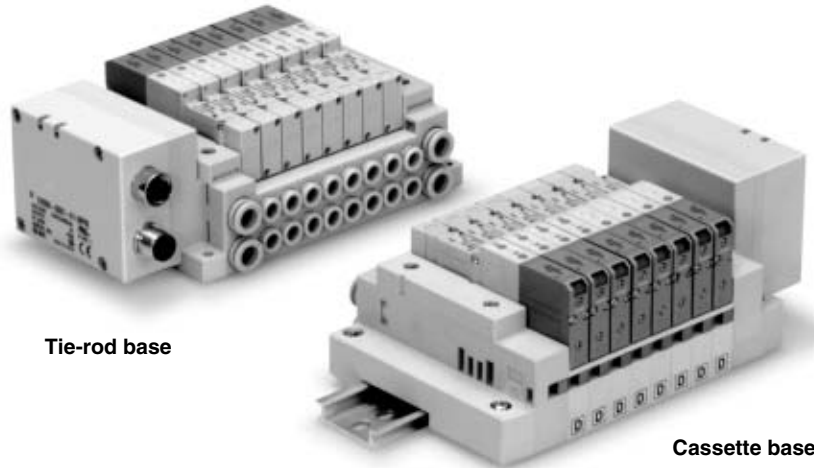


# Decentralized Serial Wiring

## 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"><li>• Number of output points: 16 points</li><li>• EX500 gateway unit communication specifications Remote I/O, DeviceNet, PROFIBUS-DP</li></ul>	

SV

SZ

SY

SYJ

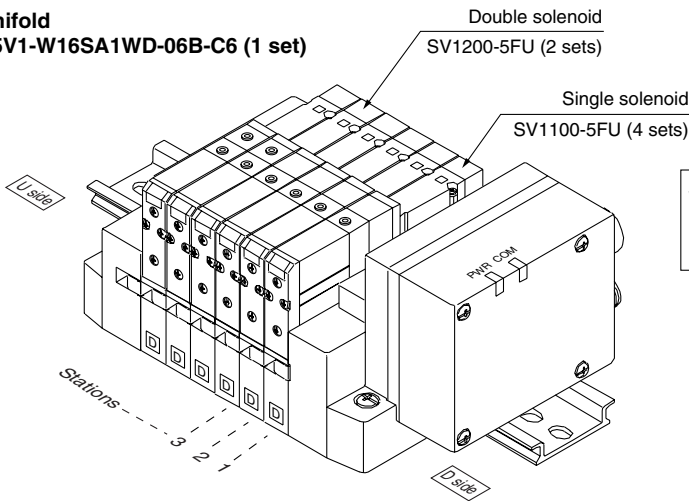
SX

## How to Order Valve Manifold Assembly

### Ordering example (SV1000)

Manifold

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



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

SV

SZ

SY

SYJ

SX

## How to Order Solenoid Valves

SV 1 1 00 [ ] [ ] — 5 F [ ] [ ] [ ]

**Series**

1	SV1000
2	SV2000
3	SV3000
4	SV4000

**Type of actuation**

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

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

**Pilot type**

Nil	Internal pilot
R	External pilot

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

**Back pressure check valve**

Nil	None
K	Built-in

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

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

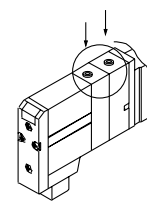
Note)



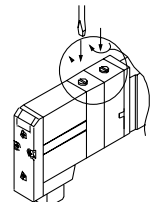
Note) Available with manifold block for station additions. Refer to pages 1-2-89 and 1-2-93.

