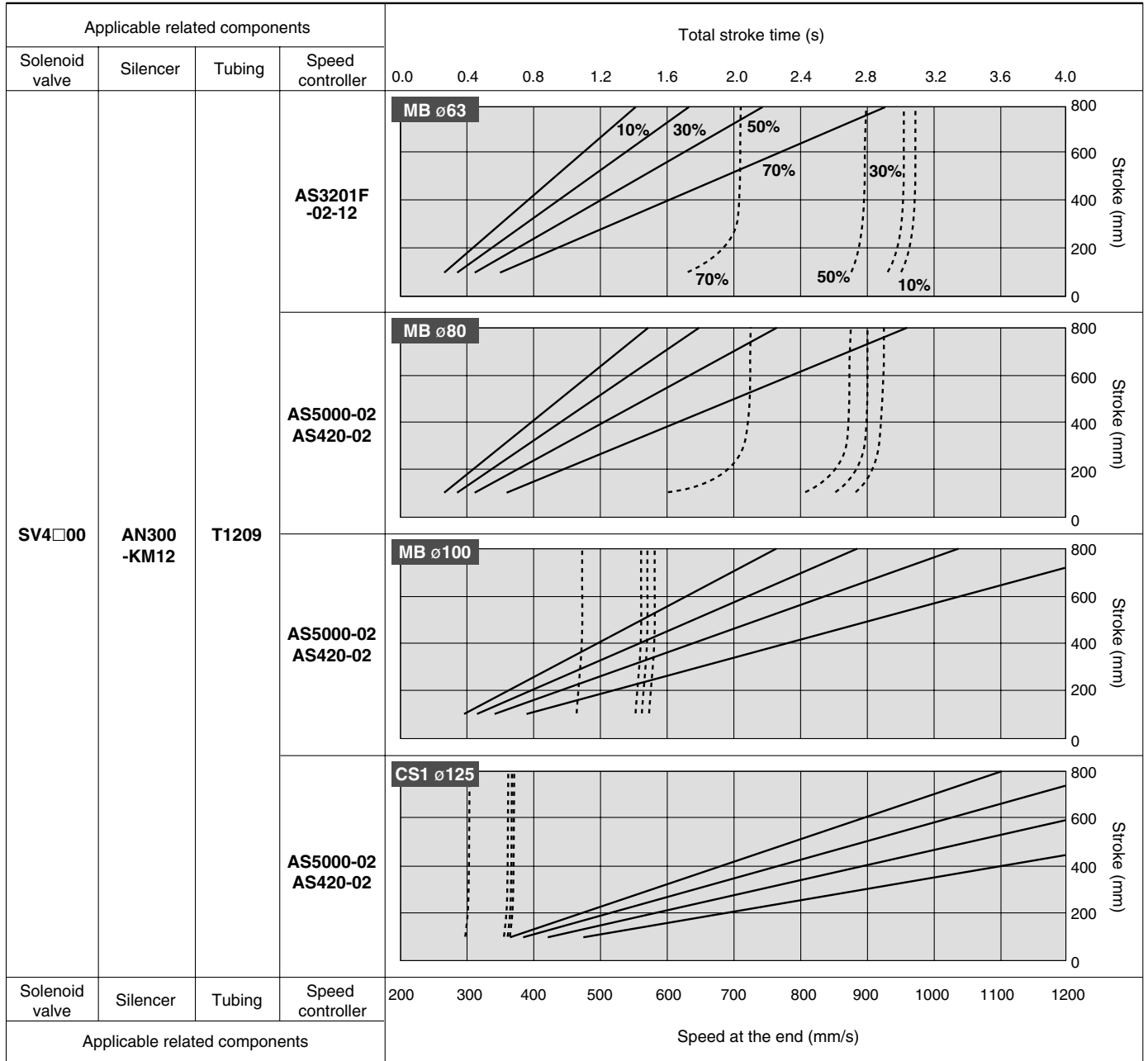


Series SV4000

Applicable bore size: $\phi 63$, $\phi 80$, $\phi 100$, $\phi 125$



For details regarding different conditions, make determinations after using the SMC Model Selection Program - Pneumatic Cylinder Drive Systems.

SV

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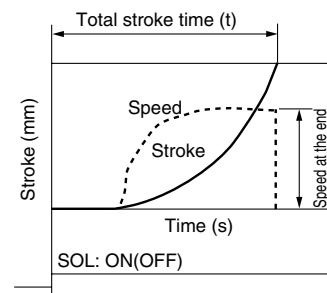
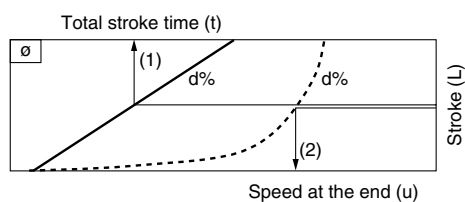
SY

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Example

Go to the chart for the bore size cylinder you are using (ϕ). To find the total stroke time (t), follow arrow (1) from your stroke length (" L ") to the solid line representing the load ratio ($d\%$) for the application then up to the total stroke time (t). To find the ending cylinder speed (u), follow arrow (2) from your stroke length (" L ") to the dotted line representing the load ratio ($d\%$) then down to the ending cylinder speed (u).



⚠️ Precautions 1

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 1-7-2.

Environment

⚠️ Warning

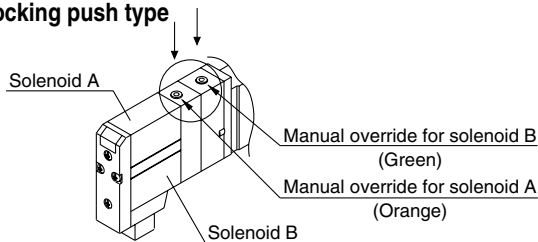
- Do not use valves in atmospheres of corrosive gases, chemicals, salt water, water, steam, or where there is direct contact with any of these.
- Products compliant with IP65 and IP67 enclosures (Based on IEC529) are protected against dust and water, however, these products cannot be used in water.
- Products compliant with IP65 and IP67 enclosures satisfy the specifications by mounting each product properly. Be sure to read the Specific Product Precautions for each product.
- When using built-in silencer type manifold with an IP67 enclosure, keep the exhaust port of the silencer from coming in direct contact with water or other liquids. Liquid filtration through the exhaust port of the silencer can cause damage to the valve.

Manual Override Operation

⚠️ Warning

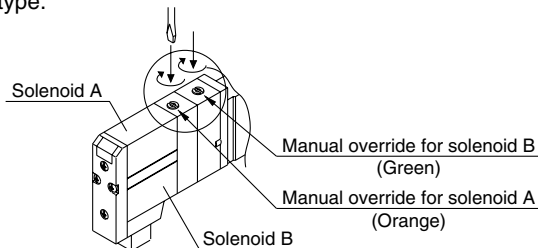
Handle carefully, as connected equipment can be actuated through manual override operation.

■ Non-locking push type



■ Push-turn locking slotted type

After pushing down, turn in the direction of the arrow. If it is not turned, it can be operated the same way as the non-locking type.



⚠️ Caution

When locking the manual override with the push-turn locking slotted type, be sure to push it down before turning. Turning without first pushing it down can cause damage to the manual override and other trouble such as air leakage, etc.

Exhaust Restriction

⚠️ Caution

Since Series SV is a type in which the pilot valve exhaust joins the main valve exhaust inside the valve, use caution, so that the piping from the exhaust port is not restricted.

Series SV Used as a 3 Port Valve

⚠️ Caution

In the case of using a 5 port valve

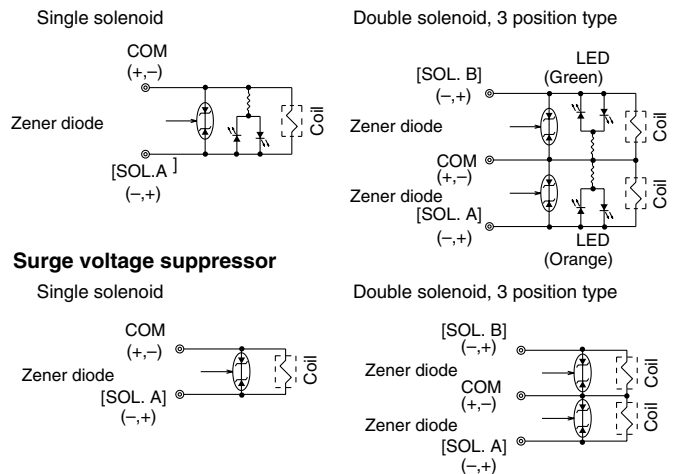
Series SV can be used as normally closed (N.C.) or normally open (N.O.) 3 port valves by closing one of the cylinder ports (A or B) with a plug. However, they should be used with the exhaust ports kept open. They are convenient at times when a double solenoid type 3 port valve is required.

Plug position		B port	A port
Actuation		N.C.	N.O.
Number of solenoids	Single		
	Double		

Light/Surge Voltage Suppressor

⚠️ Caution

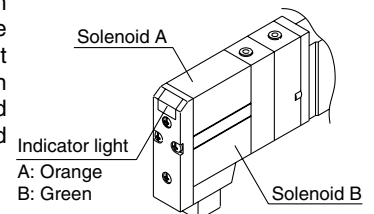
Solenoid valves have no polarity. Light/Surge voltage suppressor



Light Indication

⚠️ Caution

When equipped with indicator light and surge voltage suppressor, the light window turns orange when solenoid A is energized, and it turns green when solenoid B is energized.



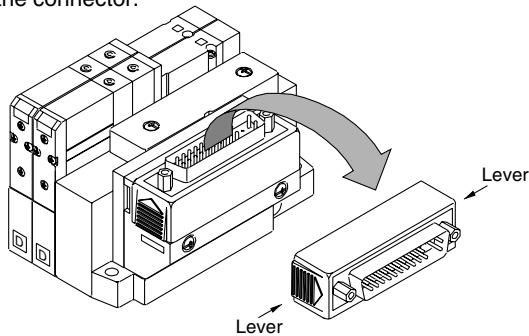
⚠️ Precautions 2

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 1-7-2.

Connector Entry Directions

⚠️ Caution

Connector entry directions for D-sub connectors and flat ribbon cables can be changed. To change the connector's entry direction, press the levers on both sides of the connector, take it off, and change the direction as shown in the drawing. Since lead wire assemblies are attached to the connector, excessive pulling or twisting can cause broken wires or other trouble. Also, take precautions so that lead wires are not caught and pinched when installing the connector.

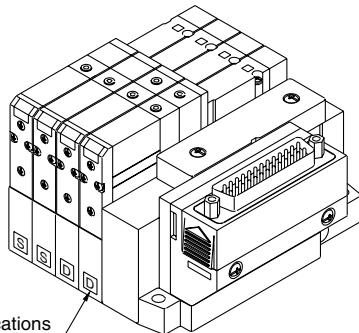


How to Order Manifold

⚠️ Caution

The letter "S" or "D" is indicated on manifold blocks for series SV as shown below. This indication refers to the type of substrate assembly (single wiring or double wiring) inside the manifold blocks.

When the manifold specification sheet does not include a wiring specification, all stations will be double wiring specification (D). In this case, single and double solenoid valves can be mounted in any position, but when a single valve is used, there will be an unused control signal. To avoid this, indicate positions of manifold blocks for single wiring specification (S) and double wiring specification (D) on a manifold specification sheet. (Note that double, 3 or 4 position valves cannot be used for manifolds blocks with single wiring specification (S).)



Wiring specifications symbol

Substrate Assemblies inside Manifolds

⚠️ Caution

Substrate assemblies inside of manifolds cannot be taken apart. Attempting to do so may damage parts.

One-touch Fittings

⚠️ Caution

1. Tube attachment/detachment for One-touch fittings

1) Attaching of tube

- (1) Take a tube having no flaws on its periphery and cut it off at a right angle. When cutting the tube, use tube cutters TK-1, 2 or 3. Do not use pinchers, nippers or scissors, etc. If cutting is done with tools other than tube cutters, there is the danger that the tube may be cut diagonally or become flattened, etc., making a secure installation impossible, and causing problems such as the tube pulling out after installation or air leakage. Also allow some extra length in the tube.
- (2) Grasp the tube and push it in slowly, inserting it securely all the way into the fitting.
- (3) After inserting the tube, pull on it lightly to confirm that it will not come out. If it is not installed securely all the way into the fitting, this can cause problems such as air leakage or the tube pulling out.

2) Detaching of tube

- (1) Push in the release button sufficiently, and push the collar evenly at the same time.
- (2) Pull out the tube while holding down the release button so that it does not come out. If the release button is not pressed down sufficiently, there will be increased bite on the tube and it will become more difficult to pull it out.
- (3) When the removed tube is to be used again, cut off the portion which has been chewed before reusing it. If the chewed portion of the tube is used as is, this can cause trouble such as air leakage or difficulty in removing the tube.

Other Tubing Brands

⚠️ Caution

1. When using tube other than SMC brand, confirm that the following specifications are satisfied with respect to the outside diameter tolerance of the tube.

- | | |
|------------------------|---------------------------------------|
| 1) Nylon tubing | within ± 0.1 mm |
| 2) Soft nylon tubing | within ± 0.1 mm |
| 3) Polyurethane tubing | within $+0.15$ mm
within -0.2 mm |

Do not use tubing which does not meet these outside diameter tolerances. It may not be possible to connect them, or they may cause other trouble, such as air leakage or the tube pulling out after connection.

Back Pressure Check Valve Built-in Type

⚠️ Caution

Valves with built-in back pressure check valve is to protect the back pressure inside a valve. For this reason, use caution the valves with external pilot specification cannot be pressurized from exhaust port [3/5(E)]. As compared with the types which do not integrate the back pressure check valve, C value of the flow characteristics goes down. For details, please contact SMC.

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⚠ Precautions 3

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 1-7-2.

Interface Regulator

⚠ Caution

Specifications

Interface regulator	SV1□00-□-□	SV2000-□-□	SV3000-□-□	SV4000-□-□	
Applicable model	SV1000	SV2000	SV3000	SV4000	
Regulating port	P, A, B				
Set pressure range	0.1 to 0.7 MPa				
Maximum operating pressure	0.7 MPa				
Fluid	Air				
Ambient and fluid temp.	Maximum at 50°C				
Weight	With pressure gauge	38.4 g (43.4 g)	86.5 g	103.8 g	178.2 g
	Without pressure gauge	32 g (37 g)	80.3 g	97.6 g	171.8 g

Note 1) Apply pressure from P port in the base for interface regulator.

Note 2) P port pressure regulation is only available for closed center and pressure center.

Note 3) Gasket and mounting screws are included in the weight.

Note 4) (): Denotes the values of SV1300.

How to Calculate the Flow Rate

For obtaining the flow rate, refer to page 1-1-12.

⚠️ Precautions 4

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 1-7-2.

Serial Wiring EX500/EX250/EX120 Precautions

⚠️ Warning

1. **These products are intended for use in general factory automation equipment.**
Avoid using these products in machinery/equipment which affects human safety, and in cases where malfunction or failure can result in extensive damage.
2. **Do not use in an explosive atmosphere, environment with inflammable gases, or corrosive atmosphere.**
This can cause injury or fire, etc.
3. **Work such as transporting, installing, piping, wiring, operation, control and maintenance should be performed by personnel with specialized knowledge.**
There is a danger of electrocution, injury or fire, etc.
4. **Install an external emergency stop circuit that can promptly stop operation and shut off the power supply.**
5. **Do not remodel these products, as there is a danger of injury and damage.**
6. **Do not wipe the product with chemicals, etc.**

⚠️ Caution

1. **Read the instruction manual carefully, strictly observe the precautions and operate within the range of the specifications.**
2. **Do not drop these products or submit them to strong impacts. This can cause damage, failure or malfunction, etc.**
3. **In locations with poor electrical conditions, take steps to ensure a steady flow of the rated power supply. Use of a voltage outside of the specifications can cause malfunction, damage to the unit, electrocution or fire, etc.**
4. **Do not touch connector terminals or internal substrates when current is being supplied. There is a danger of malfunction, damage to the unit or electrocution if connector terminals or internal substrates are touched when current is being supplied.**
Be sure that the power supply is OFF when adding or removing manifold valves or input blocks, etc., or when connecting or disconnecting connectors.
5. **Operate at an ambient temperature that is within the specifications. Even when the ambient temperature range is within the specifications, do not use in locations where there are rapid temperature changes.**
6. **Keep wire scraps and other extraneous material from getting inside these products. This can cause fire, failure or malfunction, etc.**
7. **Give consideration to the operating environment depending on the type of enclosure being used.**
To achieve IP65 or IP67 protection, provide appropriate wiring between all units using electrical wiring cables, communication connectors and cables with M12 connectors. Also, provide waterproof caps when there are unused ports, and perform proper mounting of input units, input blocks, SI units and manifold valves, etc. Provide a cover or other protection for applications in which there is constant exposure to water.
8. **Obey the proper tightening torque.**
There is a possibility of damaging threads if tightening exceeds the tightening torque range.

⚠️ Caution

9. **Provide adequate protection when operating in locations such as the following:**
 - Where noise is generated by static electricity, etc.
 - Where there is a strong electric field
 - Where there is a danger of exposure to radiation
 - When in close proximity to power supply lines
10. **When these products are installed in equipment, provide adequate protection against noise by using noise filters, etc.**
11. **Since these products are components that are used after installation in other equipment, the customer should confirm conformity to EMC directives for the finished product.**
12. **Do not remove the name plate.**
13. **Perform periodic inspections and confirm normal operation. It may otherwise be impossible to guarantee safety due to unexpected malfunction or erroneous operation.**

Power Supply Safety Instructions

⚠️ Caution

1. **Operation is possible with a single power supply or a separate power supply. However, be sure to provide two wiring systems (one for solenoid valves, and one for input and control units).**
2. **Use the following UL approved products for DC power supply combinations.**
 - 1) **Controlled voltage current circuit conforming to UL508**
Circuit uses the secondary coil of an isolated transformer as the power supply, satisfying the following conditions.
 - Max. voltage (with no load): 30 Vrms (42.4 V peak) or less
 - Max. current: (1) 8 A or less (including shorts), and (2) When controlled by a circuit protector (fuse, etc.) with the following rating

No-load voltage (V peak)	Max. current rating
0 to 20 [V]	5.0
Over 20 [V] to 30 [V]	100
	Peak voltage value
 - 2) **A circuit (class 2 circuit) with maximum 30 Vrms (42.4 V peak) or less, and a power supply consisting of a class 2 power supply unit conforming to UL1310, or a class 2 transformer conforming to UL1585**

Safety Instructions for Cable

⚠️ Caution

1. **Be careful of mis-wiring. This can cause malfunction, damage and fire in the unit.**
2. **To prevent noise and surge in signal lines, keep all wiring separate from power lines and high voltage lines. Otherwise, this can cause malfunction.**
3. **Check wiring insulation, as defective insulation can cause damage to the unit due to excessive voltage or current.**
4. **Do not bend or pull cables repeatedly, and do not place heavy objects on them or allow them to be pinched. This can cause broken lines.**

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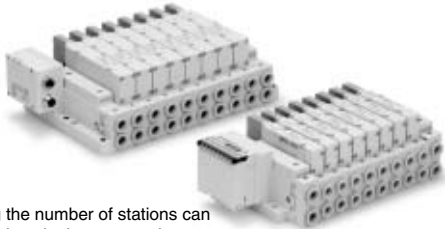
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Valve Manifold Common Specifications Series SV

Cassette base manifold



- Changing the number of stations can be easily done by lever operation.

Manifold Specifications

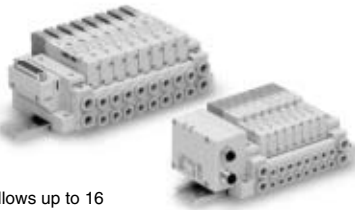
Applicable series		SV1000	SV2000
Manifold type		Stacking type cassette base manifold	
1 (P: SUP)/3, 5 (E: EXH) type		Common SUP, EXH	
Valve stations (maximum)		18 stations	20 stations
Max. number of solenoids		18 points	26 points
Port size	1(P), 3/5(E) port	C8, N9	C10, N11
	4(A), 2(B) port	C3, C4, C6 N1, N3, N7	C4, C6, C8 N3, N7, N9

Flow Characteristics

Model	Port size		Flow characteristics					
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1 → 4/2 (P → A/B)			4/2 → 3/5 (A/B → E)		
			C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv
SS5V1-16	C8	C6	0.89	0.22	0.22	0.98	0.21	0.23
SS5V2-16	C10	C8	2.3	0.28	0.50	2.7	0.18	0.56

Note) The value is for manifold base with 5 stations and individually operated 2 position type.

Tie-rod base manifold



- 34 pins connector allows up to 16 stations with double solenoids.

Manifold Specifications

Applicable series		SV1000	SV2000	SV3000	SV4000
Manifold type		Tie-rod base manifold			
1 (P: SUP)/3, 5 (E: EXH) type		Common SUP, EXH			
Valve stations (maximum)		20 stations			
Max. number of solenoids		32 points			
Port size	1(P), 3/5(E) port	C8, N9	C10, N11	C12, N11	C12, N11, 03
	4(A), 2(B) port	C3, C4, C6 N1, N3, N7	C4, C6, C8 N3, N7, N9	C6, C8, C10 N7, N9, N11	C8, C10, C12 N9, N11, 02, 03

Flow Characteristics

Model	Port size		Flow characteristics					
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1 → 4/2(P → A/B)			4/2 → 3/5(A/B → E)		
			C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv
SS5V1-10	C8	C6	0.98	0.26	0.24	1.1	0.35	0.28
SS5V2-10	C10	C8	2.1	0.20	0.46	2.4	0.18	0.48
SS5V3-10	C12	C10	4.2	0.22	0.91	4.3	0.21	0.93
SS5V4-10	C12	C12	6.2	0.19	1.3	7.0	0.18	1.6

Note) The value is for manifold base with 5 stations and individually operated 2 position type.

Enclosure of Manifold Variations (Common for cassette base and tie-rod base)

Series	Enclosure (Based on IEC529)
Series EX500 Decentralized serial wiring	IP67 *
Series EX250 Serial wiring with input/output onit	IP67
Series EX120 Dedicated output serial wiring	Dusttight (IP40)
For circular connector	IP67
D-sub connector	Dusttight (IP40)
Flat ribbon cable	Dusttight (IP40)

* Enclosure of a gateway unit and input manifold is IP65.

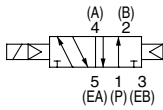
Series SV Solenoid Valve Specifications



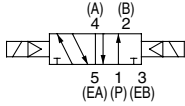
Made to Order Specifications
(For details, refer to page 1-2-108.)

JIS Symbol

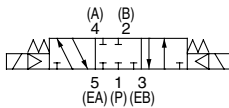
2 position single solenoid



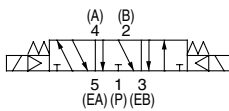
2 position double solenoid



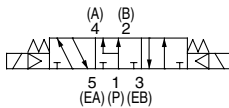
3 position closed center



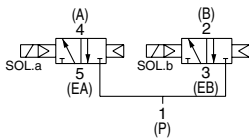
3 position exhaust center



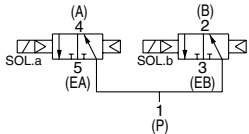
3 position pressure center



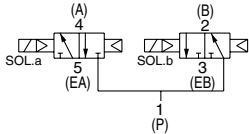
4 position dual 3 port valve: N.C./N.C.



4 position dual 3 port valve: N.O./N.O.



4 position dual 3 port valve: N.C./N.O.



Fluid		Air
Internal pilot Operating pressure range (MPa)	2 position single	0.15 to 0.7
	4 position dual 3 port valve	
	3 position	
External pilot Operating pressure range (MPa)	Operating pressure range	-100 kPa to 0.7
	2 position single, double	
	3 position	
Ambient and fluid temperature (°C)		-10 to 50 (No freezing. Refer to page 1-7-4.)
Max. operating frequency (Hz)	2 position single, double	5
	4 position dual 3 port valve	
	3 position	3
Manual override		Non-locking push type
		Push-turn locking slotted type
Pilot exhaust method	Internal pilot	Common exhaust type for main and pilot valve
	External pilot	
Lubrication		Not required
Mounting orientation		Unrestricted
Impact/Vibration resistance (ms ²)		150/30
Enclosure		IP67 (Based on IEC529)
Coil rated voltage		24 VDC, 12 VDC
Allowable voltage fluctuation		±10% of rated voltage
Power consumption		0.6 (With indicator light: 0.65)
Surge voltage suppressor		Zener diode
Indicator light		LED

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Note) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Response Time

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)			
	SV1000	SV2000	SV3000	SV4000
2 position single	11 or less	25 or less	28 or less	40 or less
2 position double	10 or less	17 or less	26 or less	40 or less
3 position	18 or less	29 or less	32 or less	82 or less
4 position dual 3 port valve	15 or less	33 or less	—	—



Note) Based on dynamic performance test, JIS B 8375-1981.
(Coil temperature: 20°C, at rated voltage)

Weight

Series	Type of actuation	Weight (g)
SV1000	Single solenoid	66
	Double solenoid	71
	3 position	73
	4 position dual 3 port	71
SV2000	Single solenoid	74
	Double solenoid	78
	3 position	83
	4 position dual 3 port	78
SV3000	Single solenoid	99
	Double solenoid	102
	3 position	110
SV4000	Single solenoid	186
	Double solenoid	190
	3 position	211

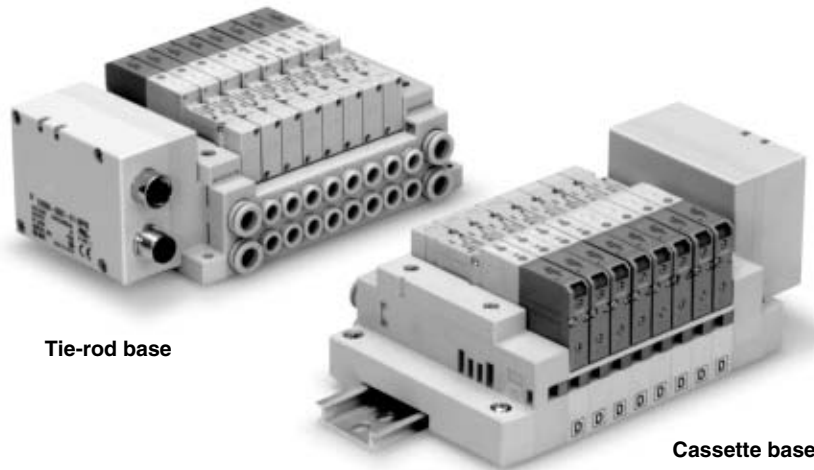


Note) Weight of solenoid valve only.

