

Valve Manifold

Common Specifications

Series SV

Cassette base manifold



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

Manifold Specifications

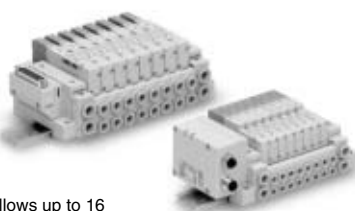
Applicable series		SV1000	SV2000
Manifold type		Stacking type cassette base manifold	
1 (P: SUP)/3, 5 (E: EXH) type		Common SUP, EXH	
Valve stations (maximum)		18 stations	20 stations
Max. number of solenoids		18 points	26 points
Port size	1(P), 3/5(E) port	C8, N9	C10, N11
	4(A), 2(B) port	C3, C4, C6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

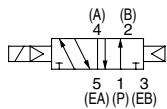
Series SV Solenoid Valve Specifications



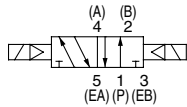
Made to Order Specifications
(For details, refer to page 1-2-108.)

JIS Symbol

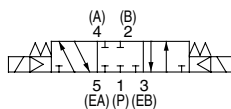
2 position single solenoid



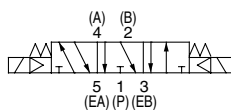
2 position double solenoid



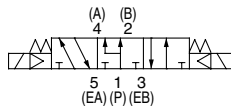
3 position closed center



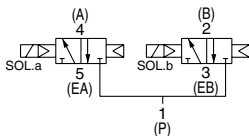
3 position exhaust center



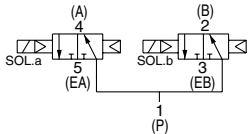
3 position pressure center



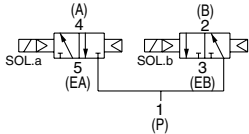
4 position dual 3 port valve: N.C./N.C.



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	
	2 position double	
External pilot Operating pressure range (MPa)	3 position	0.1 to 0.7
	Operating pressure range	0.2 to 0.7
	2 position single, double	–100 kPa to 0.7
Ambient and fluid temperature (°C)	3 position	0.25 to 0.7
Max. operating frequency (Hz)	2 position single, double	–10 to 50 (No freezing. Refer to page 1-7-4.)
	4 position dual 3 port valve	
Manual override	3 position	5
		3
		Non-locking push type
		Push-turn locking slotted type
Pilot exhaust method	Internal pilot	Common exhaust type for main and pilot valve
	External pilot	
		Pilot valve individual exhaust
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



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.

SV

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SY

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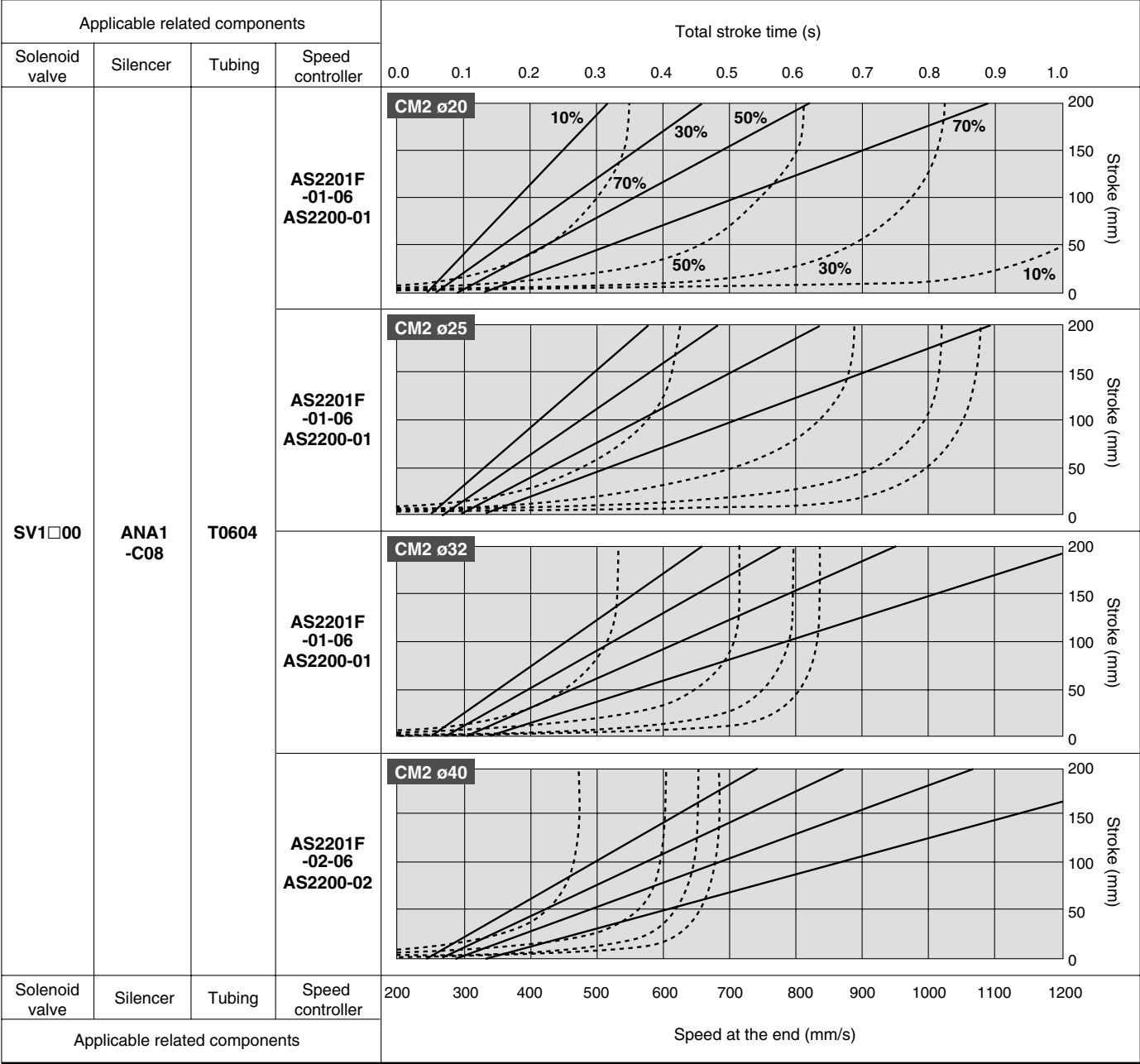
SX

Air Cylinders Drive System

Full Stroke Time and Speed at the End

Series SV1000

Applicable bore size: ø20, ø25, ø32, ø40



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

How to Read the Graph

These graphs show the total stroke time and speed at the end when a cylinder drive system is composed of the ideal components. The graphs above indicate the total stroke time and speed at the end with respect to various load ratios and strokes for each cylinder bore size.

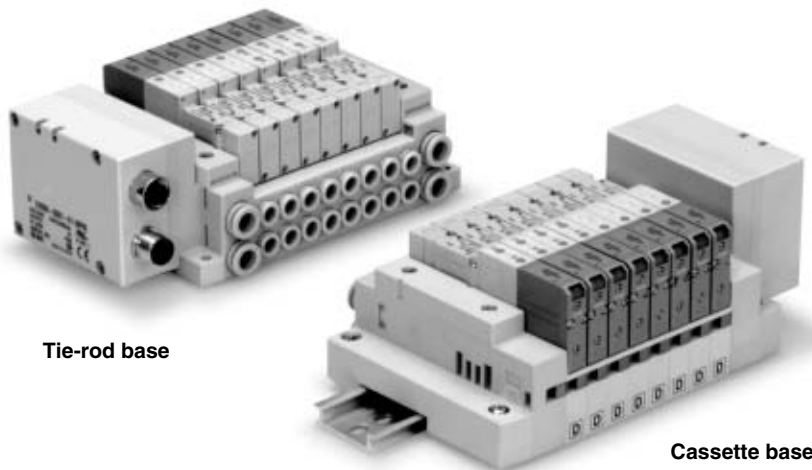
Common Conditions

Inlet pressure	0.5 MPa
Piping length	SV1000: 1 m, SV2000/3000: 2 m, SV4000: 3 m
Cylinder direction	Vertical upward
Speed controller	Meter-out, Directly connected to cylinder, Needle fully open
Load ratio	{(Load weight x 9.8) Theoretical output} x 100%

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	

SV

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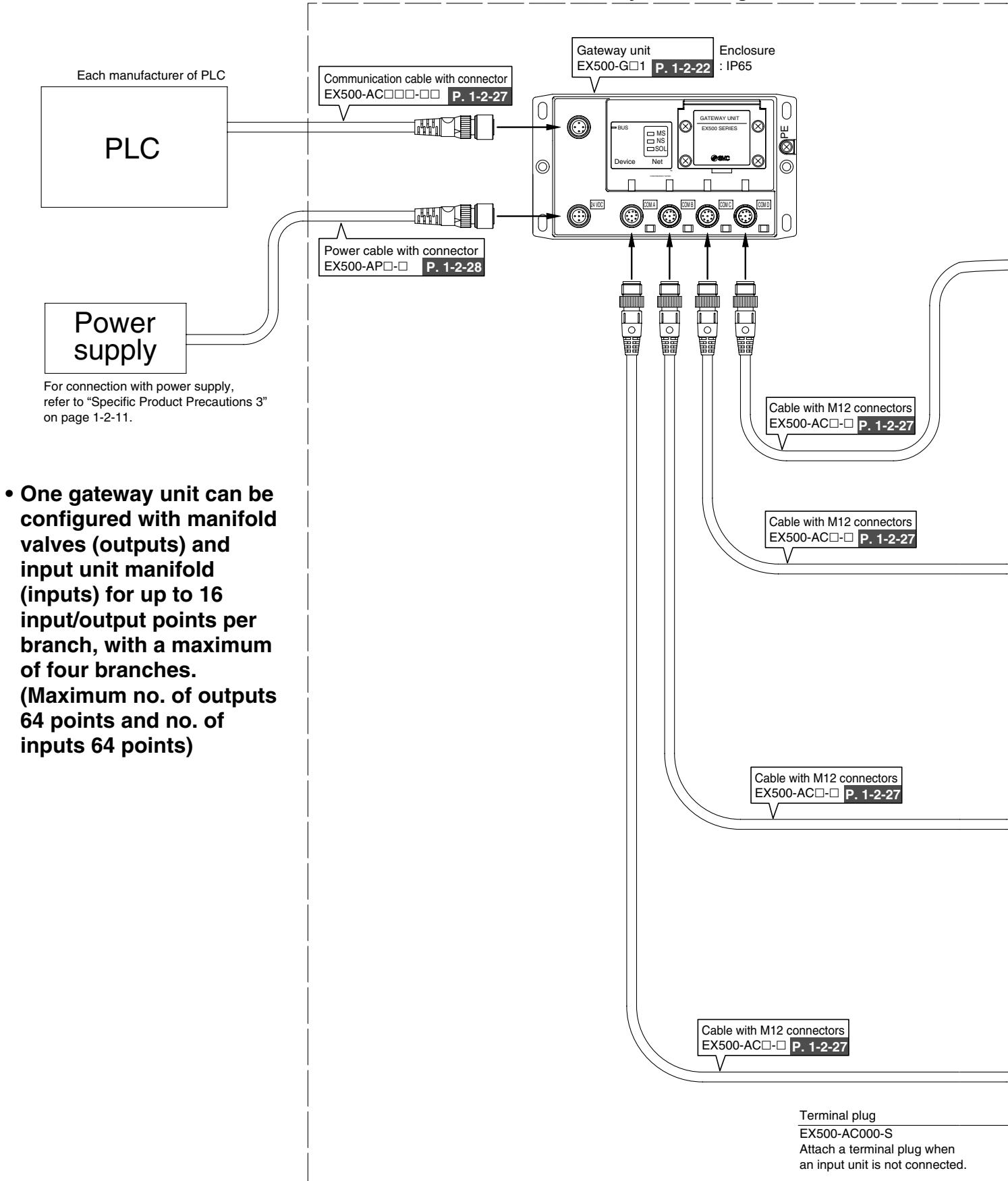
SYJ

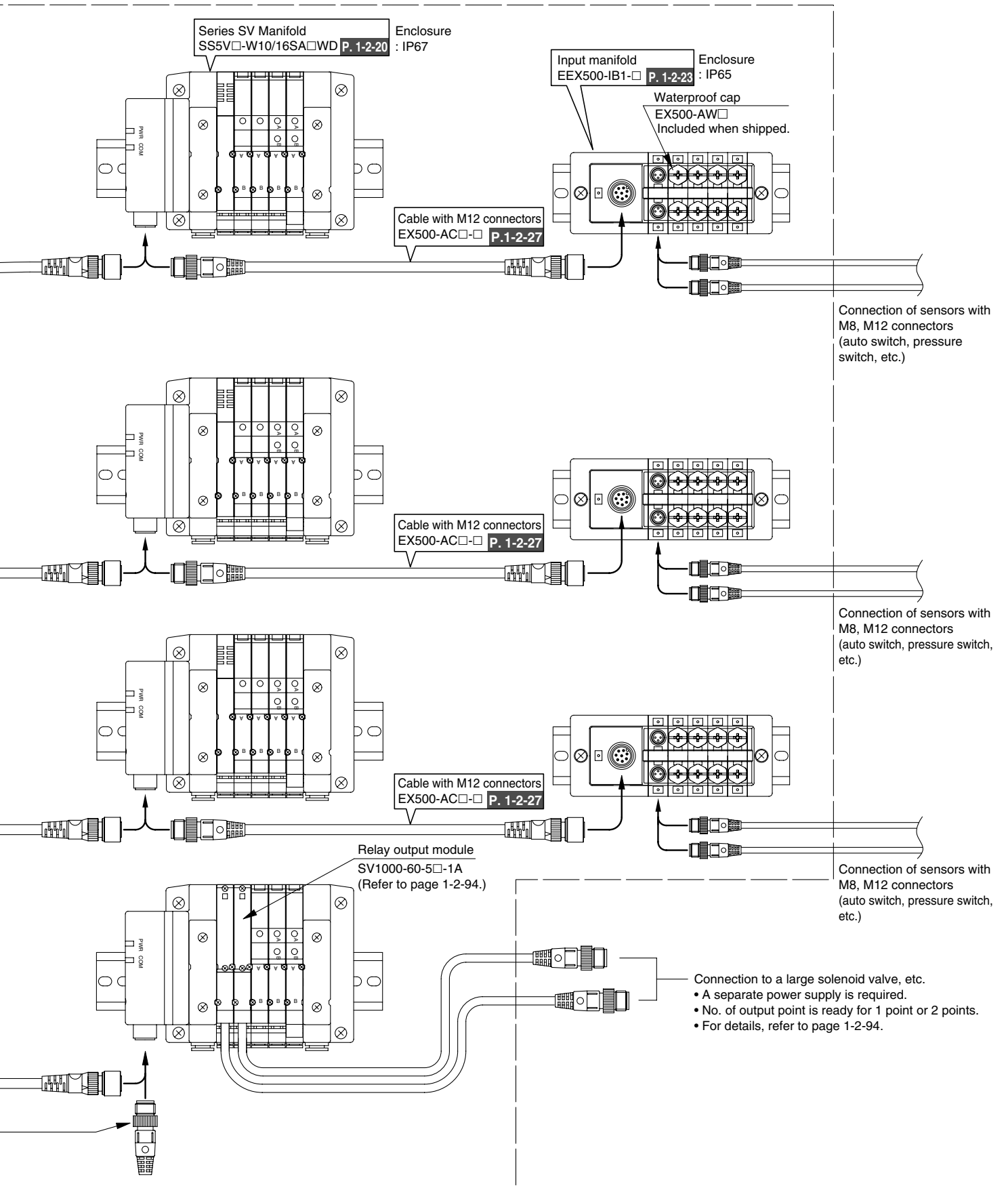
SX

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





SV

SZ

SY

SYJ

SX

Series EX500

Decentralized Serial Wiring

Series SV

How to Order

● **Series**

1	SV1000
2	SV2000
3	SV3000
4	SV4000

● **Tie-rod base**

● **Cassette base**

● **Enclosure IP67 specifications**

● **SI unit**

A1W	For Remote I/O
A2W	For DeviceNet/For ProfiBus-DP
0	Without SI unit

● **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

* 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

● **Valve stations**

Symbol	Stations	Note
02	2 stations	Double wiring specifications (1)
:	:	
08	8 stations	
02	2 stations	Specified layout (2)
:	:	
16	16 stations	

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, 3 position and 4 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

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

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		
C6	One-touch fitting for ø6	One-touch fitting for ø10	SV2000
C8	One-touch fitting for ø8		
C6	One-touch fitting for ø6		
C8	One-touch fitting for ø8		
C10	One-touch fitting for ø10	One-touch fitting ø12	SV3000
C8	One-touch fitting for ø8		
C10	One-touch fitting for ø10		
C12	One-touch fitting for ø12		
02	Rc 1/4	Rc 3/8	SV4000
03	Rc3/8		
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"		
N7	One-touch fitting for ø1/4"	One-touch fitting for ø3/8"	SV2000
N9	One-touch fitting for ø5/16"		
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for ø5/16"		
N11	One-touch fitting for ø3/8"	One-touch fitting for ø3/8"	SV3000
N9	One-touch fitting for ø5/16"		
N11	One-touch fitting for ø3/8"		
N11	One-touch fitting for ø3/8"		
02N	NPT 1/4	NPT 3/8	SV4000
03N	NPT 3/8		
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.

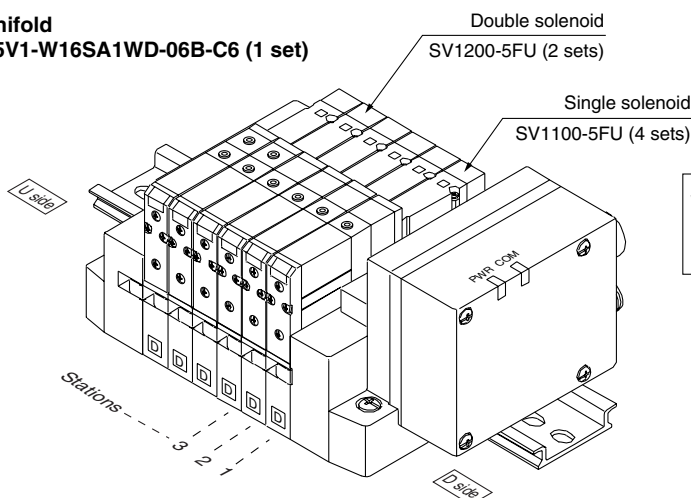
* Port sizes of X, PE port for external pilot specifications (R, RS) are ø4 (metric), ø5/32" (inch) for SV1000/2000 and ø6 (metric) and ø1/4" (inch) for SV3000/4000.

How to Order Valve Manifold Assembly

Ordering example (SV1000)

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

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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



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

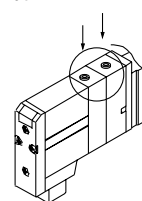
Note)



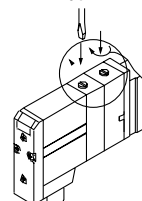
Note) Available with manifold block for station additions. Refer to pages 1-2-89 and 1-2-93.

Manual override

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

Rated voltage

5	24 VDC
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Series SV

Gateway (GW) unit



Specifications

Model	EX500-GAB1-X1	EX500-GDN1	EX500-GPR1
Applicable PLC/Communication protocol	Rockwell Automation, Inc. PLC	DeviceNet Release 2.0	PROFIBUS-DP
Communication speed	57.6 Kbit/sec, 115.2 Kbit/sec 230.4 Kbit/sec	125 Kbit/sec, 250 Kbit/sec 500 Kbit/sec	9.6/19.2/93.75/187.5/500 kbit/sec 1.5/3/6/12 Mbit/sec
Rated voltage	24 VDC		
Power supply voltage range	Input and control unit power supply: 24 VDC $\pm 10\%$ Solenoid valve power supply: 24 VDC $+10\%/-5\%$ (Power drop warning at approx. 20 V)		
Current consumption	200 mA or less		
No. of input/output points	Maximum 64 inputs/64 outputs		
No. of input/output branches	4 branches (16 inputs/16 outputs per branch)		
Branch cable	8 core heavy duty cable		
Branch cable length	5 m or less (total extension 10 m or less)		
Communication connector	M12 connector (8 pins, Socket)		
Power connector	M12 connector (5 pins, Plug)		
Ambient operating temperature/humidity	$+5$ to $+45^{\circ}\text{C}/35$ to 85% RH (No condensation)		
Enclosure	IP65		
Applicable standard	UL, CSA, CE		
Weight (g)	470		



* Communication cables and connectors are sold separately.
Refer to options on page 1-2-27.

How to Order

EX500 — G **DN** 1

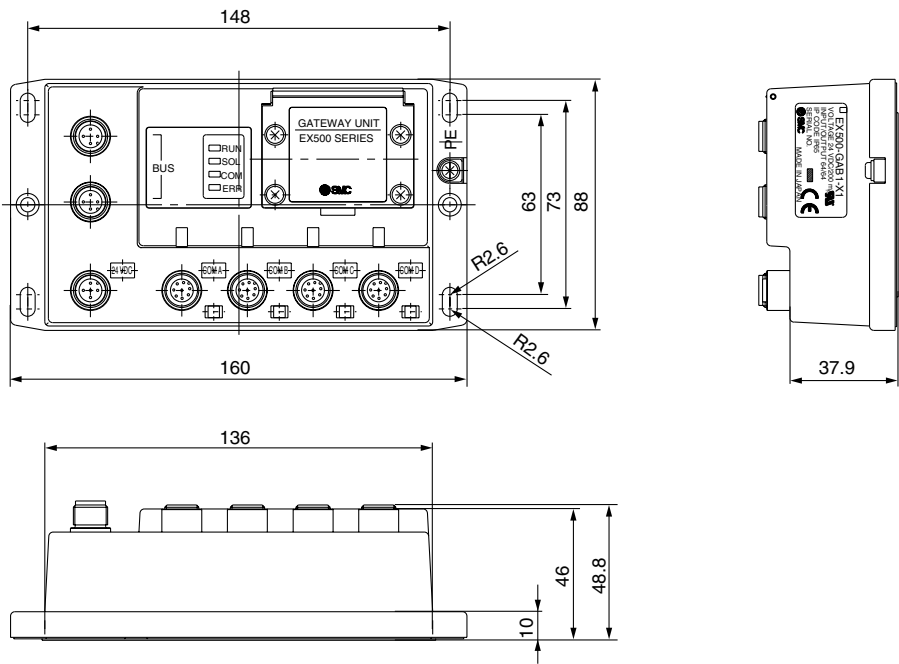
Communication protocol

DN	DeviceNet
PR	PROFIBUS-DP
AB	Remote I/O (RIO)

Applicable GW unit

Nil	DeviceNet
	PROFIBUS-DP
-X1	Remote I/O (RIO)

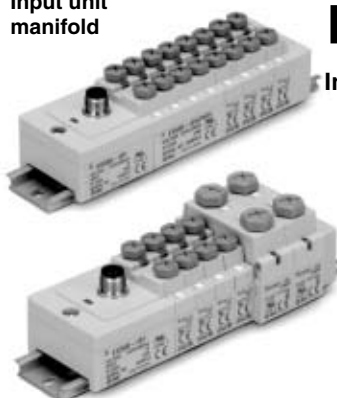
Dimensions



How to Order Input Manifold

How to Order Input Block

Input unit manifold



EEX500—IB1—E 8

Input unit specifications

Connector type

E	M8 connector
T	M12 connector
M	M8, M12 mixed

Stations

1	1 station
:	:
8	8 stations

Applicable GW unit

Nil	DeviceNet PROFIBUS-DP
-X1	Remote I/O (RIO)

EX500 — IE 1

Block type

1	M8 connector, PNP specifications
2	M8 connector, NPN specifications
3	M12 connector, PNP specifications
4	M12 connector, NPN specifications
5	8 points integrated type, M8 connector, PNP specifications
6	8 points integrated type, M8 connector, NPN specifications

Applicable GW unit

Nil	DeviceNet PROFIBUS-DP
-X1	Remote I/O (RIO)

Input Unit Specifications

Connection block	Current source type input block (PNP input block) or Current sink type input block (NPN input block)
Communication connector	M12 connector (8 pins, plug)
Number of connection blocks	Maximum 8 blocks
Block supply voltage	24 VDC
Block supply current	0.65 A maximum
Current consumption	100 mA or less (at rated voltage)
Short circuit protection	Operates at 1ATyp. (Power supply cut) GW unit reset by turning power OFF and back ON.
Enclosure	IP65
Weight (g) (Note)	100 (Input block + End Block)



Note) Since the DIN rail weight is not included, confirm the DIN rail length to be used on page 1-2-25, and add the weight separately which is found in the DIN rail dimension table on page 1-2-97.