**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
---	--------



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

# 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°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  

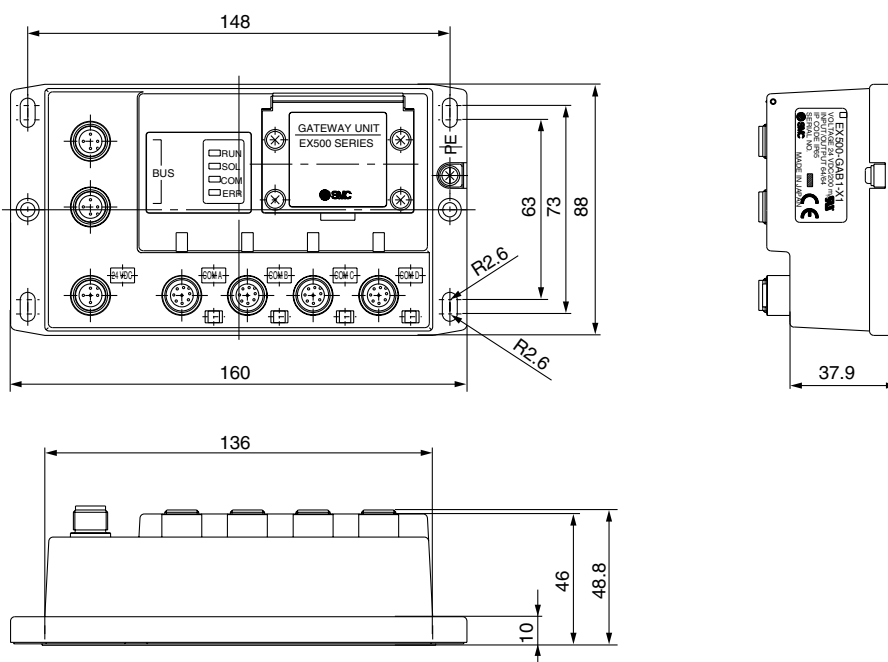
Communication protocol

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

Applicable GW unit

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

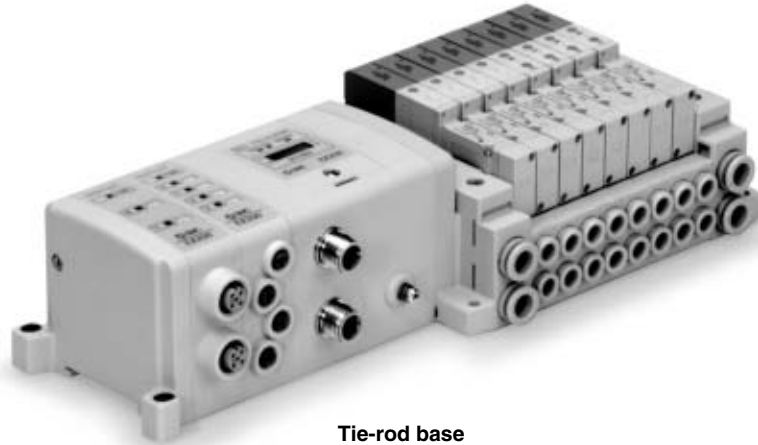
## Dimensions



# 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

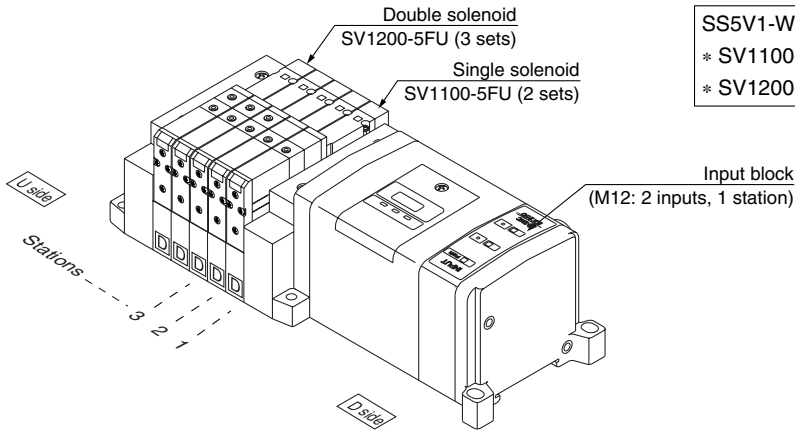
SYJ

SX

## 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 [ ] [ ] - [ ]

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.