Decentralized Serial Wiring

Series **EX500**

IP67 compliant



Tie-rod base

Cassette base

Applicable series	Cassette base manifold SV1000/SV2000
	Tie-rod base manifold SV1000/SV2000/SV3000/SV4000
	<ul style="list-style-type: none">• Number of output points: 16 points• EX500 gateway unit communication specifications Remote I/O, DeviceNet, PROFIBUS-DP

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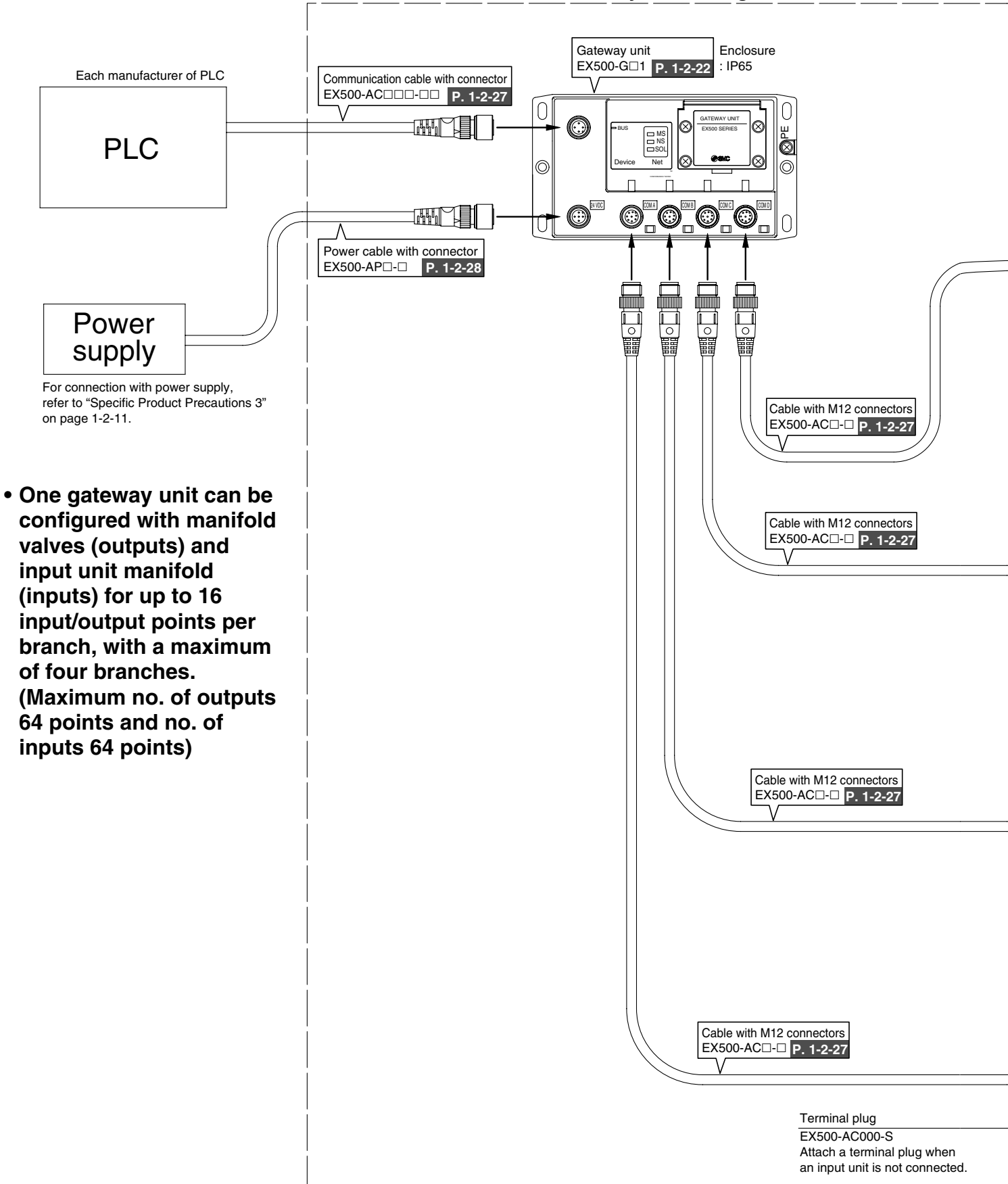
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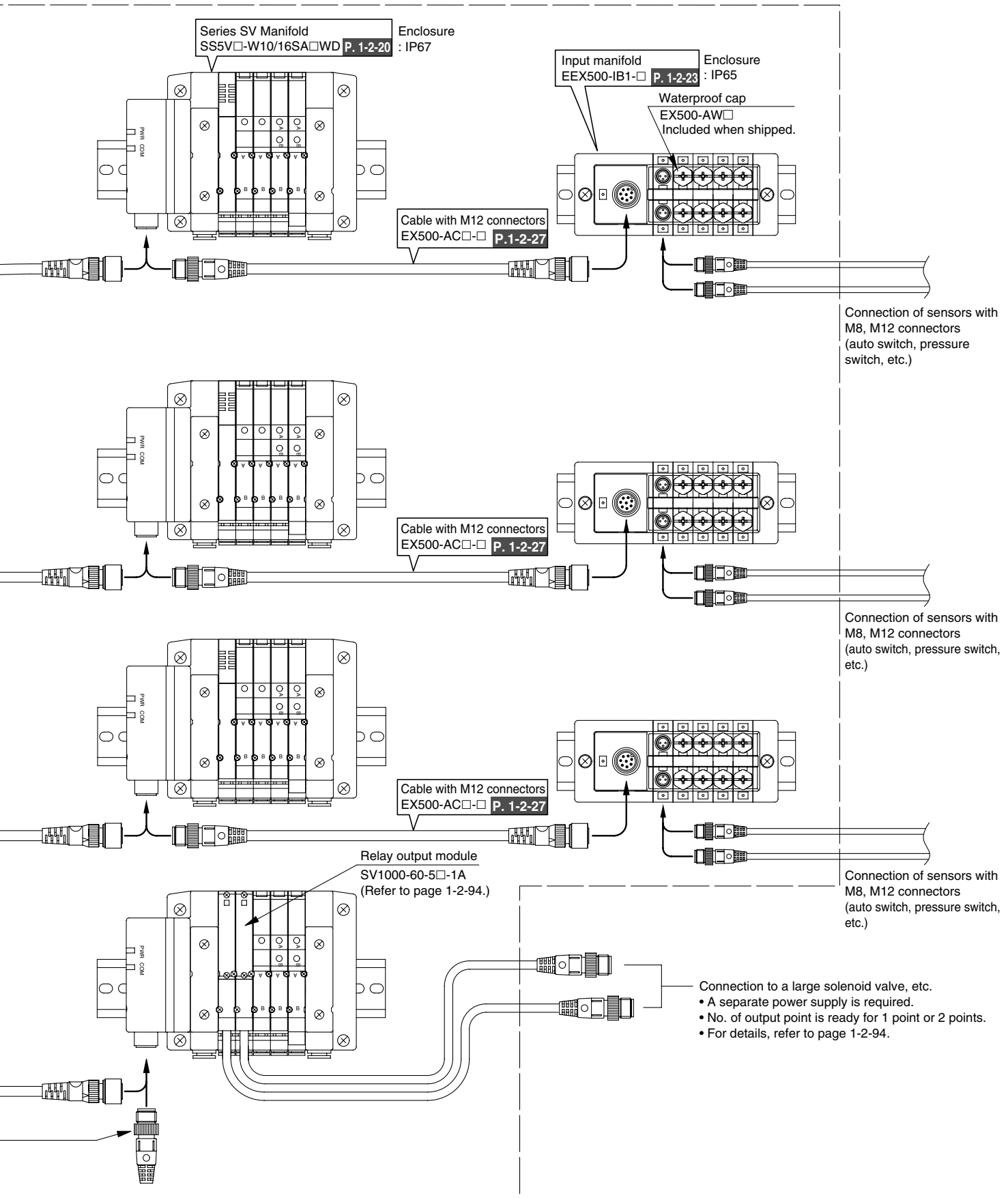
SX

Series EX500 Decentralized Serial System Configuration

A configuration of series EX500 serial system with series SV is shown below.

Series EX500 Decentralized Serial System Configuration





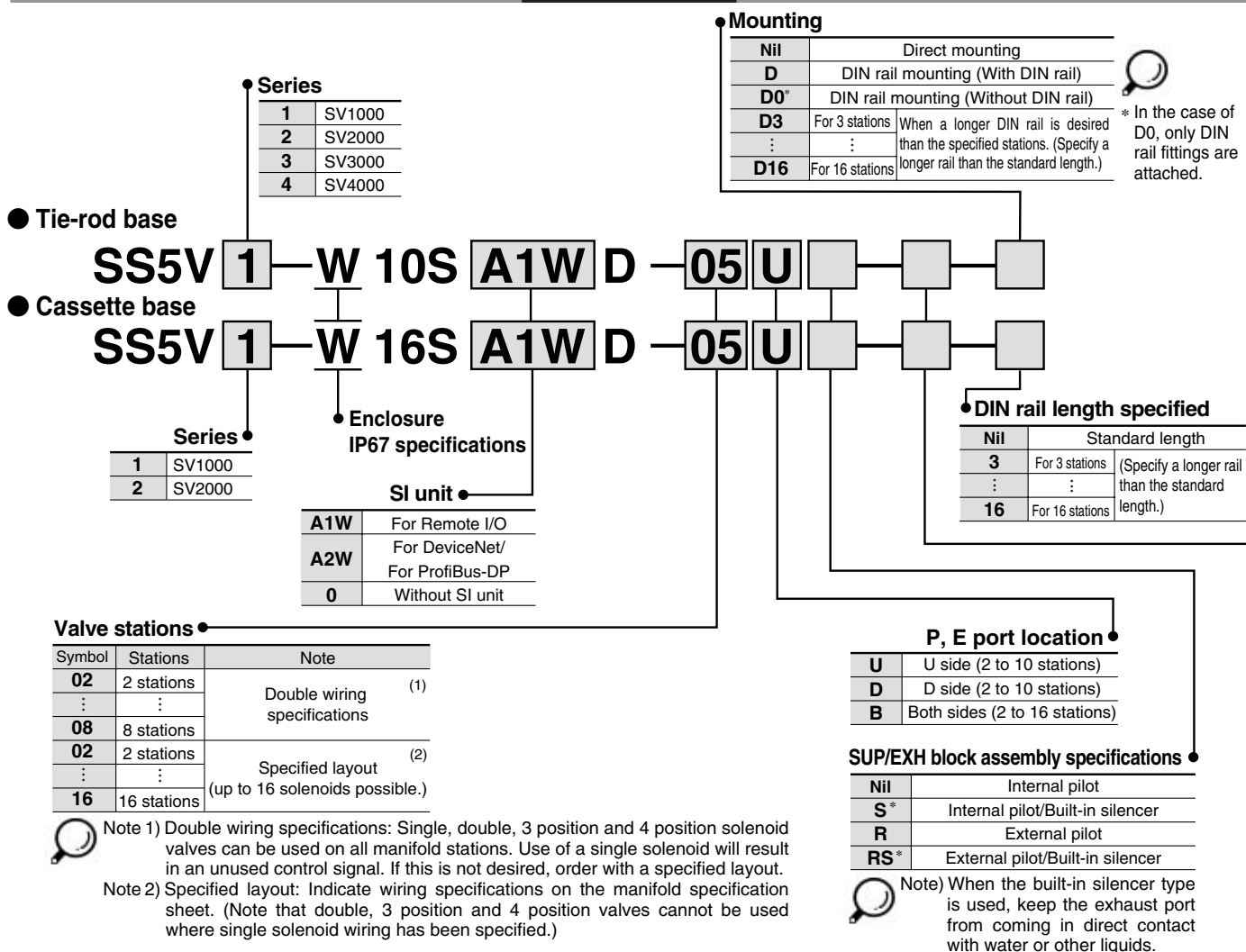
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Series EX500

Decentralized Serial Wiring

Series SV

How to Order



A, B port size (metric)

Symbol	A, B port	P, E port	Applicable series
C3	One-touch fitting for ø3.2	One-touch fitting for ø8	SV1000
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6		
C4	One-touch fitting for ø4	One-touch fitting for ø10	SV2000
C6	One-touch fitting for ø6		
C8	One-touch fitting for ø8		
C6	One-touch fitting for ø6	One-touch fitting ø12	SV3000
C8	One-touch fitting for ø8		
C10	One-touch fitting for ø10		
C8	One-touch fitting for ø8	One-touch fitting ø12	SV4000
C10	One-touch fitting for ø10		
C12	One-touch fitting for ø12		
02	Rc 1/4	Rc 3/8	
03	Rc3/8		
02F	G 1/4	G 3/8	
03F	G 3/8		
M	A, B ports mixed		

A, B port size (inch)

Symbol	A, B port	P, E port	Applicable series
N1	One-touch fitting for ø1/8"	One-touch fitting for ø5/16"	SV1000
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø1/4"		
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for ø5/16"		
N7	One-touch fitting for ø1/4"	One-touch fitting for ø3/8"	SV3000
N9	One-touch fitting for ø5/16"		
N11	One-touch fitting for ø3/8"		
N9	One-touch fitting for ø5/16"	One-touch fitting for ø3/8"	SV4000
N11	One-touch fitting for ø3/8"		
02N	NPT 1/4		
03N	NPT 3/8	NPT 3/8	
02T	NPTF 1/4	NPTF 3/8	
03T	NPTF 3/8		
M	A, B ports mixed		

* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

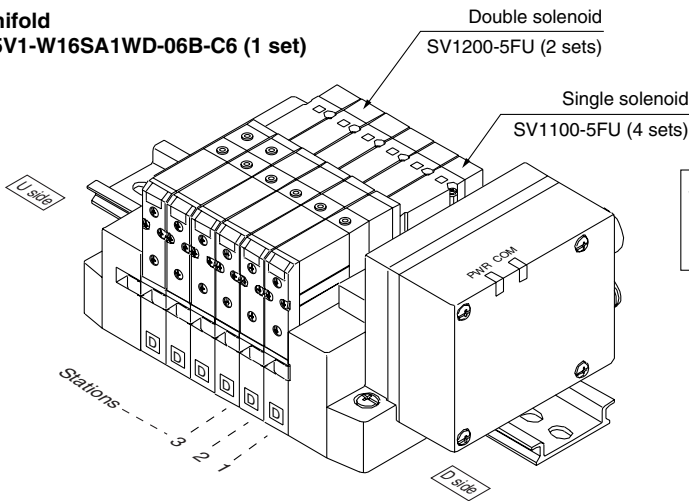
* Port sizes of X, PE port for external pilot specifications (R, RS) are ø4 (metric), ø5/32" (inch) for SV1000/2000 and ø6 (metric) and ø1/4" (inch) for SV3000/4000.

How to Order Valve Manifold Assembly

Ordering example (SV1000)

Manifold

SS5V1-W16SA1WD-06B-C6 (1 set)



SS5V1-W16SA1WD-06B-C6.....1 set (Manifold part no.)
 *SV1100-5FU.....4 sets (Single solenoid part no.)
 *SV1200-5FU.....2 sets (Double solenoid part no.)

SV

SZ

SY

SYJ

SX

How to Order Solenoid Valves

SV 1 1 00 [] [] — 5 F [] [] []

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Type of actuation

1	2 position single solenoid
2	2 position double solenoid
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
A	4 position dual 3 port valve: N.C./N.C.
B	4 position dual 3 port valve: N.O./N.O.
C	4 position dual 3 port valve: N.C./N.O.

* 4 position dual 3 port valves are applicable to Series SV1000 and SV2000 only.

Pilot type

Nil	Internal pilot
R	External pilot

* External pilot specifications is not available for 4 position dual 3 port valves.

Back pressure check valve

Nil	None
K	Built-in

* Built-in back pressure check valve type is applicable to series SV1000 only.

* Back pressure check valve is not available for 3 position closed center and 3 position pressure

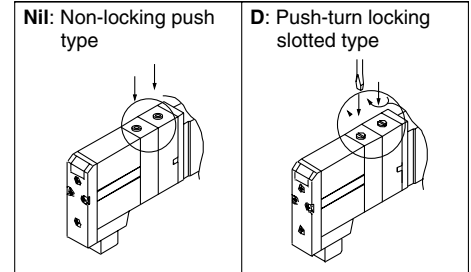
Refer to Precautions 2 on page 1-2-9.

Note)



Note) Available with manifold block for station additions. Refer to pages 1-2-89 and 1-2-93.

Manual override



Light/Surge voltage suppressor

U	With light/surge voltage suppressor
R	With surge voltage suppressor

Rated voltage

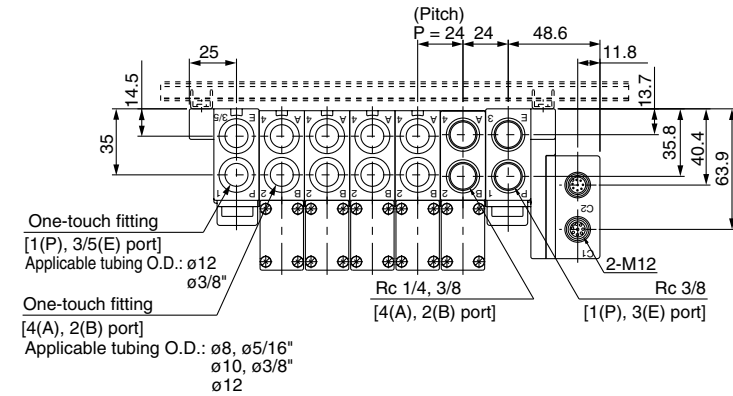
5	24 VDC
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Series SV

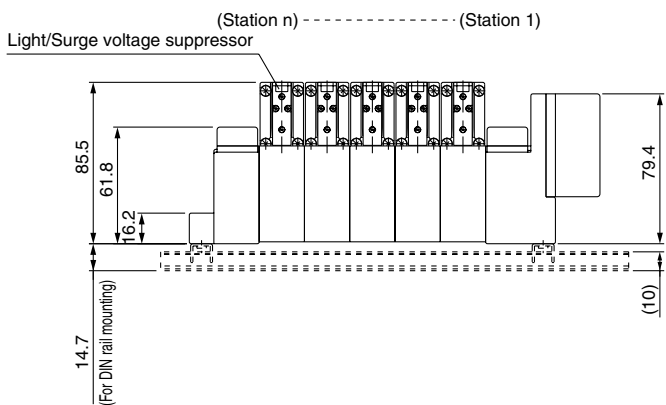
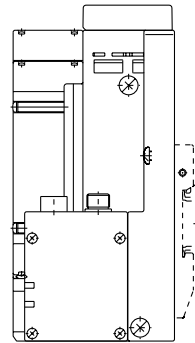
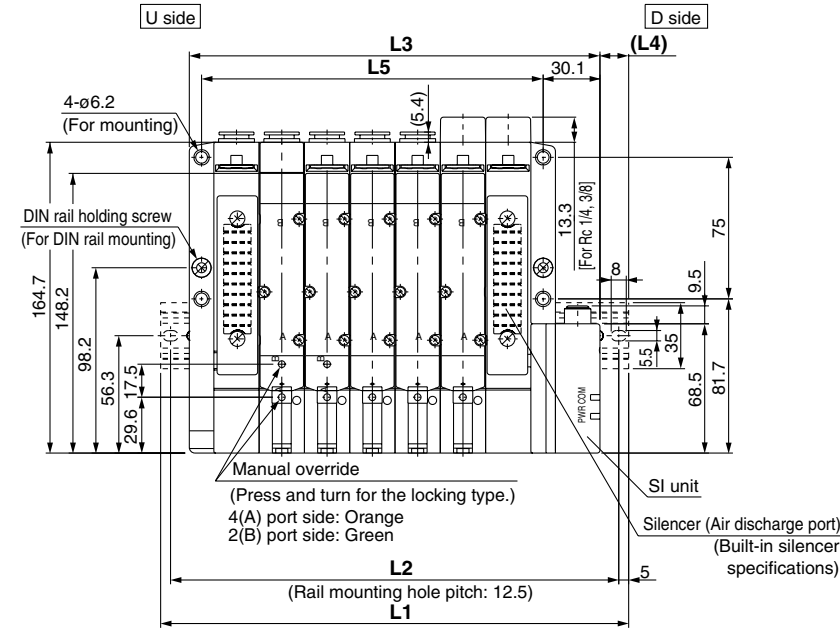
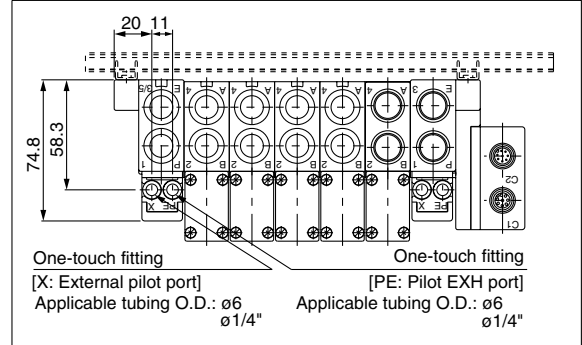
Dimensions: Series SV4000 for EX500 Decentralized Serial Wiring

● Tie-rod base manifold: SS5V4-W10SA□WD-**Stations** $\frac{U}{D}$ (S, R, RS)- $\frac{02, C8, N9}{03, C10, N11}$ (-D)

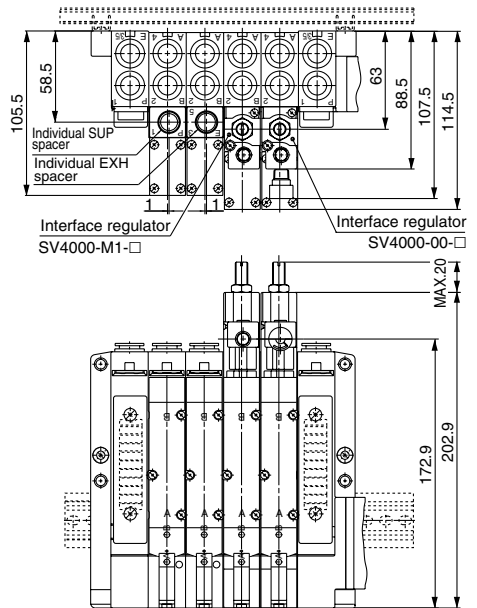
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



With option

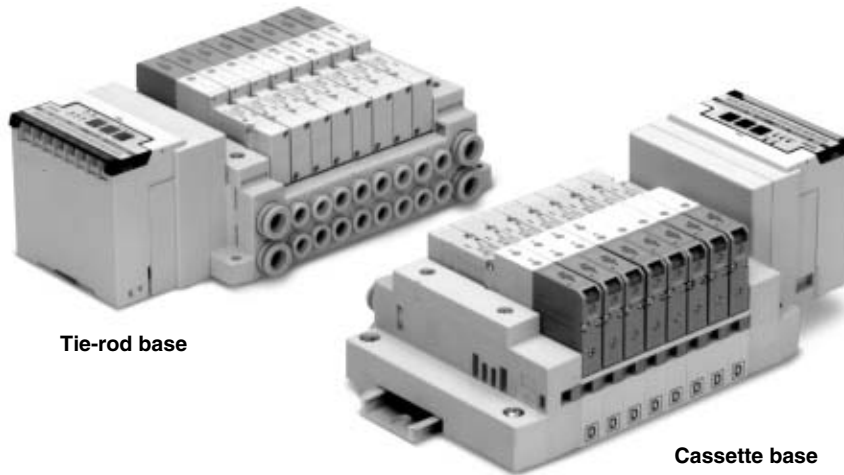


L Dimension

L	n: Stations															
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
L1	173	198	223	248	273	298	323	348	373	385.5	410.5	435.5	460.5	485.5	510.5	
L2	162.5	187.5	212.5	237.5	262.5	287.5	312.5	337.5	362.5	375	400	425	450	475	500	
L3	145.6	169.6	193.6	217.6	241.6	265.6	289.6	313.6	337.6	361.6	385.6	409.6	433.6	457.6	481.6	
L4	13.5	14	14.5	15	15.5	16	16.5	17	17.5	12	12.5	13	13.5	14	14.5	
L5	109	133	157	181	205	229	253	277	301	325	349	373	397	421	445	

Dedicated Output Serial Wiring

Series *EX120*



Tie-rod base

Cassette base

Applicable series	Cassette base manifold SV1000/SV2000
	Tie-rod base manifold SV1000/SV2000/SV3000/SV4000
• Number of outputs points: 16 points	

SV

SZ

SY

SYJ

SX



Series EX120 Dedicated Output Serial Wiring Series SV

How to Order

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Tie-rod base

Cassette base

Series

1	SV1000
2	SV2000

SI unit

Symbol	Specifications
0	Without SI unit
A*	With general type SI unit (Series EX300)
B	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System
C	OMRON Corp.: SYSBUS Wire System
D	SHARP Corp.: Satellite I/O Link System
E	Matsushita Electric Works: MEWNET-F System
F1	NKE Corp.: Uni-wire System (16 output points)
G	Rockwell Automation: Allen Bradley Remote I/O (RIO) System
H	NKE Corp.: Uni-wire H System
J1	SUNX Corp.: S-LINK System (16 output points)
J2	SUNX Corp.: S-LINK System (8 output points)
K	Fuji Electric Co.: T-LINK Mini System
Q	DeviceNet, CompoBus/D (OMRON Corp.)
R1	OMRON Corp.: CompoBus/S System (16 output points)
R2	OMRON Corp.: CompoBus/S System (8 output points)
U	JEMANET (JPCN-1)
V	Mitsubishi Electric Corp.: CC-LINK System

* For the general purpose type, a transmission unit is require on the CPU side.