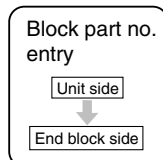
Input Block Specifications

Sensor applicable	Current source type (PNP output) or Current sink type (NPN output)
Sensor connector	M8 connector (3 pins) or, M12 connector (4 pins)
Number of inputs	2 inputs/8 inputs (M8 only)
Rated voltage	24 VDC
Indication	Green LED
Insulation	None
Sensor supply current	Maximum 30 mA/Sensor
Enclosure	IP65
Weight (g)	[For M8: 20] [For M12: 40] [8 points integrated type, for M8: 55]

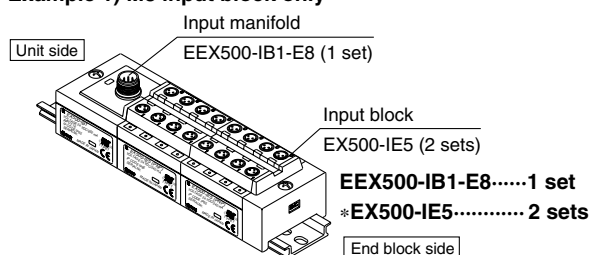
How to Order Input Unit Manifold [Ordering example]

When ordering an input unit manifold, enter the **Input manifold part no.** + **Input block part no.** together.

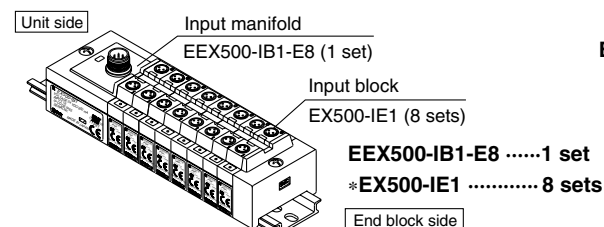
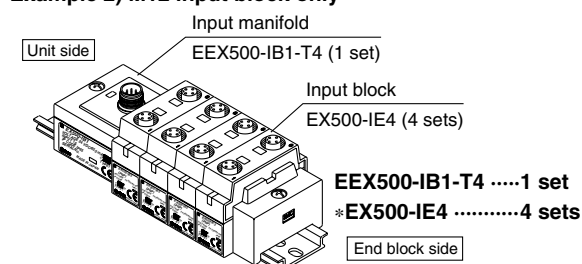
The **Input unit**, **End block** and **DIN rail** are included in the input manifold. Refer to the indications below.



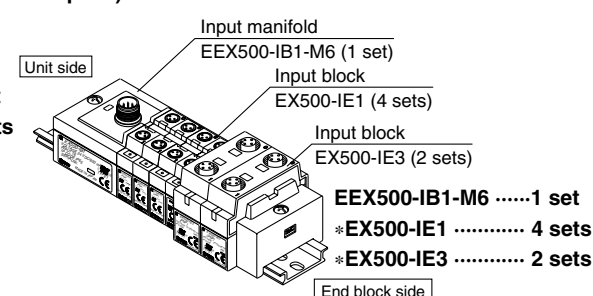
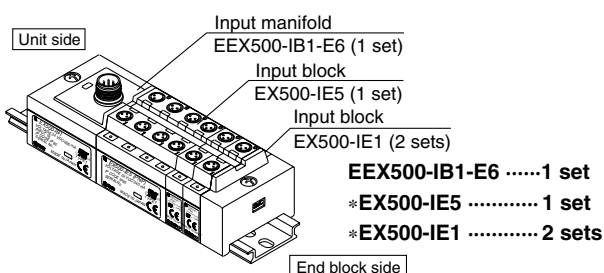
Example 1) M8 input block only



Example 2) M12 input block only

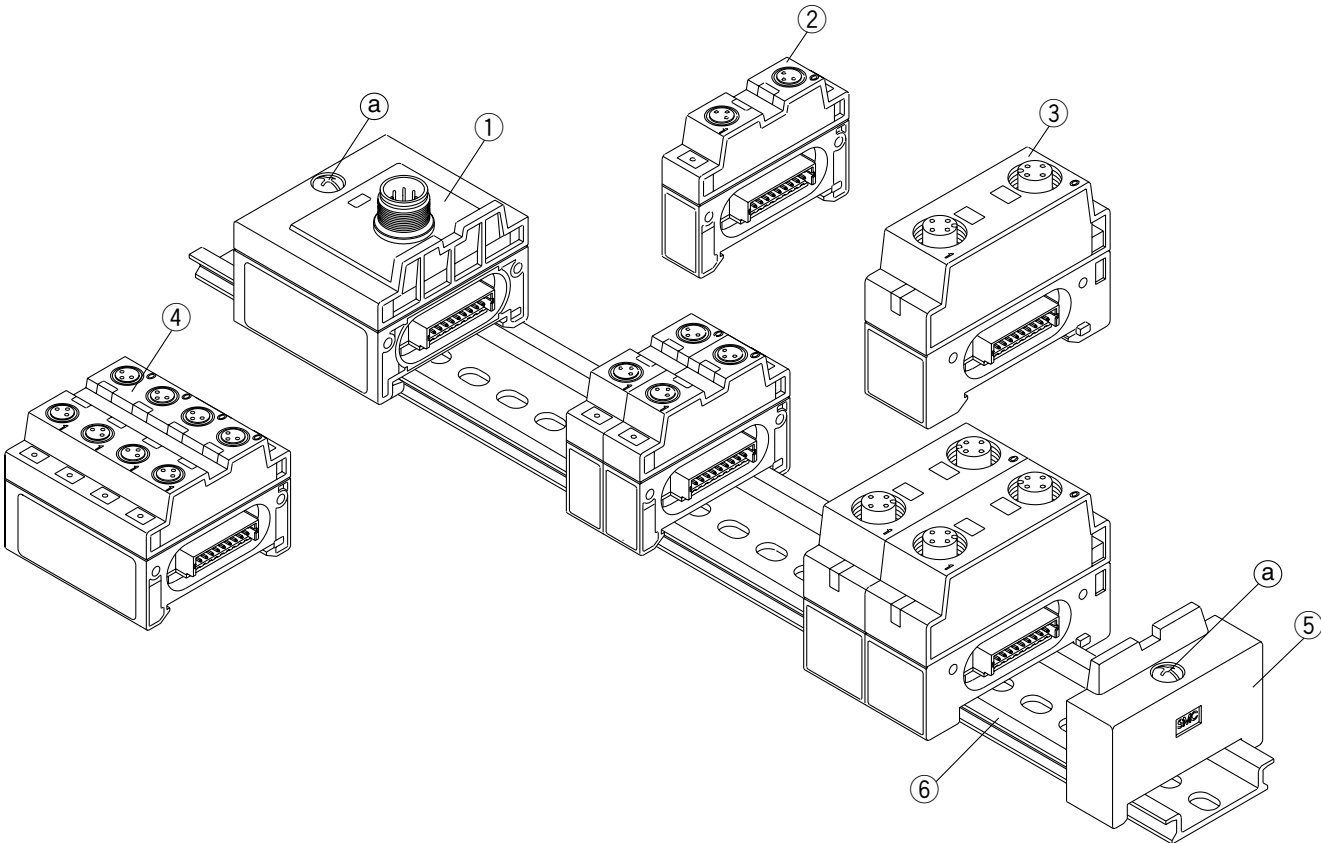


Example 3) M8 and M12 mixed



Note) • Since the 8 point integrated type input block is equivalent to the length of four stations on an M8 input block, pay attention to the number of stations on an input manifold.
• When an input block layout becomes complicated, indicate on the input unit manifold specification sheet.

Input Unit Manifold Exploded View



Component Parts

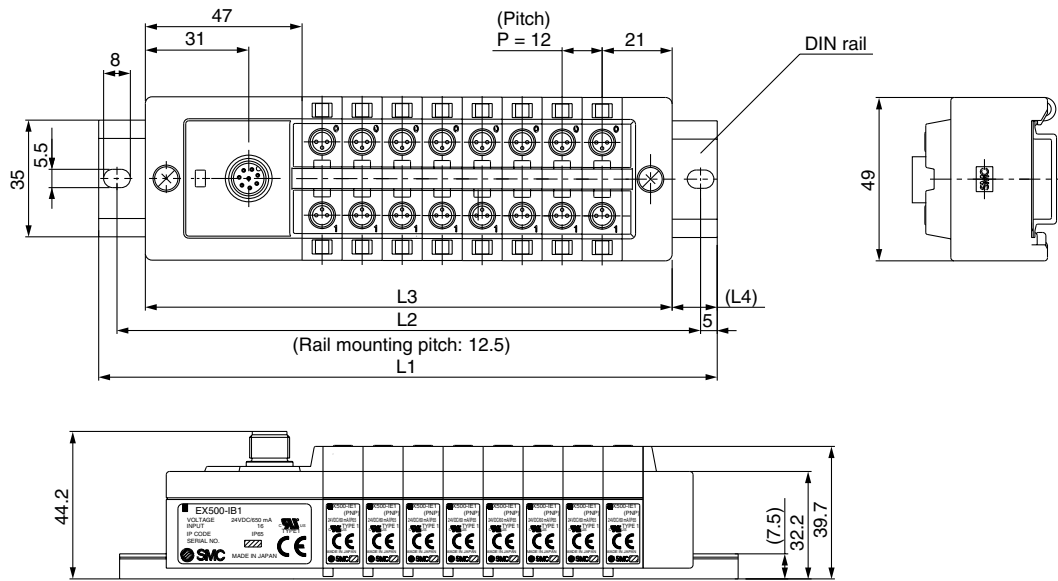
No.	Description	Part no.		Note
		For standard	For RIO	
①	Input unit	EX500-IB1	EX500-IB1-X1	
②	Input block (M8 connector)	EX500-IE□	EX500-IE□-X1	PNP specifications...□: 1, NPN specifications...□: 2
③	Input block (M12 connector)	EX500-IE□	EX500-IE□-X1	PNP specifications...□: 3, NPN specifications...□: 4
④	8 input block (M8 connector)	EX500-IE□	EX500-IE□-X1	PNP specifications...□: 5, NPN specifications...□: 6
⑤	End block	EX500-EB1		
⑥	DIN rail	VZ1000-11-1-□		□: Length (Refer to page 1-2-97.)

How to add input block stations

- (1) Loosen the screws ② (2 places) that hold the end block.
 - (2) Separate the blocks at the locations where stations are to be added.
 - (3) Attach the additional blocks to the DIN rail, and connect the blocks so that they fit together securely.
 - (4) While holding the blocks together so that there are no gaps between them, secure them to the DIN rail by tightening the screws ②.
- Note: Be sure to tighten the round head combination screw with the prescribed tightening torque. (0.6 N·m)

Input Unit Manifold Dimensions

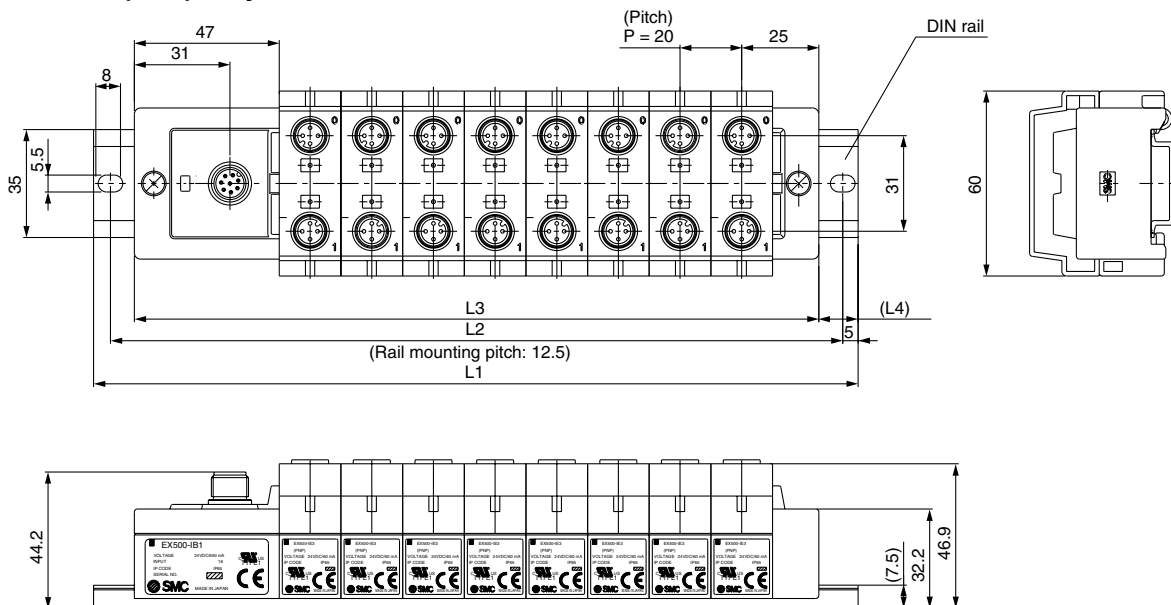
Input block (M8) only



(mm)

Stations	1	2	3	4	5	6	7	8
Rail length L1	98	110.5	123	135.5	148	160.5	173	185.5
Mounting pitch L2	87.5	100	112.5	125	137.5	150	162.5	175
Manifold length L3	74	86	98	110	122	134	146	158
L4	12	12	12.5	12.5	13	13	13.5	13.5

Input block (M12) only



(mm)

Stations	1	2	3	4	5	6	7	8
Rail length L1	110.5	123	148	173	185.5	210.5	223	248
Mounting pitch L2	100	112.5	137.5	162.5	175	200	212.5	237.5
Manifold length L3	82	102	122	142	162	182	202	222
L4	12	12	12.5	12.5	13	13	13.5	13.5

SV

SZ

SY

SYJ

SX



For valve specifications, refer to page 1-2-15.

How to Order SI Unit

EX500 — S001



Applicable GW unit

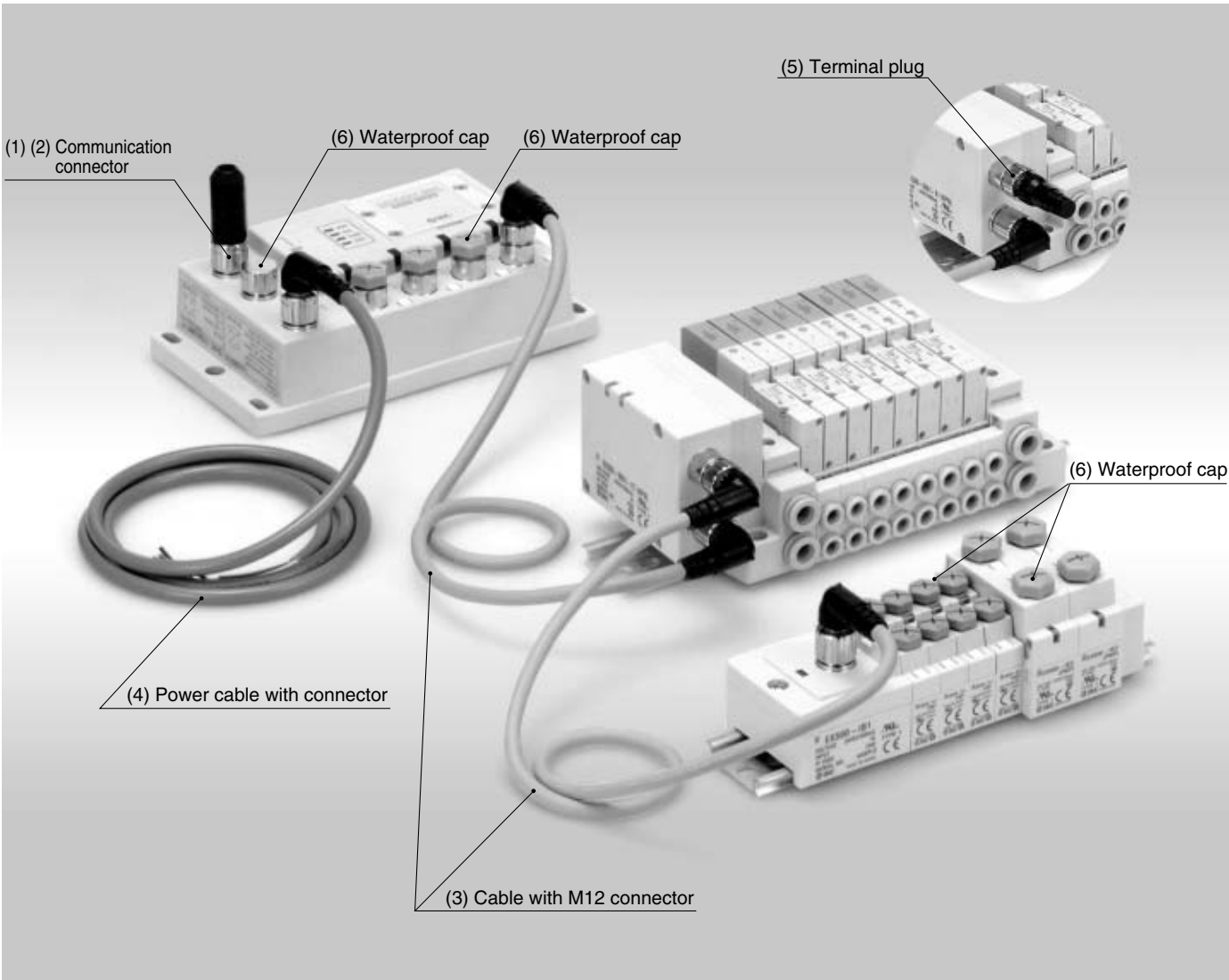
Nil	DeviceNet PROFIBUS-DP
-X1	Remote I/O (RIO)

Specifications

Connection block	Solenoid valve (Single, Double) Relay output module (1 output, 2 outputs)
Communication connector	M12 connector (8 pins, Plug, Socket)
Connection block stations	Double solenoid valve Relay output module (2 points): Maximum 8 stations Single solenoid valve Relay output module (1 point): Maximum 16 stations
Block supply voltage	24 VDC
Block supply current	0.65 A maximum
Current consumption	100 mA or less (at rated voltage)
Enclosure ^{Note)}	IP65
Weight (g)	115

Note) A single SI unit of Series EX500 has an enclosure compliant with IP65. The IP67 protection can be achieved when it is mounted on a manifold.