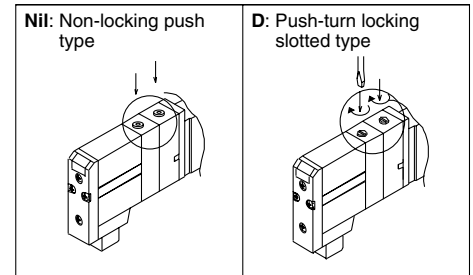


Refer to Precautions 2 on page 1-2-9.



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

Manual override



Light/Surge voltage suppressor

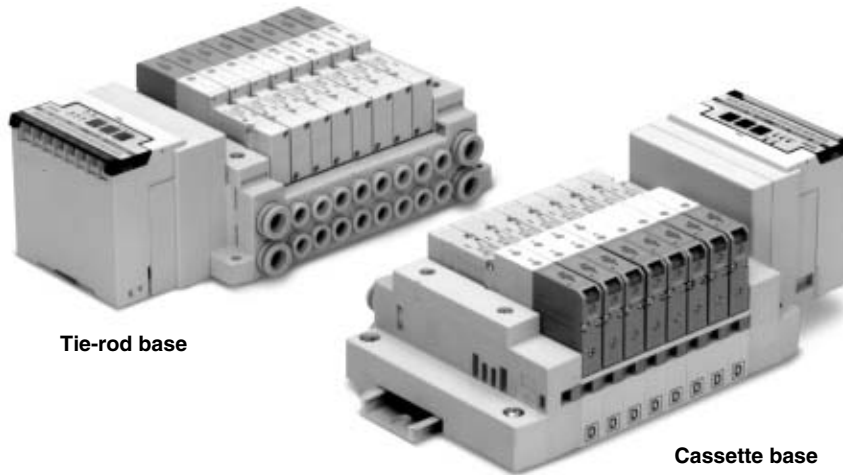
U	With light/surge voltage suppressor
R	With surge voltage suppressor

Rated voltage

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

# Dedicated Output Serial Wiring

## Series *EX120*



Tie-rod base

Cassette base

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

SV

SZ

SY

SYJ

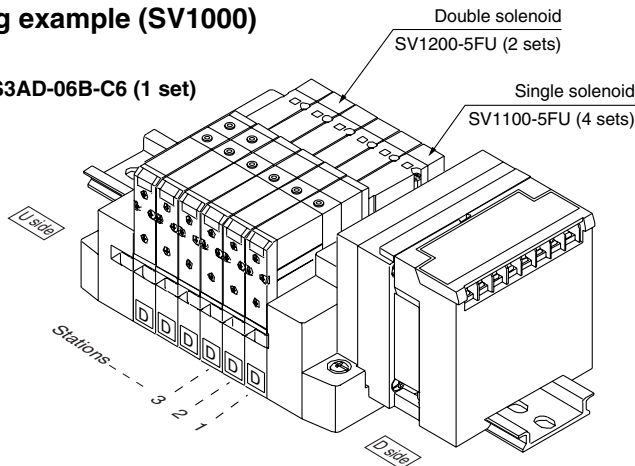
SX

## How to Order Valve Manifold Assembly

### Ordering example (SV1000)

#### Manifold

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



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

**SV**  
**SZ**  
**SY**  
**SYJ**  
**SX**

## How to Order Solenoid Valves

**SV 1 1 0 0** [ ] [ ] - **5 F** [ ] [ ] [ ] (Note)

**Series**

1	SV1000
2	SV2000
3	SV3000
4	SV4000

**Type of actuation**

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

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

**Pilot type**

Nil	Internal pilot
R	External pilot

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

**Back pressure check valve**

Nil	None
K	Built-in

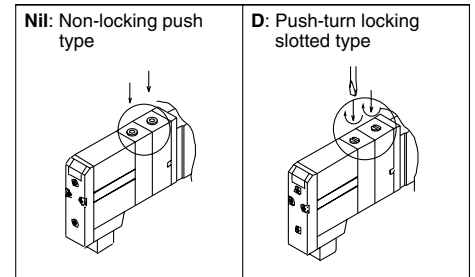
\* Built-in back pressure check valve type is applicable to Series SV1000 only.  
\* Back pressure check valve is not available for 3 position closed center and 3 position pressure center.