Mounting

Nil	Direct mounting
D	DIN rail mounting (With DIN rail)
D0*	DIN rail mounting (Without DIN rail)
D3	For 3 stations
:	:
D16	For 16 stations

When a longer DIN rail is desired than the specified stations. (Specify a longer rail than the standard length.)

* In the case of D0, only DIN rail fittings are attached.

DIN rail length specified

Nil	Standard length
3	For 3 stations
:	:
16	For 16 stations

(Specify a longer rail than the standard length.)

Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring specifications (1)
:	:	
08	8 stations	
02	2 stations	Specified layout (2) (up to 16 solenoids possible.)
:	:	
16	16 stations	

• Since J2 and R2 type SI units have 8 outputs note that up to 8 solenoids can be accommodated.
• This also includes the number of blanking plate assemblies.

Note 1) Double wiring specifications: Single, double, 3 position and 4 position solenoid valves can be used on all manifold stations. Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
Note 2) Specified layout: Indicate wiring specifications on the manifold specification sheet. (Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.)

P, E port location

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 16 stations)

SUP/EXH block assembly specifications

Nil	Internal pilot
S	Internal pilot/Built-in silencer
R	External pilot
RS	External pilot/Built-in silencer

SI Unit Part No.

Symbol	Specifications	For SS5V□□□S3
A*	With general type SI unit (Series EX300)	EX320-S001
B	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System	EX120-SMB1
C	OMRON Corp.: SYSBUS Wire System	EX120-STA1
D	SHARP Corp.: Satellite I/O Link System	EX120-SSH1
E	Matsushita Electric Works: MEWNET-F System	EX120-SPA1
F1	NKE Corp.: Uni-wire System (16 output points)	EX120-SUW1
G	Rockwell Automation: Allen Bradley Remote I/O (RIO) System	EX120-SAB1

Symbol	Specifications	For SS5V□-□□S3
H	NKE Corp.: Uni-wire H System	EX120-SUH1
J1	SUNX Corp.: S-LINK System (16 output points)	EX120-SSL1
J2	SUNX Corp.: S-LINK System (8 output points)	EX120-SSL2
K	Fuji Electric Co.: T-LINK Mini System	EX120-SFU1
Q	DeviceNet, CompoBus/D (OMRON Corp.)	EX120-SDN1
R1	OMRON Corp.: CompoBus/S System (16 output points)	EX120-SCS1
R2	OMRON Corp.: CompoBus/S System (8 output points)	EX120-SCS2
U	JEMANET (JPCN-1)	EX120-SJN1
V	Mitsubishi Electric Corp.: CC-LINK System	EX120-SMJ1

* For terminal LED descriptions for each SI unit and cable wiring, etc., refer to pages 1-2-46 to 1-2-48.

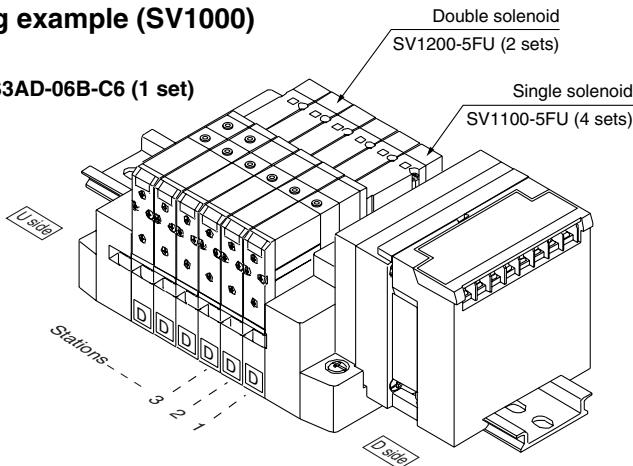


How to Order Valve Manifold Assembly

Ordering example (SV1000)

Manifold

SS5V1-16S3AD-06B-C6 (1 set)



SS5V1-16S3AD-06B-C6.....1 set (manifold part no.)
 *SV1100-5FU.....4 sets (Single solenoid part no.)
 *SV1200-5FU.....2 sets (Double solenoid part no.)

- SV
- SZ
- SY
- SYJ
- SX

How to Order Solenoid Valves

SV 1 1 0 0 — 5 F

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Type of actuation

1	2 position single solenoid
2	2 position double solenoid
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
A	4 position dual 3 port valve: N.C./N.C.
B	4 position dual 3 port valve: N.O./N.O.
C	4 position dual 3 port valve: N.C./N.O.

* 4 position dual 3 port valves are applicable to Series SV1000 and SV2000 only.

Pilot type

Nil	Internal pilot
R	External pilot

* External pilot specifications is not available for 4 position dual 3 port valves.

Back pressure check valve

Nil	None
K	Built-in

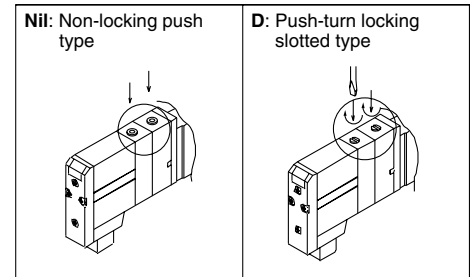
* Built-in back pressure check valve type is applicable to Series SV1000 only.
 * Back pressure check valve is not available for 3 position closed center and 3 position pressure center.



Refer to Precautions 2 on page 1-2-9.

Note) Available with manifold block for station additions. Refer to pages 1-2-89 and 1-2-93.

Manual override



Rated voltage

5	24 VDC
---	--------

Light/Surge voltage suppressor

U	With light/surge voltage suppressor
R	With surge voltage suppressor

A, B port size (Metric)

Symbol	A, B port	P, E port	Applicable series
C3	One-touch fitting for ø3.2	One-touch fitting for ø8	SV1000
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6		
C4	One-touch fitting for ø4	One-touch fitting for ø10	SV2000
C6	One-touch fitting for ø6		
C8	One-touch fitting for ø8		
C6	One-touch fitting for ø6	One-touch fitting for ø12	SV3000
C8	One-touch fitting for ø8		
C10	One-touch fitting for ø10		
C8	One-touch fitting for ø8	One-touch fitting for ø12	SV4000
C10	One-touch fitting for ø10		
C12	One-touch fitting for ø12		
02	Rc 1/4	Rc 3/8	SV4000
03	Rc 3/8		
02F	G 1/4		
03F	G 3/8	G 3/8	
M	A, B ports mixed		

A, B port size (Inch)

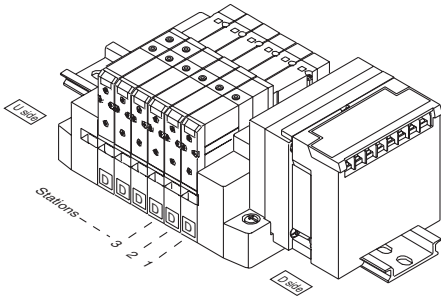
Symbol	A, B port	P, E port	Applicable series
N1	One-touch fitting for ø1/8"	One-touch fitting for ø5/16"	SV1000
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø1/4"		
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for ø5/16"		
N7	One-touch fitting for ø1/4"	One-touch fitting for ø3/8"	SV3000
N9	One-touch fitting for ø5/16"		
N11	One-touch fitting for ø3/8"		
N9	One-touch fitting for ø5/16"	One-touch fitting for ø3/8"	SV4000
N11	One-touch fitting for ø3/8"		
02N	NPT 1/4		
03N	NPT 3/8	NPT 3/8	
02T	NPTF 1/4	NPTF 3/8	
03T	NPTF 3/8		
M	A, B ports mixed		

* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

* Port sizes of X, PE port for external pilot specification (R, RS) are ø4 (metric), ø5/32" (inch) for SV1000/2000 and ø6 (metric) and ø1/4" (inch) for SV3000/4000.

Series SV

- The serial transmission system reduces wiring work, while minimizing wiring and saving space.
- Maximum 16 stations (Specify a model with more than 9 stations by means of the manifold specification sheet.)

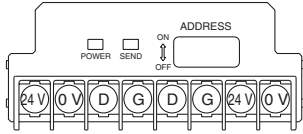
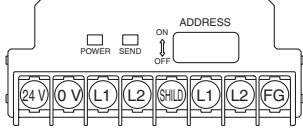
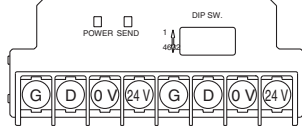
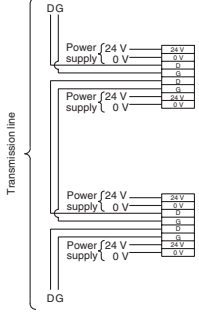
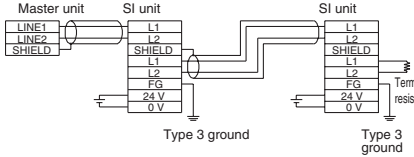
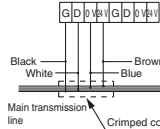
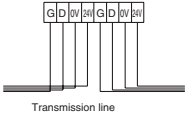


- Stations are counted from D side as the 1st.
- A maximum of 16 solenoids is possible (16 stations with single solenoids).

Item	Specifications
External power supply	24 VDC + 10%/- 5%
Current consumption (Internal unit)	0.1 A A, B, D, E, F1, G, J1, J2, K, R1, R2, H, U, V
	0.3 A C, Q

	Type A Series EX300	Type B Mitsubishi Electric Corporation MELSECNET/mini-S3 Data Link System																		
Name of terminal block, LED	<table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>TRD</td> <td>ON during data reception</td> </tr> <tr> <td>RUN/ERR</td> <td>Blinks for normal data reception, ON for abnormal</td> </tr> </tbody> </table>	LED	Description	TRD	ON during data reception	RUN/ERR	Blinks for normal data reception, ON for abnormal	<table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>ON for power supply input</td> </tr> <tr> <td>RUN</td> <td>ON for normal data traffic with master unit</td> </tr> <tr> <td>RD</td> <td>ON during data reception</td> </tr> <tr> <td>SD</td> <td>ON during data transmission</td> </tr> <tr> <td>ERR</td> <td>ON for data reception error, OFF when normal</td> </tr> </tbody> </table>	LED	Description	POWER	ON for power supply input	RUN	ON for normal data traffic with master unit	RD	ON during data reception	SD	ON during data transmission	ERR	ON for data reception error, OFF when normal
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Note	<ul style="list-style-type: none"> • Connection to T unit PLC manufacturer's I/O card enables serial transmission. EX300-TMB1..... for Mitsubishi Electric Corporation EX300-TTA1..... for OMRON Corporation EX300-TFU1..... for Fuji Electric Co., Ltd. EX300-T001..... General purpose * Each T unit has 32 control points. • No. of output points, 16 points 	<ul style="list-style-type: none"> • MELSECNET/mini-S3 Data Link System Master unit : AJ71PT32-S3 AJ71T32-S3 A1SJ71PT32-S3 • No. of output points, 16 points, No. of stations occupied, 2 stations 																		
Cable wiring	<p>* Ground either the reception side or the transmission side of the shielding wire shield.</p>	<p>SI manifold solenoid valve</p> <p>* Ground either the reception side or the transmission side of the shielding wire shield.</p>																		

	Type C OMRON Corporation SYSBUS Wire System	Type D SHARP Corporation Satellite I/O Link System	Type E Matsushita Electric Works, Ltd. MEWNET-F System																								
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Note	<ul style="list-style-type: none"> • SYSBUS Wire System Master unit : Type C500-RM201 Type C200H-RM201 • No. of output points, 16 points 	<ul style="list-style-type: none"> • Satellite I/O Link System JW-23LM, JW-23LMH Master unit : ZW-31LM JW-31LM, JW-31LMH • No. of output points, 16 points 	<ul style="list-style-type: none"> • MEWNET-F System Master unit : AFP3740, AFP3742 AFP5740, AFP5742 • No. of output points, 16 points 																								
Cable wiring		<p>a) 2-wire type Wiring does not include signal ground line (SG).</p> <p>b) 3-wire type Wiring does not include signal ground line (SG).</p>																									

	Type F1 NKE Corporation Uni-wire System	Type G Rockwell Automation, Inc. Allen Bradley Remote I/O (RIO) System	Type J1, J2 SUNX Corporation S-LINK System																				
Name of terminal block, LED	 <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>ON for power supply input (ON when normal, flickers when voltage drops)</td> </tr> <tr> <td>SEND</td> <td>Transmission indication: Blinks when normal, OFF or ON when abnormal</td> </tr> </tbody> </table>	LED	Description	POWER	ON for power supply input (ON when normal, flickers when voltage drops)	SEND	Transmission indication: Blinks when normal, OFF or ON when abnormal	 <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>ON when power supply is ON</td> </tr> <tr> <td>COM</td> <td>ON when communication is normal Blinks when communication is initialized OFF for abnormal communication</td> </tr> <tr> <td>ERROR</td> <td>ON for abnormal communication</td> </tr> </tbody> </table>	LED	Description	POWER	ON when power supply is ON	COM	ON when communication is normal Blinks when communication is initialized OFF for abnormal communication	ERROR	ON for abnormal communication	 <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>ON for power supply input</td> </tr> <tr> <td>SEND</td> <td>Transmission indication: Blinks when normal, Blinks slowly when abnormal</td> </tr> </tbody> </table>	LED	Description	POWER	ON for power supply input	SEND	Transmission indication: Blinks when normal, Blinks slowly when abnormal
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Note	<ul style="list-style-type: none"> • Uni-wire System Send unit : SD-120 • No. of output points, 16 points 	<ul style="list-style-type: none"> • Remote I/O (RIO) System • No. of output points, 16 points 	<ul style="list-style-type: none"> • S-LINK System S-LINK controller: SL-CU1A • No. of output points, 16 points (Type J1) No. of output points, 8 points (Type J2) 																				
Cable wiring			<div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>a) Type T branching multi-drop wiring (S-LINK System)</p>  </div> <div style="width: 45%;"> <p>b) Crossover wiring (Sensor Link System)</p>  </div> </div> <p>The above is the example of using dedicated S-LINK flat ribbon cable SL-RCMI00.</p>																				

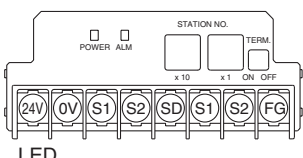
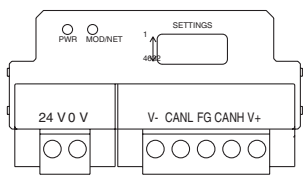
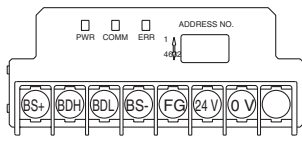
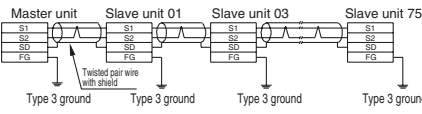
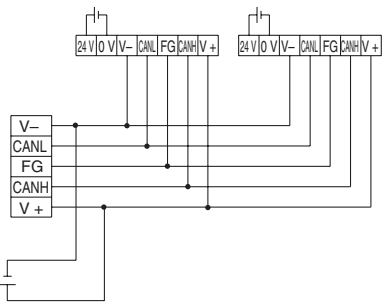
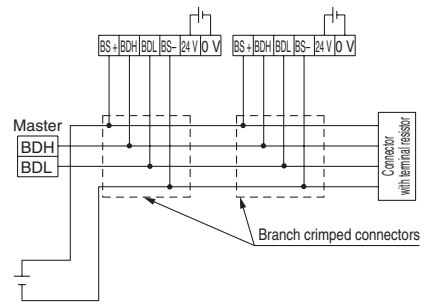
SV

SZ

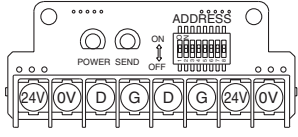
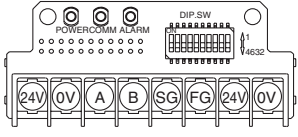
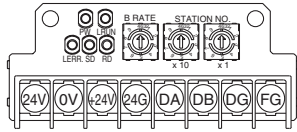
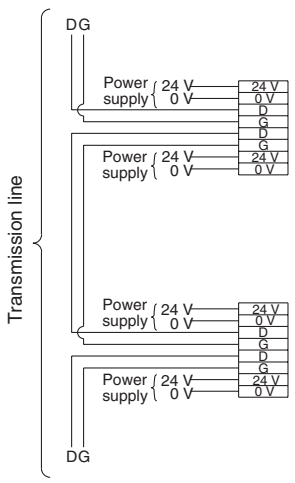
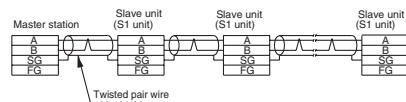
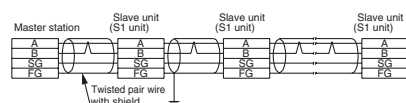
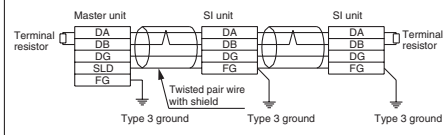
SY

SYJ

SX

	Type K Fuji Electric Co., Ltd. T-LINK Mini System	Type Q DeviceNet	Type R1, R2 OMRON Corporation CompoBus/S																								
Name of terminal block, LED	 <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>ON for power supply input</td> </tr> <tr> <td>ALM</td> <td>ON for abnormal transmission or processor side power supply cut</td> </tr> </tbody> </table>	LED	Description	POWER	ON for power supply input	ALM	ON for abnormal transmission or processor side power supply cut	 <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>PWR</td> <td>Green light ON for DeviceNet circuit power input OFF When this unit is off line or circuit power is OFF</td> </tr> <tr> <td rowspan="2">MOD/NET</td> <td>Green blinks When waiting for connection (On line)</td> </tr> <tr> <td>Green ON When connection is established (On line)</td> </tr> <tr> <td rowspan="2">Red blinks</td> <td>When connection time out occurs (recoverable communication abnormality)</td> </tr> <tr> <td>For MAC ID duplication error, or BUSOFF error (major communication abnormality)</td> </tr> </tbody> </table>	LED	Description	PWR	Green light ON for DeviceNet circuit power input OFF When this unit is off line or circuit power is OFF	MOD/NET	Green blinks When waiting for connection (On line)	Green ON When connection is established (On line)	Red blinks	When connection time out occurs (recoverable communication abnormality)	For MAC ID duplication error, or BUSOFF error (major communication abnormality)	 <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>PWR</td> <td>ON when communication power is supplied, OFF when power is OFF</td> </tr> <tr> <td>COMM</td> <td>ON for normal communication, OFF for abnormal communication or waiting</td> </tr> <tr> <td>ERR</td> <td>ON for abnormal communication, OFF for normal communication or waiting</td> </tr> </tbody> </table>	LED	Description	PWR	ON when communication power is supplied, OFF when power is OFF	COMM	ON for normal communication, OFF for abnormal communication or waiting	ERR	ON for abnormal communication, OFF for normal communication or waiting
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Note	<ul style="list-style-type: none"> • T-LINK Mini System Master unit : FTM100B Converter : FRC100A-G02 Repeater : FRC200A-C10 • No. of output points, 16 points 	<ul style="list-style-type: none"> • DeviceNet • OMRON Corporation: CompoBus/D System Master unit : Type C200HW-DRM21-V1 Master unit : Type CS1W-DRM21 • No. of output points, 16 points 	<ul style="list-style-type: none"> • CompoBus/S System Master unit : Type C200HW-SRM21-V1 Master unit : Type CQM1-SRM21-V1 No. of output points, 16 points (Type SR1) • No. of output points, 8 points (Type SR2) 																								
Cable wiring	 <p>Connect the shielding wire to the SD terminal. If the shielding wire is not connected to the SD terminal, normal transmission will be impossible even for short distances. Furthermore, do not ground the shielding wire (SD).</p>																										

Series SV

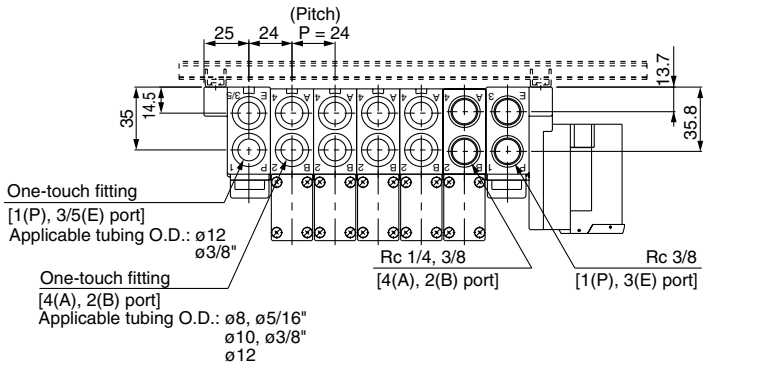
	Type H NKE Corporation Uni-wire H System	Type U JEMANET (JPCN-1)	Type V Mitsubishi Electric Corporation CC-LINK System																										
Name of terminal block, LED	 <table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>ON for power supply input (ON when normal, flickers when voltage drops)</td> </tr> <tr> <td>SEND</td> <td>Transmission indication: Blinks when normal, OFF or ON when abnormal</td> </tr> </tbody> </table>	LED	Description	POWER	ON for power supply input (ON when normal, flickers when voltage drops)	SEND	Transmission indication: Blinks when normal, OFF or ON when abnormal	 <table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>ON for SI unit power supply input</td> </tr> <tr> <td>COMM</td> <td>On for normal communication</td> </tr> <tr> <td>ALARM</td> <td>ON for abnormal communication</td> </tr> </tbody> </table>	LED	Description	POWER	ON for SI unit power supply input	COMM	On for normal communication	ALARM	ON for abnormal communication	 <table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>PW</td> <td>ON when communication power is supplied, OFF when power is OFF</td> </tr> <tr> <td>L RUN</td> <td>ON when normal data is being received</td> </tr> <tr> <td>SD</td> <td>ON when data is transmitted</td> </tr> <tr> <td>RD</td> <td>ON when data is received</td> </tr> <tr> <td>L ERR.</td> <td>ON for transmission error/wrong setting, Blinks when station or transmission speed setting changes during operation</td> </tr> </tbody> </table>	LED	Description	PW	ON when communication power is supplied, OFF when power is OFF	L RUN	ON when normal data is being received	SD	ON when data is transmitted	RD	ON when data is received	L ERR.	ON for transmission error/wrong setting, Blinks when station or transmission speed setting changes during operation
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Note	<ul style="list-style-type: none"> • Uni-wire H System Send unit: SD-H2 • No. of output points, 16 points 	<ul style="list-style-type: none"> • JEMANET (JPCN-1) (Reference) AJ71J92-S3 (Mitsubishi Electric Corporation) A1SJ71J92-S3 (Mitsubishi Electric Corporation) Type C200HW-JRM21 (OMRON Corporation) NJ-JPCN-1 (Fuji Electric Co., Ltd.) NP1L-JP1 (Fuji Electric Co., Ltd.) No. of output points, 16 points 	<ul style="list-style-type: none"> • CC-Link System Master unit : AJ61BT11 Master unit : A1SJ61BT11 Master unit : AJ61QBT11 Master unit : A1SJ61QBT11 • No. of output points, 16 points 																										
Cable wiring		<p>a) 2-wire type</p>  <p>b) 3-wire type</p> 																											