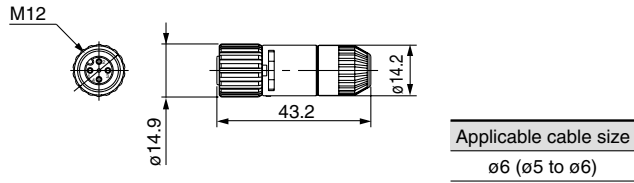
Option



Option

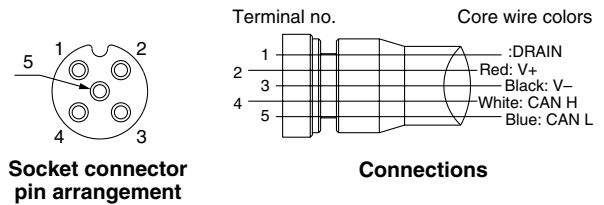
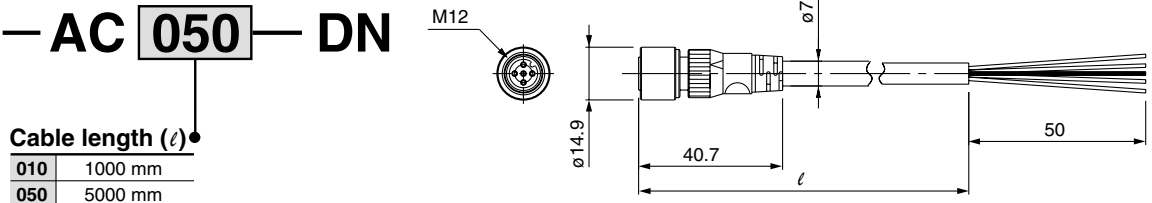
(1) Communication connector (For RIO type GW unit)

EX500 — AC000 — AB



(2) Communication connector cable (For DeviceNet type GW unit)

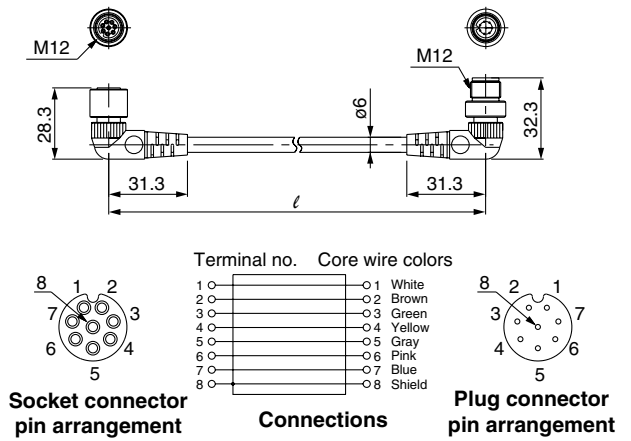
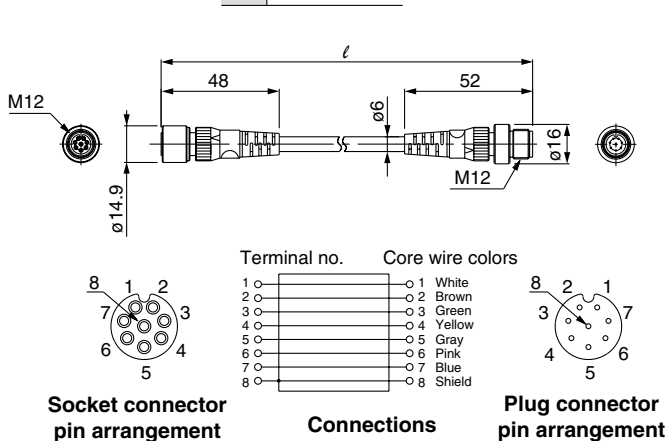
EX500 — AC 050 — DN



(3) Cable with M12 connector

EX500 — AC 030 — SSPS

Cable length (l)		Connector specifications	
003	300 mm	SSPS	Socket side: Straight, Plug side: Straight
005	500 mm	SAPA	Socket side: Angle, Plug side: Angle
010	1000 mm		
030	3000 mm		
050	5000 mm		



Straight connector type

Angle connector type

Series SV

Option

(4) Power cable with connector

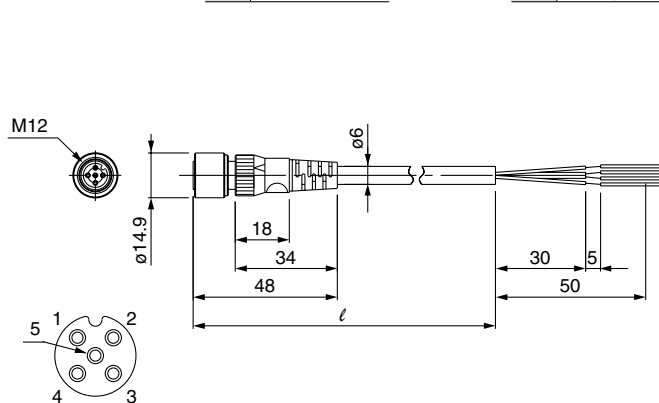
EX500 — AP 050 — S

Cable length (ℓ)

010	1000 mm
050	5000 mm

Connector specifications

S	Straight
A	Angle

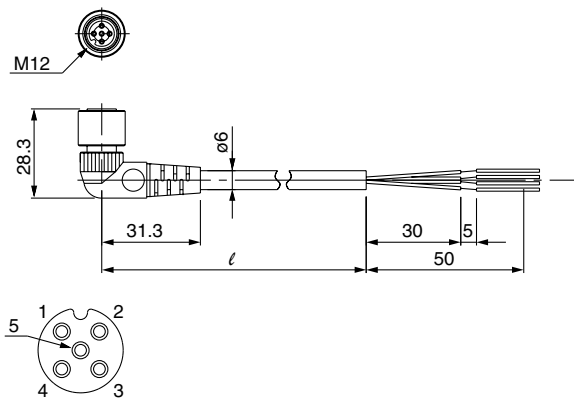


Socket connector pin arrangement

Terminal no.	Core wire colors
1	Brown: 0 V (Solenoid valve power supply)
2	White: 24 VDC +10%/−5% (Solenoid valve power supply)
3	Blue: 0 V (Input and control power supply)
4	Black: 24 VDC ±10% (Input and control power supply)
5	Gray: PE

Connections

Straight connector type



Socket connector pin arrangement

Terminal no.	Core wire colors
1	Brown: 0 V (Solenoid valve power supply)
2	White: 24 VDC +10%/−5% (Solenoid valve power supply)
3	Blue: 0 V (Input and control power supply)
4	Black: 24 VDC ±10% (Input and control power supply)
5	Gray: PE

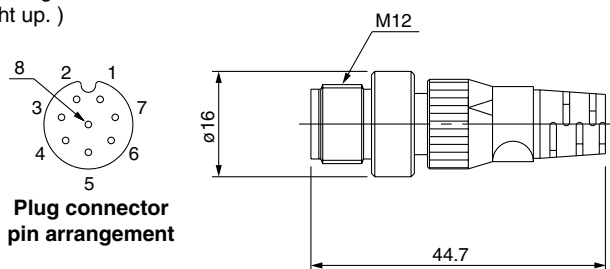
Connections

Angle connector type

(5) Terminal plug

This is used where an input manifold (input unit/input block) is not being used.
(If a terminal plug is not used, the GW unit is COM LED will not light up.)

EX500 — AC000 — S



Plug connector pin arrangement

(6) Waterproof cap

Use this on ports that are not being used for a GW unit or input block.
Use of this waterproof cap maintains the integrity of the IP65 enclosure.
(Included with each input block.)

Note) Tighten the waterproof cap with the prescribed tightening torque. (For M8: 0.05 N·m, For M12: 0.1 N·m)

EX500 — AW

Connector type

ES	M8 connector (For socket)
TP	M12 connector (For plug)
TS	M12 connector (For socket)

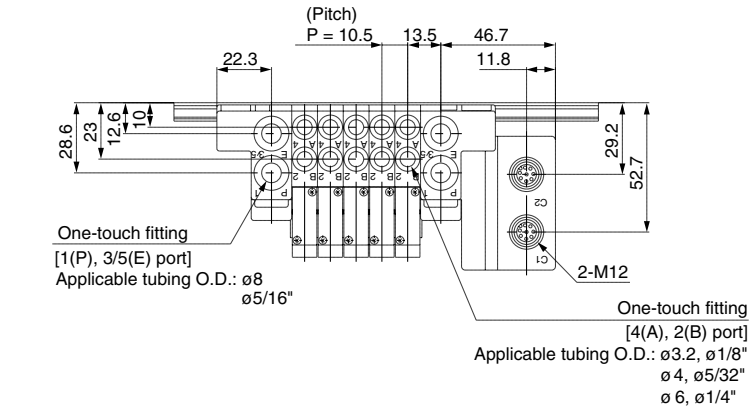


Waterproof cap

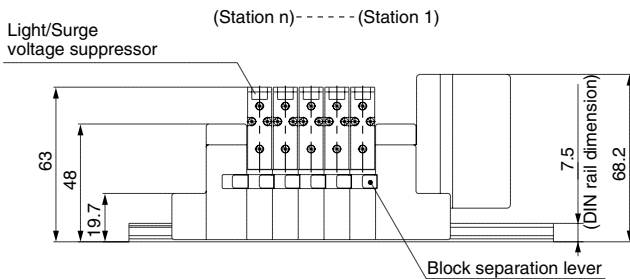
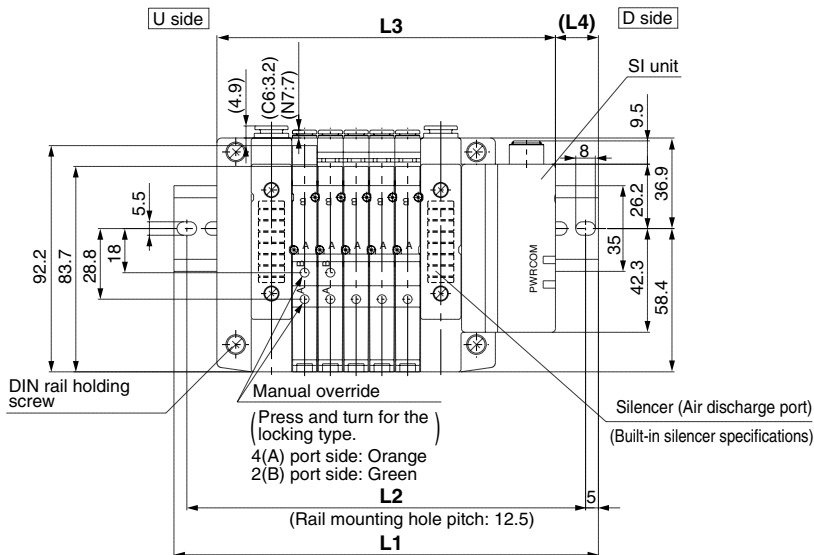
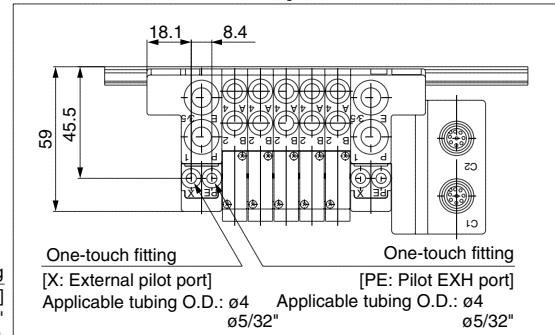
Dimensions: Series SV1000 for EX500 Decentralized Serial Wiring

● Cassette base manifold: SS5V1-W16SA□WD- Stations $\begin{matrix} U \\ D \\ B \end{matrix}$ (S, R, RS)- $\begin{matrix} C3, N1 \\ C4, N3 \\ C6, N7 \end{matrix}$

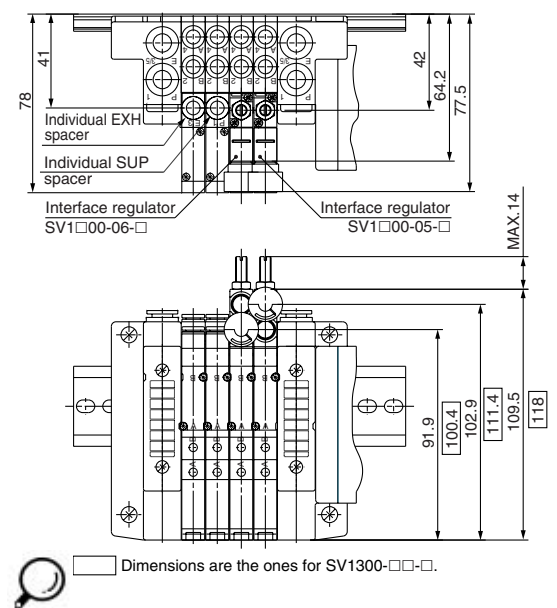
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



With option



L Dimension

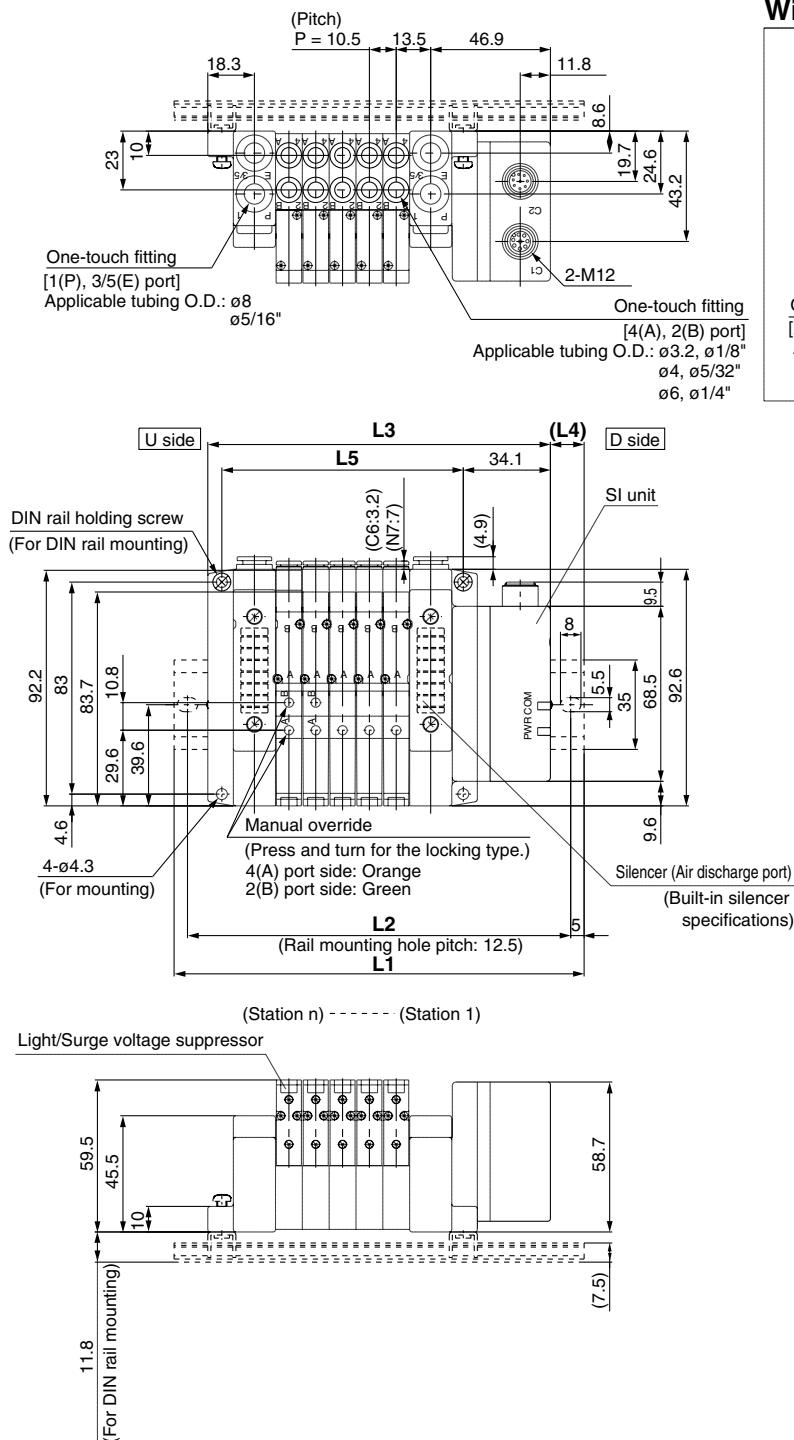
$\begin{matrix} L \\ n \end{matrix}$	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	135.5	148	160.5	173	173	185.5	198	210.5	223	235.5	235.5	248	260.5	273	285.5
L2	125	137.5	150	162.5	162.5	175	187.5	200	212.5	225	225	237.5	250	262.5	275
L3	106.5	117	127.5	138	148.5	159	169.5	180	190.5	201	211.5	222	232.5	243	253.5
L4	14.5	15.5	16.5	17.5	12.5	13.5	14.5	15.5	16.5	17.5	12	13	14	15	16

n: Stations

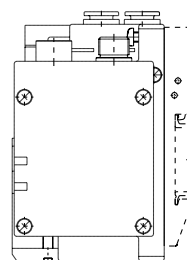
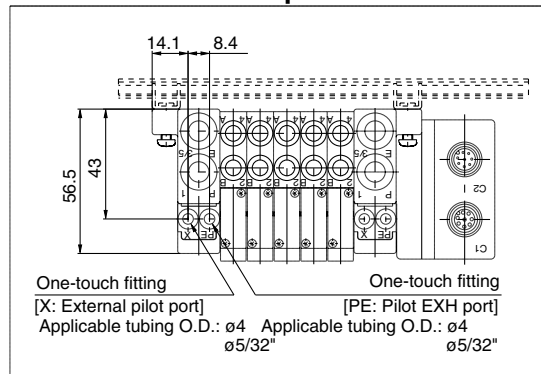
Dimensions: Series SV1000 for EX500 Decentralized Serial Wiring

● Tie-rod base manifold: SS5V1-W10SA□WD- Stations $\frac{U}{D}$ (S, R, RS)-C3, N1 C4, N3(-D) C6, N7

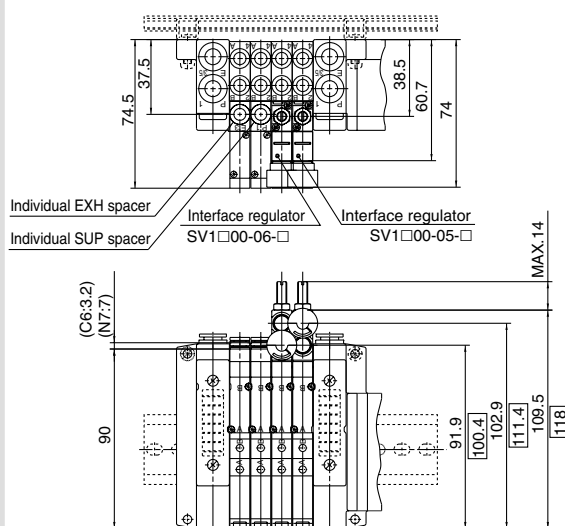
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



With option



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

L Dimension

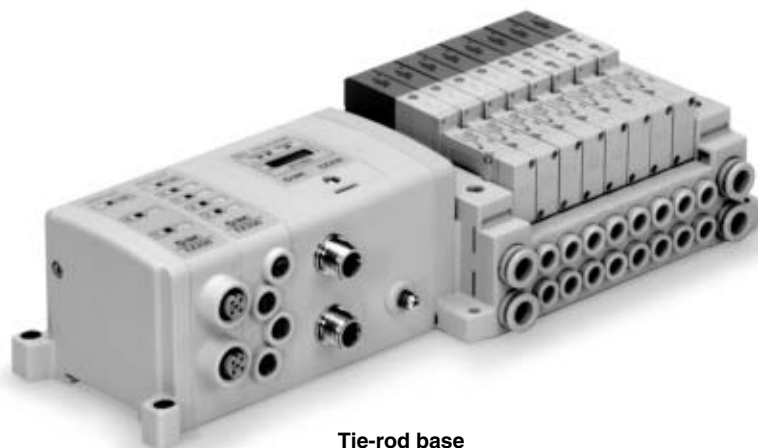
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	135.5	148	148	160.5	173	185.5	198	210.5	210.5	223	235.5	248	260.5	273	273
L2	125	137.5	137.5	150	162.5	175	187.5	200	200	212.5	225	237.5	250	262.5	262.5
L3	102.6	113.1	123.6	134.1	144.6	155.1	165.6	176.1	186.6	197.1	207.6	218.1	228.6	239.1	249.6
L4	16.5	17.5	12	13	14	15	16	17	12	13	14	15	16	17	11.5
L5	63	73.5	84	94.5	105	115.5	126	136.5	147	157.5	168	178.5	189	199.5	210

n: Stations

Serial Wiring with Input/Output Unit

Series *EX250*

IP67 compliant



Tie-rod base

Applicable series	Tie-rod base manifold SV1000/SV2000/SV3000
	• Number of inputs/outputs: 32 each

SV

SZ

SY

SYJ

SX

Series EX250

Serial Wiring with Input/Output Unit

Series SV

How to Order

● Tie-rod base

SS5V 1—W10S1 QW **D—05 U**

Series ●

1	SV1000
2	SV2000
3	SV3000

Enclosure
IP67 specifications

SI unit ●

QW	For DeviceNet
0	Without SI unit

- Input blocks cannot be mounted without SI unit.
- When the DIN rail is included without an SI unit, the DIN rail length will accommodate an SI unit and one input block.

Input block stations

Nil	None
1	1 station
⋮	⋮
8	8 stations

Note) Without SI unit, the symbol is nil.

Input block type ●

Nil	Without input block
1	M12: 2 inputs
2	M12: 4 inputs
3	M8: 4 inputs (3 pins)

Note) Without SI unit, the symbol is nil.

Input block common specifications

Nil	+COM
N	-COM

Mounting ●

Nil	Direct mounting
D	DIN rail mounting (With DIN rail)
D0*	DIN rail mounting (Without DIN rail)
D3	For 3 stations
⋮	⋮
D20	For 20 stations

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

Valve stations ●

Symbol	Stations	Note
02	2 stations	Double wiring specifications (1)
⋮	⋮	
16	16 stations	Specified layout (2) (up to 32 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 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 20 stations)

SUP/EXH block assembly 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.

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		
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"		
M	A, B ports mixed		

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

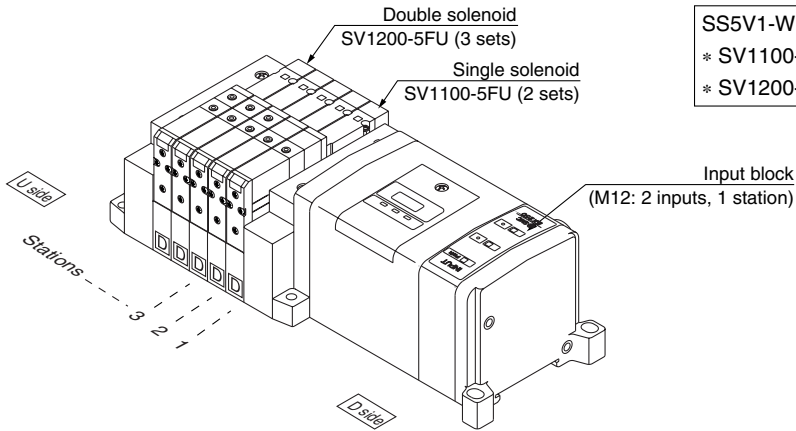
* Port sizes of X, PE port for external pilot specifications (R, RS) are ø4 (metric), ø5/32" (inch) for SV1000/2000 and ø6 (metric) and ø1/4" (inch) for SV3000/4000.

How to Order Valve Manifold Assembly

Ordering example (SV1000)

Manifold

SS5V1-W10S1QW11ND-05B-C6 (1 set)



SS5V1-W10S1QW11ND-05B-C6....1 set (manifold part no.)

* SV1100-5FU.....2 sets (Single solenoid part no.)

* SV1200-5FU.....3 sets (Double solenoid part no.)

SV

SZ

SY

SYJ

SX

How to Order Solenoid Valves

SV 1 1 00 — 5 F —

Note)



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

Series

1	SV1000
2	SV2000
3	SV3000

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

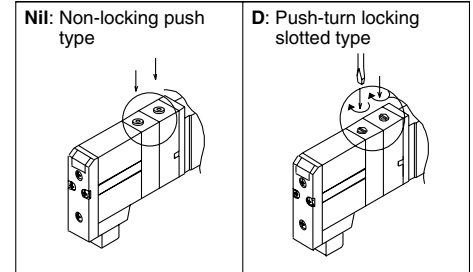
* Built-in back pressure check valve type is applicable to series SV1000 only.

* 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.

Manual override



Light/Surge voltage suppressor

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

Rated voltage

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

Applicable network: DeviceNet

The serial transmission system reduces wiring work, while minimizing wiring and saving space.

DeviceNet compatible SI unit

As a DeviceNet slave unit, it is capable of solenoid valve ON/OFF control up to a maximum of 32 points. In addition, by connecting an input block a maximum of 32 sensor signal inputs are possible.

Input block

This is an expansion block which connects to an SI unit to perform sensor input from auto switches, etc. Two or four sensor inputs can be accommodated by one input block, and the common can be matched to the sensor by an NPN/PNP switch.^{Note)} Input connectors are available in both M8 and M12 types.

Note) COM is set at the shipment. Please contact SMC for alteration after shipment.

