

High Speed 2 Port Valve

SX10 Series



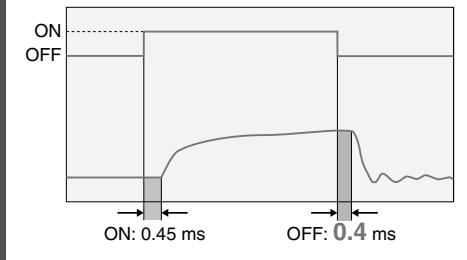
High speed response

ON **0.45 ms** ± 0.05 ms

9^{Width} mm

OFF **0.4 ms** ± 0.05 ms

• 50 L/min 80 W type



* The response time is measured based on SMC test conditions. (Not guaranteed values)



- VCH □
- VDW
- SX10
- VQ
- LVM

Long service life: 5 billion cycles or more

SMC's original valve and coil structure realizes a longer product life and requires less maintenance frequency.

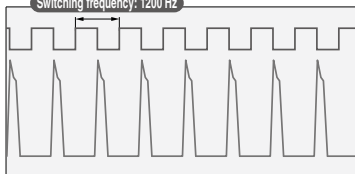
(50 L/min type, 24 VDC, 0.25 MPa. Based on SMC life test conditions.)

High frequency: 1200 Hz

Good followability and response to successive electrical signal input. Continuous operation possible.

• 50 L/min 80 W type

Switching frequency: 1200 Hz



2 mounting types

Quick disconnect type

Screw mount type

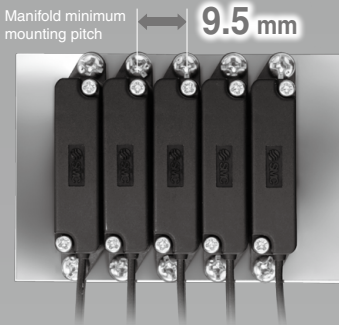


The manifold base should be prepared by users.

Low power consumption: 4 w

Continuous energization for extended periods is possible.

Compact and Space-saving * The manifold base should be prepared by users.

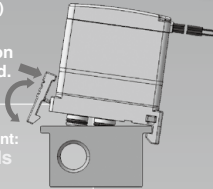


Reduction in installation labor

(Quick disconnect type)
Can be mounted/
removed in one action
and no tools required.

Required time for
attachment/detachment:
Approx. 5 seconds
(per unit)

Reduces installation time for
multiple numbers of valves.



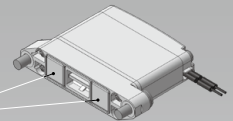
Coil temperature rise: 5°C

(4 W type)

Power consumption	Temperature rise
4 W type	5°C
10 W type	14°C

During continuous operation at 24 VDC, 0.25 MPa, 300 Hz

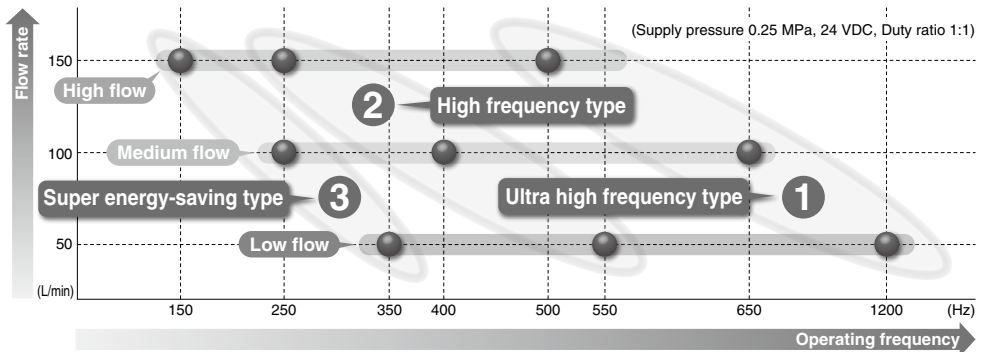
Filter attached type available



Filter is mounted to port 1 (IN).
Filter is mounted to port 1 (IN)
for quick disconnect type as well.