Series SV

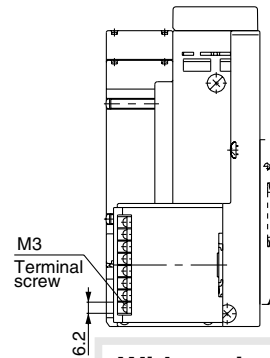
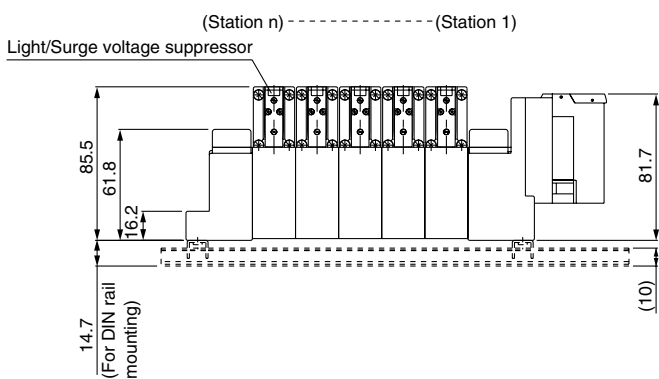
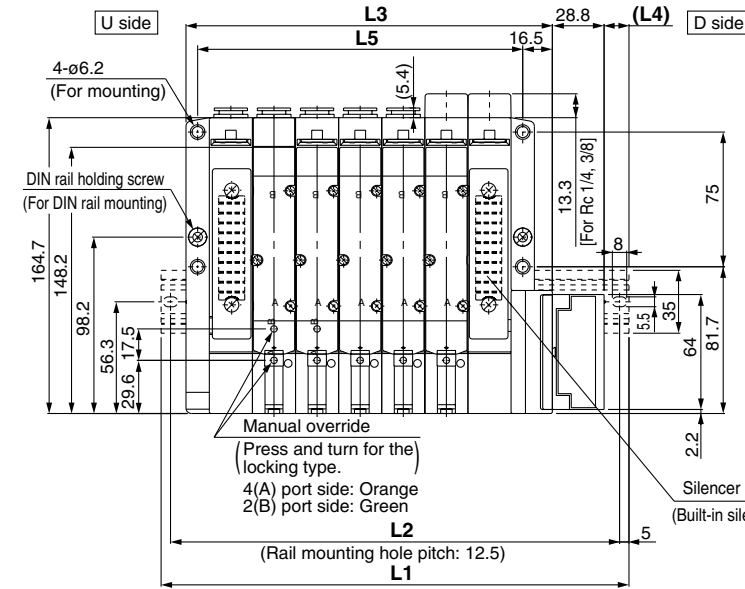
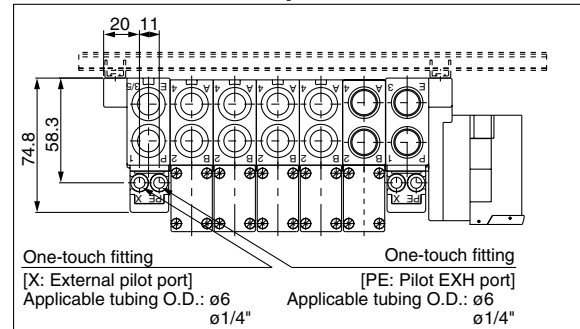
Dimensions: Series SV4000 for EX120 Dedicated Output Serial Wiring

● Tie-rod base manifold: SS5V4-10S3□D- Stations $\frac{U}{D}$ (S, R, RS) - $\frac{02, C8, N9}{03, C10, N11}$ (-D)

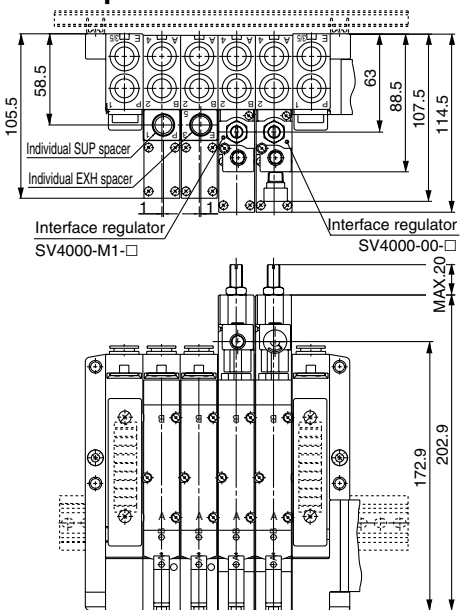
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



With option



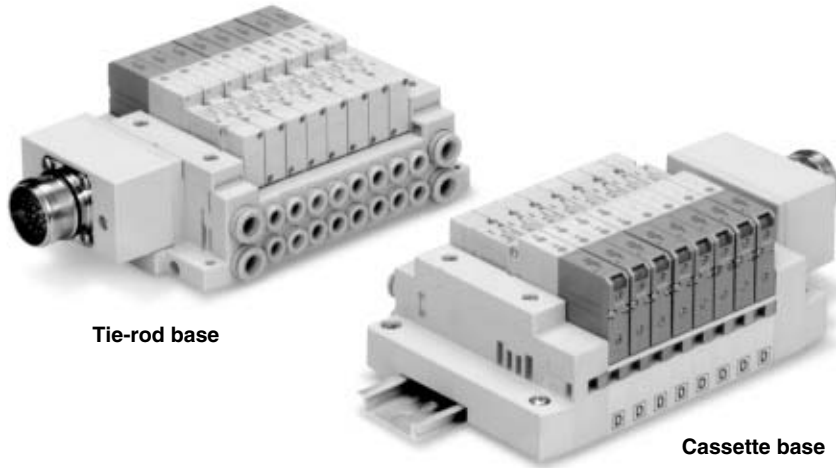
L Dimension

L	n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1		185.5	210.5	235.5	260.5	285.5	310.5	335.5	360.5	385.5	410.5	435.5	448	473	498	523
L2		175	200	225	250	275	300	325	350	375	400	425	437.5	462.5	487.5	512.5
L3		132	156	180	204	228	252	276	300	324	348	372	396	420	444	468
L4		12.5	13	13.5	14	14.5	15	15.5	16	16.5	17	17.5	11.5	12	12.5	13
L5		109	133	157	181	205	229	253	277	301	325	349	373	397	421	445

Note) The width of type E (Matsushita Electric Works, Ltd.) and type G (Rockwell Automation, Inc.) SI units are $\square 24.3$ mm greater. For details, please contact SMC.

Circular Connector

IP67 compliant



Tie-rod base

Cassette base

Applicable series	Cassette base manifold SV1000/SV2000
	Tie-rod base manifold SV1000/SV2000/SV3000/SV4000
• Number of connectors: 26 pins	

SV

SZ

SY

SYJ

SX

Circular Connector Series SV

How to Order

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Valve stations

Symbol	Stations	Note
02	2 stations	(1) Double wiring specifications
⋮	⋮	
12	12 stations	(2) Specified layout (Up to 24 solenoids possible.)
02	2 stations	
⋮	⋮	
20	20 stations	

Note 1) Double wiring specifications: Single, double, 3 position and 4 position solenoid valves can be used at all of the manifold stations. Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on the manifold specification sheet. (Note that double, 3 and 4 position valves cannot be used where single solenoid wiring has been specified.)

● Tie-rod base
SS5V 1 — W 10CD — 05 U

● Cassette base
SS5V 1 — W 16CD — 05 U

● Mounting

Symbol	Specifications
Nil	Direct mounting
D	DIN rail mounting (With DIN rail)
D0*	DIN rail mounting (Without DIN rail)
D3	For 3 stations <small>(When a longer DIN rail is desired than the specified stations. Specify a longer rail than the standard length.)</small>
⋮	⋮
D20	For 20 stations <small>(Specify a longer rail than the standard length.)</small>

* In the case of D0, only DIN rail fittings are attached.

● Enclosure IP67 specifications

Series

1	SV1000
2	SV2000

Valve stations

Type 16: Series SV1000

Symbol	Stations	Note
02	2 stations	Double wiring specifications (1)
⋮	⋮	
09	9 stations	Specified layout (2) (up to 18 solenoids possible.)
02	2 stations	
⋮	⋮	
18	18 stations	

Type 16: Series SV2000

Symbol	Stations	Note
02	2 stations	Double wiring specifications (1)
⋮	⋮	
12	12 stations	Specified layout (2) (up to 24 solenoids possible.)
02	2 stations	
⋮	⋮	
20	20 stations	

Note 1) Double wiring specifications: Single, double, 3 position and 4 position solenoid valves can be used at all of the manifold stations. Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on the manifold specification sheet. (Note that double, 3 and 4 position valves cannot be used where single solenoid wiring has been specified.)

● DIN rail length specified

Symbol	Specifications
Nil	Standard length
3	For 3 stations <small>(Specify a longer rail than the standard length.)</small>
⋮	⋮
20 (Note)	For 20 stations

Note) Able to specify the length for 3 stations up to 18 stations for SV1000, which is available with 18 station at the maximum.

● A, B port size (Metric)

Symbol	Specifications	P, E port	Applicable series
C3	One-touch fitting for ø3.2	One-touch fitting for ø8	SV1000
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6		
C4	One-touch fitting for ø4	One-touch fitting for ø10	SV2000
C6	One-touch fitting for ø6		
C8	One-touch fitting for ø8		
C6	One-touch fitting for ø6	One-touch fitting for ø12	SV3000
C8	One-touch fitting for ø8		
C10	One-touch fitting for ø10		
C8	One-touch fitting for ø8	One-touch fitting for ø12	SV4000
C10	One-touch fitting for ø10		
C12	One-touch fitting for ø12		
02	Rc 1/4	Rc 3/8	SV4000
03	Rc 3/8		
02F	G 1/4		
03F	G 3/8	G 3/8	SV4000
M	A, B ports mixed		

● A, B port size (Inch)

Symbol	Specifications	P, E port	Applicable series
N1	One-touch fitting for ø1/8"	One-touch fitting for ø5/16"	SV1000
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø1/4"		
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for ø5/16"		
N7	One-touch fitting for ø1/4"	One-touch fitting for ø3/8"	SV3000
N9	One-touch fitting for ø5/16"		
N11	One-touch fitting for ø3/8"		
N9	One-touch fitting for ø5/16"	One-touch fitting for ø3/8"	SV4000
N11	One-touch fitting for ø3/8"		
02N	NPT 1/4		
03N	NPT 3/8	NPT 3/8	SV4000
02T	NPTF 1/4		
03T	NPTF 3/8		
M	A, B ports mixed		

● P, E port location

Symbol	Specifications
U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 20 stations)

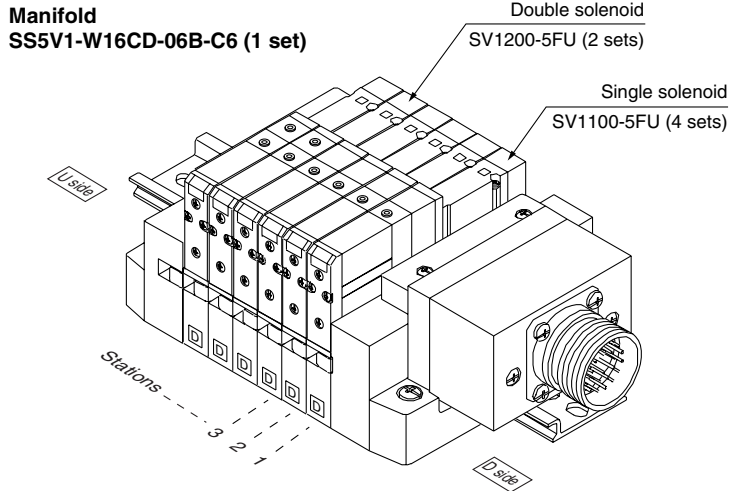
SUP/EXH block assembly specifications

Symbol	Specifications
Nil	Internal pilot
S*	Internal pilot/Built-in silencer
R	External pilot
RS*	External pilot/Built-in silencer

Note) When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.

How to Order Valve Manifold Assembly

Ordering example (SV1000)



SS5V1-W16CD-06B-C6.....1 set (manifold part no.)
 * SV1100-5FU.....4 sets (Single solenoid part no.)
 * SV1200-5FU.....2 sets (Double solenoid part no.)

- SV
- SZ
- SY
- SYJ
- SX

How to Order Solenoid Valves

SV 1 1 0 0 [] [] — 5 F [] [] []

Series ●

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Type of actuation ●

1	2 position single solenoid
2	2 position double solenoid
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
A	4 position dual 3 port valve: N.C./N.C.
B	4 position dual 3 port valve: N.O./N.O.
C	4 position dual 3 port valve: N.C./N.O.

* 4 position dual 3 port valves are applicable to Series SV1000 and SV2000 only.

Pilot type ●

Nil	Internal pilot
R	External pilot

* External pilot specifications is not available for 4 position dual 3 port valves.

Back pressure check valve ●

Nil	None
K	Built-in

* Built-in back pressure check valve type is applicable to series SV1000 only.
 * Back pressure check valve is not available for 3 position closed center and 3 position pressure center.

Note) Available with manifold block for station additions. Refer to pages 1-2-89 and 1-2-93.

● Manual override

Nil: Non-locking push type	D: Push-turn locking slotted type
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● Light/Surge voltage suppressor

U	With light/surge voltage suppressor
R	With surge voltage suppressor

● Rated voltage

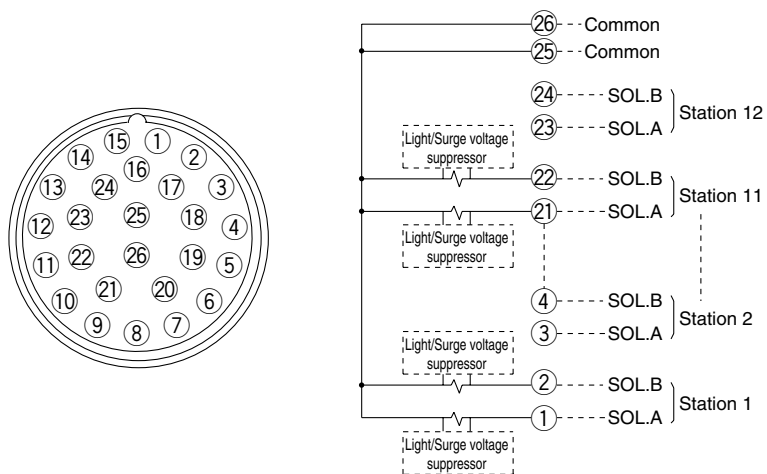
5	24 VDC
6	12 VDC

Refer to Precautions 2 on page 1-2-9.

Series SV

Manifold Electrical Wiring

10C/16C Circular Connector Type (26 pins)



- This circuit has double wiring specifications for up to 12 stations. Since the usable number of solenoids differs depending on the manifold type, refer to the table below. In the case of single solenoids, connect to SOL. A. Furthermore, when wiring is specified on a manifold specification sheet, connections are made without skipping any connectors, and connections are made without skipping any connectors, and signals A for single and A, B for double are in order 1 → 2 → 3 → 4, etc.
- Stations are counted from D side (connector side) as the 1st.
- Since solenoid valves do not have polarity, either the +COM or -COM can be used.

Usable No. of Solenoids

Model		Max. no. of solenoids
Tie-rod base type 10	SV1000 to SV4000	24
	SV1000	18
Cassette base type 16	SV1000	18
	SV2000	24

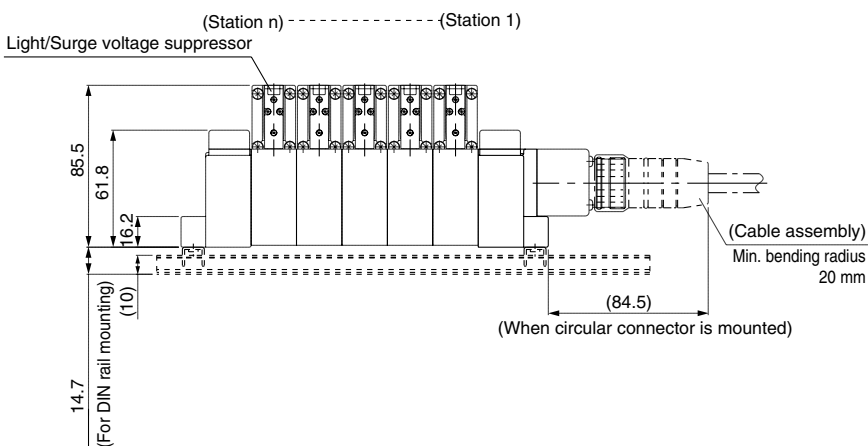
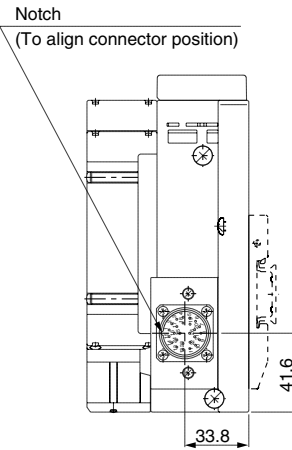
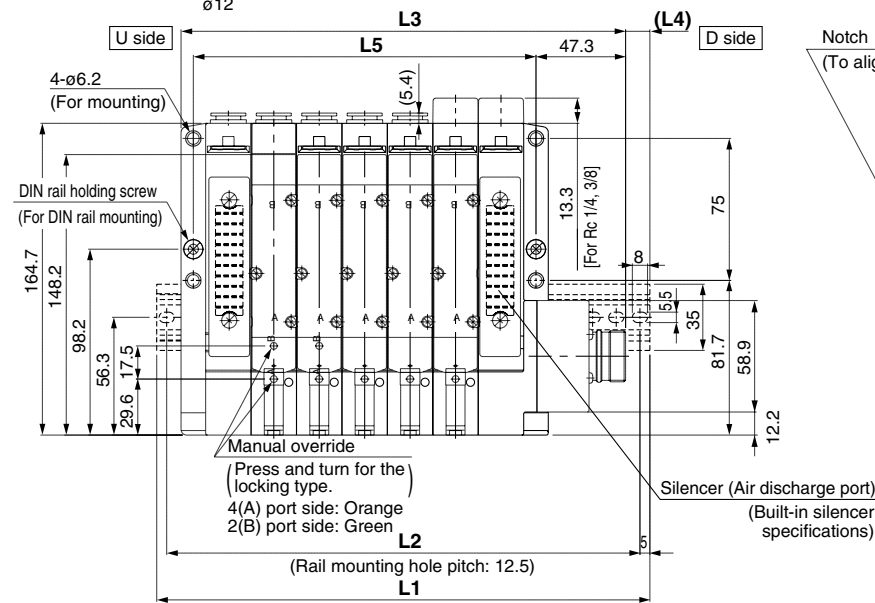
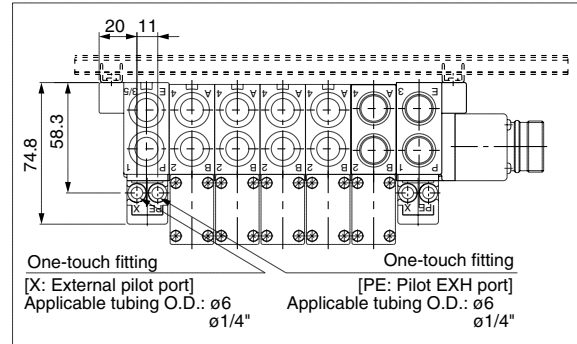
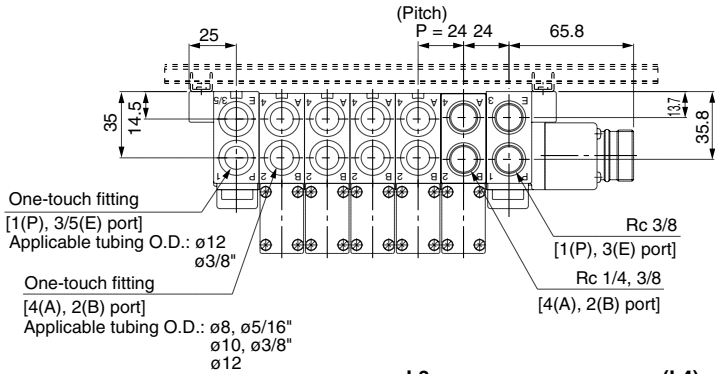
Series SV

Dimensions: Series SV4000 for Circular Connector

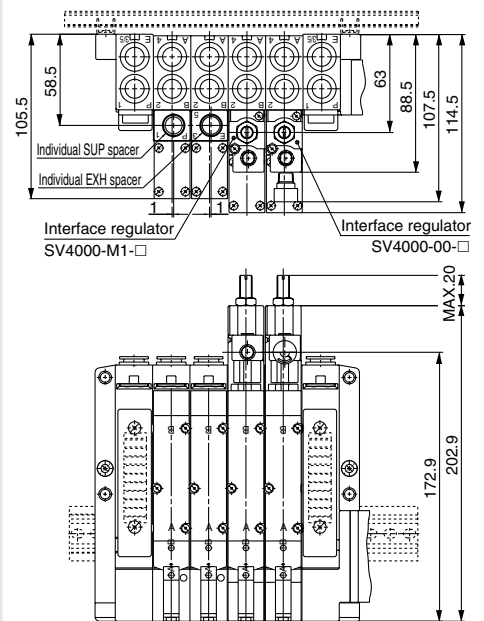
● Tie-rod base manifold: SS5V4-W10CD- Stations $\frac{U}{D}$ (S, R, RS)- $\frac{02, C8, N9, 03, C10, N11, (-D)}{C12}$

- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.

With External Pilot Specifications



With option



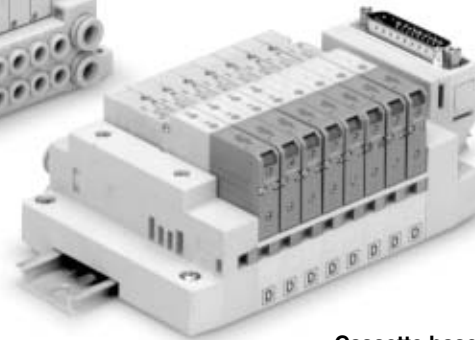
L Dimension

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	198	210.5	235.5	260.5	285.5	310.5	335.5	360.5	385.5	410.5	435.5	460.5	485.5	498	523	548	573	598	623
L2	187.5	200	225	250	275	300	325	350	375	400	425	450	475	487.5	512.5	537.5	562.5	587.5	612.5
L3	162.8	186.8	210.8	234.8	258.8	282.8	306.8	330.8	354.8	378.8	402.8	426.8	450.8	474.8	498.8	522.8	546.8	570.8	594.8
L4	17.5	12	12.5	13	13.5	14	14.5	15	15.5	16	16.5	17	17.5	11.5	12	12.5	13	13.5	14
L5	109	133	157	181	205	229	253	277	301	325	349	373	397	421	445	469	493	517	541

D-sub Connector



Tie-rod base



Cassette base

Applicable series	Cassette base manifold SV1000/SV2000
	Tie-rod base manifold SV1000/SV2000/SV3000/SV4000
	<ul style="list-style-type: none">• Number of connectors: 25 pins• MIL-C-24308 Conforming to JIS-X-5101

SV

SZ

SY

SYJ

SX



D-sub Connector Series SV

How to Order

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring (1)
⋮	⋮	
11	11 stations	Specified layout (2) (Up to 23 solenoids possible.)
⋮	⋮	
20	20 stations	

Note 1) Double wiring specifications: Single, double, 3 position and 4 position solenoid valves can be used at all of the manifold stations. Use of a single solenoid will result in an unused control signal in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on the manifold specification sheet. (Note that double, 3 and 4 position valves cannot be used where single solenoid wiring has been specified.)

Mounting

Nil	Direct mounting
D	DIN rail mounting (With DIN rail)
D0*	DIN rail mounting (Without DIN rail)
D3	For 3 stations When a longer DIN rail is desired than the specified stations. (Specify a longer rail than the standard)
⋮	⋮
D20	For 20 stations

* In case of D0, only DIN rail fittings are attached.

DIN rail length specified

Nil	Standard length
3	For 3 stations (Specify a longer rail than the standard length.)
⋮	⋮
20 (Note)	For 20 stations

Note) Able to specify the length for 3 stations up to 18 stations for SV1000, which is available with 18 stations at the maximum.

Series SV1000

Symbol	Stations	Note
02	2 stations	Double wiring (1)
⋮	⋮	
09	9 stations	Specified layout (2) (Up to 18 solenoids possible.)
02	2 stations	
⋮	⋮	
18	18 stations	

Note 1) Double wiring specifications: Single, double, 3 position and 4 position solenoid valves can be used at all of the manifold stations. Use of a single solenoid will result in an unused control signal in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on the manifold specification sheet. (Note that double, 3 and 4 position valves cannot be used where single solenoid wiring has been specified.)