Details in connector

Input connector: M12 5 pins (socket)
Cable side connector example:
OMRON Corporation: XS2G 2 input block (EX250-IE1)

No.	Description	Function
1	SW+	Sensor power supply +
2	N.C (SIGNAL)	Open*
3	SW-	Sensor power supply -
4	SIGNAL	Sensor input signal
5	E	Sensor ground

* In the case of a 4 input block (EX250-IE2), this is the sensor input signal.

Communication connector: M12 ... 5 pins (socket)
Example of corresponding cable assemblies with connector:
OMRON Corporation: DCA1-5CN05F1
Karl Lumberg GmbH & Co. KG: RKT5-56

No.	Description	Function
1	Drain	Drain/Shield
2	V+	Circuit power supply +
3	V-	Circuit power supply -
4	CAN_H	Signal H
5	CAN_L	Signal L

Input connector: M8 3 pins (socket)
Cable side connector example:
Franz Binder GmbH: 718, 768 series

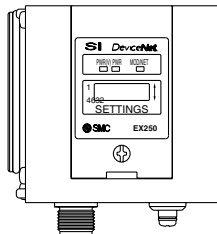
No.	Description	Function
1	24V	Sensor power supply +
3	0V	Sensor power supply -
4	IN	Sensor input signal

Power connector: M12 5 pins (plug) (boss configuration differs from communication connector)
Example of corresponding cable assemblies with connector:
Hans Turck FmbH & Co. KG: WAKW4. 5T-2

No.	Description	Function
1	SV24V	For solenoid valve +24 V
2	SV0V	For solenoid valve 0 V
3	SW24V	For input block +24 V
4	SW0V	For input block 0 V
5	E	Ground

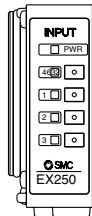
Indicator unit (LED) descriptions and functions

SI unit



Description	Function
PWR(V)	ON when solenoid valve power supply is turned ON
PWR	ON when DeviceNet circuit power supply input is turned ON
MOD/NET	OFF: Power supply off, on line, or when checking duplication of MAC_ID
	Green blinking: Waiting for connection (On line)
	Green ON: Connection established (On line)
	Red blinking: Connection time out (Minor communication abnormality occurs)
	Red ON: MAC_ID duplication error, or BUSOFF error (Major communication abnormality occurs)

Input block



Description	Function
PWR	ON when sensor power is turned ON
0 to 3	ON when each sensor input goes ON

Weight

Description	weight (g)
SI unit	225
Input block	85
End plate assembly	30

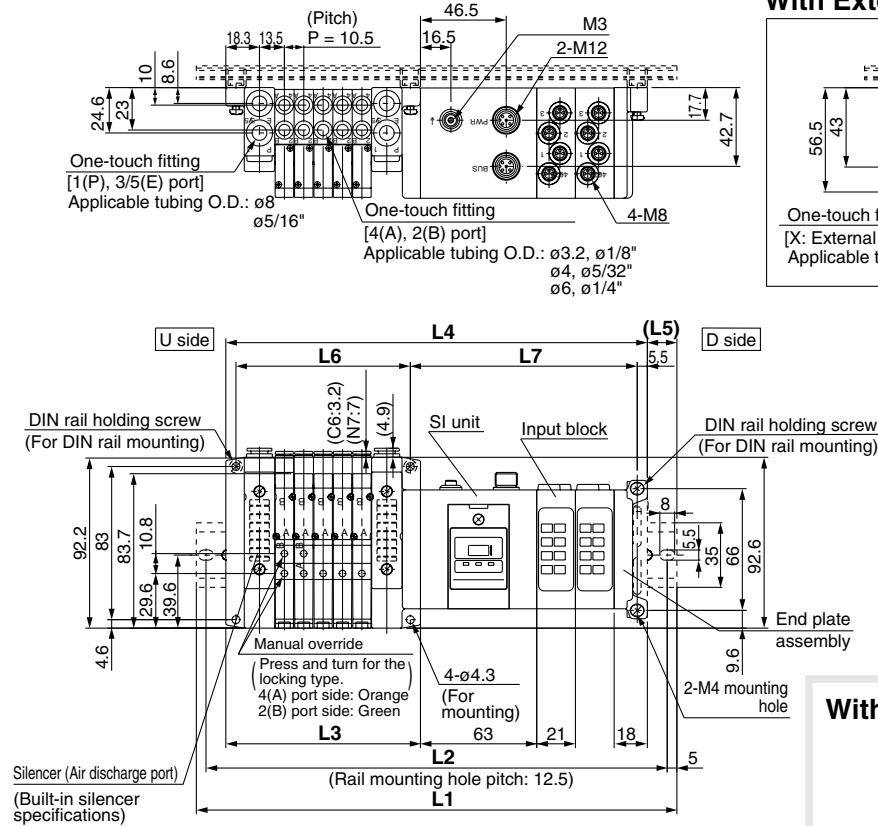
* For parts composition, refer to page 1-2-90.

Dimensions: Series SV1000 for EX250 Serial Wiring with Input/Output Unit

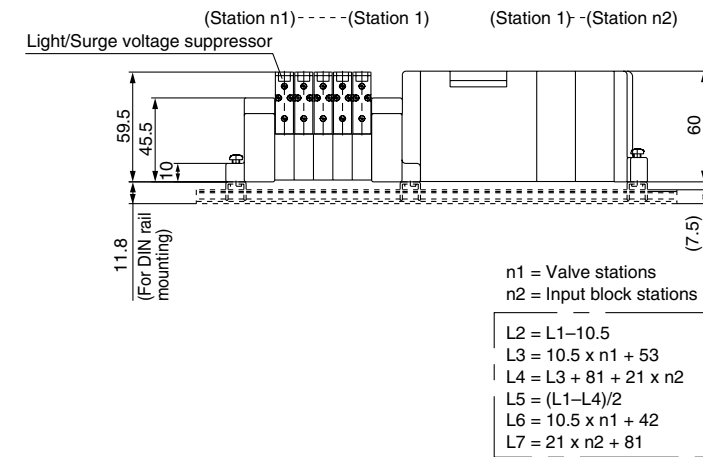
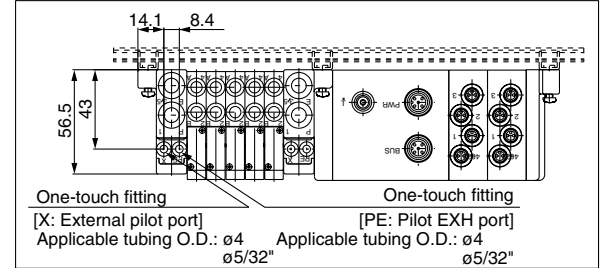
● Tie-rod base manifold: SS5V1-W10S1□□□□□D- Stations $\frac{U}{D}$ (S, R, RS)- $\frac{C3, N1}{C4, N3}$ (-D) $\frac{C6, N7}{C6, N7}$

- 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.

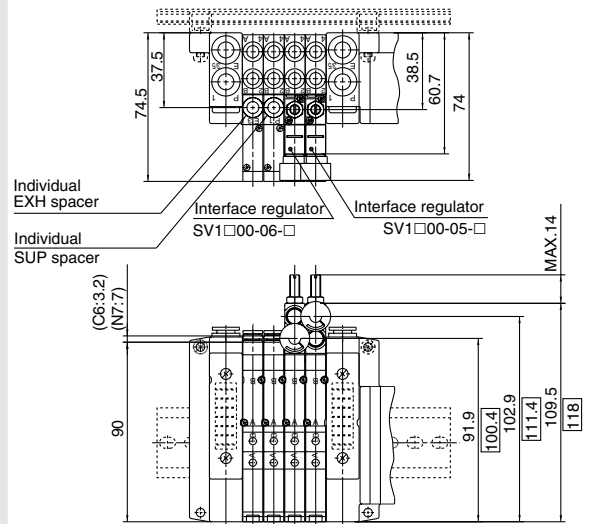
(With 2 input blocks)



With External Pilot Specifications



With option



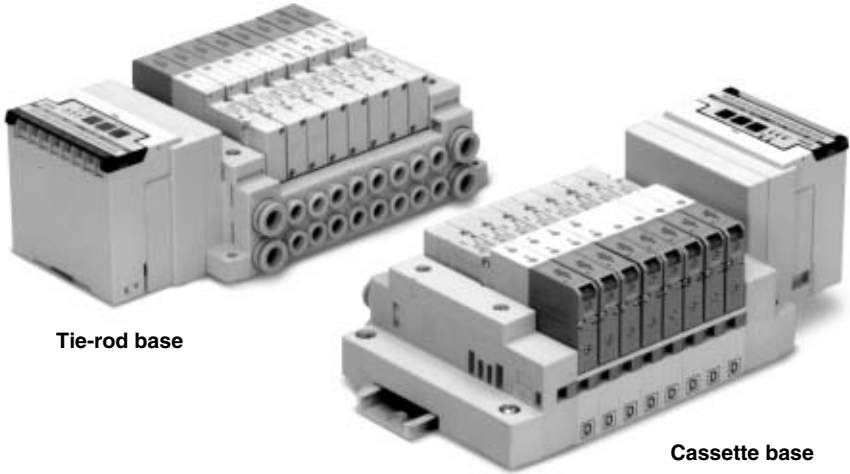
□ Dimensions are the ones for SV1300-□□-□.

L1: DIN Rail Overall Length

Valve stations Input block Stations (n2)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0	185.5	198	210.5	210.5	223	235.5	248	260.5	273	273	285.5	298	310.5	323	335.5	348	348	360.5	373
1	210.5	210.5	223	235.5	248	260.5	273	273	285.5	298	310.5	323	335.5	348	348	360.5	373	385.5	398
2	223	235.5	248	260.5	273	273	285.5	298	310.5	323	335.5	348	348	360.5	373	385.5	398	410.5	410.5
3	248	260.5	273	273	285.5	298	310.5	323	335.5	348	348	360.5	373	385.5	398	410.5	410.5	423	435.5
4	273	273	285.5	298	310.5	323	335.5	348	348	360.5	373	385.5	398	410.5	410.5	423	435.5	448	460.5
5	285.5	298	310.5	323	335.5	348	348	360.5	373	385.5	398	410.5	410.5	423	435.5	448	460.5	473	473
6	310.5	323	335.5	348	348	360.5	373	385.5	398	410.5	410.5	423	435.5	448	460.5	473	473	485.5	498
7	335.5	348	348	360.5	373	385.5	398	410.5	410.5	423	435.5	448	460.5	473	473	485.5	498	510.5	523
8	348	360.5	373	385.5	398	410.5	410.5	423	435.5	448	460.5	473	473	485.5	498	510.5	523	535.5	535.5

Dedicated Output Serial Wiring

Series *EX120*



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



For details about certified products conforming to international standards, visit us at www.smcworld.com.

Series EX120

Dedicated Output Serial Wiring

Series SV

How to Order

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



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

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Tie-rod base

SS5V 1 — 10S3 A D — 05 U

Cassette base

SS5V 1 — 16S3 A D — 05 U

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.

Valve stations

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

DIN rail length specified

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

(Specify a longer rail than the standard length.)

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.

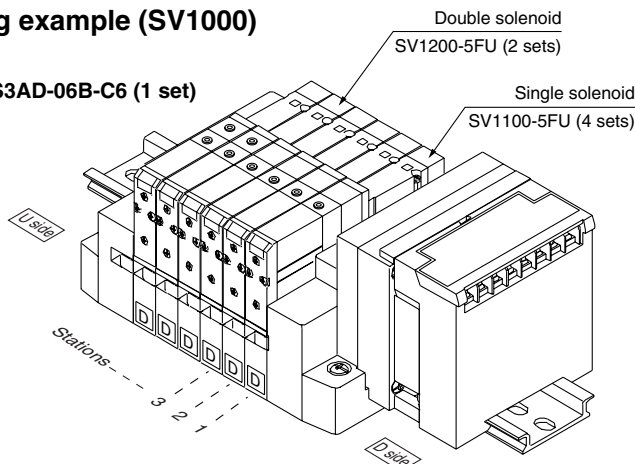


How to Order Valve Manifold Assembly

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.)

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

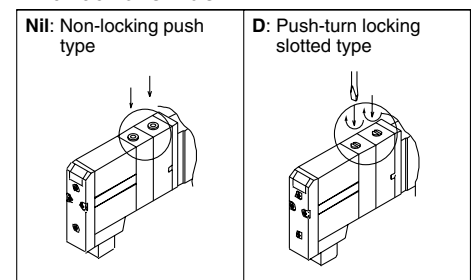
Nil	None
K	Built-in

* 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.

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	G 3/8	
03F	G 3/8		
M	A, B ports mixed		

A, B port size (Inch)

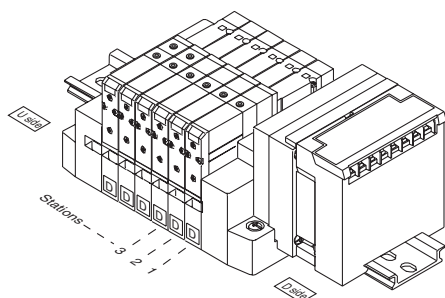
Symbol	A, B port	P, E port	Applicable series
N1	One-touch fitting for ø1/8"	One-touch fitting for ø5/16"	SV1000
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø1/4"		
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for 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		
03T	NPTF 3/8	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

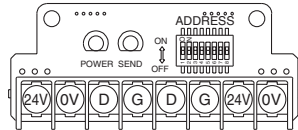
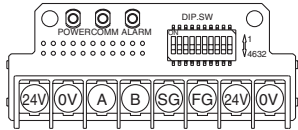
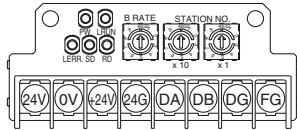
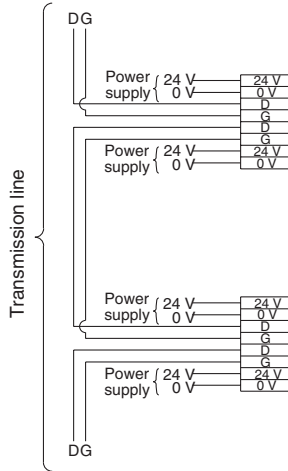
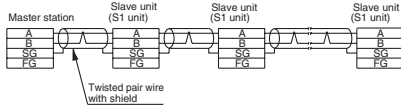
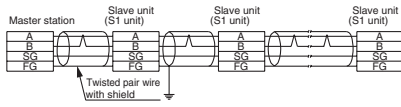
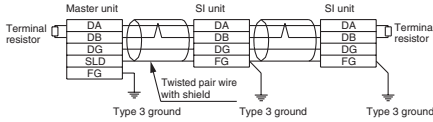
	<div>Type A Series EX300</div>	<div>Type B Mitsubishi Electric Corporation MELSECNET/mini-S3 Data Link System</div>																		
Name of terminal block, LED	<div><table><tr><th>LED</th><th>Description</th></tr><tr><td>TRD</td><td>ON during data reception</td></tr><tr><td>RUN/ERR</td><td>Blinks for normal data reception, ON for abnormal</td></tr></table></div>	LED	Description	TRD	ON during data reception	RUN/ERR	Blinks for normal data reception, ON for abnormal	<div><table><tr><th>LED</th><th>Description</th></tr><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></table></div>	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	<div><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</div>	<div><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</div>																		
Cable wiring	<div><p>* Ground either the reception side or the transmission side of the shielding wire shield.</p></div>	<div><p>* Ground either the reception side or the transmission side of the shielding wire shield.</p></div>																		

	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																												
Name of terminal block, LED	<div></div> <table><tr><th>LED</th><th>Description</th></tr><tr><td>RUN</td><td>ON when transmission is normal and PLC is in operation mode</td></tr><tr><td>T/R</td><td>Blinks when transmission is normal, ON when transmission is abnormal.</td></tr><tr><td>ERR</td><td></td></tr></table>	LED	Description	RUN	ON when transmission is normal and PLC is in operation mode	T/R	Blinks when transmission is normal, ON when transmission is abnormal.	ERR		<div></div> <table><tr><th>LED</th><th>Description</th></tr><tr><td>POWER</td><td>ON when power supply is ON</td></tr><tr><td>RUN</td><td>ON when power is ON and slave unit operates normally</td></tr><tr><td>ERR</td><td>ON for abnormal slave unit switch setting, abnormal communication, master unit PLC stopped and defective slave unit</td></tr><tr><td>R.SET</td><td></td></tr><tr><td>HOLD</td><td>ON for master unit control input</td></tr></table>	LED	Description	POWER	ON when power supply is ON	RUN	ON when power is ON and slave unit operates normally	ERR	ON for abnormal slave unit switch setting, abnormal communication, master unit PLC stopped and defective slave unit	R.SET		HOLD	ON for master unit control input	<div></div> <table><tr><th>LED</th><th>Description</th></tr><tr><td>POWER</td><td>ON when power supply is ON</td></tr><tr><td>COMM.</td><td>Blinks during data transmission/reception</td></tr><tr><td>ALARM</td><td>ON for unit abnormality, blinks for station no. setting error</td></tr></table>	LED	Description	POWER	ON when power supply is ON	COMM.	Blinks during data transmission/reception	ALARM	ON for unit abnormality, blinks for station no. setting error
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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	<div></div>	<div><p>a) 2-wire type Wiring does not include signal ground line (SG).</p><p>ZW-31LM Master unit Slave unit 01 Slave unit 03 Slave unit 75</p><p>Type 3 ground Type 3 ground Type 3 ground Type 3 ground</p><p>b) 3-wire type Wiring does not include signal ground line (SG).</p><p>ZW-31LM Master unit Slave unit 01 Slave unit 03 Slave unit 75</p><p>Type 3 ground Type 3 ground Type 3 ground Type 3 ground</p></div>	<div></div>																												

	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																				
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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></div>	<div></div>	<div><div>a) Type T branching multi-drop wiring (S-LINK System)</div><div>b) Crossover wiring (Sensor Link System)</div><div></div></div>																				
			The above is the example of using dedicated S-LINK flat ribbon cable SL-RCMI00.																				

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																				
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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	<div><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></div>	<div><p>Diagram showing the connection of a Master unit and Slave unit 01 to a common ground. The Slave unit 01 is connected to the Master unit via twisted pair wires with shield. The ground connection is labeled Type 3 ground.</p></div>	<div><p>Diagram showing the connection of a Master unit and Slave unit 01 to a common ground. The Slave unit 01 is connected to the Master unit via twisted pair wires with shield. The ground connection is labeled Type 3 ground.</p></div>																				

	Type H NKE Corporation Uni-wire H System	Type U JEMANET (JPCN-1)	Type V Mitsubishi Electric Corporation CC-LINK System																										
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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	<div></div>	<div><p>a) 2-wire type</p><p>b) 3-wire type</p></div>	<div></div>																										

Dimensions: Series SV1000 for EX120 Dedicated Output Serial Wiring

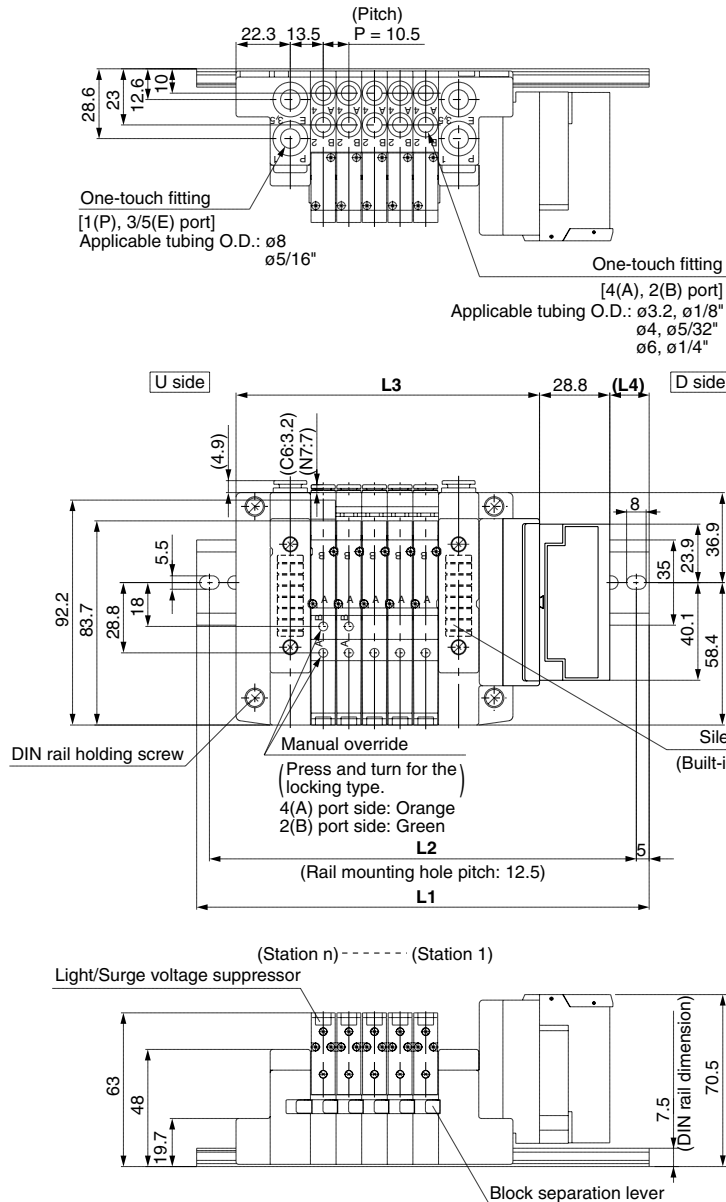
● **Cassette base manifold: SS5V1-16S3□D-**

Stations

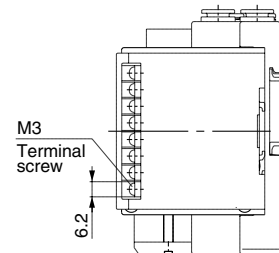
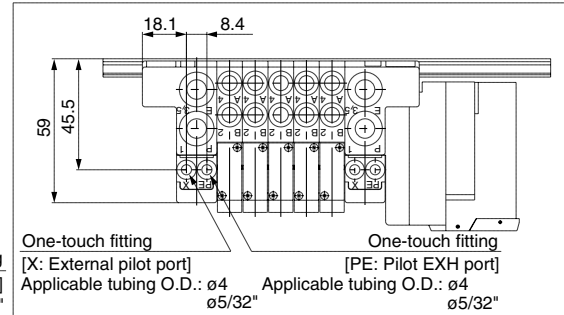
U	C3, N1
D	C4, N3
B	C6, N7