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

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

**Manual override**



**Rated voltage**

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

**Light/Surge voltage suppressor**

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

**A, B port size (Metric)**

Symbol	A, B port	P, E port	Applicable series
C3	One-touch fitting for ø3.2	One-touch fitting for ø8	SV1000
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6		
C4	One-touch fitting for ø4	One-touch fitting for ø10	SV2000
C6	One-touch fitting for ø6		
C8	One-touch fitting for ø8		
C6	One-touch fitting for ø6	One-touch fitting for ø12	SV3000
C8	One-touch fitting for ø8		
C10	One-touch fitting for ø10		
C8	One-touch fitting for ø8	One-touch fitting for ø12	SV4000
C10	One-touch fitting for ø10		
C12	One-touch fitting for ø12		
O2	Rc 1/4	Rc 3/8	SV4000
O3	Rc 3/8		
O2F	G 1/4	G 3/8	SV4000
O3F	G 3/8		
M	A, B ports mixed		

**A, B port size (Inch)**

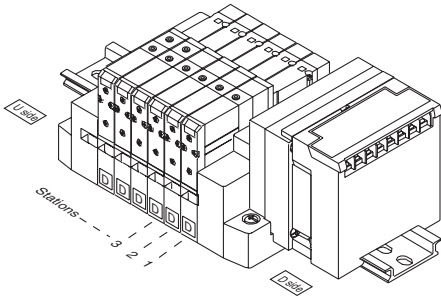
Symbol	A, B port	P, E port	Applicable series
N1	One-touch fitting for ø1/8"	One-touch fitting for ø5/16"	SV1000
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø1/4"		
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for 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"		
O2N	NPT 1/4		
O3N	NPT 3/8	NPT 3/8	SV4000
O2T	NPTF 1/4		
O3T	NPTF 3/8	NPTF 3/8	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.

# Series SV

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



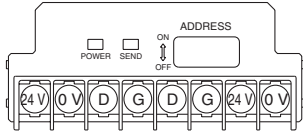
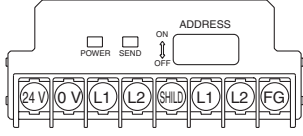
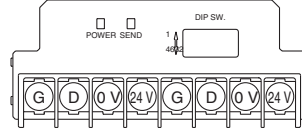
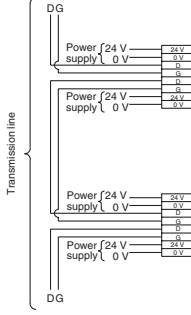
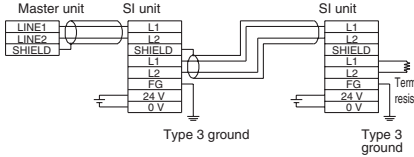
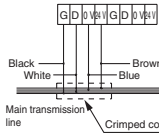
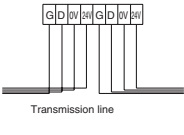
- Stations are counted from D side as the 1st.
- A maximum of 16 solenoids is possible (16 stations with single solenoids).