Variations/Purpose of Usage (Guide)

Flow Rate/Operating Frequency

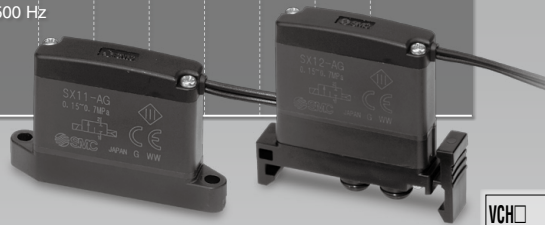
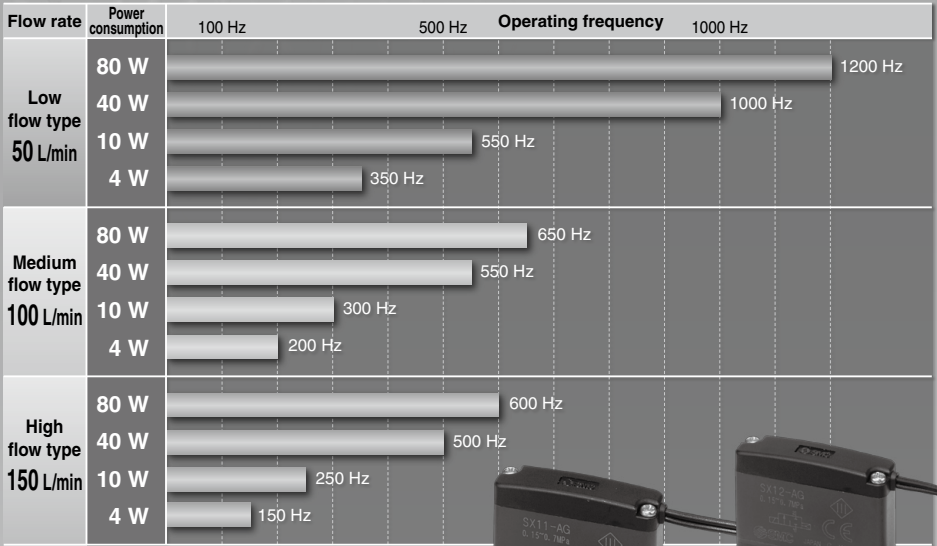


Specifications	Driver	Continuous energization	Power consumption	OFF response time		
				50 L/min	100 L/min	150 L/min
① Ultra high frequency type 500 to 1200 Hz	For power saving driver (Refer to page 511.)	—	80 W, 40 W	0.4 ms	0.55 ms	0.75 ms
② High frequency type 250 to 550 Hz	Control driver is not necessary.	(Note)	10 W	0.4 ms	0.55 ms	0.75 ms
③ Super energy-saving type 150 to 350 Hz	Control driver is not necessary.	Possible	4 W	0.4 ms	0.55 ms	0.75 ms

(Note) Please consult with SMC for continuous energization.

Variations

All models have the same body size.



VCH□

VDW

SX10

VQ

LVM

Select a model according to applications and purposes.

High speed response required for both ON and OFF

Select the 80 W or 40 W type.

Model	Power consumption	Flow rate	Max. operating frequency	Response time (ms)	
				ON	OFF
SX1□-A	80 W	50 L/min	1200 Hz	0.45	0.4
-B	40 W	50 L/min	1000 Hz	0.55	0.4
-E	80 W	100 L/min	650 Hz	0.55	0.55
-F	40 W	100 L/min	550 Hz	0.7	0.55
-J	80 W	150 L/min	600 Hz	0.6	0.75
-K	40 W	150 L/min	500 Hz	0.8	0.75

* Current needs to be limited.

High speed response required for OFF only without use of special control circuit

Select the 10 W type.

Model	Power consumption	Flow rate	Max. operating frequency	Response time (ms)	
				ON	OFF
SX1□-C	10 W	50 L/min	550 Hz	0.9	0.4
-G	10 W	100 L/min	300 Hz	1.1	0.55
-L	10 W	150 L/min	250 Hz	1.35	0.75

* Please consult with SMC for continuous energization.

Saving energy and continuous energization required

Select the 4 W type.