 (S, R, RS)-

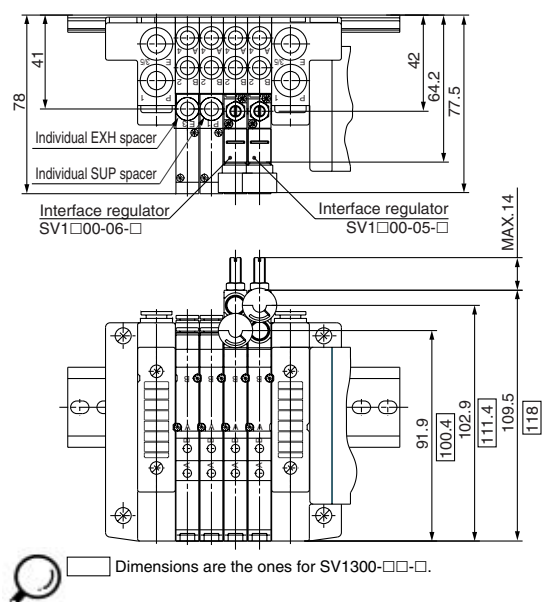
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



With option



L Dimension

$\frac{L}{n}$	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	148	160.5	173	185.5	198	198	210.5	223	235.5	248	260.5	260.5	273	285.5	298
L2	137.5	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5	275	287.5
L3	92.9	103.4	113.9	124.4	134.9	145.4	155.9	166.4	176.9	187.4	197.9	208.4	218.9	229.4	239.9
L4	13	14	15	16	17	12	13	14	15	16	17	11.5	12.5	13.5	14.5

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

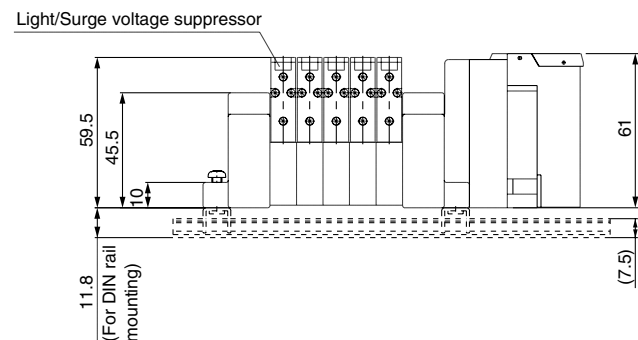
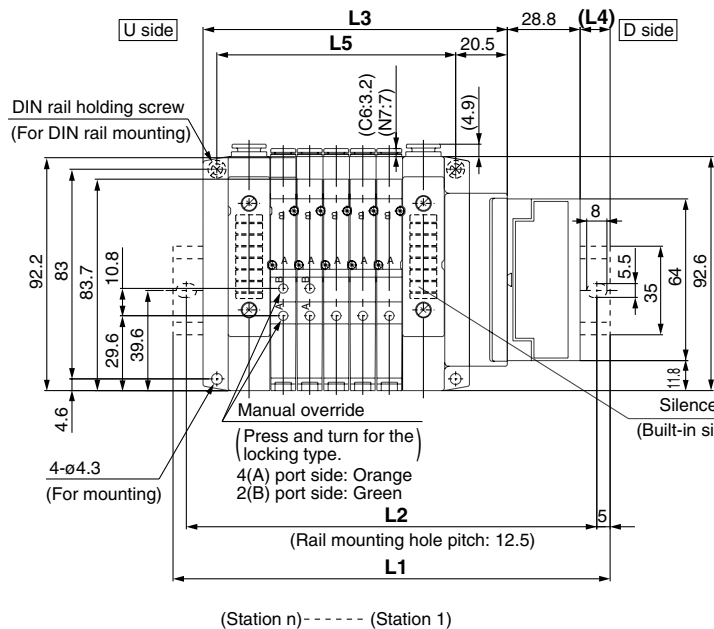
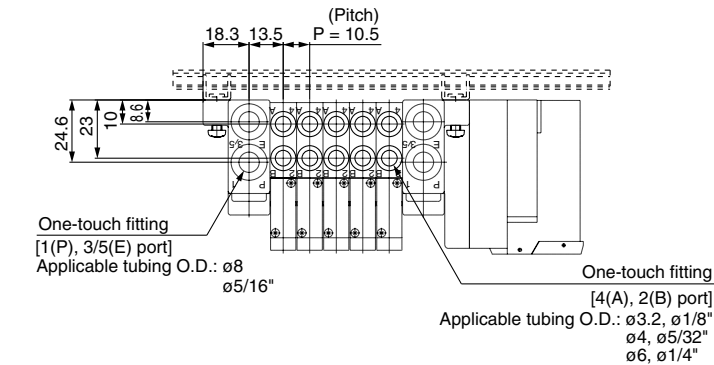
Dimensions: Series SV1000 for EX120 Dedicated Output Serial Wiring

● Tie-rod base manifold: SS5V1-10S3□D- Stations

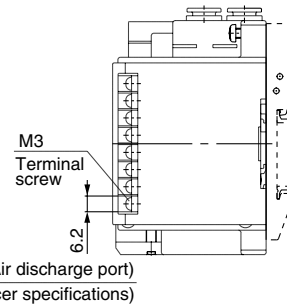
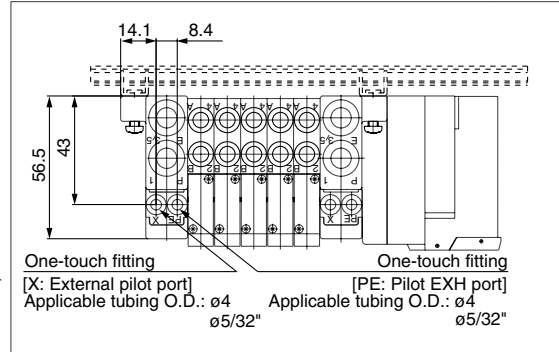
U	D	B
(S,	R,	RS)-

C3, N1	C4, N3	(-D)
C6, N7		

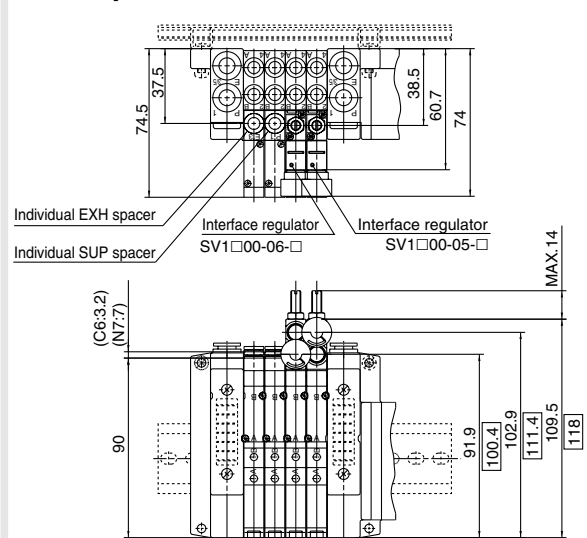
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



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
L1	148	160.5	173	173	185.5	198	210.5	223	235.5	235.5	248	260.5	273	285.5	298
L2	137.5	150	162.5	162.5	175	187.5	200	212.5	225	225	237.5	250	262.5	275	287.5
L3	89	99.5	110	120.5	131	141.5	152	162.5	173	183.5	194	204.5	215	225.5	236
L4	15	16	17	12	13	14	15	16	17	11.5	12.5	13.5	14.5	15.5	16.5
L5	63	73.5	84	94.5	105	115.5	126	136.5	147	157.5	168	178.5	189	199.5	210



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

SV

SZ

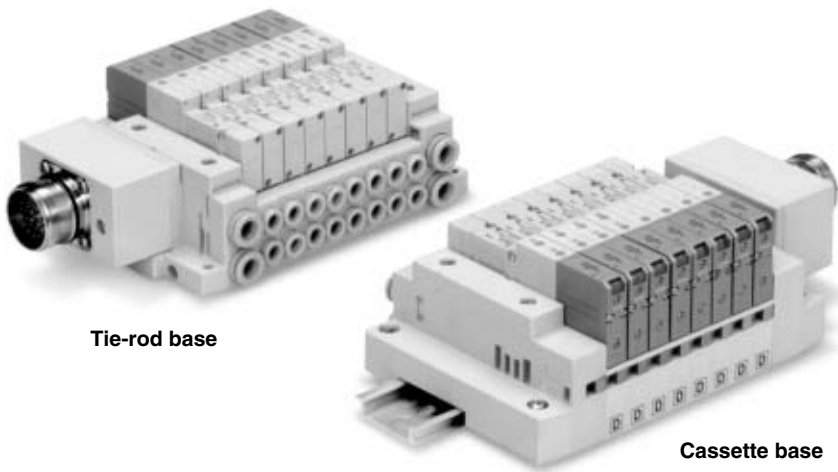
SY

SYJ

SX

Circular Connector

IP67 compliant



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

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

Series	
1	SV1000
2	SV2000

● Enclosure
IP67 specifications

Valve stations Type 16: Series SV1000

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

Type 16: Series SV2000

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

P, E port location

Symbol	Location
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	Specification
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.

● Mounting

Symbol	Mounting
Nil	Direct mounting
D	DIN rail mounting (With DIN rail)
D0*	DIN rail mounting (Without DIN rail)
D3	For 3 stations
...	...
D20	For 20 stations

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

● DIN rail length specified

Symbol	Length
Nil	Standard length
3	For 3 stations
...	...
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	G 3/8	
03F	G 3/8		
M	A, B ports mixed		

● A, B port size (Inch)

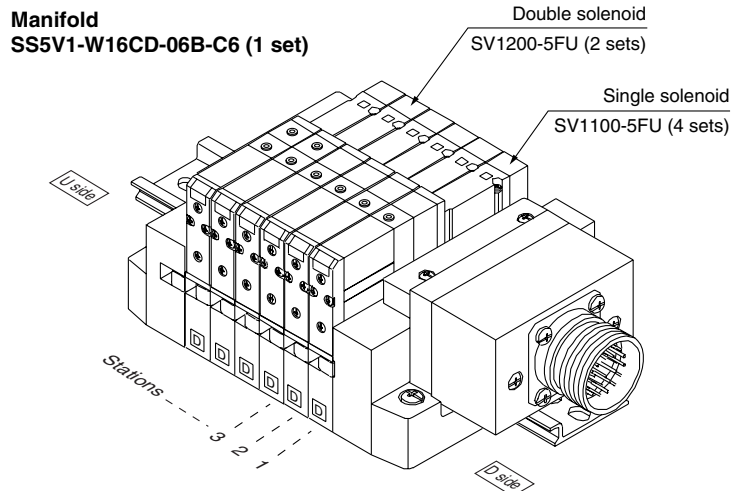
Symbol	Specifications	P, E port	Applicable series
N1	One-touch fitting for ø1/8"	One-touch fitting for ø5/16"	SV1000
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø1/4"	One-touch fitting for ø3/8"	SV2000
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø1/4"	One-touch fitting for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

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.

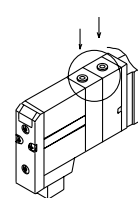


Note)

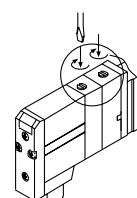
Note) Available with manifold block for station additions. Refer to pages 1-2-89 and 1-2-93.

Manual override

Nil: Non-locking push type



D: Push-turn locking slotted type



Light/Surge voltage suppressor

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

Rated voltage

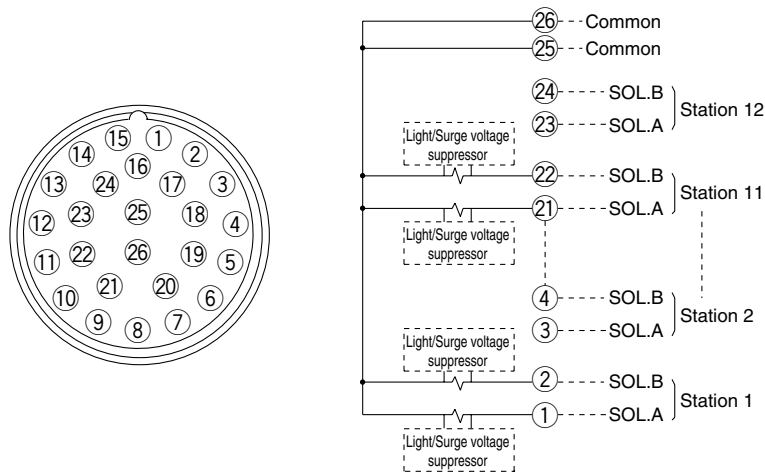
5	24 VDC
6	12 VDC



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

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.

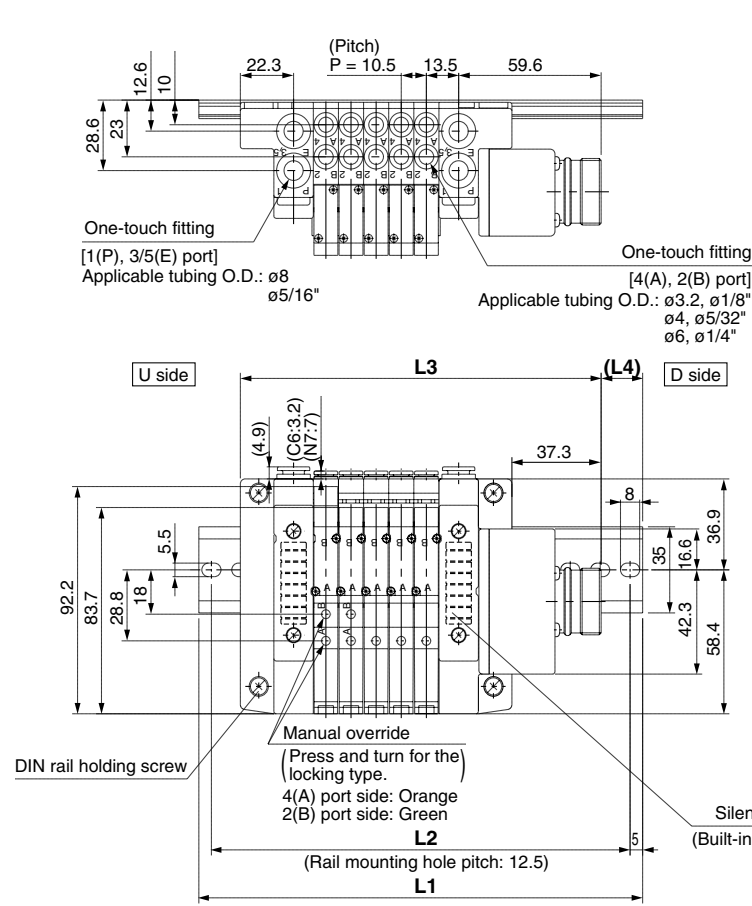
Usable No. of Solenoids

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

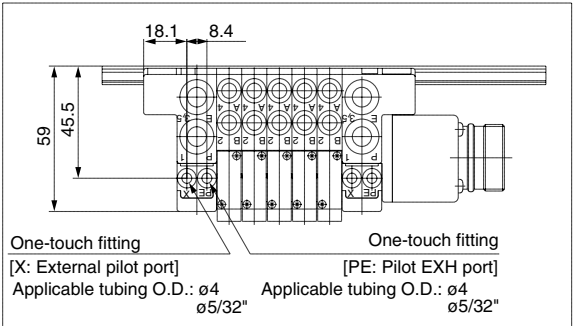
Dimensions: Series SV1000 for Circular Connector

● **Cassette base manifold: SS5V1-W16CD-** Stations $\begin{matrix} \text{U} \\ \text{D} \\ \text{B} \end{matrix}$ (S, R, RS)- $\begin{matrix} \text{C3, N1} \\ \text{C4, N3} \\ \text{C6, N7} \end{matrix}$

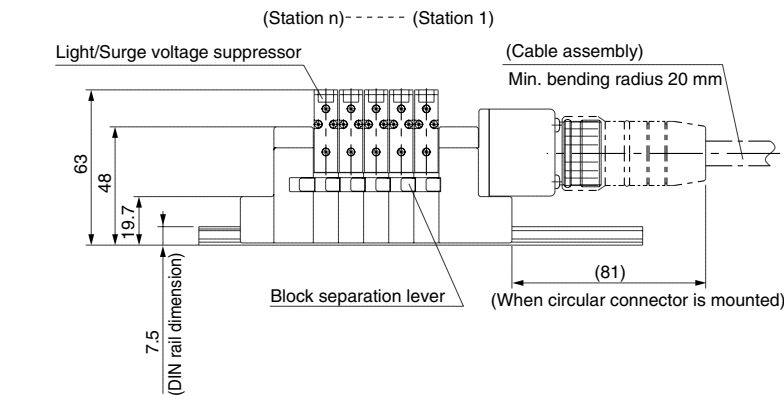
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



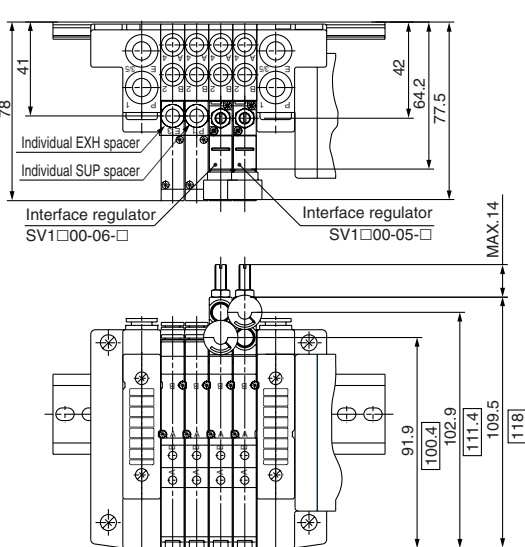
With External Pilot Specifications



SV
SZ
SY
SYJ
SX



With option



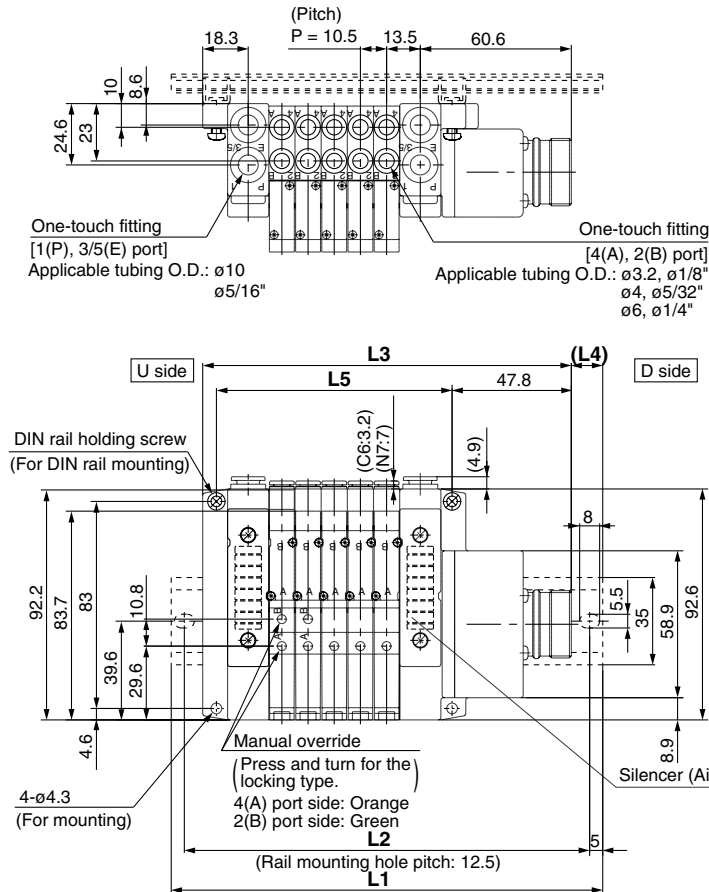
L Dimension

	n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L1		148	160.5	173	185.5	185.5	198	210.5	223	235.5	248	248	260.5	273	285.5	298	310.5	310.5
L2		137.5	150	162.5	175	175	187.5	200	212.5	225	237.5	237.5	250	262.5	275	287.5	300	300
L3		119.3	129.8	140.3	150.8	161.3	171.8	182.3	192.8	203.3	213.8	224.3	234.8	245.3	255.8	266.3	276.8	287.3
L4		14.5	15.5	16.5	17.5	12	13	14	15	16	17	12	13	14	15	16	17	11.5

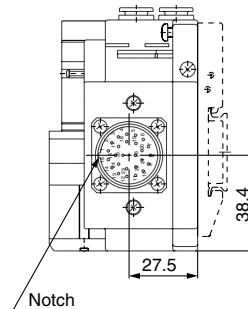
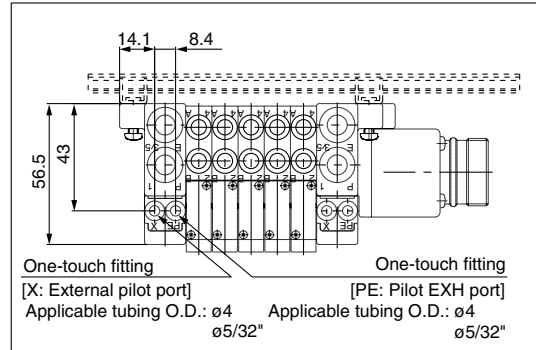
Dimensions: Series SV1000 for Circular Connector

● Tie-rod base manifold: SS5V1-W10CD-Stations_U_D (S, R, RS)-C3, N1C4, N3C6, N7 (-D)

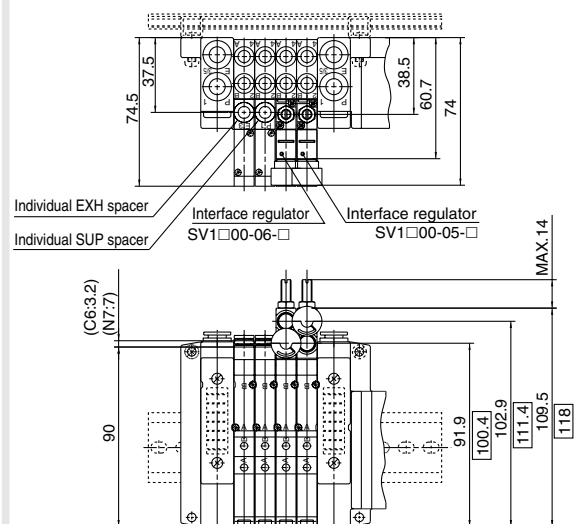
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



With option



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

L Dimension

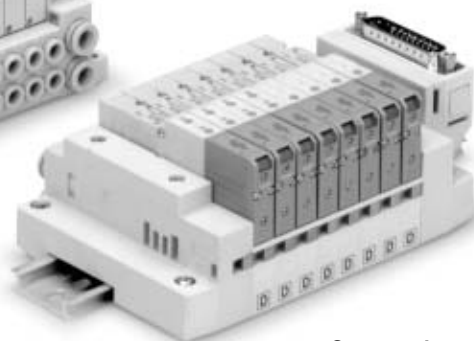
n: Stations

L	n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1		148	160.5	160.5	173	185.5	198	210.5	223	235.5	235.5	248	260.5	273	285.5	298	298	310.5	323	335.5
L2		137.5	150	150	162.5	175	187.5	200	212.5	225	225	237.5	250	262.5	275	287.5	287.5	300	312.5	325
L3		116.3	126.8	137.3	147.8	158.3	168.8	179.3	189.8	200.3	210.8	221.3	231.8	242.3	252.8	263.3	273.8	284.3	294.8	305.3
L4		16	17	11.5	12.5	13.5	14.5	15.5	16.5	17.5	12.5	13.5	14.5	15.5	16.5	17.5	12	13	14	15
L5		63	73.5	84	94.5	105	115.5	126	136.5	147	157.5	168	178.5	189	199.5	210	220.5	231	241.5	252

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	
02	2 stations	Specified layout (2) (Up to 23 solenoids possible.)
20	20 stations	

Mounting

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

Valve stations

Series SV1000

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

Series SV2000

Symbol	Stations	Note
02	2 stations	Double wiring (1)
11	11 stations	
02	2 stations	Specified layout (2) (Up to 23 solenoids possible.)
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	G 3/8	
M	A, B ports mixed		

A, B port size (inch)

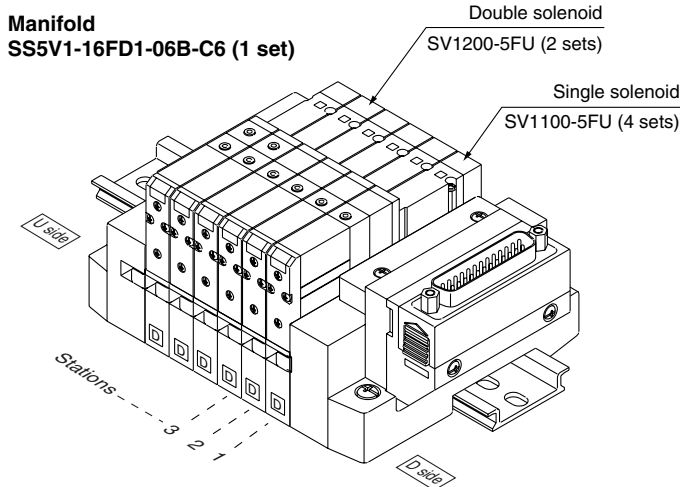
Symbol	A, B port	P, E port	Applicable series
N1	One-touch fitting for ø1/8"	One-touch fitting for ø5/16"	SV1000
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø1/4"		
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for 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

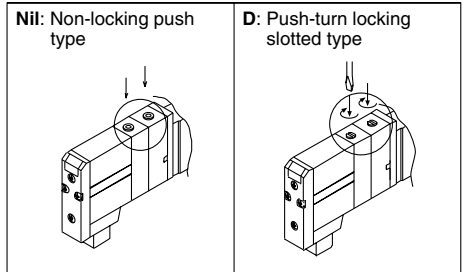
Nil	Internal pilot
R	External pilot

* 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.

