point signal: local or remote

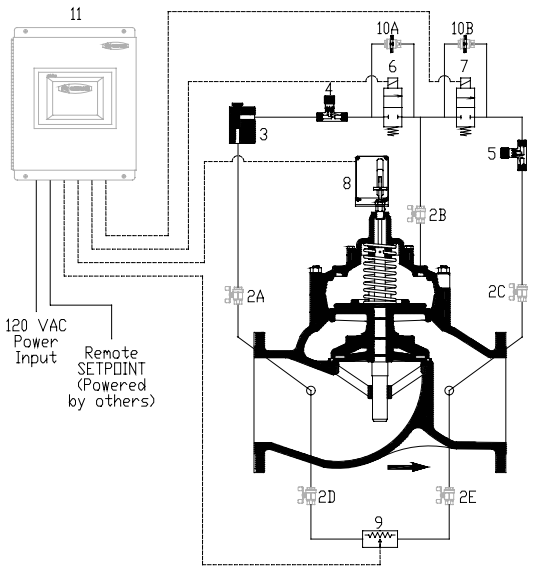
To and from SCADA.

See available SCADA interface options (page 231)



Singer model 106-2SC-MV electronic flow control and metering valve with X156 analog position transmitter, analog differential pressure transmitter, MV1-TP flow limiting and metering panel, dual solenoid control pilot system.

Schematic Drawing



Schematic A-8450C

1. Main Valve - 106-PG or 206-PG
2. Isolating Valves - (2A, 2B, 2C, 2D, 2E)
3. Strainer - 40 mesh stainless steel screen
4. Closing Speed Control
5. Opening Speed Control
6. Closing Solenoid Pilot Valve - 120 VAC / 60 Hz standard
7. Opening Solenoid Pilot Valve - 120 VAC / 60 Hz standard
8. Model X156 Analog (4-20 mA) Position Transmitter
9. Differential Pressure Transmitter
10. Manual By-Pass Valves - (10A, 10B) - normally closed
11. Model MV1-TP Electronic Flow Control Panel

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Standard Materials

Standard materials for pilot system components are:

- ASTM B-16 brass fittings, copper tubing
- NEMA 4X solenoid coils
- NEMA panel enclosure

Selection Summary

1. Select a valve with sufficient capacity, using the allowable operating pressure drop across the valve. Usually line size.
2. Usually operating in the continuous “C”, service range up to 20 ft /s / 6 m/s - refer to chart and/or performance curves (see Technical and Sizing Information section, page 282).
3. If the outlet pressure is less than 35% of the inlet pressure, check for cavitation.
4. Ensure the maximum working pressure rating of the valve exceeds the maximum operating pressure.
5. Ensure the solenoid coils are compatible with the electronic controllers - 120 VAC / 60 Hz standard.
6. If the operating pressure differential across the valve will exceed 100 psi / 6.9 bar, consult Singer Valve. For applications requiring high pressure drops, refer to Singer model PG-AC (see page 92)

106-2SC-MV	**Flow Capacity** (See 106-PG in Main Valve section for other valve data)											
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	0.6	1.3	2.5	-	-	-	-	-	-	-
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-MV	**Flow Capacity** (See 206-PG in Main Valve section for other valve data)														
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
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
Minimum (USGPM) Flat Diaphragm	CF	5	10	20	40	-	-	-	-	-	-	-	-	-	-
Minimum (USGPM) Rolling Diaphragm	-	-	-	-	-	3	3	3	3	3	3	10	10	10	10
Minimum (L/s) Flat Diaphragm	CF	0.3	0.6	1.3	2.5	-	-	-	-	-	-	-	-	-	-
Minimum (L/s) Rolling Diaphragm	-	-	-	-	-	0.2	0.2	0.2	0.2	0.2	0.2	0.6	0.6	0.6	0.6
Maximum Continuous (USGPM)	CF	580	1025	2300	4100	6400	9230	16500	16500	16500	21700	33600	33650	33700	33800
Maximum Continuous (L/s)	CF	37	65	145	260	404	582	1040	1040	1040	1370	2120	2123	2126	2132

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

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Specifications

- The system shall be a Singer Valve model 106-2SC-MV / 206-2SC-MV, size "_____", ANSI Class 150 (ANSI 300, ANSI Flanges drilled to ISO PN10 / 16 / 25 or 40 drillings) pressure rating/ flange standard, globe (angle) style valve. Opening and closing solenoid pilots shall be ASCO 2-Way normally closed: energize to open (normally open: energize to close) with 120VAC / 60Hz (220VAC / 50Hz or 24VDC) solenoid coil. The main valve shall be equipped with Model X156 4-20mA Position Transmitter and Differential Pressure Transmitter. The Model MV1-TP Flow Control and Metering Panel shall have pre-programmed logic module, adjustments and connection terminals, housed inside NEMA 4X rated raintight enclosure.
- The system shall relatively accurately measure the flow (via the flow control and metering panel) based on valve position and differential pressure and control the flow by positioning the main valve based on the set-point.
- The flow control and metering panel shall incorporate a pre-programmed logic controller with P.I.D. optimization and real-math calculation for accuracy.
- The flow control and metering panel shall have 24VDC, 1.3 Amp auxiliary power supply.
- Dual solenoid control shall be via solid state relays with zero-voltage switching.
- The flow control and metering panel shall have door-mounted touch screen interface and display.
- The valve shall be equipped with manual by-pass to provide emergency override operation.
- Refer to Main Valve section, see page 11, 106-PG (or 206-PG) for detailed information pertaining to valve sizes and materials, selection criteria and specifications.
- Refer to Main Valve Options section, see page 88, Model x156 Analog Valve Position Transmitter for information pertaining to material and specifications.
- Refer to Pilot and Accessories section, page 279, Micrometer Needle Valves for detailed information pertaining to materials and specifications of Opening and Closing Speed Controls.
- Consult with Singer Valve for Solenoid specification information.

Ordering Instructions

Refer to page 293 for the order form and ordering instructions.

Additionally, include the following information for this product:

1. Full port (106) or reduced port (206)
2. Inlet / outlet pressure range
3. Solenoid voltage
4. Optional NEMA 4x control panel enclosure