Model	Power consumption	Flow rate	Max. operating frequency	Response time (ms)	
				ON	OFF
SX1□-D	4 W	50 L/min	350 Hz	1.25	0.4
-H	4 W	100 L/min	200 Hz	1.7	0.55
-M	4 W	150 L/min	150 Hz	2.75	0.75

* Continuous energization is possible.

High Speed 2 Port Valve

SX10 Series



How to Order

SX1 2 F - A G

Valve mounting

1	Screw mount type <small>Note)</small>
2	Quick disconnect type

Note) Two mounting screws (M3 x 0.5) and a gasket are included. (packaged together)

Filter (IN port)

NII	Without filter
F	With filter <small>Note)</small>

Note) Flow reduction rate
 50 L/min: 5% or less
 100 L/min: 5 to 10%
 150 L/min: 10 to 15%

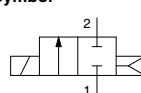
Flow rate/Operating frequency (at 24 VDC, 0.25 MPa)

Symbol	Flow rate (L/min)	Power consumption (W)	Max. operating frequency (Hz)
A	50	80	1200
B		40	1000
C		10	550
D		4	350
E		80	650
F	100	40	550
G		10	300
H		4	200
J		80	600
K		40	500
L	150	10	250
M		4	150

Lead wire (grommet) length

Symbol	Length
G	300 mm
H	500 mm
J	1000 mm

Symbol



Specifications

Flow rate (L/min) [at 0.25 MPa]	50				100				150			
	80	40	10	4	80	40	10	4	80	40	10	4
Power consumption (W)												
Type of actuation	2-position 2 port N.C., Air return											
Seal type	Metal poppet seal											
Valve width (mm)	9											
Fluid	Air											
Min. operating pressure (MPa)	0.15											
Coil resistance value (Ω)												
Max. operating pressure (MPa) [at 24 VDC]	7.2	14.4	58	144	7.2	14.4	58	144	7.2	14.4	58	144
Ambient and fluid temperature (°C)	-10 to 50 (No freezing)											
Lubrication	Not required											
Mounting orientation	Unrestricted											
Impact/Vibration resistance (m/s ²)	300/50											
Enclosure	Dustproof											
Electrical entry	Grommet											
Weight (g)	Screw mount type											
	Quick disconnect type											

Characteristics

Flow rate (L/min) [at 0.25 MPa]	50				100				150				
	80	40	10	4	80	40	10	4	80	40	10	4	
Power consumption (W)													
Flow rate characteristics	C [dm ³ /(s·bar)]	0.24				0.47				0.70			
	b	0.24				0.28				0.21			
	Cv	0.06				0.12				0.17			
Response time (ms)	ON	0.45	0.55	0.9	1.25	0.55	0.7	1.1	1.7	0.6	0.8	1.35	2.75
	OFF	0.4	0.4	0.4	0.4	0.55	0.55	0.55	0.55	0.75	0.75	0.75	0.75
Max. operating frequency (Hz) [at 0.25 MPa]	1,200	1,000	550	350	650	550	300	200	600	500	250	150	

Note 1) 24 VDC, Duty ratio 1:1

80 W: Current needs to be limited by using an energy saving driver circuit.

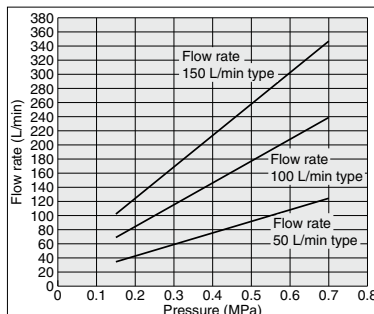
40 W: Current needs to be limited by using an energy saving driver circuit.