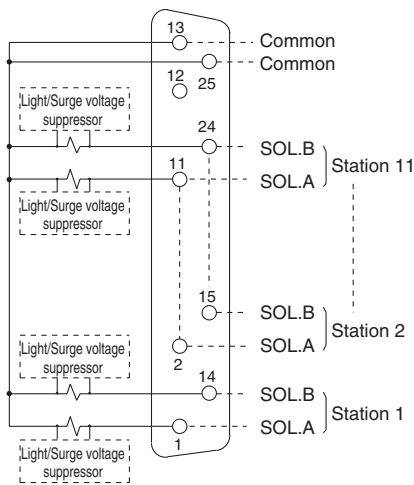
* Back pressure check valve is not available for 3 position closed center and 3 position pressure center.



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

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

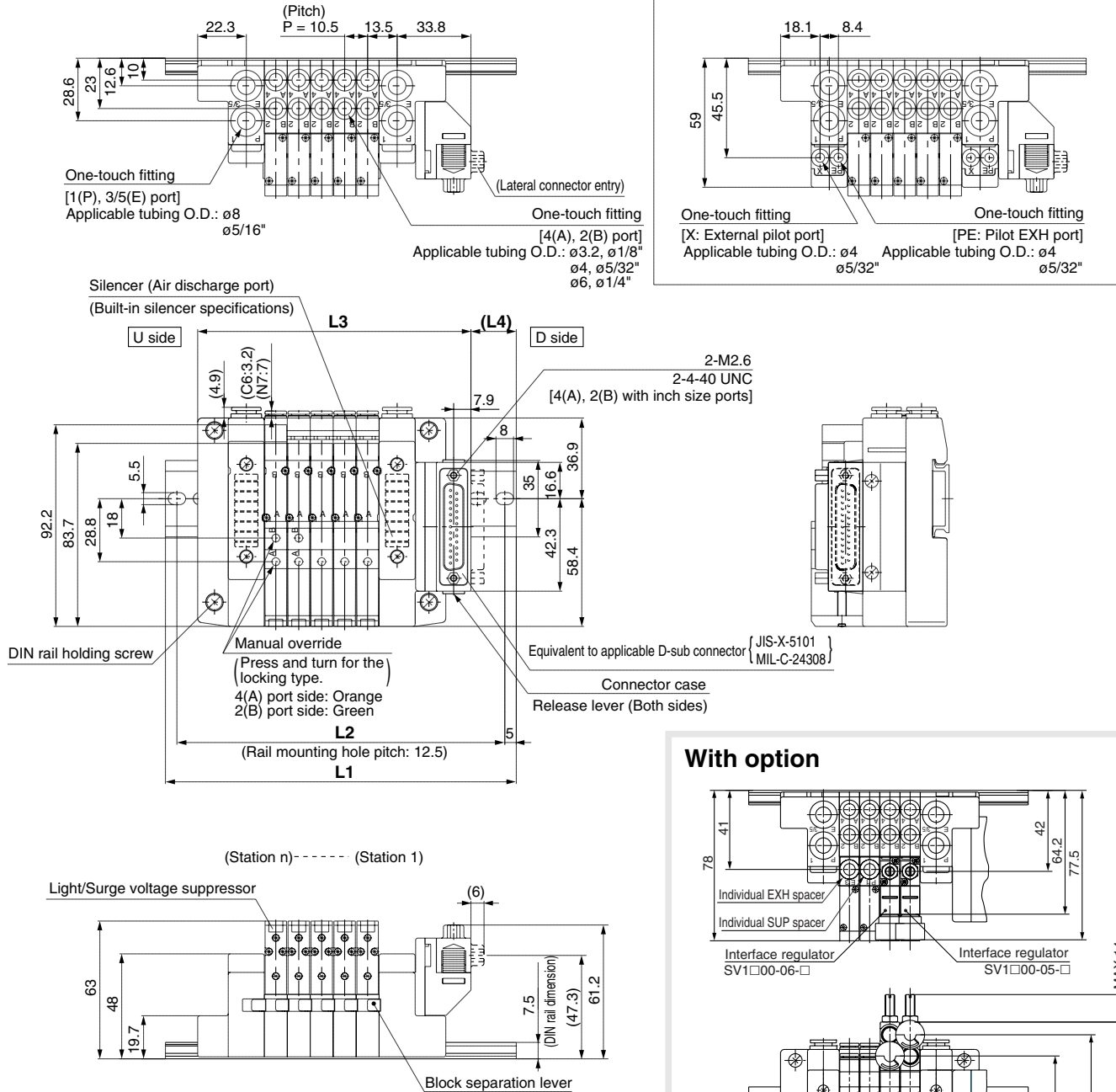
Model		Max. no. of solenoids
Tie-rod base type 10	SV1000 to SV4000	23
	SV1000	18
Cassette base type 16	SV2000	23

Dimensions: Series SV1000 for D-sub Connector

● Cassette base manifold: SS5V1-16FD₂-^UStations_D (S, R, RS)-^{C3, N1}_{C4, N3}^{C6, N7}

- 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



SV
SZ
SY
SYJ
SX

L Dimension

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L1	123	135.5	148	160.5	173	185.5	198	198	210.5	223	235.5	248	260.5	260.5	273	285.5	298
L2	112.5	125	137.5	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5	275	287.5
L3	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5	230	240.5	251	261.5
L4	18	19	20	21	22	23	24	18.5	19.5	20.5	21.5	22.5	23.5	18.5	19.5	20.5	21.5

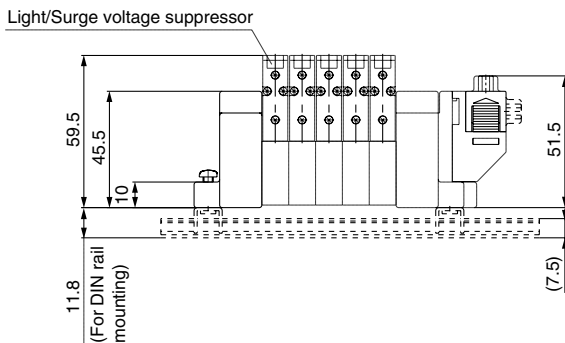
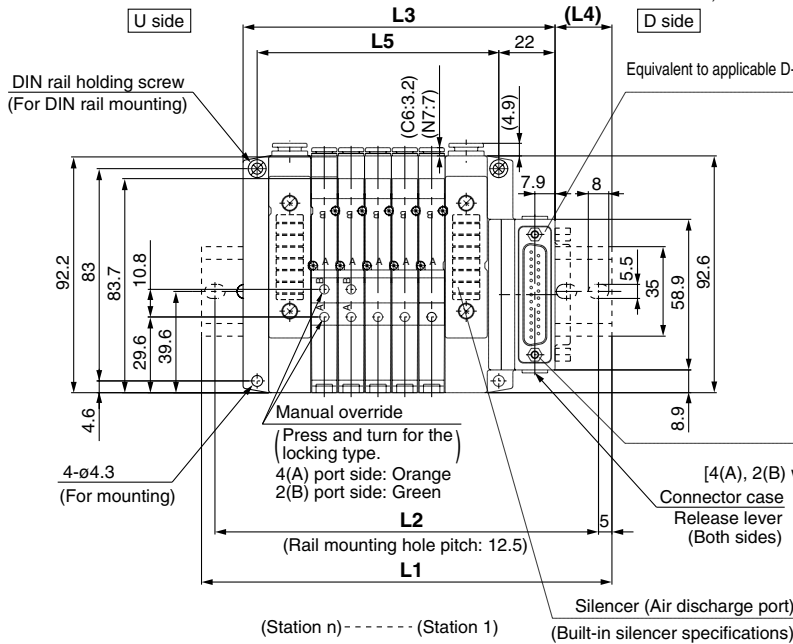
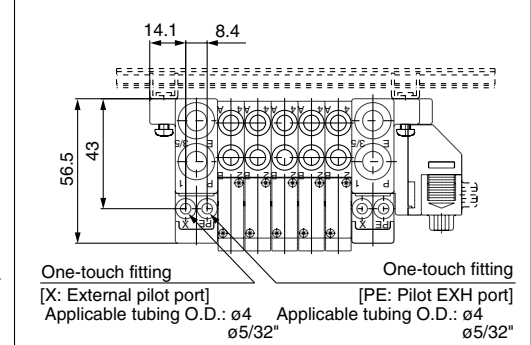
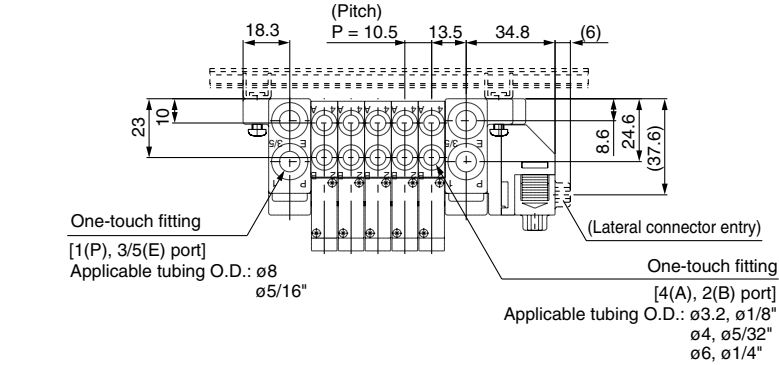
n: Stations

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)

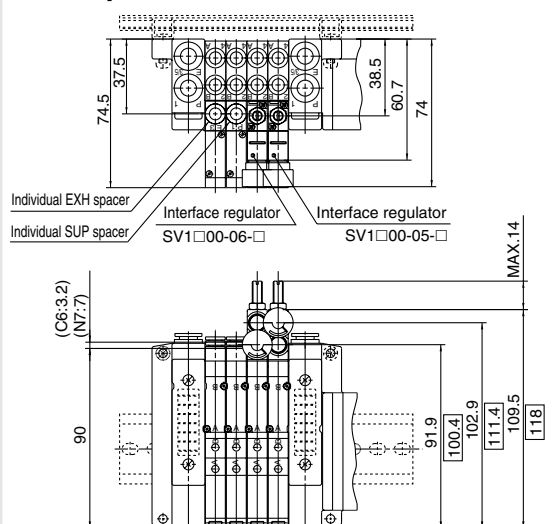
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.

With External Pilot Specifications



2-M2.6
2-4-40 UNC
[4(A), 2(B) with inch size ports]

With option



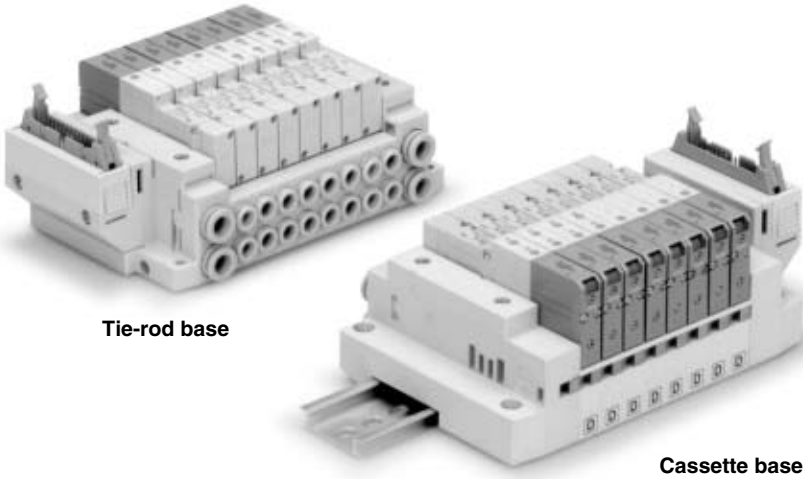
□ Dimensions are the ones for SV1300-□□-□.

L Dimension

n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	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	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	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	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	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

Flat Ribbon Cable Connector



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

Connector type

P	Flat ribbon cable connector: 26 pins
PG	Flat ribbon cable connector: 20 pins
PH	Flat ribbon cable connector: 10 pins

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Valve stations

P: Flat ribbon cable 26 pins

02	2 stations	Double wiring specifications
12	12 stations	
02	2 stations	Specified layout (2) (Up to 24 solenoids possible.)
20	20 stations	

PH: Flat ribbon cable 10 pins

02	2 stations	Double wiring specifications
04	4 stations	
02	2 stations	Specified layout (2) (Up to 8 solenoids possible.)
08	8 stations	

PG: Flat ribbon cable 20 pins

02	2 stations	Double wiring specifications
09	9 stations	
02	2 stations	Specified layout (2) (Up to 18 solenoids possible.)
18	18 stations	

Tie-rod base

Cassette base

Series

1	SV1000
2	SV2000

Connector entry direction

1	Upward
2	Lateral

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

Mounting

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

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

02	2 stations	02	2 stations
09	9 stations	02	2 stations
02	2 stations	18	18 stations

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

02	2 stations	02	2 stations
09	9 stations	02	2 stations
02	2 stations	18	18 stations

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.

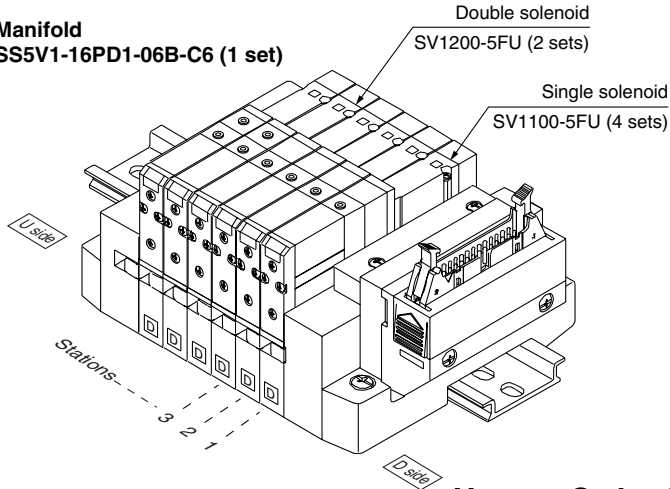
Note 2) Specified layout: Indicate wiring specifications on a manifold specification sheet.

How to Order Valve Manifold Assembly

Ordering example (SV1000)

Manifold

SS5V1-16PD1-06B-C6 (1 set)



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.

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.



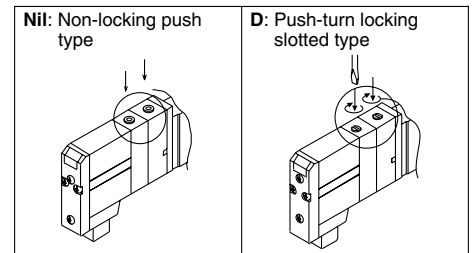
Refer to Precautions 2 on page 1-2-9.

Note)



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

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	
03	Rc 3/8		
02F	G 1/4	G 3/8	
03F	G 3/8		
M	A, B ports mixed		

A, B port size (Inch)

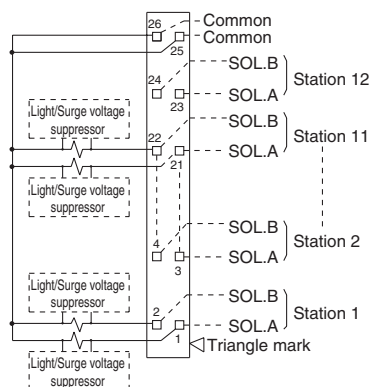
Symbol	A, B port	P, E port	Applicable series
N1	One-touch fitting for ø1/8"	One-touch fitting for ø5/16"	SV1000
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø1/4"		
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for 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 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)

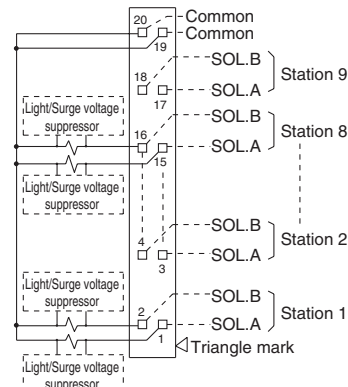


- This circuit has double wiring specifications for up to 12 stations. Since the usable number of solenoids differs depending on the manifold type, refer to the table below. In the case of single solenoids, connect to SOL. A. Furthermore, when wiring is specified on a manifold specification sheet, connections are made without skipping any connectors, and connections are made without skipping any connectors, and 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	18
Cassette base type 16	SV2000	24

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

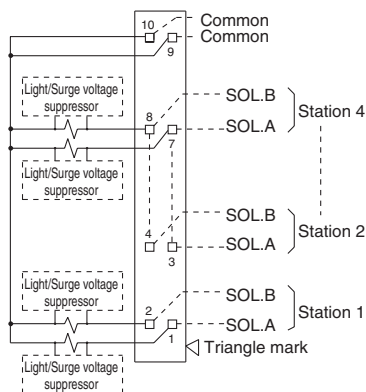


- This circuit has double wiring specifications for up to 9 stations. Since the usable number of solenoids differs depending on the manifold type, refer to the table below. In the case of single solenoids, connect to SOL. A. Furthermore, when wiring is specified on a manifold specification sheet, connections are made without skipping any connectors, and connections are made without skipping any connectors, and 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	
Cassette base type 16	SV2000	

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 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.

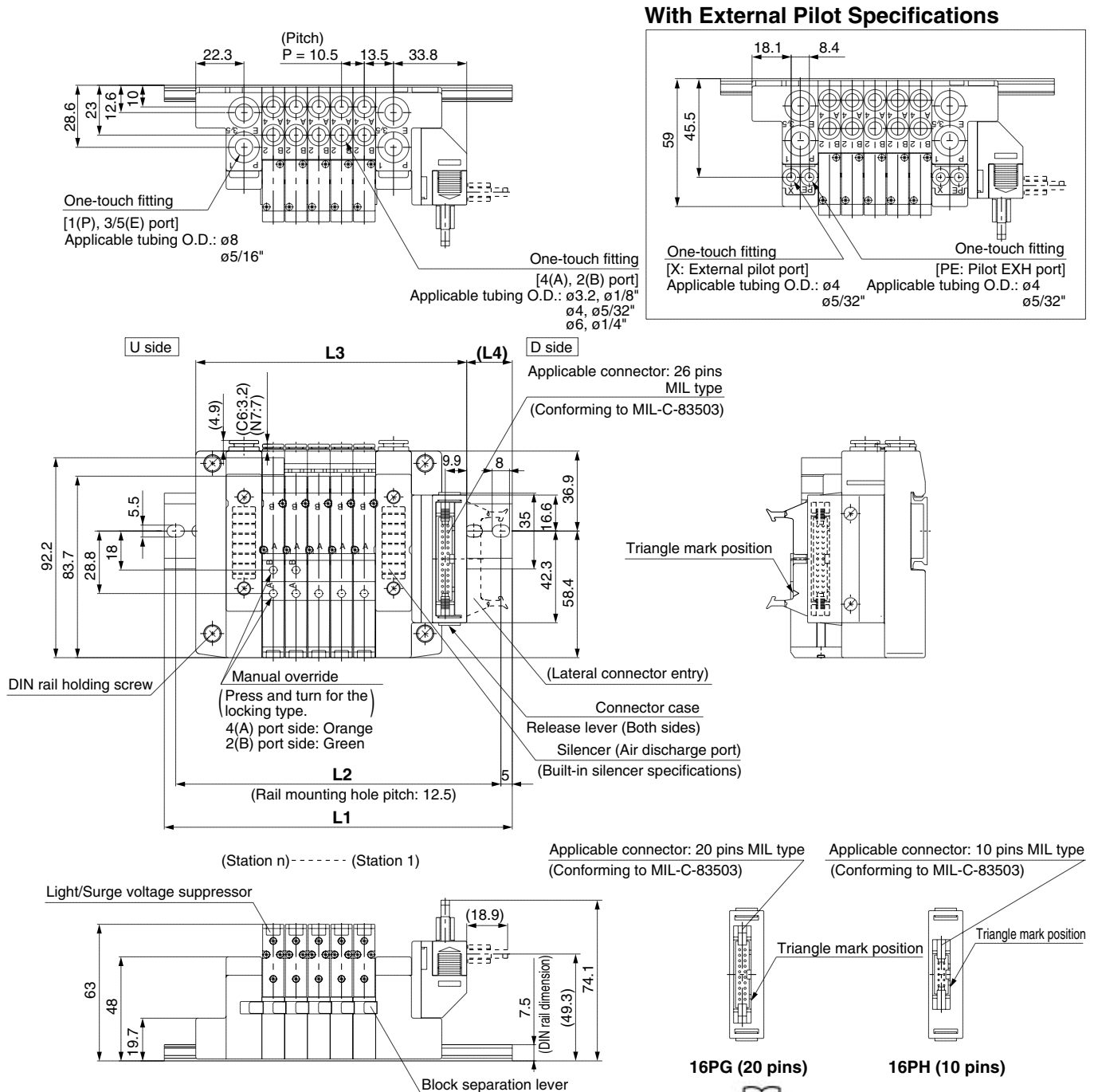
Usable No. of Solenoids

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

Dimensions: Series SV1000 for Flat Ribbon Cable

● Cassette base manifold: SS5V1-16 ^PPG ^DD₂ - Stations ^UU ^DD - (S, R, RS) - C3, N1 PH C4, N3 C6, N7

- 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.