Series SV2000

Symbol	Stations	Note
02	2 stations	Double wiring (1)
⋮	⋮	
11	11 stations	Specified layout (2) (Up to 23 solenoids possible.)
02	2 stations	
⋮	⋮	
20	20 stations	

P, E port location

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 20 stations)

Pilot type

Nil	Internal pilot
S	Internal pilot/Built-in silencer
R	External pilot
RS	External pilot/Built-in silencer

A, B port size (metric)

Symbol	A, B port	P, E port	Applicable series
C3	One-touch fitting for ø3.2	One-touch fitting for ø8	SV1000
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6		
C4	One-touch fitting for ø4	One-touch fitting for ø10	SV2000
C6	One-touch fitting for ø6		
C8	One-touch fitting for ø8		
C6	One-touch fitting for ø6	One-touch fitting for ø12	SV3000
C8	One-touch fitting for ø8		
C10	One-touch fitting for ø10		
C8	One-touch fitting for ø8	One-touch fitting for ø12	SV4000
C10	One-touch fitting for ø10		
C12	One-touch fitting for ø12		
02	Rc 1/4	Rc 3/8	SV4000
03	Rc 3/8		
02F	G 1/4		
03F	G 3/8		
M	A, B ports mixed		

A, B port size (inch)

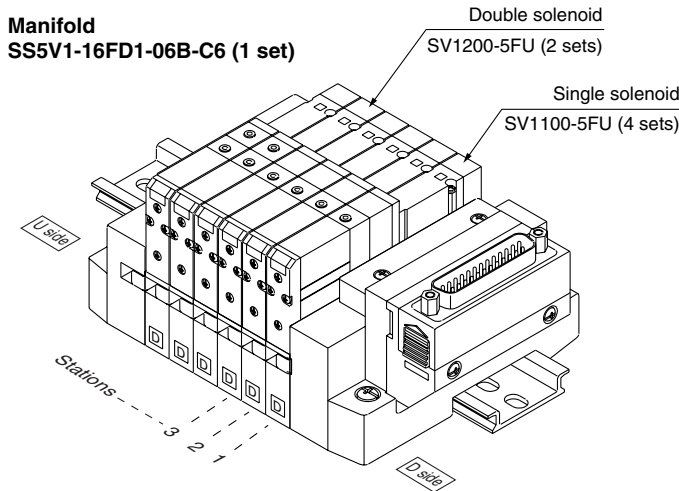
Symbol	A, B port	P, E port	Applicable series
N1	One-touch fitting for ø1/8"	One-touch fitting for ø5/16"	SV1000
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø1/4"		
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for ø5/16"		
N7	One-touch fitting for ø1/4"	One-touch fitting for ø3/8"	SV3000
N9	One-touch fitting for ø5/16"		
N11	One-touch fitting for ø3/8"		
N9	One-touch fitting for ø5/16"	One-touch fitting for ø3/8"	SV4000
N11	One-touch fitting for ø3/8"		
02N	NPT 1/4		
03N	NPT 3/8	NPTF 3/8	SV4000
02T	NPTF 1/4		
03T	NPTF 3/8		
M	A, B ports mixed		

* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

* Port sizes of X, PE port for external pilot specifications (R, RS) are ø4 (metric), ø5/32" (inch) for SV1000/2000 and ø6 (metric) and ø1/4" (inch) for SV3000/4000.

How to Order Valve Manifold Assembly

Ordering example (SV1000)



SS5V1-16FD1-06B-C6.....1 set (manifold part no.)
 *SV1100-5FU.....4 sets (Single solenoid part no.)
 *SV1200-5FU.....2 sets (Double solenoid part no.)

SV
 SZ
 SY
 SYJ
 SX

How to Order Solenoid Valves

SV 1 1 0 0 — 5 F

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Type of actuation

1	2 position single solenoid
2	2 position double solenoid
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
A	4 position dual 3 port valve: N.C./N.C.
B	4 position dual 3 port valve: N.O./N.O.
C	4 position dual 3 port valve: N.C./N.O.

* 4 position dual 3 port valves are applicable to Series SV1000 and SV2000 only.

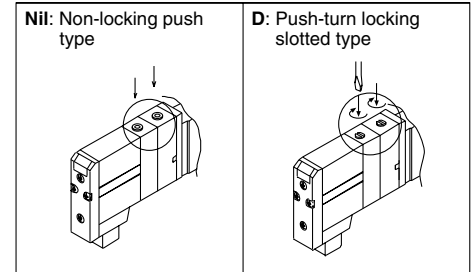
Pilot type

Nil	Internal pilot
R	External pilot

* External pilot specifications is not available for 4 position dual 3 port valves.

Note
 Note) Available with manifold block for station additions. Refer to pages 1-2-89 and 1-2-93.

Manual override



Light/Surge voltage suppressor

U	With light/surge voltage suppressor
R	With surge voltage suppressor

Rated voltage

5	24 VDC
6	12 VDC

Back pressure check valve

Nil	None
K	Built-in

* Built-in back pressure check valve type is applicable to series SV1000 only.

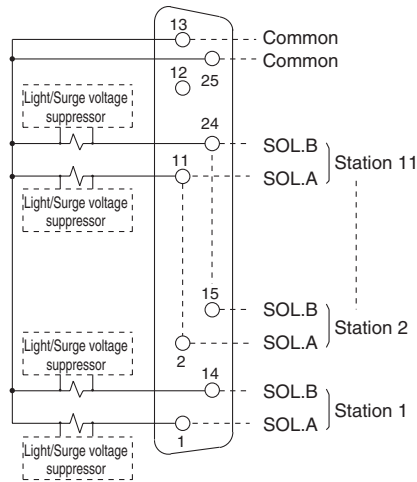
* Back pressure check valve is not available for 3 position closed center and 3 position pressure center.

Refer to Precautions 2 on page 1-2-9.

Series SV

Manifold Electrical Wiring

10F/16F D-sub Connector Type (25 pins)



- This circuit has double wiring specifications for up to 11 stations. Since the usable number of solenoids differs depending on the manifold type, refer to the table below.
In the case of single solenoids, connect to SOL.A. Furthermore, when wiring is specified on the manifold specification sheet, connections are made without skipping any connectors, and signals A for single and A, B for double are in order 1 → 14 → 2 → 15, etc.
- Stations are counted from D side (connector side) as the 1st.
- Since solenoid valves do not have polarity, either the +COM or -COM can be used.

Usable No. of Solenoids

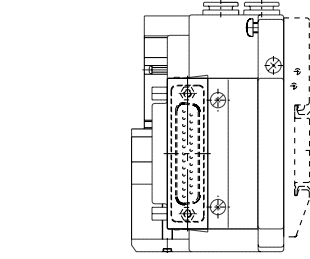
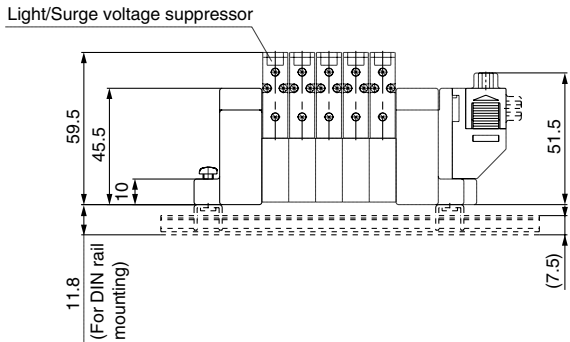
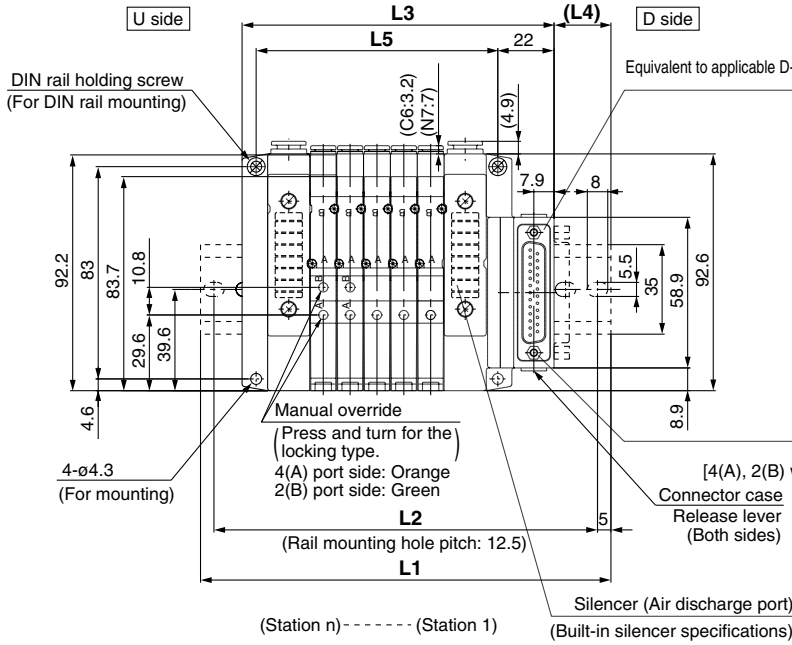
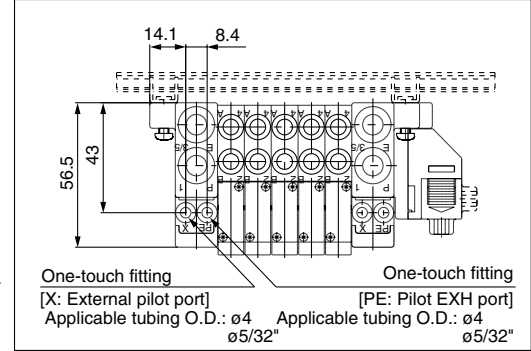
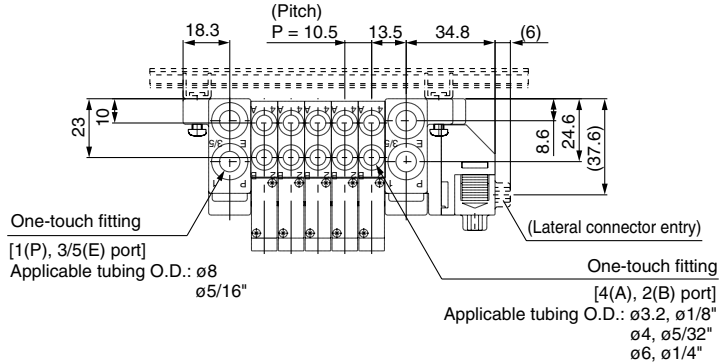
Model		Max. no. of solenoids
Tie-rod base type 10	SV1000 to SV4000	23
	SV1000	18
Cassette base type 16	SV1000	18
	SV2000	23

Dimensions: Series SV1000 for D-sub Connector

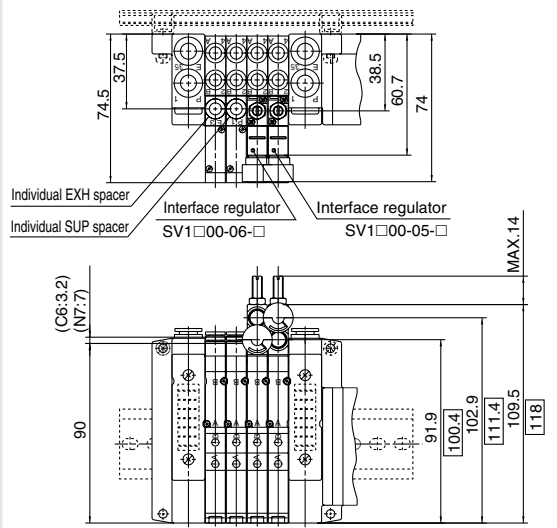
● Tie-rod base manifold: SS5V4-10FD₂ - Stations $\begin{matrix} U \\ D \end{matrix}$ (S, R, RS) - $\begin{matrix} C3, N1 \\ C4, N3 \\ C6, N7 \end{matrix}$ (-D)

- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.

With External Pilot Specifications



With option



□ Dimensions are the ones for SV1300-□□-□.

L Dimension

L	n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	n	123	135.5	148	160.5	173	173	185.5	198	210.5	223	235.5	235.5	248	260.5	273	285.5	298	310.5	310.5
L2	n	112.5	125	137.5	150	162.5	162.5	175	187.5	200	212.5	225	225	237.5	250	262.5	275	287.5	300	300
L3	n	90.5	101	111.5	122	132.5	143	153.5	164	174.5	185	195.5	206	216.5	227	237.5	248	258.5	269	279.5
L4	n	19.5	20.5	21.5	22.5	23.5	18	19	20	21	22	23	18	19	20	21	22	23	24	18.5
L5	n	63	73.5	84	94.5	105	115.5	126	136.5	147	157.5	168	178.9	189	199.5	210	220.5	231	241.5	252

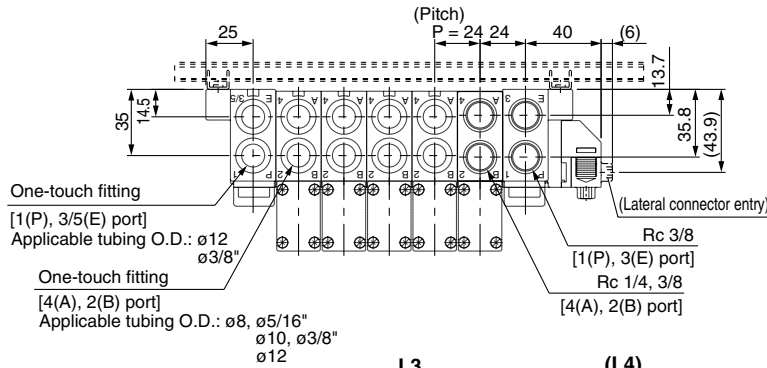
n: Stations

Series SV

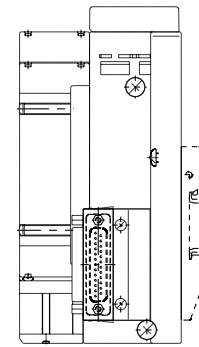
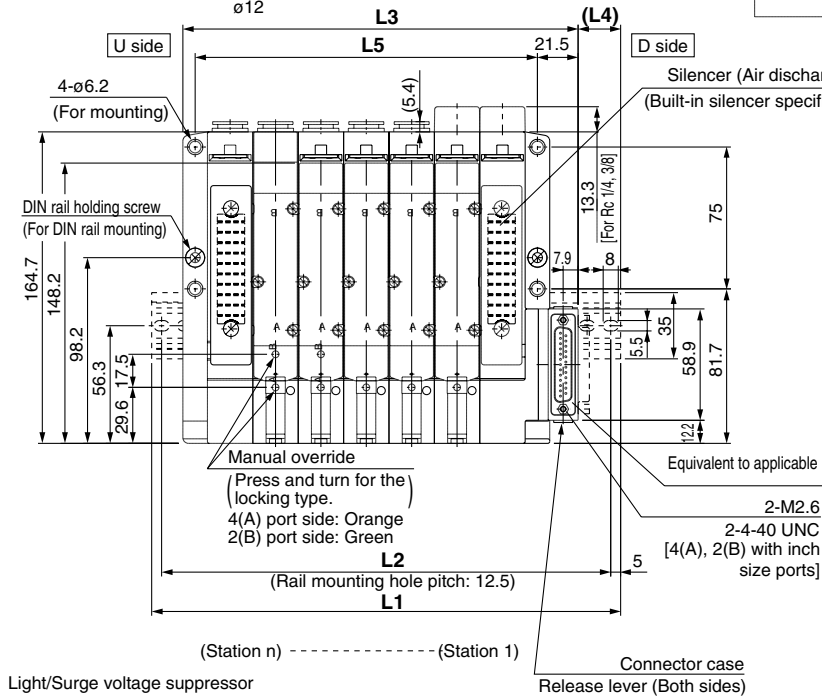
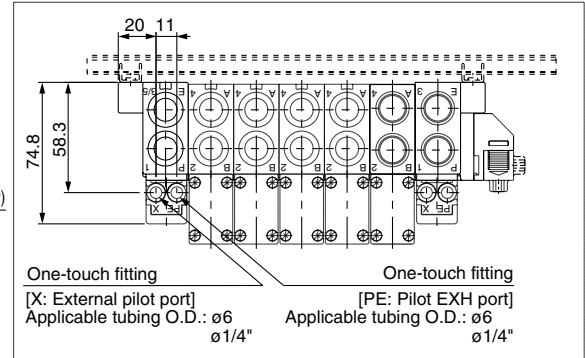
Dimensions: Series SV4000 for D-sub Connector

● Tie-rod base manifold: SS5V4-10FD₂ - Stations $\frac{U}{D}$ (S, R, RS)- $\frac{02, C8, N9}{03, C10, N11}$ (-D)

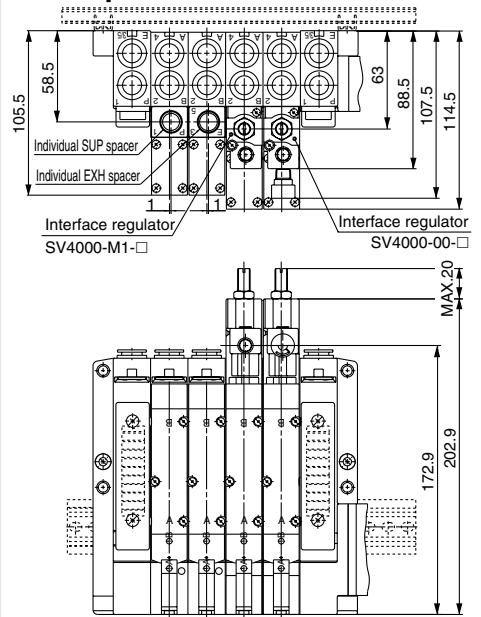
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



With option



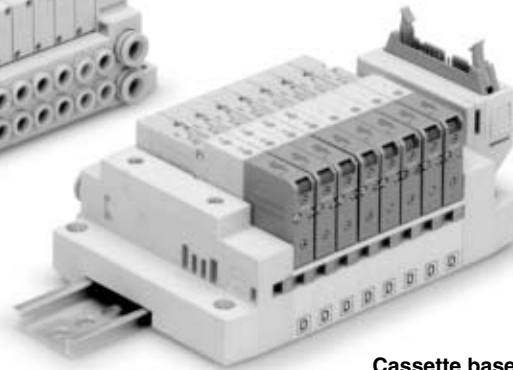
L Dimension

L	n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1		173	198	223	248	273	298	310.5	335.5	360.5	385.5	410.5	435.5	460.5	485.5	510.5	535.5	560.5	585.5	610.5
L2		162.5	187.5	212.5	237.5	262.5	287.5	300	325	350	375	400	425	450	475	500	525	550	575	600
L3		137	161	185	209	233	257	281	305	329	353	377	401	425	449	473	497	521	545	569
L4		21	21.5	22	22.5	23	23.5	18	18.5	19	19.5	20	20.5	21	21.5	22	22.5	23	23.5	24
L5		109	133	157	181	205	229	253	277	301	325	349	373	397	421	445	469	493	517	541

Flat Ribbon Cable Connector



Tie-rod base



Cassette base

Applicable series	Cassette base manifold SV1000/SV2000
	Tie-rod base manifold SV1000/SV2000/SV3000/SV4000
<ul style="list-style-type: none">• Number of connectors: 26, 20, 10 pins• With strain relief Conforming to MIL-C-83503	

SV

SZ

SY

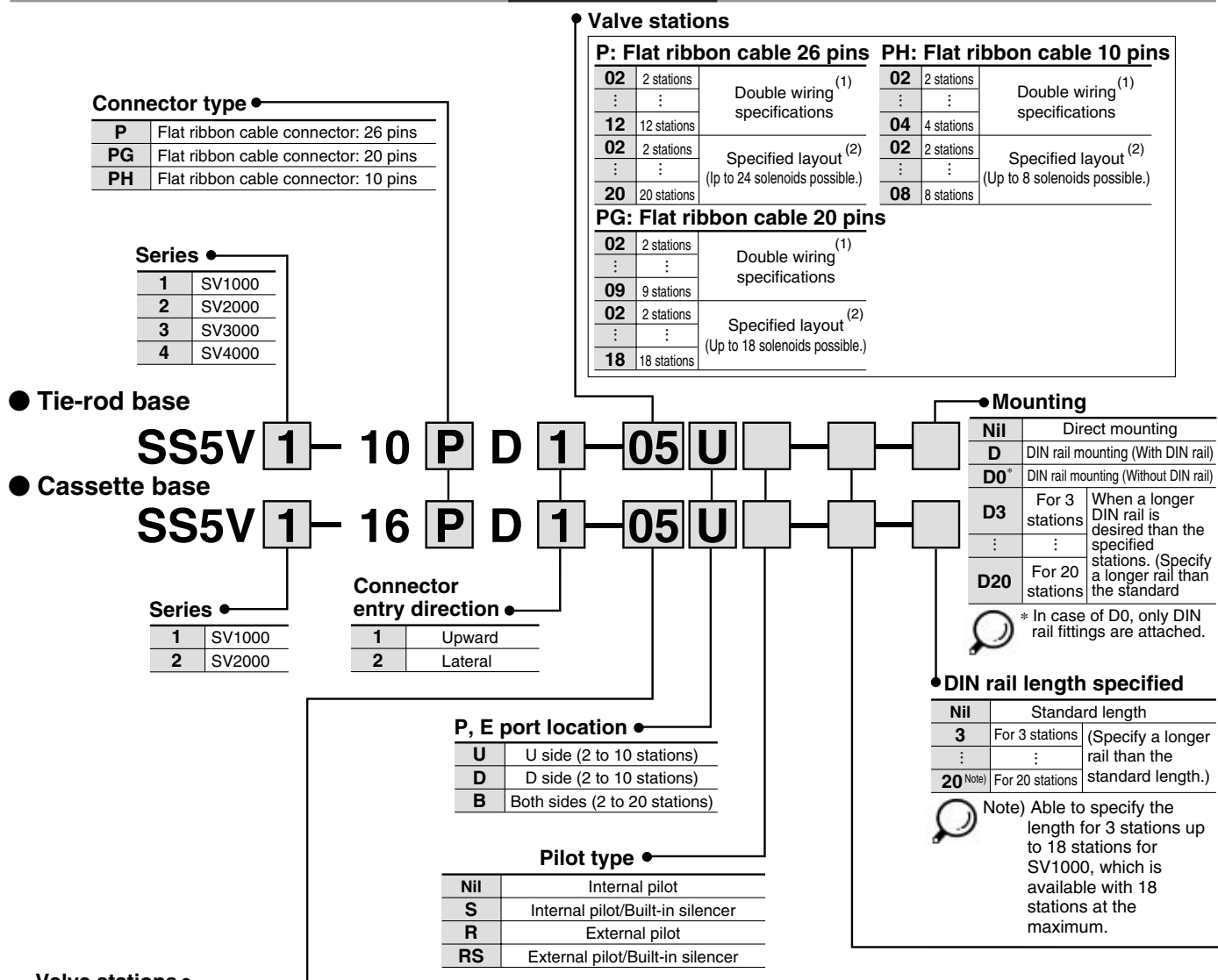
SYJ

SX



Flat Ribbon Cable Connector Series SV

How to Order



Valve stations

Series SV1000

P: Flat ribbon cable 26 pins		PH: Flat ribbon cable 10 pins	
02	2 stations	02	2 stations
09	9 stations	04	4 stations
02	2 stations	02	2 stations
18	18 stations	08	8 stations
Double wiring ⁽¹⁾ specifications		Double wiring ⁽¹⁾ specifications	
Specified layout ⁽²⁾ (Up to 18 solenoids possible.)		Specified layout ⁽²⁾ (Up to 8 solenoids possible.)	
PG: Flat ribbon cable 20 pins			
02	2 stations	02	2 stations
09	9 stations	02	2 stations
18	18 stations	18	18 stations
Double wiring ⁽¹⁾ specifications		Double wiring ⁽¹⁾ specifications	
Specified layout ⁽²⁾ (Up to 18 solenoids possible.)		Specified layout ⁽²⁾ (Up to 18 solenoids possible.)	

Series SV2000

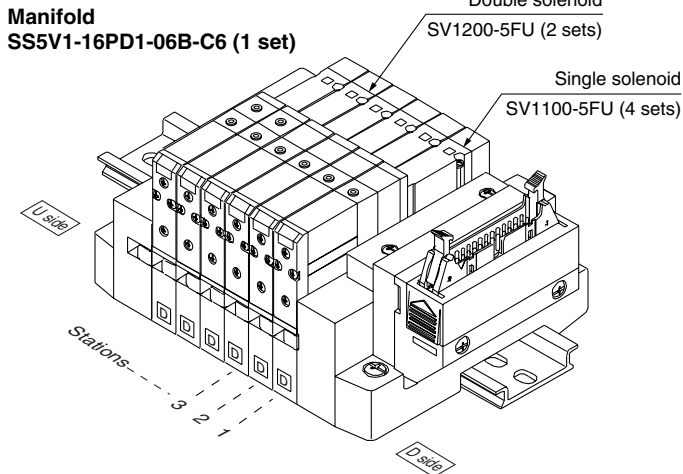
P: Flat ribbon cable 26 pins		PH: Flat ribbon cable 10 pins	
02	2 stations	02	2 stations
12	12 stations	04	4 stations
02	2 stations	02	2 stations
20	20 stations	08	8 stations
Double wiring ⁽¹⁾ specifications		Double wiring ⁽¹⁾ specifications	
Specified layout ⁽²⁾ (Up to 24 solenoids possible.)		Specified layout ⁽²⁾ (Up to 8 solenoids possible.)	
PG: Flat ribbon cable 20 pins			
02	2 stations	02	2 stations
09	9 stations	02	2 stations
18	18 stations	18	18 stations
Double wiring ⁽¹⁾ specifications		Double wiring ⁽¹⁾ specifications	
Specified layout ⁽²⁾ (Up to 18 solenoids possible.)		Specified layout ⁽²⁾ (Up to 18 solenoids possible.)	