10 W: Energizing time is one second at a maximum. Please consult with SMC for continuous energization.

4 W: Continuous energization is possible.

Note 2) The response time and maximum operating frequency are not guaranteed. (Actual values based on SMC test conditions)

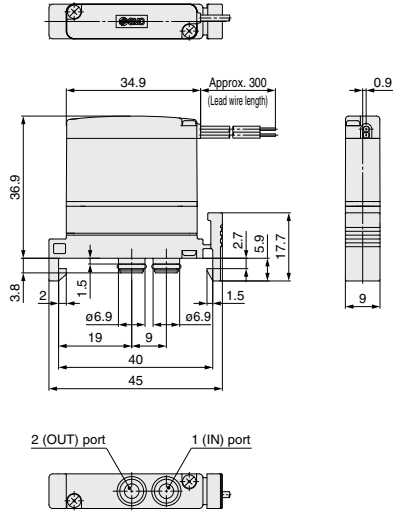
Pressure/Flow Rate Characteristics (without filter)



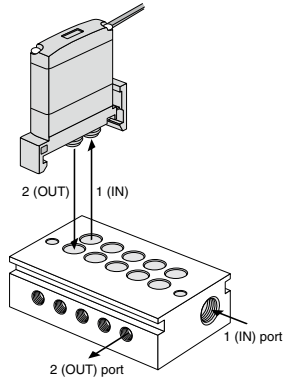
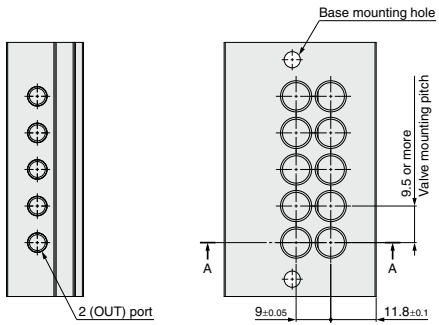
* The max. operating pressure varies depending on the power consumption. Please note the max. operating pressure and check the characteristics. Refer to the specifications above for the power consumption and the max. operating pressure.

Dimensions

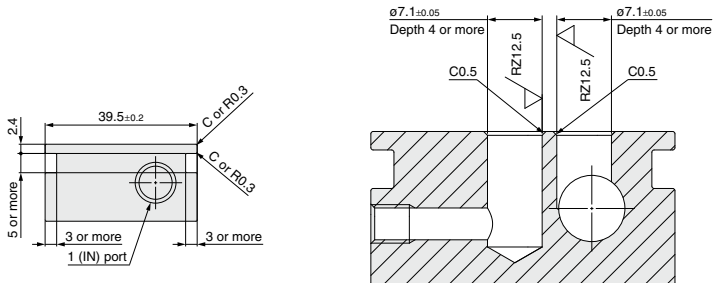
SX12-□G Quick disconnect type



Manifold base recommended dimensions



Sectional view A-A (2:1)

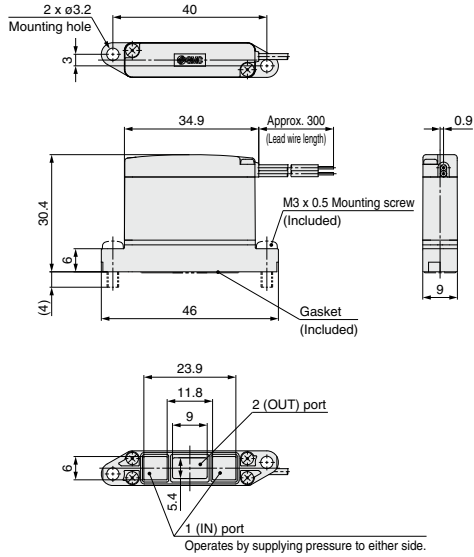


- VCH □
- VDW
- SX10**
- VQ
- LVM

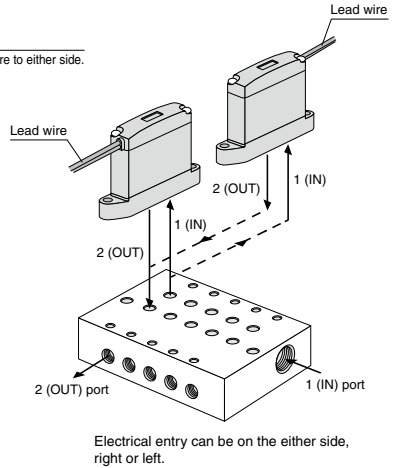
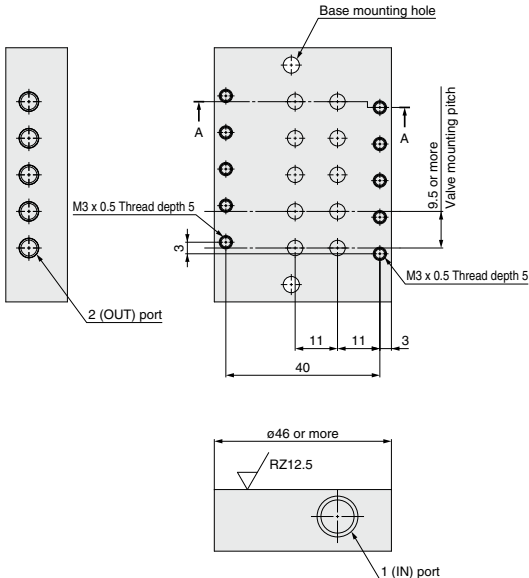
SX10 Series