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

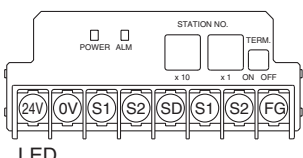
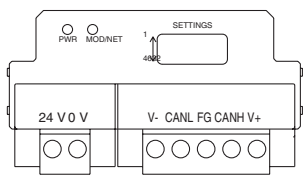
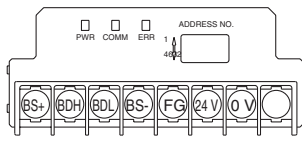
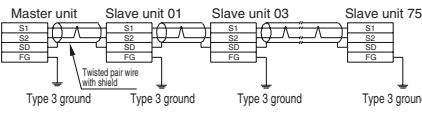
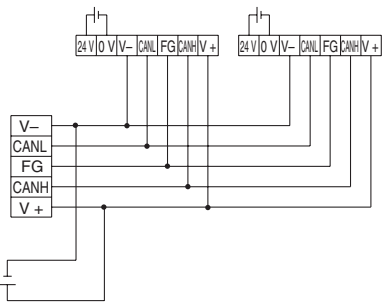
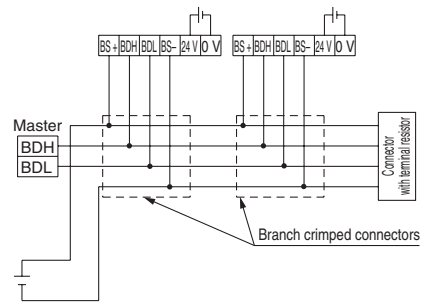
	Type A Series EX300	Type B Mitsubishi Electric Corporation MELSECNET/mini-S3 Data Link System																		
Name of terminal block, LED	<table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>TRD</td> <td>ON during data reception</td> </tr> <tr> <td>RUN/ERR</td> <td>Blinks for normal data reception, ON for abnormal</td> </tr> </tbody> </table>	LED	Description	TRD	ON during data reception	RUN/ERR	Blinks for normal data reception, ON for abnormal	<table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>ON for power supply input</td> </tr> <tr> <td>RUN</td> <td>ON for normal data traffic with master unit</td> </tr> <tr> <td>RD</td> <td>ON during data reception</td> </tr> <tr> <td>SD</td> <td>ON during data transmission</td> </tr> <tr> <td>ERR</td> <td>ON for data reception error, OFF when normal</td> </tr> </tbody> </table>	LED	Description	POWER	ON for power supply input	RUN	ON for normal data traffic with master unit	RD	ON during data reception	SD	ON during data transmission	ERR	ON for data reception error, OFF when normal
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SD	ON during data transmission																			
ERR	ON for data reception error, OFF when normal																			
Note	<ul style="list-style-type: none"> <li>• 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</li> <li>* Each T unit has 32 control points.</li> <li>• No. of output points, 16 points</li> </ul>	<ul style="list-style-type: none"> <li>• MELSECNET/mini-S3 Data Link System Master unit : AJ71PT32-S3 AJ71T32-S3 A1SJ71PT32-S3</li> <li>• No. of output points, 16 points, No. of stations occupied, 2 stations</li> </ul>																		
Cable wiring	<p>* Ground either the reception side or the transmission side of the shielding wire shield.</p>	<p>SI manifold solenoid valve</p> <p>* Ground either the reception side or the transmission side of the shielding wire shield.</p>																		

	Type C OMRON Corporation SYSBUS Wire System	Type D SHARP Corporation Satellite I/O Link System	Type E Matsushita Electric Works, Ltd. MEWNET-F System																								
Name of terminal block, LED	<table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>RUN</td> <td>ON when transmission is normal and PLC is in operation mode</td> </tr> <tr> <td>T/R, ERR</td> <td>Blinks when transmission is normal, ON when transmission is abnormal.</td> </tr> </tbody> </table>	LED	Description	RUN	ON when transmission is normal and PLC is in operation mode	T/R, ERR	Blinks when transmission is normal, ON when transmission is abnormal.	<table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>ON when power supply is ON</td> </tr> <tr> <td>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, HOLD</td> <td>ON for master unit control input</td> </tr> </tbody> </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	<table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>ON when power supply is ON</td> </tr> <tr> <td>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> </tbody> </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"> <li>• SYSBUS Wire System Master unit : Type C500-RM201 Type C200H-RM201</li> <li>• No. of output points, 16 points</li> </ul>	<ul style="list-style-type: none"> <li>• Satellite I/O Link System JW-23LM, JW-23LMH Master unit : ZW-31LM JW-31LM, JW-31LMH</li> <li>• No. of output points, 16 points</li> </ul>	<ul style="list-style-type: none"> <li>• MEWNET-F System Master unit : AFP3740, AFP3742 AFP5740, AFP5742</li> <li>• No. of output points, 16 points</li> </ul>																								
Cable wiring		<p>a) 2-wire type Wiring does not include signal ground line (SG).</p> <p>b) 3-wire type Wiring does not include signal ground line (SG).</p>																									