Note 1) Double wiring specifications: Single, double and 3 position solenoid valves can be used on all manifold stations. Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on a manifold specification sheet.

How to Order Valve Manifold Assembly

Ordering example (SV1000)



SS5V1-16PD1-06B-C6.....1 set (manifold part no.)
 *SV1100-5FU.....4 sets (Single solenoid part no.)
 *SV1200-5FU.....2 sets (Double solenoid part no.)

SV
SZ
SY
SYJ
SX

How to Order Solenoid Valves

SV 1 1 0 0 — 5 F

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Type of actuation

1	2 position single solenoid
2	2 position double solenoid
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
A	4 position dual 3 port valve: N.C./N.C.
B	4 position dual 3 port valve: N.O./N.O.
C	4 position dual 3 port valve: N.C./N.O.

* 4 position dual 3 port valves are applicable to Series SV1000 and SV2000 only.

Pilot type

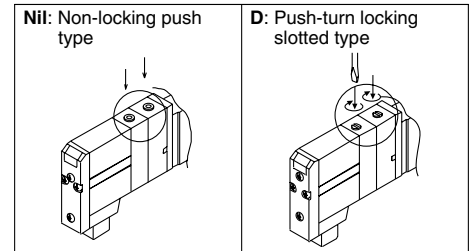
Nil	Internal pilot
R	External pilot

* External pilot specifications is not available for 4 position dual 3 port valves.



Note) Available with manifold block for station additions. Refer to pages 1-2-89 and 1-2-93.

Manual override



Light/Surge voltage suppressor

U	With light/surge voltage suppressor
R	With surge voltage suppressor

Rated voltage

5	24 VDC
6	12 VDC

Back pressure check valve

Nil	None
K	Built-in

* Built-in back pressure check valve type is applicable to series SV1000 only.
 * Back pressure check valve is not available for 3 position closed center and 3 position pressure center.



Refer to Precautions 2 on page 1-2-9.

A, B port size (Metric)

Symbol	A, B port	P, E port	Applicable series
C3	One-touch fitting for ø3.2	One-touch fitting for ø8	SV1000
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6		
C4	One-touch fitting for ø4	One-touch fitting for ø10	SV2000
C6	One-touch fitting for ø6		
C8	One-touch fitting for ø8		
C6	One-touch fitting for ø6	One-touch fitting for ø12	SV3000
C8	One-touch fitting for ø8		
C10	One-touch fitting for ø10		
C8	One-touch fitting for ø8	One-touch fitting for ø12	SV4000
C10	One-touch fitting for ø10		
C12	One-touch fitting for ø12		
02	Rc 1/4	Rc 3/8	SV4000
03	Rc 3/8		
02F	G 1/4		
03F	G 3/8	G 3/8	
M	A, B ports mixed		

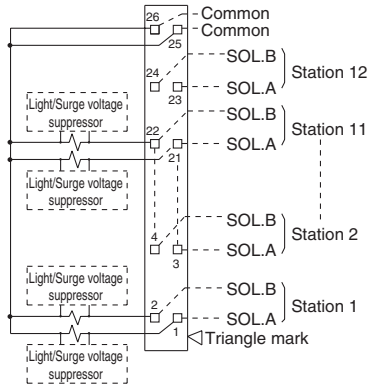
A, B port size (Inch)

Symbol	A, B port	P, E port	Applicable series
N1	One-touch fitting for ø1/8"	One-touch fitting for ø5/16"	SV1000
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø1/4"		
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for ø5/16"		
N7	One-touch fitting for ø1/4"	One-touch fitting for ø3/8"	SV3000
N9	One-touch fitting for ø5/16"		
N11	One-touch fitting for ø3/8"		
N9	One-touch fitting for ø5/16"	One-touch fitting for ø3/8"	SV4000
N11	One-touch fitting for ø3/8"		
02N	NPT 1/4		
03N	NPT 3/8	NPT 3/8	SV4000
02T	NPTF 1/4		
03T	NPTF 3/8		
M	A, B ports mixed		

* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.
 * Port sizes of X, PE port for external pilot specification (R, RS) are ø4 (metric), ø5/32" (inch) for SV1000/2000 and ø6 (metric) and ø1/4" (inch) for SV3000/4000.

Manifold Electrical Wiring

10P/16P Flat Ribbon Cable Type (26 pins)

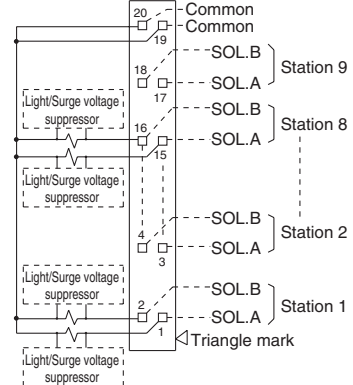


- This circuit has double wiring specifications for up to 12 stations. Since the usable number of solenoids differs depending on the manifold type, refer to the table below. In the case of single solenoids, connect to SOL. A. Furthermore, when wiring is specified on a manifold specification sheet, connections are made without skipping any connectors, and connections are made without skipping any connectors, and connections are made without skipping any connectors, and signals A for single and A, B for double are in order 1 → 2 → 3 → 4, etc.
- Stations are counted from D side (connector side) as the 1st one.
- Since terminal numbers are not indicated on the flat cable, use the triangle mark as a reference for wiring.
- Since solenoid valves do not have polarity, either the +COM or –COM can be used.

Usable No. of Solenoids

Model		Max. no. of solenoids
Tie-rod base type 10	SV1000 to SV4000	24
	SV1000 to SV2000	18
Cassette base type 16		24

10PG/16PG Flat Ribbon Cable Type (20 pins)

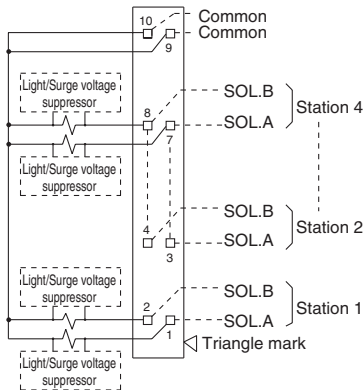


- This circuit has double wiring specifications for up to 9 stations. Since the usable number of solenoids differs depending on the manifold type, refer to the table below. In the case of single solenoids, connect to SOL. A. Furthermore, when wiring is specified on a manifold specification sheet, connections are made without skipping any connectors, and connections are made without skipping any connectors, and connections are made without skipping any connectors, and signals A for single and A, B for double are in order 1 → 2 → 3 → 4, etc.
- Stations are counted from D side (connector side) as the 1st one.
- Since terminal numbers are not indicated on the flat cable, use the triangle mark as a reference for wiring.
- Since solenoid valves do not have polarity, either the +COM or –COM can be used.

Usable No. of Solenoids

Model		Max. no. of solenoids
Tie-rod base type 10	SV1000 to SV4000	18
	SV1000 to SV2000	18
Cassette base type 16		18

10PH/16PH Flat Ribbon Cable Type (10 pins)



- This circuit has double wiring specifications for up to 4 stations. Since the usable number of solenoids differs depending on the manifold type, refer to the table below. In the case of single solenoids, connect to SOL. A. Furthermore, when wiring is specified on a manifold specification sheet, connections are made without skipping any connectors, and connections are made without skipping any connectors, and connections are made without skipping any connectors, and signals A for single and A, B for double are in order 1 → 2 → 3 → 4, etc.
- Stations are counted from D side (connector side) as the 1st one.
- Since terminal numbers are not indicated on the flat cable, use the triangle mark as a reference for wiring.
- Since solenoid valves do not have polarity, either the +COM or –COM can be used.

Usable No. of Solenoids

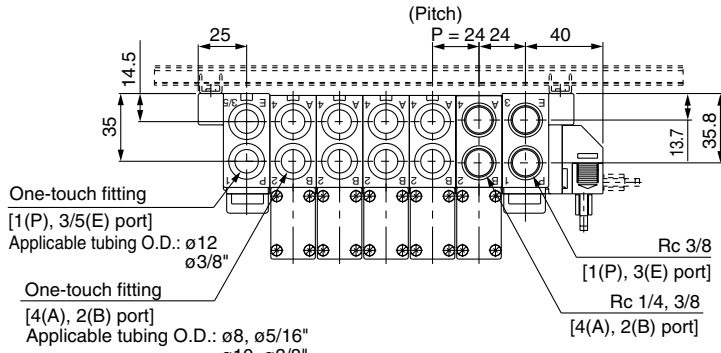
Model		Max. no. of solenoids
Tie-rod base type 10	SV1000 to SV4000	8
	SV1000 to SV2000	8
Cassette base type 16		8

Series SV

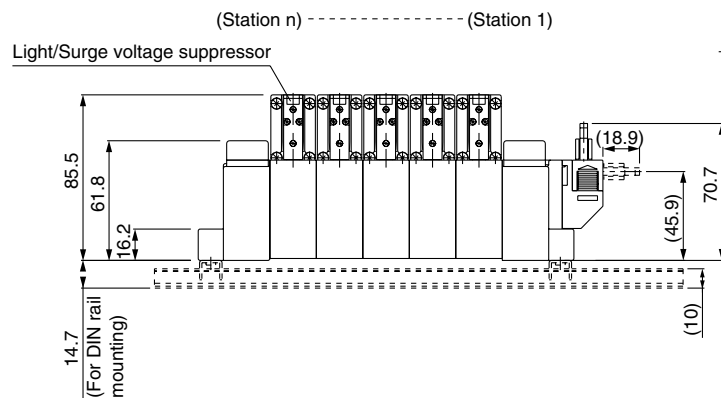
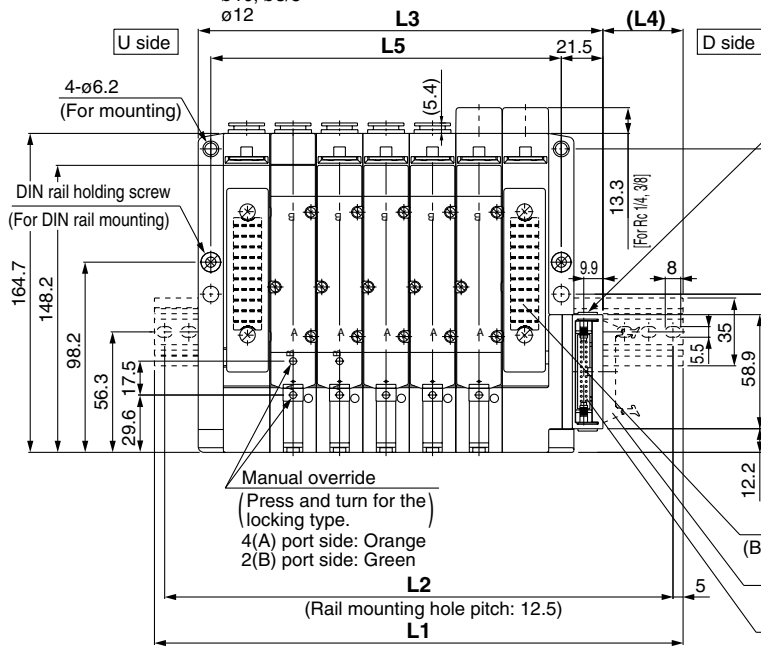
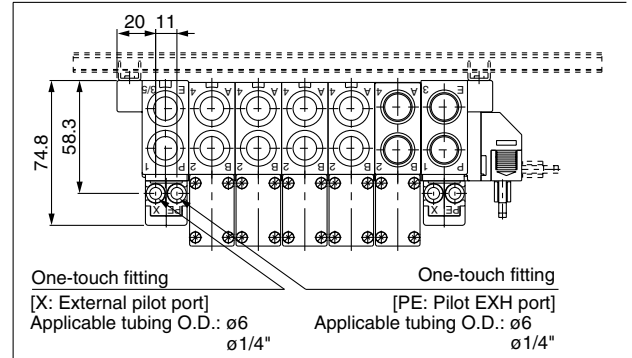
Dimensions: Series SV4000 for Flat Ribbon Cable

● Tie-rod manifold: SS5V4-10 $\frac{P}{PH}$ $\frac{D}{D_2}$ - Stations $\frac{U}{D}$ (S, R, RS) - 02, C8, N9 (D)
03, C10, N11 (C12)

- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.

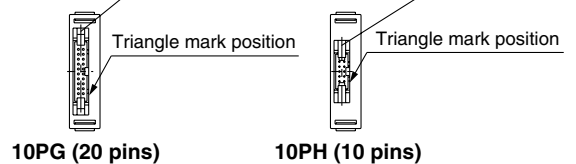


With External Pilot Specifications



Applicable connector: 20 pins MIL type
(Conforming to MIL-C-83503)

Applicable connector: 10 pins MIL type
(Conforming to MIL-C-83503)



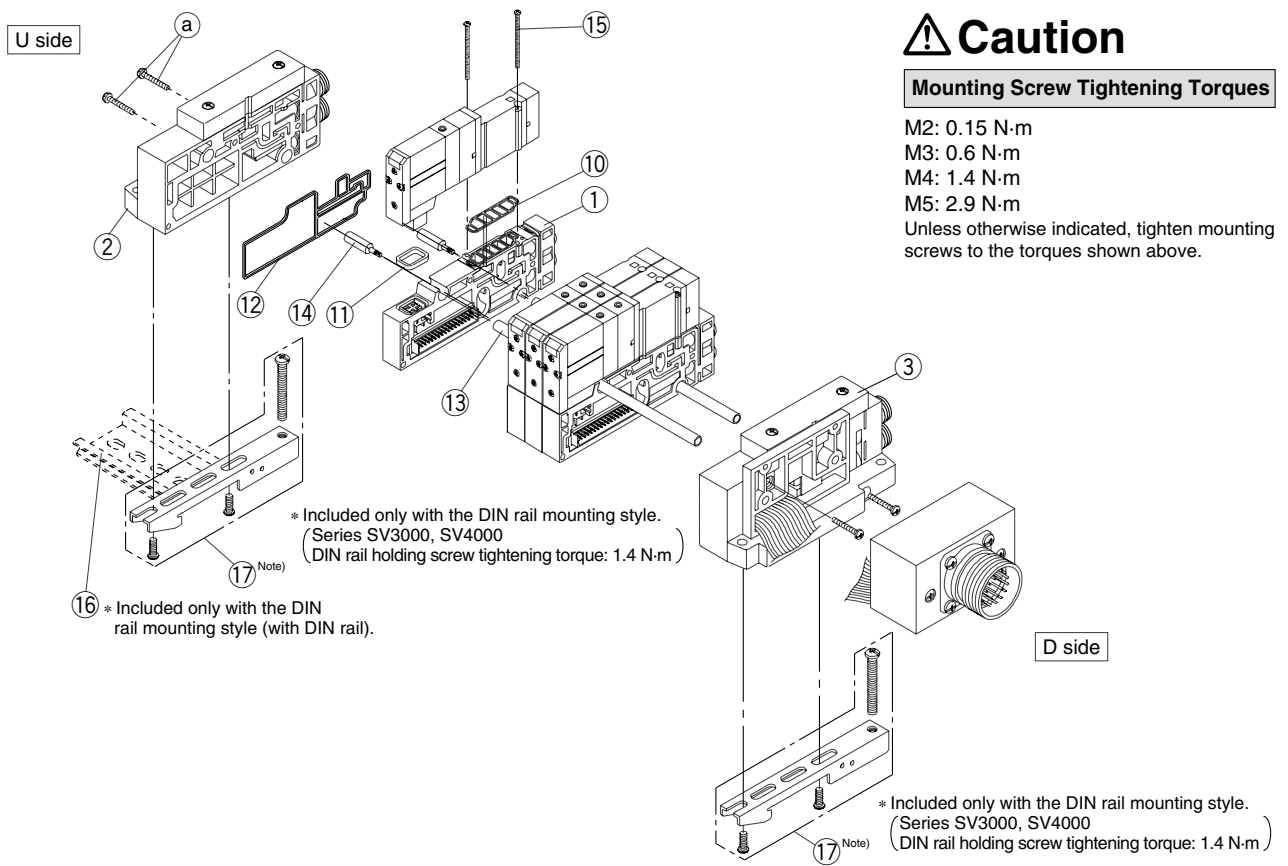
Refer to page 1-2-74 (compliant for D-sub connector) for dimensions with interface regulator and individual SUP/EXH spacer.

L Dimension

$\frac{L}{n}$	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	185.5	210.5	235.5	260.5	285.5	310.5	335.5	348	373	398	423	448	473	498	523	548	573	598	623
L2	175	200	225	250	275	300	325	337.5	362.5	387.5	412.5	437.5	462.5	487.5	512.5	537.5	562.5	587.5	612.5
L3	137	161	185	209	233	257	281	305	329	353	377	401	425	449	473	497	521	545	569
L4	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5
L5	109	133	157	181	205	229	253	277	301	325	349	373	397	421	445	469	493	517	541

Series SV

Type 10: Tie-rod Base Manifold Exploded View



③ SUP/EXH block assembly		
<p>EX250 (Type 10S1□W)</p> <p>* ⑤, ⑥, ⑦ and ⑧ are not included in the SUP/EXH block assembly.</p> <p>* Included only with the DIN rail mounting style. (Tightening torque of DIN rail holding screw: 0.5 N·m)</p>	<p>Circular connector (Type 10C)</p>	<p>D-sub connector (Type 10F)</p>
<p>EX500 (Type 10SA□W)</p> <p>* ④ is not included in the SUP/EXH block assembly.</p>	<p>EX120 (Type 10S3□)</p> <p>* ⑨ is not included in the SUP/EXH block assembly.</p>	<p>For flat ribbon cable connector (Type 10P□)</p>

Note) ⑧ and ⑬ are for SV2000. Mounting orientation onto DIN rail gets reversed.

① Manifold Block Assembly Part No.

Series	Wiring specifications	Manifold block ass'y part no.	Note
SV1000	Single	SV1000-50-1A-□□	C3: With One-touch fitting for ø3.2 N1: One-touch fitting for ø1/8" C4: With One-touch fitting for ø4 N3: One-touch fitting for ø5/32" C6: With One-touch fitting for ø6 N7: One-touch fitting for ø1/4" (Tie-rod for station additions ⑭ and gaskets ⑩, ⑪, and ⑫ are included.)
	Double	SV1000-50-2A-□□	
SV2000	Single	SV2000-50-1A-□□	C4: With One-touch fitting for ø4 N3: One-touch fitting for ø5/32" C6: With One-touch fitting for ø6 N7: One-touch fitting for ø1/4" C8: With One-touch fitting for ø8 N9: One-touch fitting for ø5/16" (Tie-rod for station additions ⑭ and gaskets ⑩, ⑪, and ⑫ are included.)
	Double	SV2000-50-2A-□□	
SV3000	Single	SV3000-50-1A-□□	C6: With One-touch fitting for ø6 N7: One-touch fitting for ø1/4" C8: With One-touch fitting for ø8 N9: One-touch fitting for ø5/16" C10: With One-touch fitting for ø10 N11: One-touch fitting for ø3/8" (Tie-rod for station additions ⑭ and gaskets ⑩, ⑪, and ⑫ are included.)
	Double	SV3000-50-2A-□□	
SV4000	Single	SV4000-50-1A-□□	C8: With One-touch fitting for ø8 N9: One-touch fitting for ø5/16" C10: With One-touch fitting for ø10 N11: One-touch fitting for ø3/8" C12: With One-touch fitting for ø12 02: Rc 1/4 02N: NPT 1/4 03: Rc 3/8 03N: NPT 3/8 02F: G 1/4 02T: NPTF 1/4 03F: G 3/8 03T: NPTF 3/8 (Tie-rod for station additions ⑭ and gaskets ⑩, ⑪, and ⑫ are included.)
	Double	SV4000-50-2A-□□	

② SUP/EXH end block assembly

SV 000 - 52U - 1 A

③ SUP/EXH block assembly

SV 000 - 51D A

Series ●

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Connector entry direction
(D-sub, flat types only)

1	Upward
2	Lateral

SUP/EXH block assembly ●

specifications

10	For EX500 (SI unit)
11	For EX250 (SI unit)
12	For circular connector
13	D-sub connector
14	For flat ribbon cable connector (26 pins)
15	For Flat ribbon cable connector (20 pins)
16	For Flat ribbon cable connector (10 pins)
18	For EX120 (dedicated output serial)

* Since EX500 and EX120 type SI units are not included, order them separately.

Pilot type ●

Nil	Internal pilot
S	Internal pilot/Built-in silencer
R	External pilot
RS	External pilot/Built-in silencer

● Mounting

Nil	Direct mounting
DO	DIN rail mounting

● P, E port size

C8	One-touch fitting for ø8	SV1000
N9	One-touch fitting for ø5/16"	SV1000
C10	One-touch fitting for ø10	SV2000
N11	One-touch fitting for ø3/8"	SV2000
C12	One-touch fitting for ø12	SV3000
N11	One-touch fitting for ø3/8"	SV4000
03	Rc 3/8	SV4000
03F	G 3/8	
03N	NPT 3/8	
03T	NPTF 3/8	
00	Plug	All series

* "00" (Plug) is not available for S, R and RS types.

No.	Description	Part no.				Note
		SV1000	SV2000	SV3000	SV4000	
④	Series EX500 SI unit	Refer to page 1-2-26.				
⑤	Series EX250 SI unit	EX250-SDN1				For DeviceNet
⑥	Series EX250 input block	EX250-IE1				M12, 2 inputs
		EX250-IE2				M12, 4 inputs
		EX250-IE3				M8, 4 inputs (3 pins)
⑦	Series EX250 end plate assembly	EX250-EA1				With mounting screws (M3 x 10, 2 pcs.)
⑧	EX250 clamp assembly	SV1000-78A				
⑨	Series EX120 SI unit	Refer to page 1-2-44.				
⑩	Gasket	SX3000-57-4	SX5000-57-6	SX7000-57-5	SY9000-11-2	
⑪	Connector gasket	SX3000-146-2	SX3000-146-2	SX3000-146-2	SX3000-146-2	
⑫	Manifold block gasket	SX3000-181-1	SX5000-138-1	SV3000-65-1	SV4000-65-1	
⑬	Tie-rod	SV1000-55-1-□□	VZ1000-11-1-□	SV3000-55-1-□□	VZ1000-11-4-□	□□: Manifold stations
⑭	Tie-rod for station addition	SV1000-55-2-1	SV2000-55-2A	SV3000-55-2A	SV4000-55-2A	
⑮	Round head combination screw (Valve mounting screw)	SX3000-22-2 (M2 x 24)	SV2000-21-1 (M3 x 30)	SV3000-21-1 (M4 x 35)	SV2000-21-2 (M3 x 40)	
⑯	DIN rail	SV4000-55-1-□□	SV4000-55-1-□□	VZ1000-11-4-□	VZ1000-11-4-□	Refer to DIN rail dimension tables on page 1-2-97.
⑰	Clamp assembly	SV1000-69A	SV1000-69A	SV3000-69A	SV3000-69A	

Note) Two pieces of ⑬ and ⑭ (tie-rod) are required for Series SV1000, and three pieces are required for Series SV2000, 3000 and 4000.
Two pieces of ⑮ (valve mounting screw) are required for Series SV1000, 2000 and 3000, and three pieces are required for Series SV4000.

Series SV

Type 10: Tie-rod Base Manifold

How to increase manifold bases (Type 10)

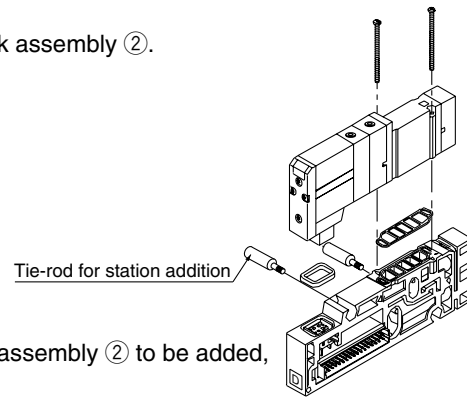
(1) Loosen the U side screws (a), and remove the SUP/EXH end block assembly (2).



(2) Screw in the tie-rods for station addition.
(Screw them in until there is no gap between the tie-rods.)



(3) Connect the manifold assembly (1) and supply/exhaust end block assembly (2) to be added, and tighten the screws (a).



⚠ Caution Tightening torques (a)

SV1000, SV2000	0.6 N·m
SV3000	1.4 N·m
SV4000	2.9 N·m

🔍 Note When eliminating manifold stations, the appropriate tie-rods (13) for the desired change should be ordered separately.
(When equipped with a DIN rail, be sure to tighten the DIN rail holding screws after tightening the tension bolts.)