L Dimension

L	n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L1		135.5	135.5	148	160.5	173	185.5	198	198	210.5	223	235.5	248	260.5	260.5	273	285.5	298
L2		125	125	137.5	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5	275	287.5
L3		93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5	230	240.5	251	261.5
L4		24.5	19	20	21	22	23	24	19	20	21	22	23	24	18.5	19.5	20.5	21.5

n: Stations

Type 16: Cassette Base Manifold Exploded View

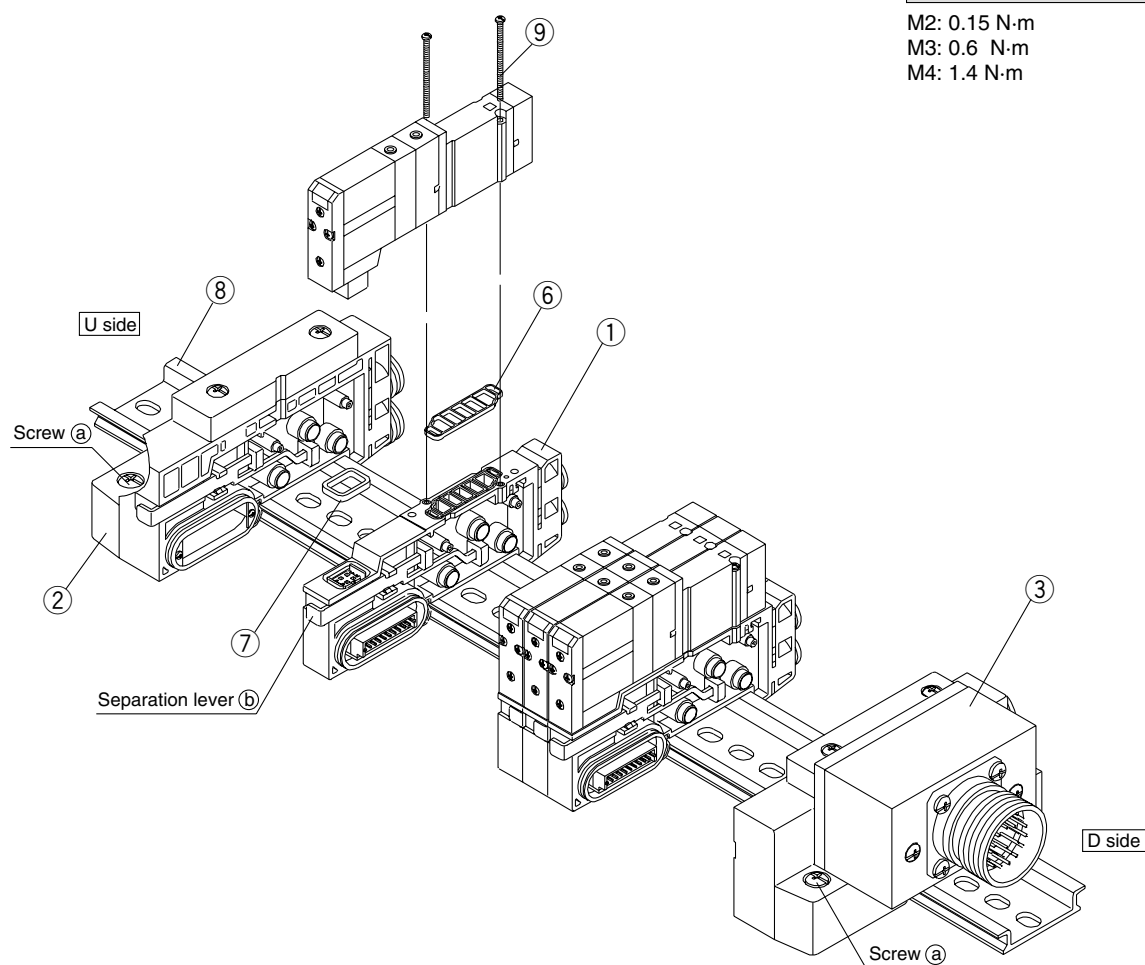
Caution

Mounting Screw Tightening Torques

M2: 0.15 N·m

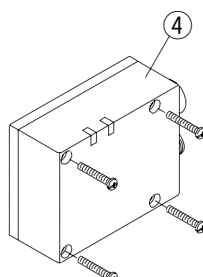
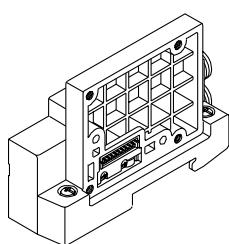
M3: 0.6 N·m

M4: 1.4 N·m

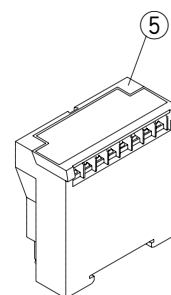
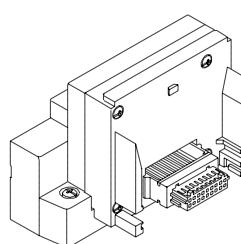


③ SUP/EXH block assembly

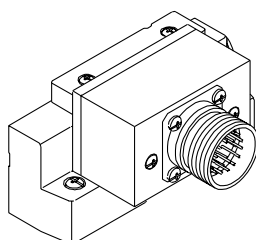
EX500 (Type 16SA□W)



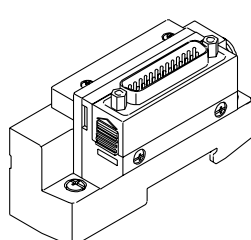
EX120 (Type 16S3□)



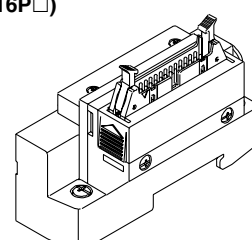
Circular connector (Type 16C)



D-sub connector (Type 16F□)



For Flat ribbon cable connector (Type 16P□)



① Manifold Block Assembly Part No.

Series	Wiring specifications	Manifold block assembly part no.	Note
SV1000	Single	SV1000-50-3A-□□	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"
	Double	SV1000-50-4A-□□	C6: With One-touch fitting for ø6 N7: One-touch fitting for ø1/4" (Gaskets ⑥ and ⑦ are included.)
SV2000	Single	SV2000-50-3A-□□	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"
	Double	SV2000-50-4A-□□	C8: With One-touch fitting for ø8 N9: One-touch fitting for ø5/16" (Gaskets ⑥ and ⑦ are included.)

② Supply/Exhaust end block assembly SV □ 000 – 52U – 2 A □ □

③ SUP/EXH block assembly SV □ 000 – 51D □ □ A □ □

Series	
1	SV1000
2	SV2000

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

1	Upward
2	Lateral

SUP/EXH block assembly specifications

30	For EX500 (decentralized serial)
32	For circular connector
33	D-sub connector
34	For flat ribbon cable connector (26 pins)
35	For flat ribbon cable connector (20 pins)
36	For flat ribbon cable connector (10 pins)
38	For fX120 (dedicated output serial)

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

• P, E port size

C8	One-touch fitting for ø8	SV1000
N9	One-touch fitting for ø5/16"	
C10	One-touch fitting for ø10	SV2000
N11	One-touch fitting for ø3/8"	
00	Plug	All series

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

• Pilot specifications

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

No.	Description	Part no.		Note
		SV1000	SV2000	
④	Series EX500 SI unit	Refer to page 1-2-26.		
⑤	Series EX120 SI unit	Refer to page 1-2-44.		
⑥	Gasket	SX3000-57-4	SX5000-57-6	
⑦	Connector gasket	SX3000-146-2		
⑧	DIN rail	VZ1000-11-1-□		Refer to DIN rail dimension tables on page 1-2-97.
⑨	Round head combination screw	SX3000-22-2 (M2 x 24)	SV2000-21-1 (M3 x 30)	

Type 16: Cassette Base Manifold

How to increase manifold bases (Type 16)

(1) Loosen the screws (a) (2 pcs. on one side) that hold the manifold base onto the DIN rail.
(When removing the manifold base from the DIN rail, loosen the holding screws at four locations.)

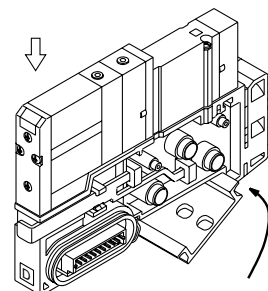
(2) Using a flat head screwdriver, etc., pull the lever (b) forward on the manifold block assembly where a station is to be added, and disconnect the manifold block assemblies.

(3) Attach the manifold block assembly to be added to the DIN rail as shown in the figure.

(4) Connect the block assemblies by pressing them together, and push the lever in firmly until it stops.

Then secure them to the DIN rail by tightening the screws (a).

⚠ Caution (Tightening torque: 1.4 N·m)



Hook this part onto the DIN rail, and press down in the direction of the arrow.

Figure. Block mounting procedure

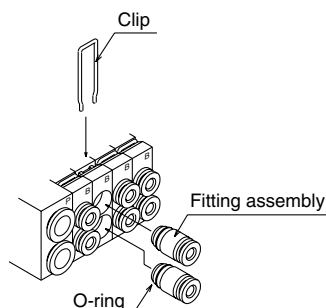
⚠ Caution

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
A, B Port	One-touch fitting for ø3.2	VVQ1000-50A-C3	—
	One-touch fitting for ø4	VVQ1000-50A-C4	VVQ1000-51A-C4
	One-touch fitting for ø6	VVQ1000-50A-C6	VVQ1000-51A-C6
	One-touch fitting for ø8	—	VVQ1000-51A-C8
	One-touch fitting for ø1/8"	VVQ1000-50A-N1	—
	One-touch fitting for ø5/32"	VVQ1000-50A-N3	VVQ1000-51A-N3
	One-touch fitting for ø1/4"	VVQ1000-50A-N7	VVQ1000-51A-N7
	One-touch fitting for ø5/16"	—	VVQ1000-51A-N9
P, E Port	One-touch fitting for ø8	VVQ1000-51A-C8	—
	One-touch fitting for ø10	—	VVQ2000-51A-C10
	One-touch fitting for ø5/16"	VVQ1000-51A-N9	—
	One-touch fitting for ø3/8"	—	VVQ2000-51A-N11



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 (KQ2P-□□) 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.

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.

■ How to order cassette base type 16 solenoid valves with manifold block

[Series SV1000/SV2000]

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

SV 1 1 0 0 - 5 F

Series

1	SV1000
2	SV2000

A, B port size



Refer to A, B ports size tables on pages 1-2-20, 44, 46, and 76.

Manifold wiring specifications

Nil	Double wiring
S	Single wiring

Manifold block type

C	Cassette base type 16 with manifold block
---	---

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.

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

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

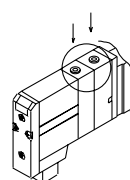
* Built-in back pressure check valve type is applicable to series SV1000 only.



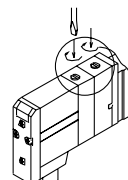
Refer to Precautions 2 on page 1-2-9.

Manual override

Nil: Non-locking push type



D: Push-turn locking slotted type



Light/Surge voltage suppressor

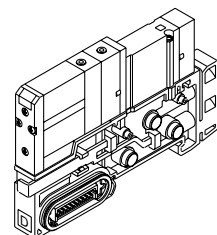
U	With light/surge voltage suppressor
R	With surge voltage suppressor

Rated voltage

5	24 VDC
6	12 VDC

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

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



SV

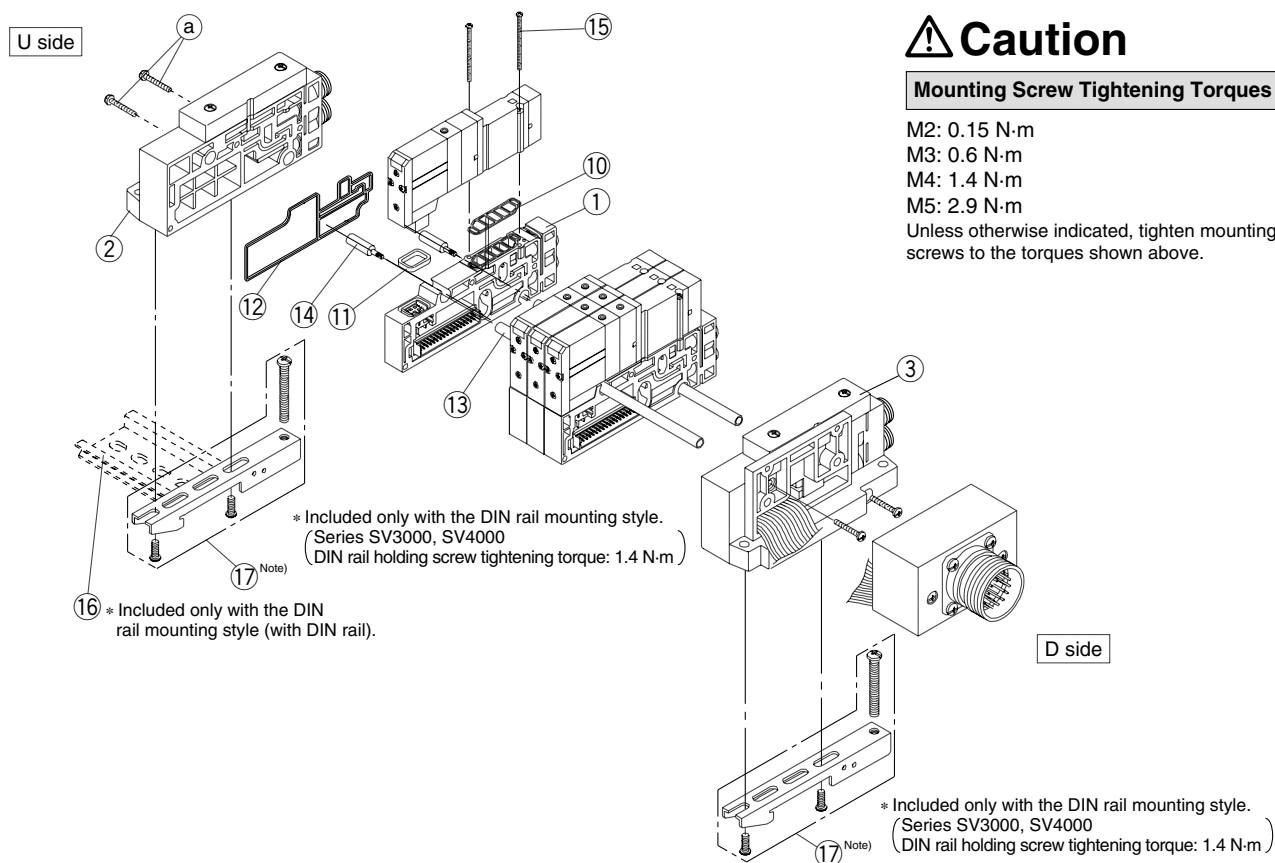
SZ

SY

SYJ

SX

Type 10: Tie-rod Base Manifold Exploded View



③ SUP/EXH block assembly		
EX250 (Type 10S1□W) <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>	Circular connector (Type 10C)	
	D-sub connector (Type 10F)	
EX500 (Type 10SA□W) <p>* ④ is not included in the SUP/EXH block assembly.</p>	EX120 (Type 10S3□) <p>* ⑨ is not included in the SUP/EXH block assembly.</p>	For flat ribbon cable connector (Type 10P□)

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
D0	DIN rail mounting

P, E port size

C8	One-touch fitting for ø8	SV1000
N9	One-touch fitting for ø5/16"	
C10	One-touch fitting for ø10	SV2000
N11	One-touch fitting for ø3/8"	
C12	One-touch fitting for ø12	SV3000
N11	One-touch fitting for ø3/8"	
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.

Type 10: Tie-rod Base Manifold

How to increase manifold bases (Type 10)

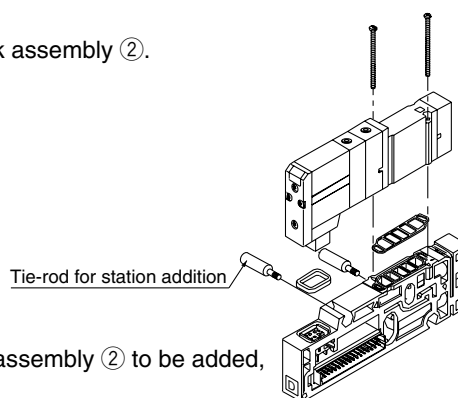
(1) Loosen the U side screws ①, and remove the SUP/EXH end block assembly ②.



(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 ①.



⚠ Caution Tightening torques ①

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 ø3.2	VVQ1000-50A-C3	—	—	—
	One-touch fitting for ø4	VVQ1000-50A-C4	VVQ1000-51A-C4	—	—
	One-touch fitting for ø6	VVQ1000-50A-C6	VVQ1000-51A-C6	VVQ2000-51A-C6	—
	One-touch fitting for ø8	—	VVQ1000-51A-C8	VVQ2000-51A-C8	VVQ4000-50B-C8
	One-touch fitting for ø10	—	—	VVQ2000-51A-C10	VVQ4000-50B-C10
	One-touch fitting for ø12	—	—	—	VVQ4000-50B-C12
	One-touch fitting for ø1/8"	VVQ1000-50A-N1	—	—	—
	One-touch fitting for ø5/32"	VVQ1000-50A-N3	VVQ1000-51A-N3	—	—
	One-touch fitting for ø1/4"	VVQ1000-50A-N7	VVQ1000-51A-N7	VVQ2000-51A-N7	—
	One-touch fitting for ø5/16"	—	VVQ1000-51A-N9	VVQ2000-51A-N9	VVQ4000-50B-N9
	One-touch fitting for ø3/8"	—	—	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 ø8	VVQ1000-51A-C8	—	—	—
	One-touch fitting for ø10	—	VVQ2000-51A-C10	—	—
	One-touch fitting for ø12	—	—	VVQ4000-50B-C12	VVQ4000-50B-C12
	One-touch fitting for ø5/16"	VVQ1000-51A-N9	—	—	—
	One-touch fitting for ø3/8"	—	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

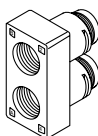
SY9000 – 58A – 02 03

For P, E port

SY9000 – 58B – 03

Thread type

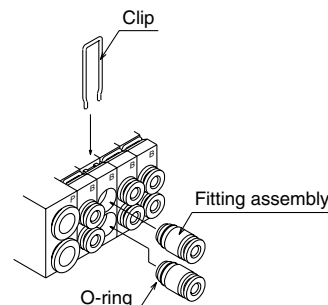
Nil	Rc
F	G
N	NPT
T	NPTF



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 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 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

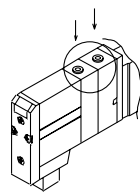
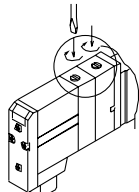
Manifold block type

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



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

Manual override

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

Light/Surge voltage suppressor

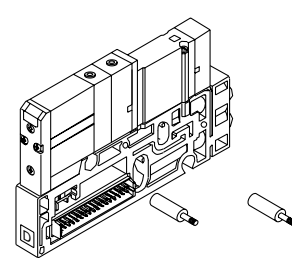
U	With light/surge voltage suppressor
R	With surge voltage suppressor

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

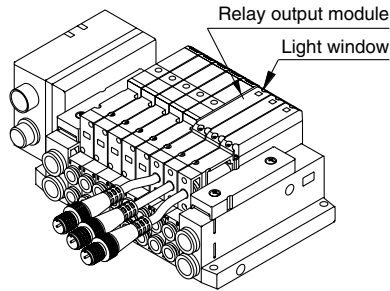
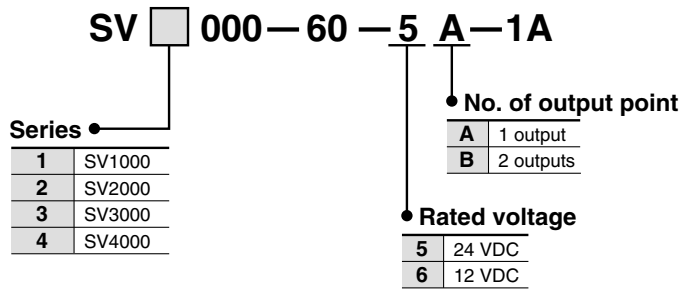


Series SV Manifold Option (Common for Type 16 and 10)

■ 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

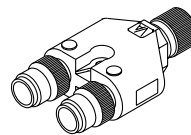
Item	Specifications			
No. of output points	1 output [connector with lead wire (M12)]		2 outputs [connector with lead wire (M12)]	
Output type	4 pins connector (M12) plug		4 pins connector (M12) plug	
	1. — 2. Output A 3. — 4. Output A	 Contact type ("a" contact)	 Relay output module side pin arrangement	1. Output B 2. Output A 3. Output B 4. Output A
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

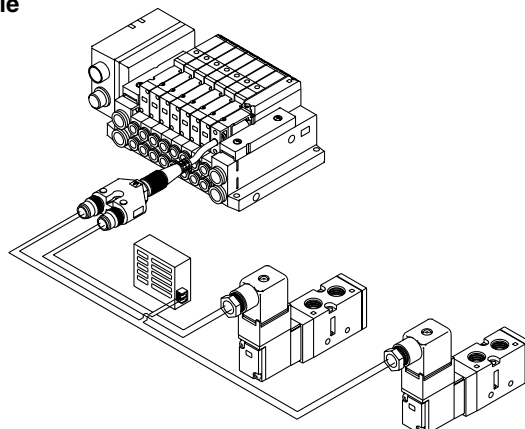
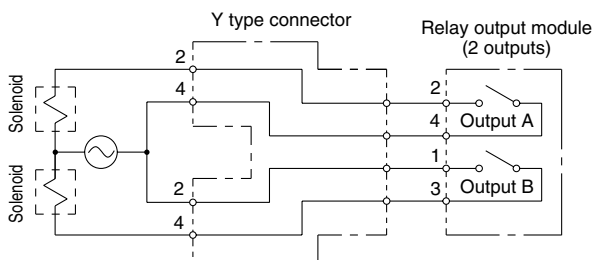
Used to branch a two output relay output module to two separate systems.