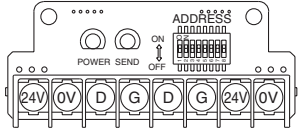
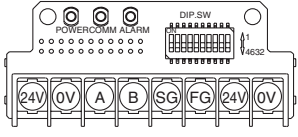
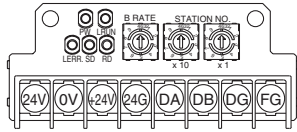
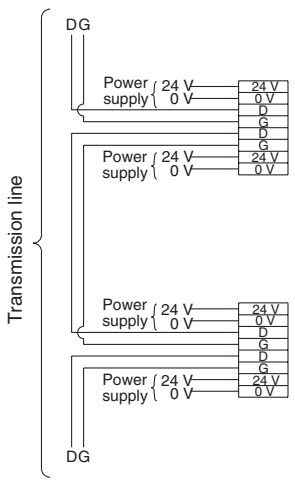
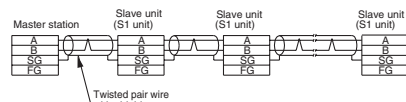
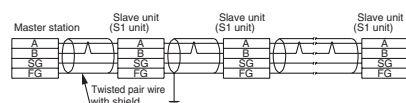
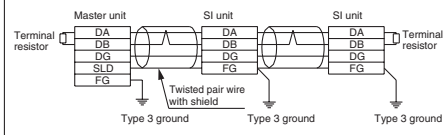


	Type F1 NKE Corporation Uni-wire System	Type G Rockwell Automation, Inc. Allen Bradley Remote I/O (RIO) System	Type J1, J2 SUNX Corporation S-LINK System																				
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SEND	Transmission indication: Blinks when normal, Blinks slowly when abnormal																						
Note	<ul style="list-style-type: none"> <li>• Uni-wire System Send unit : SD-120</li> <li>• No. of output points, 16 points</li> </ul>	<ul style="list-style-type: none"> <li>• Remote I/O (RIO) System</li> <li>• No. of output points, 16 points</li> </ul>	<ul style="list-style-type: none"> <li>• S-LINK System S-LINK controller: SL-CU1A</li> <li>• No. of output points, 16 points (Type J1) No. of output points, 8 points (Type J2)</li> </ul>																				
Cable wiring			<p>a) Type T branching multi-drop wiring (S-LINK System)</p>  <p>b) Crossover wiring (Sensor Link System)</p>  <p>The above is the example of using dedicated S-LINK flat ribbon cable SL-RCMI00.</p>																				