⚠ Caution

Fitting Assembly Replacement

By replacing manifold fitting assemblies, it is possible to change the size of the A, B ports and P, E ports. To replace them, remove the clip with a flat head screwdriver, etc., and pull out the fitting assembly. Mount the new fitting assembly by inserting it and then replacing the clip to its fully inserted position.

Fitting Assembly Part No.

Port size		SV1000	SV2000	SV3000	SV4000
A, B Port	One-touch fitting for $\phi 3.2$	VVQ1000-50A-C3	—	—	—
	One-touch fitting for $\phi 4$	VVQ1000-50A-C4	VVQ1000-51A-C4	—	—
	One-touch fitting for $\phi 6$	VVQ1000-50A-C6	VVQ1000-51A-C6	VVQ2000-51A-C6	—
	One-touch fitting for $\phi 8$	—	VVQ1000-51A-C8	VVQ2000-51A-C8	VVQ4000-50B-C8
	One-touch fitting for $\phi 10$	—	—	VVQ2000-51A-C10	VVQ4000-50B-C10
	One-touch fitting for $\phi 12$	—	—	—	VVQ4000-50B-C12
	One-touch fitting for $\phi 1/8$ "	VVQ1000-50A-N1	—	—	—
	One-touch fitting for $\phi 5/32$ "	VVQ1000-50A-N3	VVQ1000-51A-N3	—	—
	One-touch fitting for $\phi 1/4$ "	VVQ1000-50A-N7	VVQ1000-51A-N7	VVQ2000-51A-N7	—
	One-touch fitting for $\phi 5/16$ "	—	VVQ1000-51A-N9	VVQ2000-51A-N9	VVQ4000-50B-N9
	One-touch fitting for $\phi 3/8$ "	—	—	VVQ2000-51A-N11	VVQ4000-50B-N11
	1/4 threaded type port block assembly	—	—	—	SY9000-58A-02□
	3/8 threaded type port block assembly	—	—	—	SY9000-58A-03□
P, E Port	One-touch fitting for $\phi 8$	VVQ1000-51A-C8	—	—	—
	One-touch fitting for $\phi 10$	—	VVQ2000-51A-C10	—	—
	One-touch fitting for $\phi 12$	—	—	VVQ4000-50B-C12	VVQ4000-50B-C12
	One-touch fitting for $\phi 5/16$ "	VVQ1000-51A-N9	—	—	—
	One-touch fitting for $\phi 3/8$ "	—	VVQ2000-51A-N11	VVQ4000-50B-N11	VVQ4000-50B-N11
	3/8 threaded type port block assembly	—	—	—	SY9000-58B-03□

■ 1/4, 3/8 thread type port block assembly

For A, B port

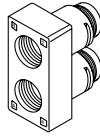
SY9000 – 58A – 02 03

For P, E port

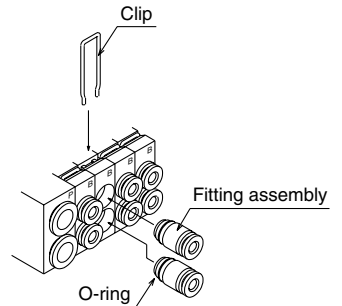
SY9000 – 58B – 03

● Thread type

Nil	Rc
F	G
N	NPT
T	NPTF



- Note 1) Be careful to avoid damage or contamination of O-rings, as this can cause air leakage.
- Note 2) When removing a fitting assembly from a valve, after removing the clip, attach tubing or a plug (KQP-□□) to the One-touch fitting, and pull it out while holding the tubing (or plug). If it is pulled out while holding the release button of the fitting assembly (resin part), the release button may be damaged. However, 02 and 03 port block assemblies should be pulled out as they are.
- Note 3) Be sure to shut off the power and air supplies before disassembly. Furthermore, since air may remain inside the actuator, piping and manifold, confirm that the air is completely exhausted before performing any work.



SV
SZ
SY
SYJ
SX

■ How to order tie-rod type 10 solenoid valves with manifold block

[Series SV1000 to SV4000]

• Type with manifold block is used when adding stations, etc.

SV 1 1 0 0 — **5 F**

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Type of actuation

1	2 position single solenoid
2	2 position double solenoid
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
A	4 position dual 3 port valve: N.C./N.C.
B	4 position dual 3 port valve: N.O./N.O.
C	4 position dual 3 port valve: N.C./N.O.

* 4 position dual 3 port valves are applicable to Series SV1000 and SV2000 only.

Pilot type

Nil	Internal pilot
R	External pilot

* External pilot specifications is not available for 4 position dual 3 port valves.

Back pressure check valve

Nil	None
K	Built-in

* Built-in back pressure check valve type is applicable to series SV1000 only.

* Back pressure check valve is not available for 3 position closed center and 3 position pressure center.



Refer to Precautions 2 on page 1-2-9.

A, B port size

Refer to A, B port size table on pages 1-2-20, 36, 44, and 76.

Manifold wiring specifications

Nil	Double wiring
S	Single wiring

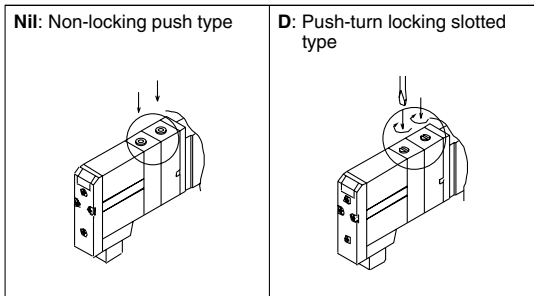
Manifold block type

T	For Tie-rod base type 10 with manifold block
---	--



Note) Tie-rod type 10 includes tie-rods for station additions.

Manual override



Light/Surge voltage suppressor

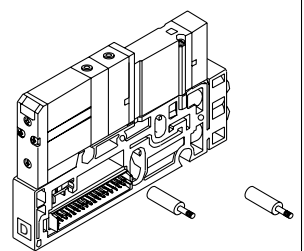
U	With light/surge voltage suppressor
R	With surge voltage suppressor

Rated voltage

5	24 VDC
6	12 VDC

* Note that serial wiring (EX500, EX250 and EX120) are only available with 24 VDC.

Example (SV1000)
SV1200-5FU-T-C6



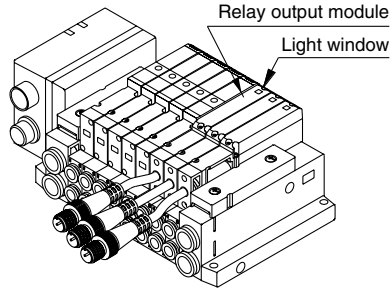
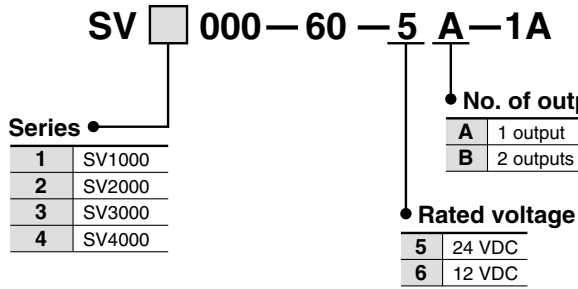
Series SV

Manifold Option (Common for Type 16 and 10)

Relay output module

By adding a relay output module to a series SV manifold, devices up to 110 VAC, 3 A (large type solenoid valves, etc.) can be controlled together with Series SV valves.

How to Order



* Note that serial wiring manifolds (EX500, EX250 and EX120) are available with 24 VDC only.

Relay Output Module Specifications

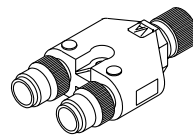
Item	Specifications			
	1 output [connector with lead wire (M12)]		2 outputs [connector with lead wire (M12)]	
No. of output points	1 output [connector with lead wire (M12)]		2 outputs [connector with lead wire (M12)]	
Output type	4 pins connector (M12) plug 1. — 2. Output A 3. — 4. Output A Contact type ("a" contact)	 Relay output module side pin arrangement	4 pins connector (M12) plug 1. Output B 2. Output A 3. Output B 4. Output A Contact type ("a" contact)	 Relay output module side pin arrangement
Load voltage	110 VAC	30 VDC	110 VAC	30 VDC
Load current	3 A	3 A	0.3 A	1 A
Indicator light	Orange		A side: Orange B side: Green	
Enclosure	Based on IP67 (IEC529)			
Current consumption	20 mA or less			
Polarity	Non-polar			
weight (g)	48			

Y type connector

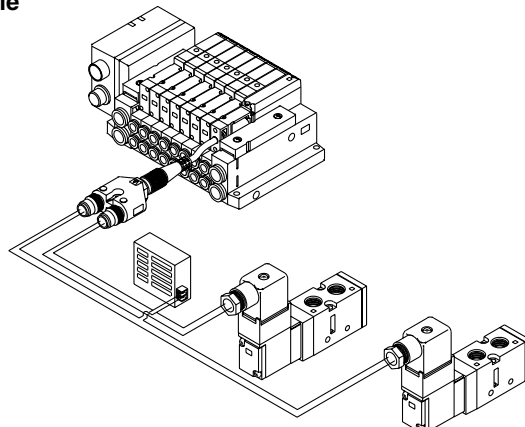
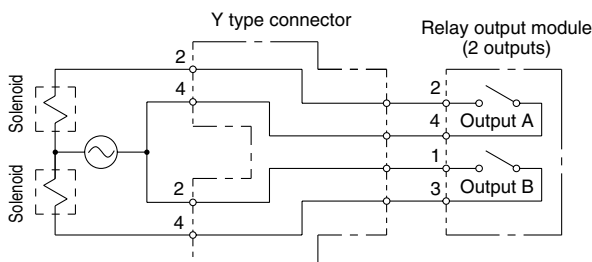
Used to branch a two output relay output module to two separate systems.

How to Order

EX500—ACY00—S



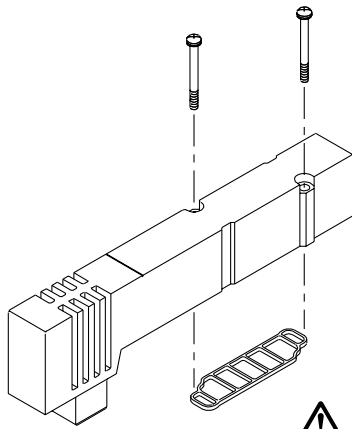
Relay output module and Y type connector wiring example



Manifold Option

■ Blanking plate assembly

Used in situations where valves will be added in the future.



Series	Blanking plate assembly part no.
SV1000	SV1000-67-1A
SV2000	SV2000-67-1A
SV3000	SV3000-67-1A
SV4000	SV4000-67-1A

⚠ Caution

Mounting screw tightening torques

M2: 0.15 N·m
M3: 0.6 N·m
M4: 1.4 N·m

■ SUP/EXH block disk

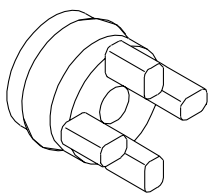
[SUP block disk]

By placing a SUP block disk in a manifold valve's pressure supply passage, two different high and low pressures can be supplied to one manifold.

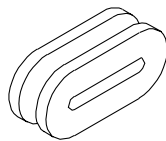
[EXH block disk]

By installing an EXH block disk in a manifold valve's exhaust passage, the valve's exhaust can be separated so that it will not affect other valves. It can also be used on a manifold with mixed positive pressure and vacuum.

(Two pieces are required to block EXH on both sides. However, Series SV1000 and 2000 type 10 manifolds require only one piece.)



Cassette base type 16



Tie-rod base type 10

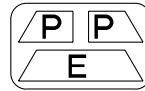
Series	Manifold Model	SUP block disk	EXH block disk
SV1000	10	SV1000-59-1A	SV1000-59-2A
	16	SX3000-77-1A	SX3000-77-1A
SV2000	10	SV2000-59-1A	SV2000-59-2A
	16	SV2000-59-3A	SV2000-59-3A
SV3000	10	SV3000-59-1A	SV3000-59-1A
SV4000	10	SY9000-57-1A	SY9000-57-1A

■ Label for block disk

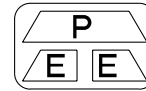
These labels are attached to manifolds in which SUP and EXH block disks have been installed, in order to identify the installed locations. (Three sheets each included.)

SV1000 – 74 – 1A

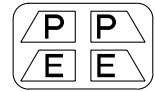
Label for SUP block disk



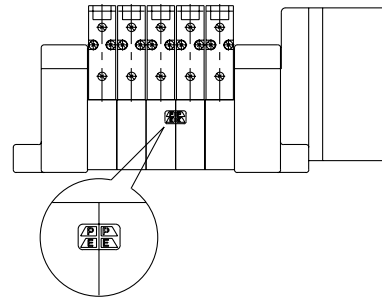
Label for EXH block disk



Label for SUP/EXH block disk

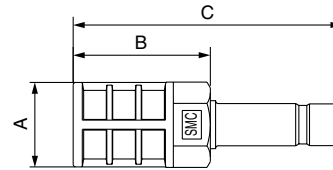


* When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.



■ Silencer with One-touch fitting

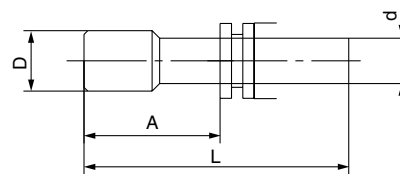
This silencer can be quickly mounted on the manifold's E (exhaust) port.



Series	Model	Effective area	A	B	C
SV1000 (For ø8)	AN203-KM8	14 mm ²	ø16	26	51
	AN200-KM10	26 mm ²	ø22	53.8	80.8
SV2000 (For ø10)	AN300-KM10	30 mm ²	ø25	70	97
	AN300-KM12	41 mm ²	ø25	70	98

■ Plug (White)

These are inserted in unused cylinder ports and P, E ports.



Applicable fitting size d	Model	A	L	D
ø4	KQP-04	16	32	ø6
ø6	KQP-06	18	35	ø8
ø8	KQP-08	20.5	39	ø10
ø10	KQ2P-10	22	43	ø12
ø12	KQ2P-12	24	44.5	ø14
ø1/8"	KQ2P-01	16	31.5	ø5
ø5/32"	KQ2P-03	16	32	ø6
ø1/4"	KQ2P-07	18	35	ø8.5
ø5/16"	KQ2P-09	20.5	39	ø10
ø3/8"	KQ2P-11	22	43	ø11.5

Series SV

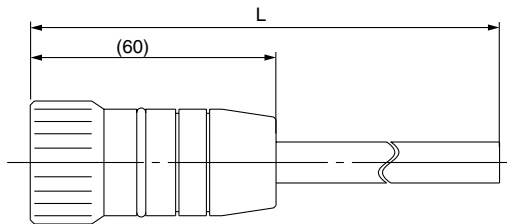
Manifold Option

■ Circular connector/Cable assembly (26 pins)

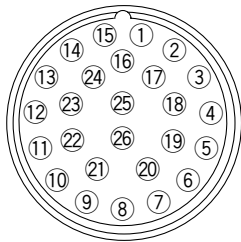
AXT100 – MC26 – □

Lead Wire Length

Part no.	L dimension
AXT100-MC26-015	1.5 m
AXT100-MC26-030	3 m
AXT100-MC26-050	5 m



Plug terminal no.
(arrangement as seen from lead wire side)



Circular Connector Cable Assembly Terminal No.

Terminal no.	Lead wire color	Dot marking
①	Black	None
②	Brown	None
③	Red	None
④	Orange	None
⑤	Yellow	None
⑥	Pink	None
⑦	Blue	None
⑧	Purple	White
⑨	Gray	Black
⑩	White	Black
⑪	White	Red
⑫	Yellow	Red
⑬	Orange	Red
⑭	Yellow	Black
⑮	Pink	Black
⑯	Blue	White
⑰	Purple	None
⑱	Gray	None
⑲	Orange	Black
⑳	Red	White
㉑	Brown	White
㉒	Pink	Red
㉓	Gray	Red
㉔	Black	White
㉕	White	None

Note) Terminal no. ㉖ is connected to ㉕ inside the connector.

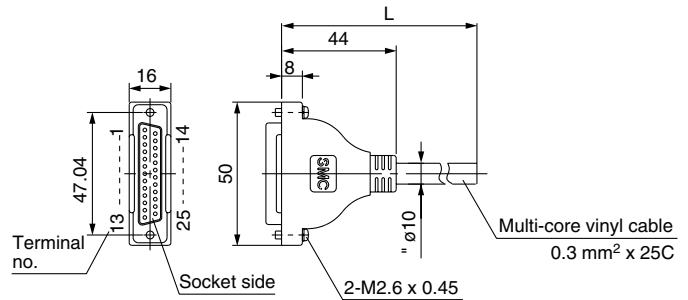
■ D-sub connector/Cable assembly (25 pins)

AXT100 – DS25 – □

Lead Wire Length

Part no.	L dimension
AXT100-DS25-015	1.5 m
AXT100-DS25-030	3 m
AXT100-DS25-050	5 m

When a commercially available connector is required, use a 25 pin female connector conforming to MIL-C24308.



D-sub Connector Cable Assembly Terminal No.

Terminal no.	Lead wire color	Dot marking
①	Black	None
②	Brown	None
③	Red	None
④	Orange	None
⑤	Yellow	None
⑥	Pink	None
⑦	Blue	None
⑧	Purple	White
⑨	Gray	Black
⑩	White	Black
⑪	White	Red
⑫	Yellow	Red
⑬	Orange	Red
⑭	Yellow	Black
⑮	Pink	Black
⑯	Blue	White
⑰	Purple	None
⑱	Gray	None
⑲	Orange	Black
⑳	Red	White
㉑	Brown	White
㉒	Pink	Red
㉓	Gray	Red
㉔	Black	White
㉕	White	None

Circular Connector, D-sub Connector Cable Assembly Electric Characteristics

Item	Characteristics
Conductor resistance W/km, 20°C	65 or less
Withstand voltage VAC, 1 min.	1000
Insulation resistance, M/km, 20°C	5 or less

Note) The minimum inside bending radius for each cable is 20 mm.

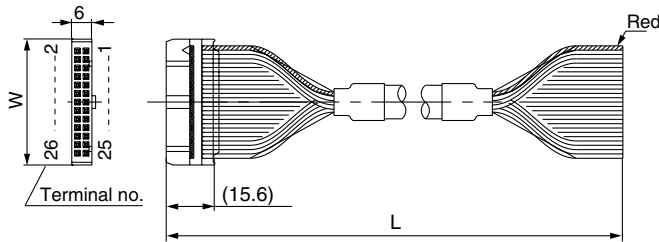
Manifold Option

■ Flat ribbon cable/Cable assembly

AXT100 – FC□ – □

Cable length L	10 pins	20 pins	26 pins
1.5 m	AXT100-FC10-1	AXT100-FC20-1	AXT100-FC26-1
3 m	AXT100-FC10-2	AXT100-FC20-2	AXT100-FC26-2
5 m	AXT100-FC10-3	AXT100-FC20-3	AXT100-FC26-3
Connector width (W)	17.2	30	37.5

* For other commercial connectors, use a type with strain relief conforming to MIL-C-83503.



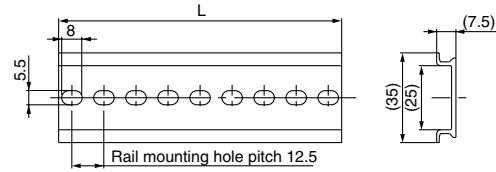
Connector manufacturers' example

- Hirose Electric Co., Ltd.
- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.

■ SV1000/2000 and Series EX500 input unit DIN rail dimensions and weights

VZ1000 – 11 – 1 – □

* As for □, enter the number from the DIN rail dimensions table.

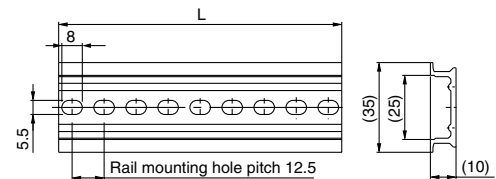


No.	0	1	2	3	4	5	6	7	8	9
L dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5
Weight (g)	17.6	19.9	22.1	24.4	26.6	28.9	31.1	33.4	35.6	37.9
No.	10	11	12	13	14	15	16	17	18	19
L dimension	223	235.5	248	260.5	273	285.5	298	310.5	323	335.5
Weight (g)	40.1	42.4	44.6	46.9	49.1	51.4	53.6	55.9	58.1	60.4
No.	20	21	22	23	24	25	26	27	28	29
L dimension	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5
Weight (g)	62.5	64.9	67.1	69.4	71.6	73.9	76.1	78.4	80.6	82.9
No.	30	31	32	33	34	35	36	37	38	39
L dimension	473	485.5	498	510.5	523	535.5	548	560.5	573	585.5
Weight (g)	85.1	87.4	89.6	91.9	94.1	96.4	98.6	100.9	103.1	105.4
No.	40	41	42	43	44	45	46	47	48	49
L dimension	598	610.5	623	635.5	648	660.5	673	685.5	698	710.5
Weight (g)	107.6	109.9	112.1	114.4	116.6	118.9	121.1	123.4	125.6	127.9
No.	50	51	52	53	54	55	56	57	58	59
L dimension	723	735.5	748	760.5	773	785.5	798	810.5	823	835.5
Weight (g)	130.1	132.4	134.6	136.9	139.1	141.4	143.6	145.9	148.1	150.4
No.	60	61	62	63	64	65	66	67	68	69
L dimension	848	860.5	873	885.5	898	910.5	923	935.5	948	960.5
Weight (g)	152.6	154.9	157.1	159.4	161.6	163.9	166.1	168.4	170.6	172.9
No.	70	71								
L dimension	973	985.5								
Weight (g)	175.1	177.4								

■ SV3000 and 4000 DIN rail dimensions and weights

VZ1000 – 11 – 4 – □

* As for □, enter the number from the DIN rail dimensions table.



No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	233.5	248	260.5	273	285.5	298	310.5	323	335.5	348
Weight (g)	24.8	28	31.1	34.3	37.4	40.6	43.8	46.9	50.1	53.3	56.4	59.6	62.7	65.9	69.1	72.2	75.4	78.6	81.7	84.9	88
No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
L dimension	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5	523	535.5	548	560.5	573	585.5	598	610.5
Weight (g)	91.2	94.4	97.5	100.7	103.9	107	110.2	113.3	116.5	119.7	122.8	126	129.2	132.3	135.5	138.6	141.8	145	148.1	151.3	154.5
No.	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
L dimension	623	635.5	648	660.5	673	685.5	698	710.5	723	735.5	748	760.5	773	785.5	798	810.5	823	835.5	848	860.5	873
Weight (g)	157.6	160.8	163.9	167.1	170.3	173.4	176.6	179.8	182.9	186.1	189.2	192.4	195.6	198.7	201.9	205.1	208.2	211.4	214.5	217.7	220.9
No.	63	64	65	66	67	68	69	70	71												
L dimension	885.5	898	910.5	923	935.5	948	960.5	973	985.5												
Weight (g)	224	227.2	230.4	233.5	236.7	239.8	243	246.2	249.3												

Series SV

Manifold Option

Interface regulator

How to order interface regulator

Series SV1000

SV1 0 00 — P — 05

Applicable valve

0	For single, double
3	For 3 position

Option

05	With pressure gauge [For odd number station]
06	With pressure gauge [For even number station]
M1	Without pressure gauge

Regulating port

P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)



Note) In the case of Series SV1000 with a pressure gauge when mounting on the manifold, use caution that the part numbers are different between the odd no. stations and the even no. stations to avoid pressure gauges from interfering from each others.

Note) Use caution that the part numbers will be differed depending on the one for single/double and 3 position due to the different length of solenoid valves. Also, when at least the one for 3 position is included in the same manifold, use all the ones for 3 position.