How to Order

EX500—ACY00—S



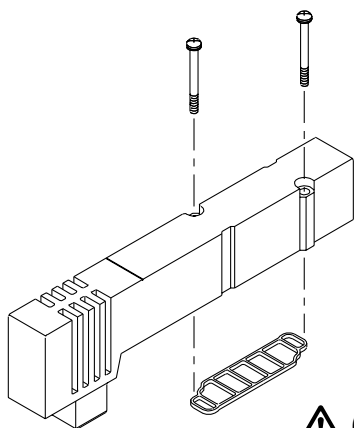
Relay output module and Y type connector wiring example



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

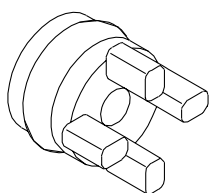
[SUP block disk]

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.

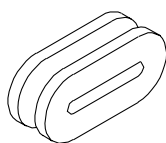
[EXH block disk]

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

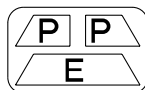
Series	Manifold Model	SUP block disk	EXH block disk
SV1000	10	SV1000-59-1A	SV1000-59-2A
	16	SX3000-77-1A	SX3000-77-1A
SV2000	10	SV2000-59-1A	SV2000-59-2A
	16	SV2000-59-3A	SV2000-59-3A
SV3000	10	SV3000-59-1A	SV3000-59-1A
SV4000	10	SY9000-57-1A	SY9000-57-1A

■ Label for block disk

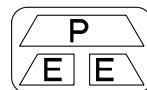
These labels are attached to manifolds in which SUP and EXH block disks have been installed, in order to identify the installed locations. (Three sheets each included.)

SV1000 – 74 – 1A

Label for SUP
block disk



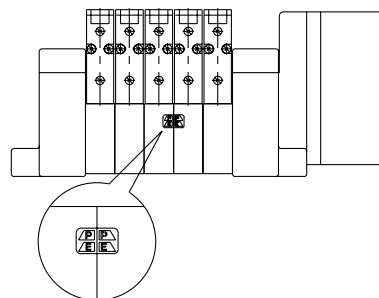
Label for EXH
block disk



Label for SUP/EXH
block disk

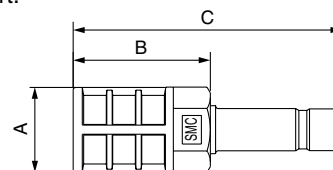


* When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.



■ Silencer with One-touch fitting

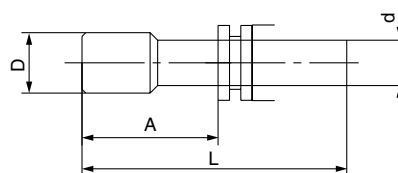
This silencer can be quickly mounted on the manifold's E (exhaust) port.



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

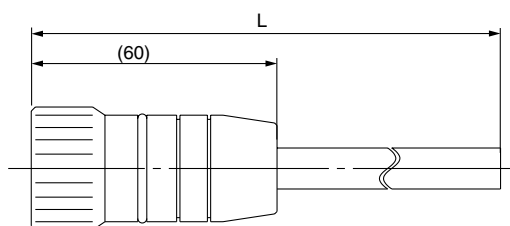
Manifold Option

■ Circular connector/Cable assembly (26 pins)

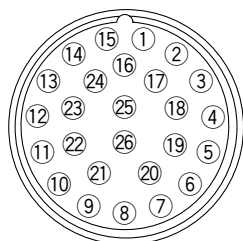
AXT100 – MC26 – □

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.

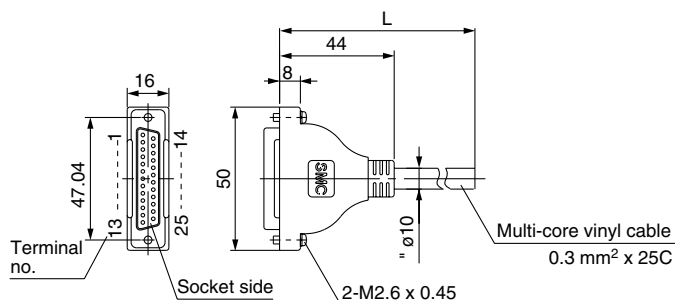
■ D-sub connector/Cable assembly (25 pins)

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.

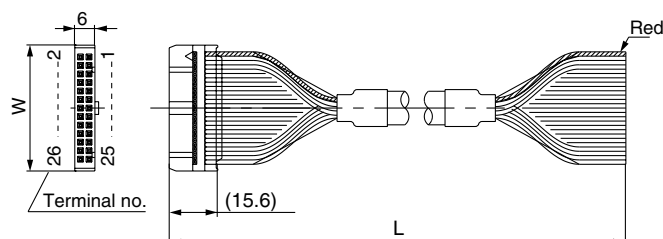
Manifold Option

■ 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

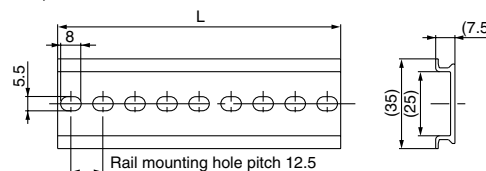
- Hirose Electric Co., Ltd.
- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.

■ 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.

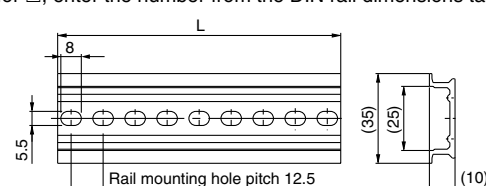


No.	0	1	2	3	4	5	6	7	8	9
L dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5
Weight (g)	17.6	19.9	22.1	24.4	26.6	28.9	31.1	33.4	35.6	37.9
No.	10	11	12	13	14	15	16	17	18	19
L dimension	223	235.5	248	260.5	273	285.5	298	310.5	323	335.5
Weight (g)	40.1	42.4	44.6	46.9	49.1	51.4	53.6	55.9	58.1	60.4
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

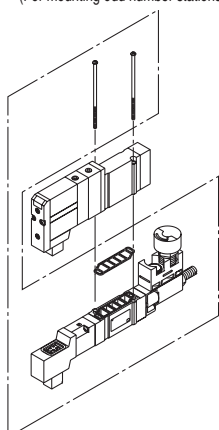
Option

00	With pressure gauge
M1	Without pressure gauge

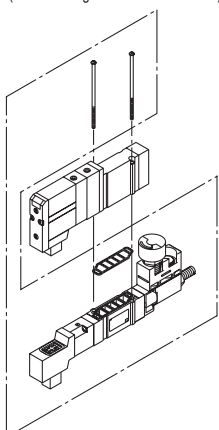
Regulating port

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

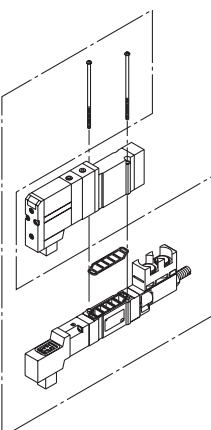
SV1000-□-05
(For mounting odd number stations)



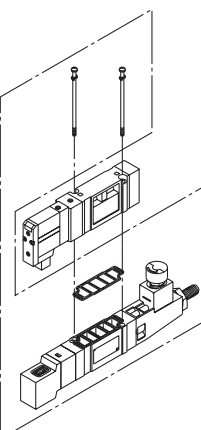
SV1000-□-06
(For mounting even number stations)



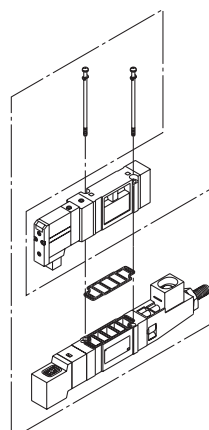
SV1000-□-M1



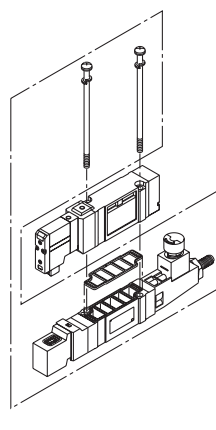
SV2000-□-00



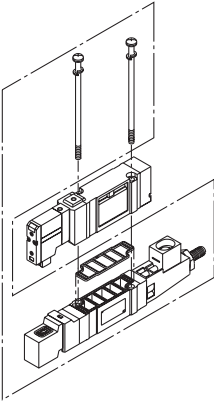
SV2000-□-M1



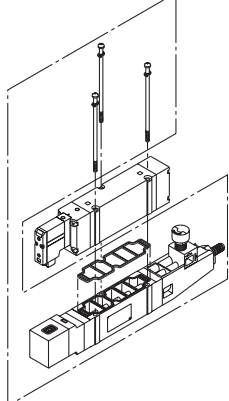
SV3000-□-00



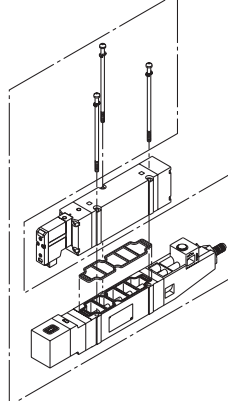
SV3000-□-M1



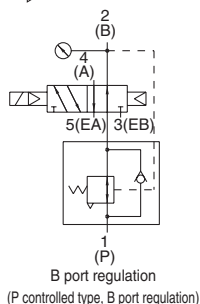
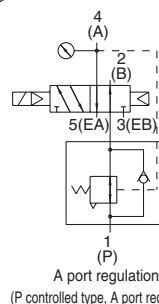
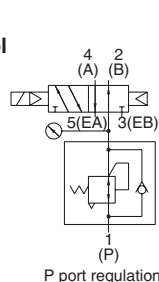
SV4000-□-00



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

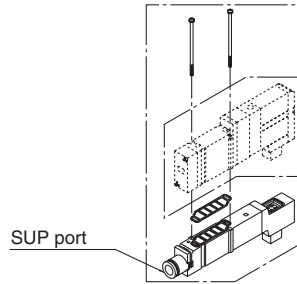
Caution

Mounting Screw Tightening Torques

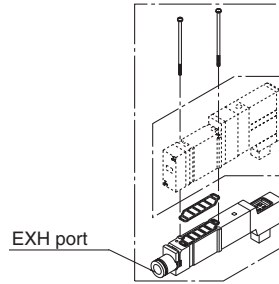
M2: 0.15 N·m
M3: 0.6 N·m
M4: 1.4 N·m

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 ø3.2
C4	One-touch fitting for ø4
C6	One-touch fitting for ø6
N1	One-touch fitting for ø1/8"
N3	One-touch fitting for ø5/32"
N7	One-touch fitting for ø1/4"

• 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

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

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.

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

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

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	0.1 to 0.7
	3 position	0.2 to 0.7
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
	External pilot	Pilot valve individual exhaust
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		
		N.C./N.C.		0.68	0.35	0.18	1.1	0.39	0.29		
	4 position dual	N.C./N.O.		0.87	0.31	0.23	0.77	0.44	0.21	128 (93)	
		N.O./N.O.									

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		
		N.C./N.C.		2.2	0.40	0.55	2.6	0.31	0.60		
	4 position dual	N.C./N.O.		2.7	0.24	0.57	2.3	0.36	0.54	163 (100)	
		N.O./N.O.									

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		
		N.C./N.C.									
SV3□00-□-03	2 position	Single	Rc 3/8	4.9	0.29	1.2	4.5	0.27	1.1	235	
		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		
		N.C./N.C.									

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

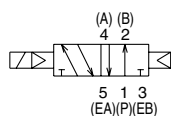
Series SV4000

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		
		N.C./N.C.									
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		
		N.C./N.C.									

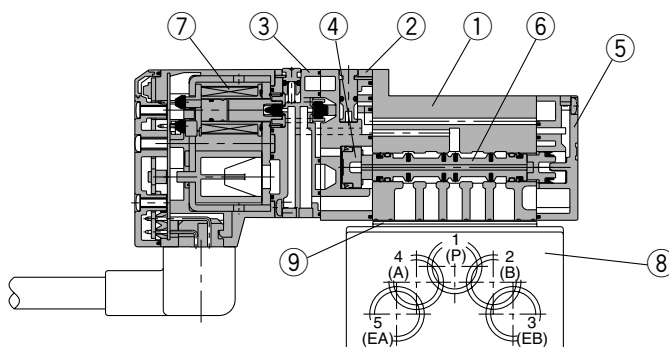
Note 1) []: Denotes the normal position. Note 2) (): Denotes without sub-plate.

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

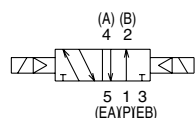
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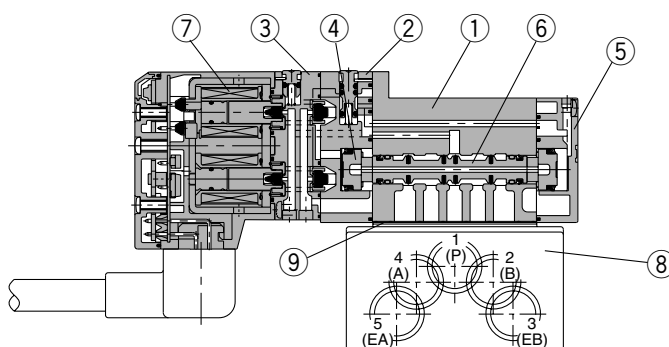
2 position single



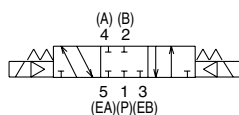
2 position double



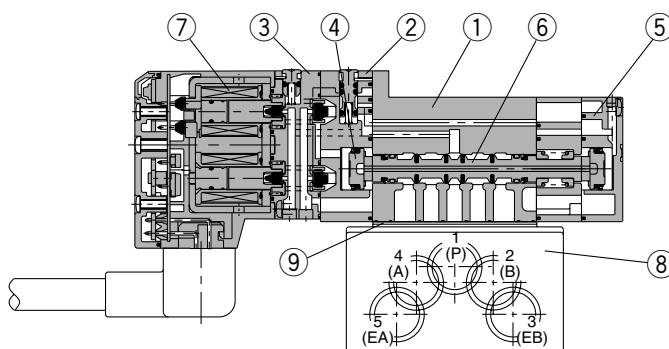
2 position double



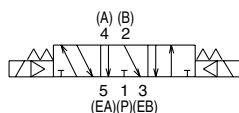
3 position closed center



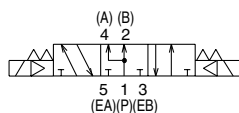
3 position closed center/exhaust center/pressure center



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)



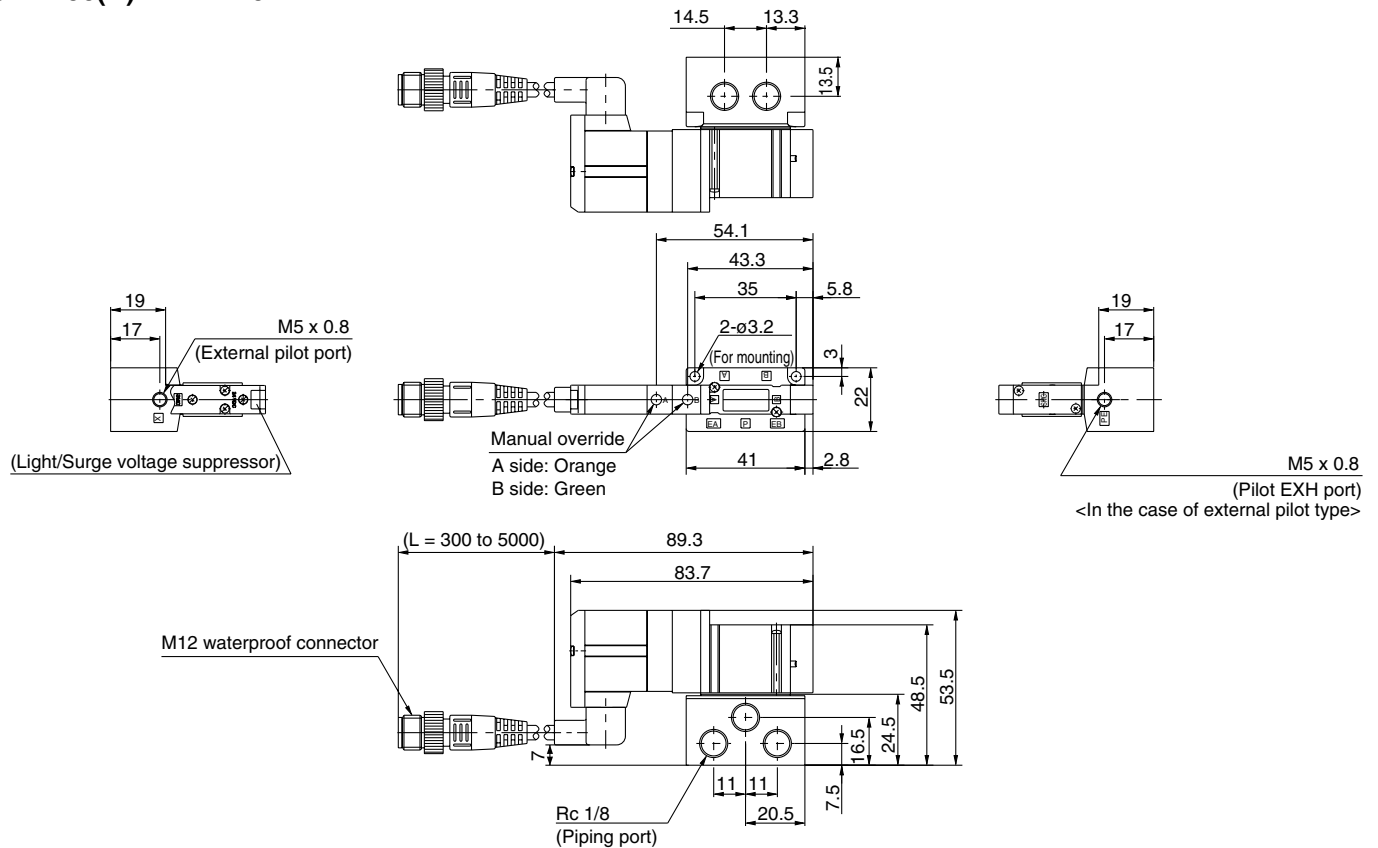
Note) Round head combination screw requires 2 pcs. per one valve for Series SV1000, SV2000, SV3000. For Series SV4000, it requires 3 pcs.

Series SV

Dimensions: Series SV1000

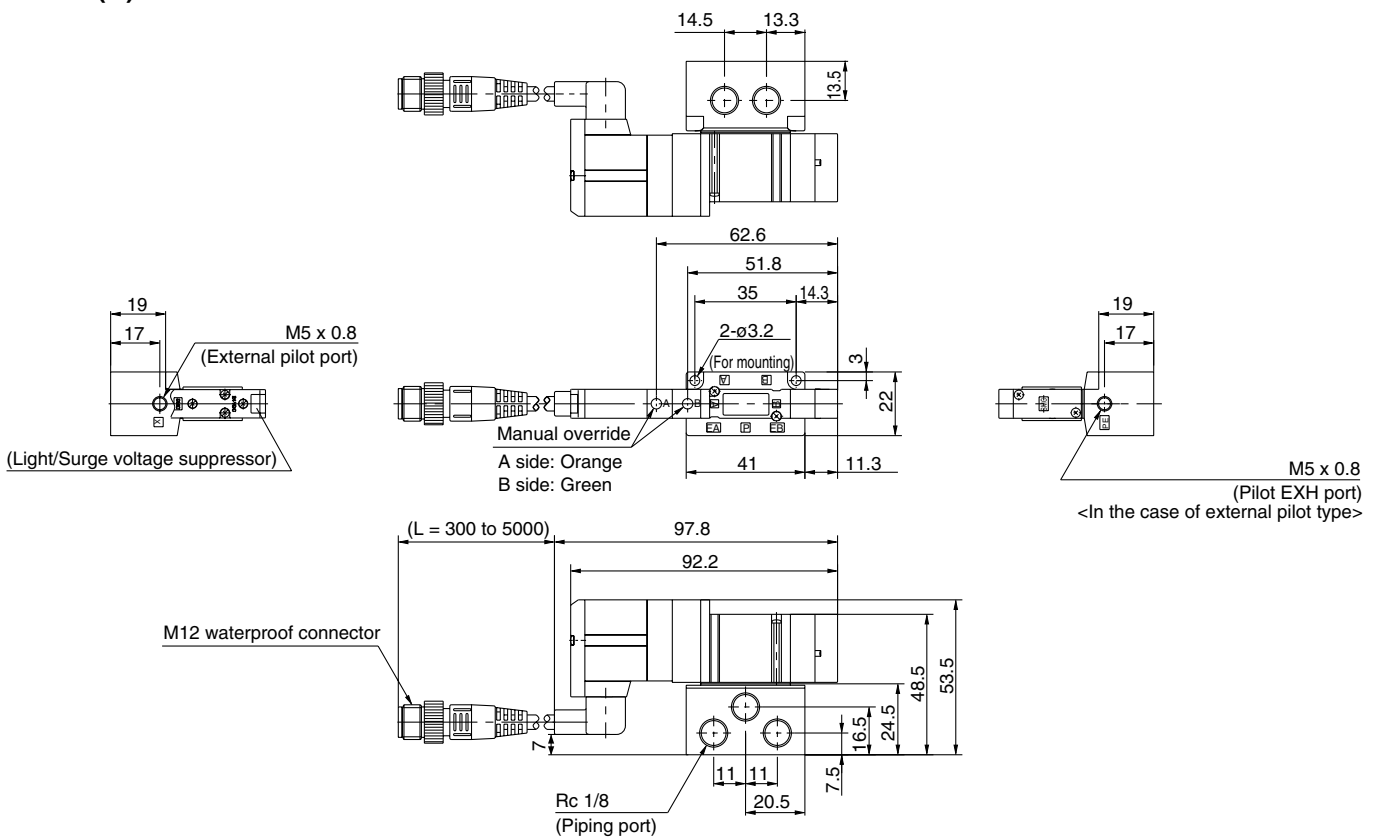
2 position single/double, 4 position dual 3 port [M12 waterproof connector type]

SV1□00(R)-□W□□-01□



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

SV1□00(R)-□W□□-01□



Series SV

Made to Order Specifications:

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

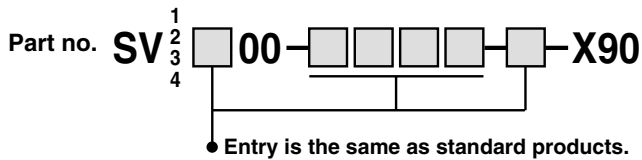
1 Main Valve Fluoro Rubber Specifications

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.



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.