Dimensions

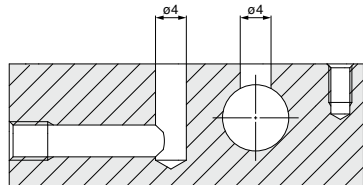
SX11-□G Screw mount type



Manifold base recommended dimensions

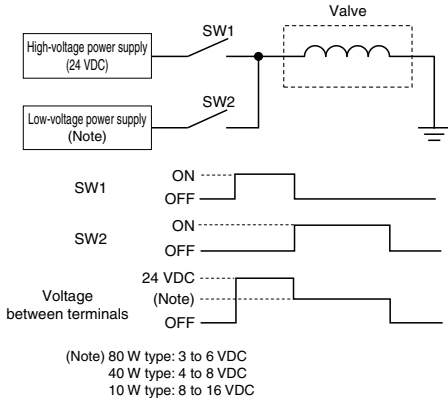


Sectional view A-A (2:1)

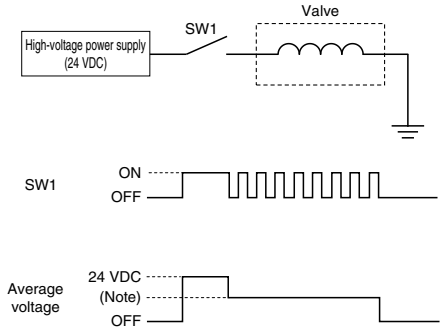


Control Method (Operation example with an energy saving driver circuit)

**1. Control with 2 power supplies, starting power supply and holding power supply.
Switching system from high voltage to low voltage**



2. High speed switching control of high voltage by PWM control* (*: PWM control circuit not currently available.)



⚠ Specific Product Precautions

Be sure to read this before handling the products.
Refer to back page 50 for Safety Instructions and pages 17 to 19 for 2 Port Solenoid Valve for Fluid Control Precautions.

Continuous Energization (at 24 VDC)

⚠ Caution

- Power consumption 80 W type: Not available**
When operating with an energy saving driver, continuous energization with the holding voltage of 3 to 6 VDC is possible.
- Power consumption 40 W type: Not available**
When operating with an energy saving driver, continuous energization with the holding voltage of 4 to 8 VDC is possible.
- Power consumption 10 W type: Please consult with SMC.**
When operating with an energy saving driver, continuous energization with the holding voltage of 8 to 16 VDC is possible.
- Power consumption 4 W type: Available**

**Energized Time/Non-energized Time
(When not using power saving driver)**

⚠ Caution

- Non-energized time (OFF) must be set longer than the energized time (ON).**
- For use with voltages other than 24 VDC, please consult with SMC with the operating condition information of pressure, voltage, energized time and non-energized time.**

Others

⚠ Caution

- If the valve is energized without air supply, the coil may be burned. Make sure to supply pressure to the valve when energizing.**
- Please contact SMC for the product usage with a voltage at 75 VDC or more. Standard required by CE/UKCA mark is different.**
- Since this valve is air return (differential pressure return) type, the valve may not close due to back pressure when the flow on the downstream side is restricted extremely.**
- Since this valve is air return (differential pressure return) type, the air is discharged to the OUT side momentarily until the valve returns when the IN side is pressurized. Be careful when pressurizing the valve.**

VCH □
VDW
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LVM