Series SV2000/SV3000/SV4000

SV 2 000 — P — 00

Series

2	SV2000
3	SV3000
4	SV4000

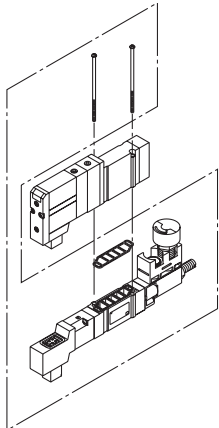
Option

00	With pressure gauge
M1	Without pressure gauge

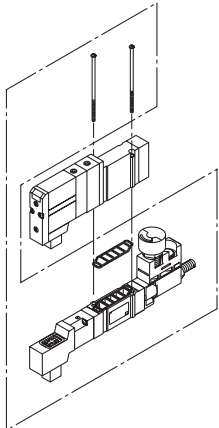
Regulating port

P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)

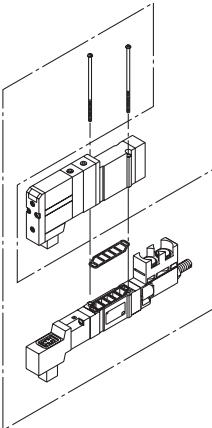
SV1000-□-05
(For mounting odd number stations)



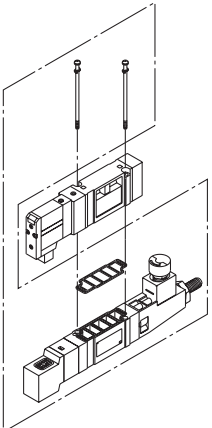
SV1000-□-06
(For mounting even number stations)



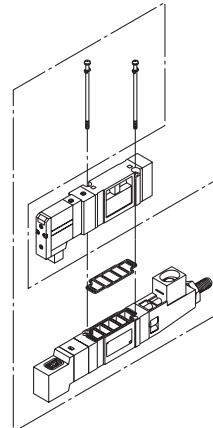
SV1000-□-M1



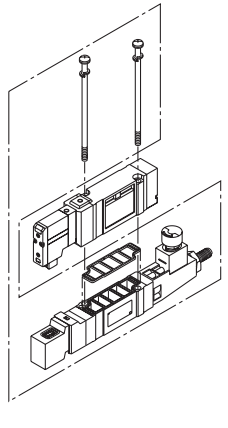
SV2000-□-00



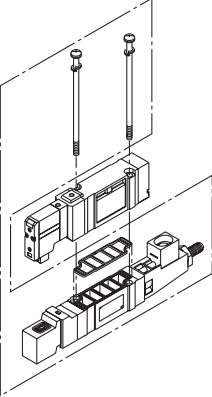
SV2000-□-M1



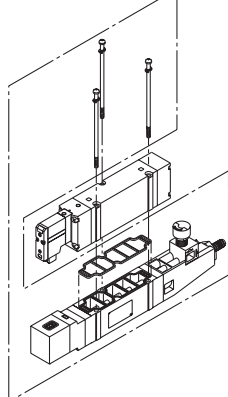
SV3000-□-00



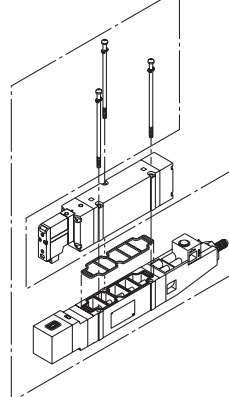
SV3000-□-M1



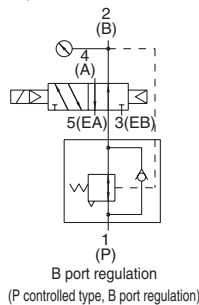
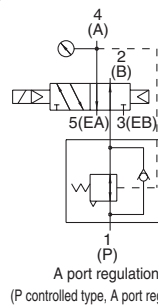
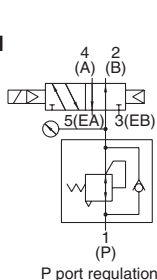
SV4000-□-00



SV4000-□-M1



JIS Symbol



Accessory

Series	Round head combination screw	Gasket
SV1000	SX3000-22-9 (M2 x 39.5)	SX3000-57-4
SV2000	SV2000-21-7 (M3 x 53)	SX5000-57-6
SV3000	SV3000-21-4 (M4 x 57)	SX7000-57-5
SV4000	SV2000-21-8 (M3 x 69.5)	SY9000-11-2

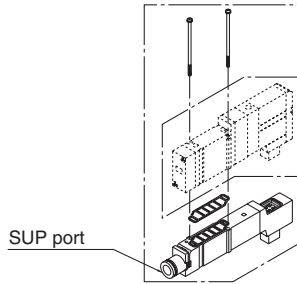
Caution

Mounting Screw Tightening Torques

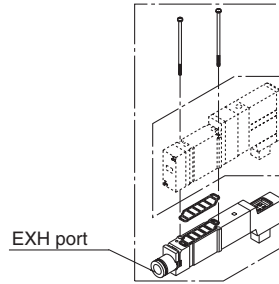
M2: 0.15 N·m
M3: 0.6 N·m
M4: 1.4 N·m

Manifold Option

■ Individual SUP spacer assembly



■ Individual EXH spacer assembly



How to order individual SUP/EXH spacer assembly

Series SV1000

SV1000 — **38** — **1A** — **C6**

• Port size

C3	One-touch fitting for $\phi 3.2$
C4	One-touch fitting for $\phi 4$
C6	One-touch fitting for $\phi 6$
N1	One-touch fitting for $\phi 1/8''$
N3	One-touch fitting for $\phi 5/32''$
N7	One-touch fitting for $\phi 1/4''$

• Spacer type

38	Individual SUP spacer
39	Individual EXH spacer

Series SV2000/SV3000/SV4000

SV **2** **000** — **38** — **1** **A**

• Series

2	SV2000
3	SV3000
4	SV4000

• Thread type ^{Note)}

Nil	Rc
F	G
N	NPT
T	NPTF



Note) SV2000/3000/4000 port size

Series	Port size
SV2000	1/8
SV3000	1/4
SV4000	

Accessory

Series	Round head combination screw	Gasket
SV1000	SX3000-22-9 (M2 x 39.5)	SX3000-57-4
SV2000	SV2000-21-6 (M3 x 46)	SY5000-11-15
SV3000	SV3000-21-3 (M4 x 53)	SY7000-11-11
SV4000	SV2000-21-5 (M3 x 60)	SY9000-11-2

SV

SZ

SY

SYJ

SX

Series SV1000/2000/3000/4000

Single Valve/Sub-plate Type

IP67 Compliant

How to Order

SV 1 1 00 **5** **W1** **U** **D**

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Type of actuation

1	<p>2 position single solenoid</p>
2	<p>2 position double solenoid</p>
3	<p>3 position closed center</p>
4	<p>3 position exhaust center</p>
5	<p>3 position pressure center</p>
A	<p>4 position dual 3 port valve: N.C./N.C.</p>
B	<p>4 position dual 3 port valve: N.O./N.O.</p>
C	<p>4 position dual 3 port valve: N.C./N.O.</p>

Pilot type

Nil	Internal pilot
R	External pilot

* External pilot specifications is not available for 4 position dual 3 port valves.

Rated voltage

5	24 VDC
6	12 VDC

M12 waterproof connector

Symbol	Cable length (mm)
W1	300
W2	500
W3	1000
W4	2000
W7	5000

Port size

Symbol	Port size	Applicable series
Nil	Without sub-plate	
01	1/8	SV1000
02	1/4	SV2000 SV3000
03	3/8	SV3000 SV4000
04	1/2	SV4000

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type

Light/Surge voltage suppressor

U	With light/surge voltage suppressor
R	With surge voltage suppressor

SV3000 and 4000 are not available with dual 3 port valve.

Series SV Solenoid Valve Specifications



Fluid		Air
Internal pilot operating pressure range (MPa)	2 position single	0.15 to 0.7
	4 position dual 3 port valve	
	2 position double	
	3 position	
External pilot operating pressure range (MPa)	Operating pressure range	-100 kPa to 0.7
	2 position single, double	0.25 to 0.7
	3 position	
Ambient and fluid temperature (°C)		-10 to 50 (No freezing. Refer to page 1-7-4.)
Max. operating frequency (Hz)	2 position single, double	5
	4 position dual 3 port valve	
	3 position	3
Manual override		Non-locking push type Push-turn locking slotted type
Pilot exhaust method	Internal pilot	Common exhaust type for main and pilot valve Pilot valve individual exhaust
	External pilot	
Lubrication		Not required
Mounting orientation		Unrestricted
Impact/Vibration resistance (ms ²)		150/30 (8.3 to 2000 Hz)
Enclosure		IP67 (Based on IEC529)
Electrical entry		M12 waterproof connector
Coil rated voltage		24 VDC, 12 VDC
Allowable voltage fluctuation		±10% of rated voltage
Power consumption (W)		0.6 (With indicator light: 0.65)
Surge voltage suppressor		Zener diode
Indicator light		LED

SV
SZ
SY
SYJ
SX



Note) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Response Time

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)			
	SV1000	SV2000	SV3000	SV4000
2 position single	11 or less	25 or less	28 or less	40 or less
2 position double	10 or less	17 or less	26 or less	40 or less
3 position	18 or less	29 or less	32 or less	82 or less
4 position dual 3 port valve	15 or less	33 or less	—	—



Note) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 20°C, at rated voltage)

M12 Waterproof Connector Wiring Specifications

Single solenoid	Double solenoid
<p>4 pins connector (M12) plug</p> <p>Solenoid</p> <p>Circuit diagram</p> <p>Solenoid valve side pin wiring diagram</p>	<p>4 pins connector (M12) plug</p> <p>Solenoid A</p> <p>Solenoid B</p> <p>Circuit diagram</p> <p>Solenoid valve side pin wiring diagram</p>



Note) Solenoid valves have no polarity.

Series SV

Flow Characteristics/Weight

Series SV1000

Valve model	Type of actuation		Port size	Flow characteristics ⁽¹⁾						Weight (g) ⁽²⁾
				1 → 4/2 (P → A/B)			4/2 → 5/3(A/B → EA/EB)			M12 waterproof connector (Cable length 300 mm)
				C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv	
SV1□00-□-01	2 position	Single	Rc 1/8	1.0	0.30	0.24	1.1	0.30	0.26	123 (88)
		Double								128 (93)
	3 position	Closed center		0.77	0.28	0.18	0.85	0.30	0.19	130 (95)
		Exhaust center		0.73	0.31	0.18	1.1 [0.55]	0.26 [0.52]	0.24 [0.16]	
		Pressure center		1.2 [0.51]	0.24 [0.45]	0.29 [0.14]	0.89	0.47	0.24	
	4 position dual	N.C./N.C.		0.68	0.35	0.18	1.1	0.39	0.29	128 (93)
		N.O./N.O.		0.87	0.31	0.23	0.77	0.44	0.21	

Note 1) []: Denotes the normal position. Note 2) (): Denotes without sub-plate.

Series SV2000

Valve model	Type of actuation		Port size	Flow characteristics ⁽¹⁾						Weight (g) ⁽²⁾
				1 → 4/2 (P → A/B)			4/2 → 5/3(A/B → EA/EB)			M12 waterproof connector (Cable length 300 mm)
				C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv	
SV2□00-□-02	2 position	Single	Rc 1/4	2.4	0.41	0.64	2.8	0.29	0.66	159 (96)
		Double								163 (100)
	3 position	Closed center		1.8	0.47	0.50	1.8	0.40	0.47	168 (105)
		Exhaust center		1.4	0.55	0.44	3.0 [1.2]	0.33 [0.48]	0.72 [0.37]	
		Pressure center		3.3 [0.84]	0.36 [0.60]	0.85 [0.28]	1.8	0.40	0.48	
	4 position dual	N.C./N.C.		2.2	0.40	0.55	2.6	0.31	0.60	163 (100)
		N.O./N.O.		2.7	0.24	0.57	2.3	0.36	0.54	

Note 1) []: Denotes the normal position. Note 2) (): Denotes without sub-plate.

Series SV3000

Valve model	Type of actuation		Port size	Flow characteristics ⁽¹⁾						Weight (g) ⁽²⁾
				1 → 4/2 (P → A/B)			4/2 → 5/3(A/B → EA/EB)			M12 waterproof connector (Cable length 300 mm)
				C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv	
SV3□00-□-02	2 position	Single	Rc 1/4	4.1	0.41	1.1	4.1	0.29	1.0	250 (121)
		Double								253 (124)
	3 position	Closed center		3.0	0.43	0.80	2.6	0.41	0.72	26 (132)
		Exhaust center		2.6	0.42	0.71	4.7 [1.7]	0.35 [0.48]	1.1 [0.49]	
		Pressure center		5.3 [2.3]	0.39 [0.49]	1.3 [0.65]	2.2	0.49	0.63	
	SV3□00-□-03	2 position		Single	Rc 3/8	4.9	0.29	1.2	4.5	0.27
Double			238							
3 position		Closed center	3.0	0.40		0.80	2.6	0.45	0.73	246
		Exhaust center	2.6	0.42		0.71	4.8 [1.7]	0.35 [0.48]	1.1 [0.34]	
		Pressure center	5.3 [2.3]	0.31 [0.51]		1.3 [0.64]	2.3	0.45	0.66	

Note 1) []: Denotes the normal position. Note 2) (): Denotes without sub-plate.

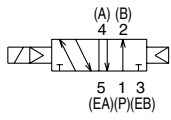
Series SV4000

Valve model	Type of actuation		Port size	Flow characteristics ⁽¹⁾						Weight (g) ⁽²⁾
				1 → 4/2 (P → A/B)			4/2 → 5/3(A/B → EA/EB)			M12 waterproof connector (Cable length 300 mm)
				C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv	
SV4□00-□-03	2 position	Single	Rc 3/8	7.9	0.34	2.0	9.6	0.43	2.5	505 (208)
		Double								509 (212)
	3 position	Closed center		7.5	0.33	1.8	7.3	0.30	1.7	530 (233)
		Exhaust center		7.2	0.34	1.7	13 [4.0]	0.23 [0.41]	2.8 [0.95]	
		Pressure center		12 [3.3]	0.26 [0.41]	2.8 [0.84]	6.7	0.40	1.9	
SV4□00-□-04	2 position	Single	Rc 1/2	8.0	0.48	2.2	10	0.29	2.5	484
		Double								488
	3 position	Closed center		7.6	0.32	1.8	7.3	0.32	1.8	509
		Exhaust center		7.3	0.42	2.0	13 [4.7]	0.32 [0.54]	3.6 [1.5]	
		Pressure center		12 [3.3]	0.33 [0.51]	3.3 [0.94]	7.4	0.33	1.9	

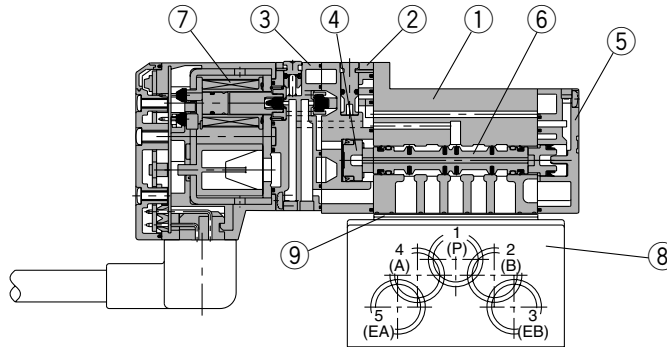
Note 1) []: Denotes the normal position. Note 2) (): Denotes without sub-plate.

Construction: SV1000/2000/3000/4000 Tie-rod Base Type

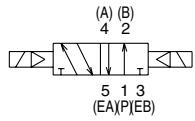
2 position single



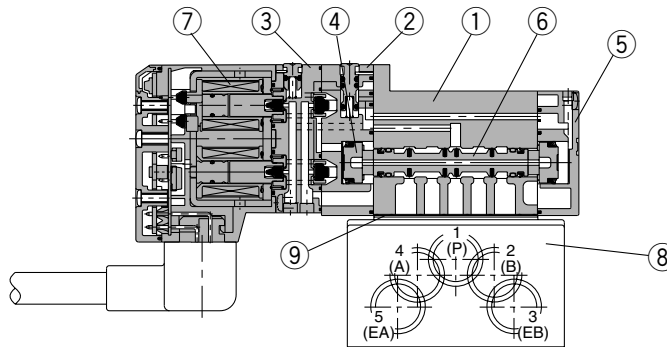
2 position single



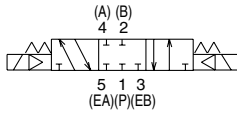
2 position double



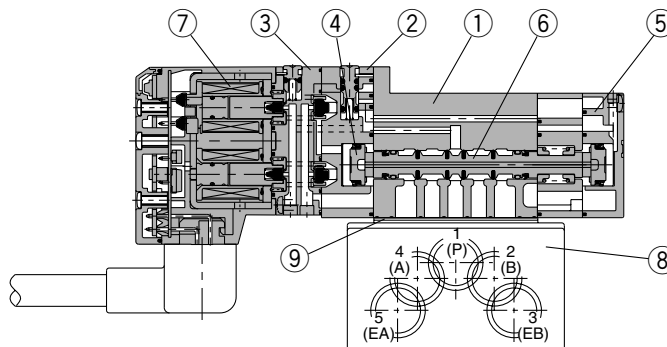
2 position double



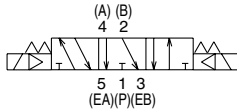
3 position closed center



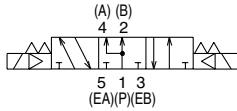
3 position closed center/exhaust center/pressure center



3 position exhaust center



3 position pressure center



Component Parts

No.	Description	Material	Note
①	Body	Aluminum die-casted (SV1000 is zinc die-casted)	White
②	Adapter plate	Resin	White
③	Pilot body	Resin	White
④	Piston	Resin	—
⑤	End plate	Resin	White
⑥	Spool valve assembly	Aluminum/HNBR	—
⑦	Molded coil	—	Gray

Caution

Mounting screw tightening torques

- M2: 0.16 N·m
- M3: 0.8 N·m
- M4: 1.4 N·m

Replacement Parts

No.	Description	Part no.				Note
		SV1□00	SV2□00	SV3□00	SV4□00	
⑧	Sub-plate	SY3000-27-1□-Q	SY5000-27-1□-Q	1/4: SY7000-27-1□-Q 3/8: SY7000-27-2□-Q	3/8: SY9000-27-1□ 1/2: SY9000-27-2□	Aluminum die-casted Refer to thread types on page 1-2-100 for □.
⑨	Gasket	SY3000-11-25	SY5000-11-18	SY7000-11-14	SY9000-11-2	
—	Round head combination screw	SX3000-22-2 (M2 x 24)	SV2000-21-1 (M3 x 30)	SV3000-21-1 (M4 x 35)	SV2000-21-2 (M3 x 40)	For valve mounting (Matt nickel plated)

Note) Round head combination screw requires 2 pcs. per one valve for Series SV1000, SV2000, SV3000. For Series SV4000, it requires 3 pcs.

SV

SZ

SY

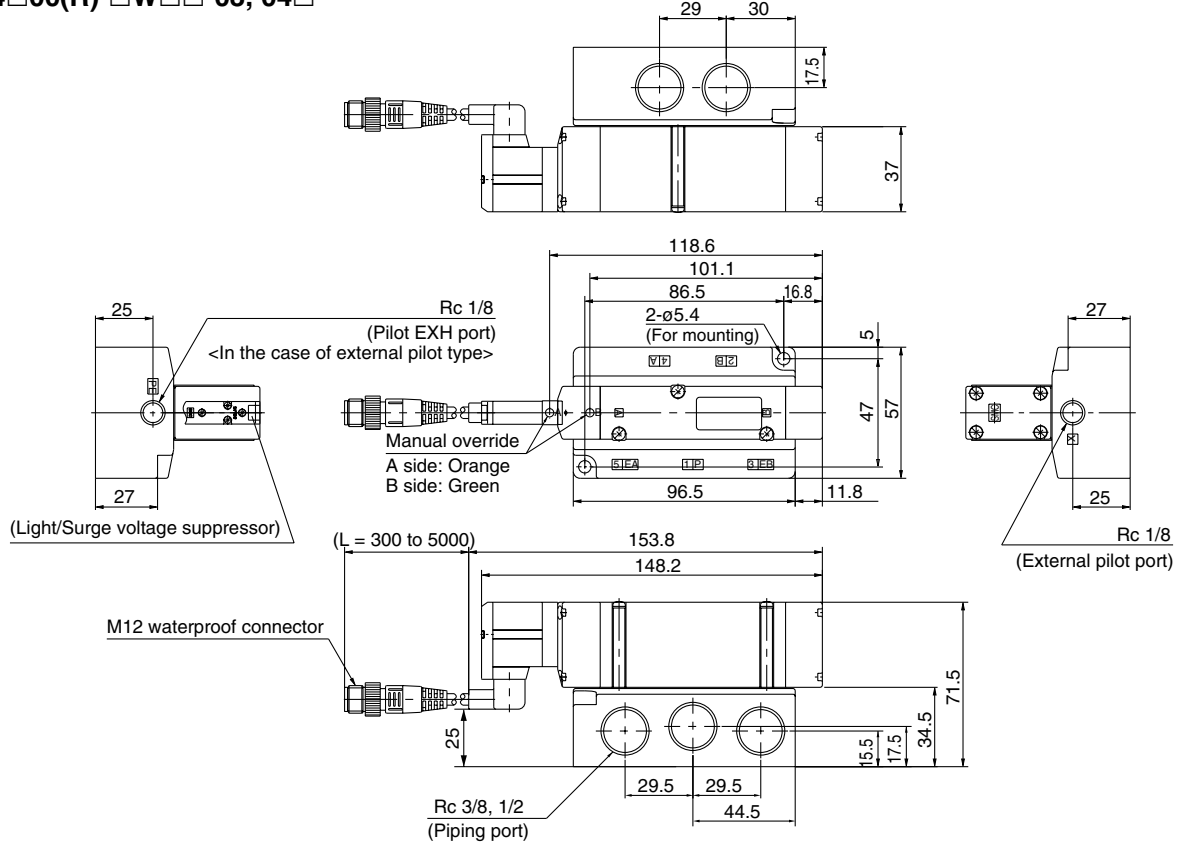
SYJ

SX

Dimensions: Series SV4000

2 position single/double [M12 waterproof connector type]

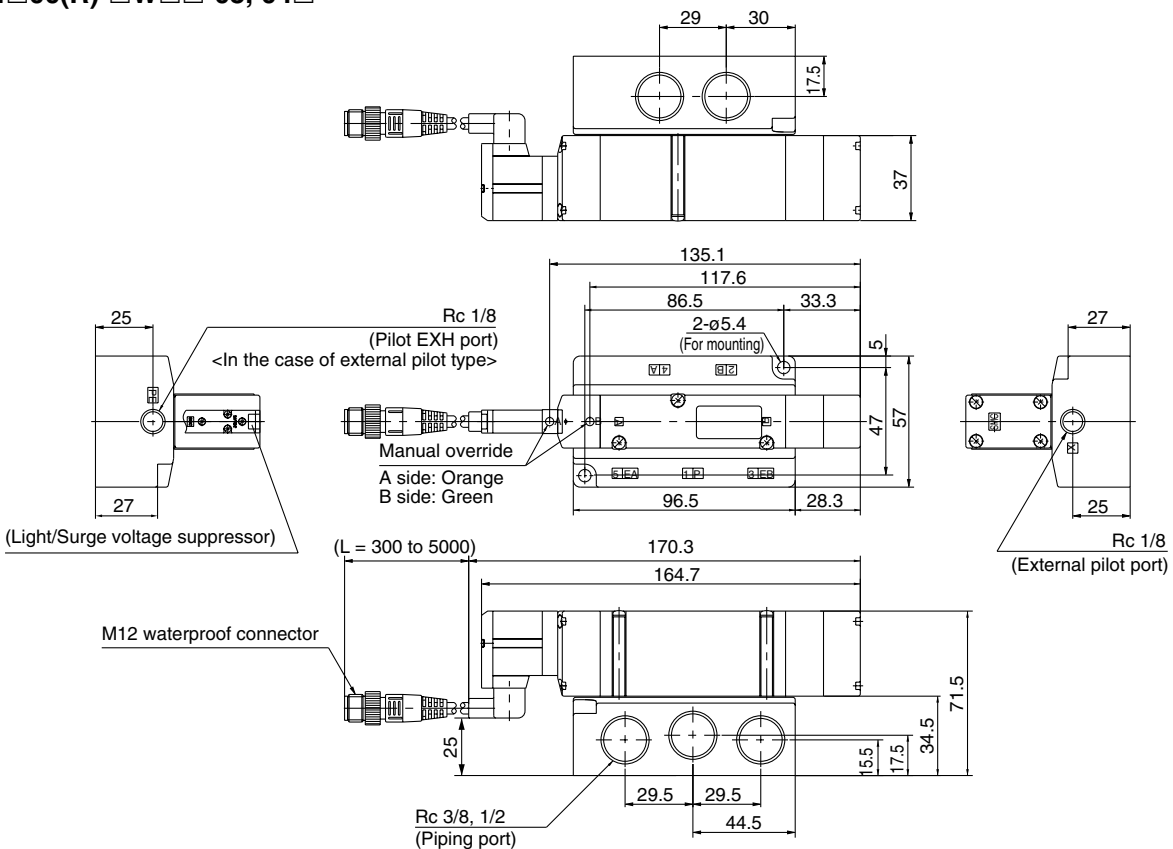
SV4□00(R)-□W□□-03, 04□



SV
SZ
SY
SYJ
SX

3 position closed center/exhaust center/pressure center [M12 waterproof connector type]

SV4□00(R)-□W□□-03, 04□



Series SV

Made to Order Specifications:

For detailed specifications, delivery and pricing, please contact SMC.

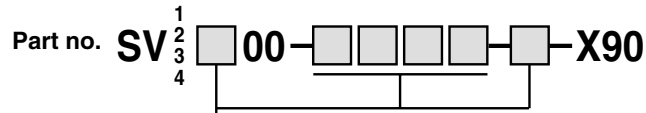
1 Main Valve Fluoro Rubber Specifications

Symbol

-X90

Fluoro rubber is used for rubber parts of the main valve to allow use in applications such as the following.

1. When using a lubricant other than the recommended turbine oil, and there is a possibility of malfunction due to swelling of the spool valve seals.
2. When ozone enters or is generated in the air supply.



● Entry is the same as standard products.

Note) Because in series -X90 fluoro rubber is used for only main valve, the rubber parts of the application/usage in conditions requiring heat resistance should be avoided.