**SV**  
**SZ**  
**SY**  
**SYJ**  
**SX**

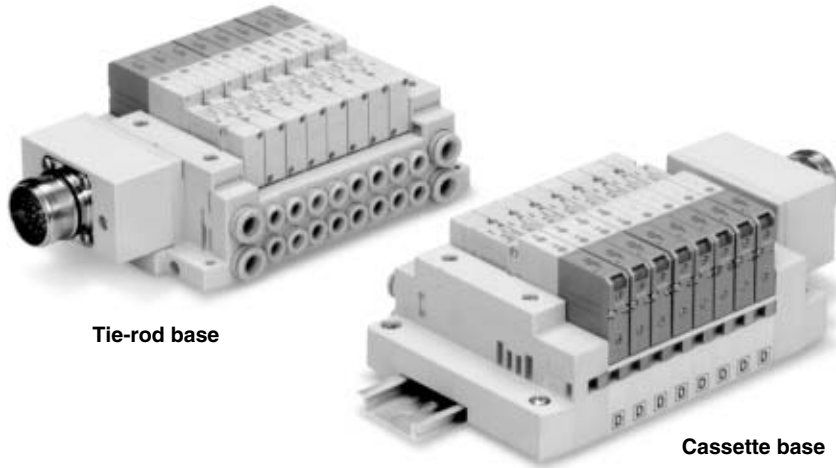
	Type K Fuji Electric Co., Ltd. T-LINK Mini System	Type Q DeviceNet	Type R1, R2 OMRON Corporation CompoBus/S																								
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Note	<ul style="list-style-type: none"> <li>• T-LINK Mini System Master unit : FTM100B Converter : FRC100A-G02 Repeater : FRC200A-C10</li> <li>• No. of output points, 16 points</li> </ul>	<ul style="list-style-type: none"> <li>• DeviceNet</li> <li>• OMRON Corporation: CompoBus/D System Master unit : Type C200HW-DRM21-V1 Master unit : Type CS1W-DRM21</li> <li>• No. of output points, 16 points</li> </ul>	<ul style="list-style-type: none"> <li>• 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)</li> </ul>																								
Cable wiring	 <p>Connect the shielding wire to the SD terminal. If the shielding wire is not connected to the SD terminal, normal transmission will be impossible even for short distances. Furthermore, do not ground the shielding wire (SD).</p>																										

# Series SV

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

# 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

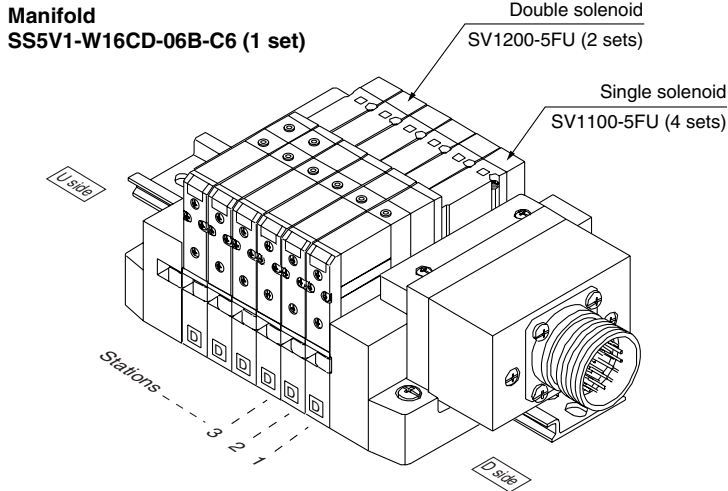
SY

SYJ

SX

## How to Order Valve Manifold Assembly

### Ordering example (SV1000)



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

- SV
- SZ
- SY
- SYJ
- SX

## How to Order Solenoid Valves

SV 1 1 0 0 [ ] [ ] - 5 F [ ] [ ] [ ]

Series ●

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Type of actuation ●

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

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

Pilot type ●

Nil	Internal pilot
R	External pilot

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

Back pressure check valve ●

Nil	None
K	Built-in

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

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

● Manual override

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

● Light/Surge voltage suppressor

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

● Rated voltage

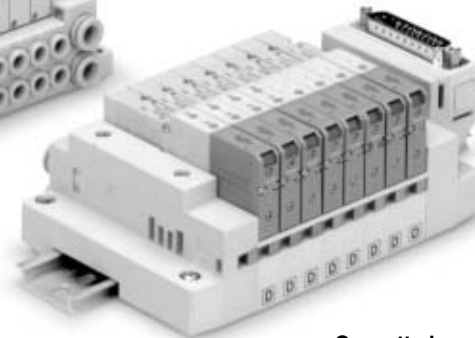
5	24 VDC
6	12 VDC

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

# 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"><li>• Number of connectors: 25 pins</li><li>• MIL-C-24308</li></ul> Conforming to JIS-X-5101

SV

SZ

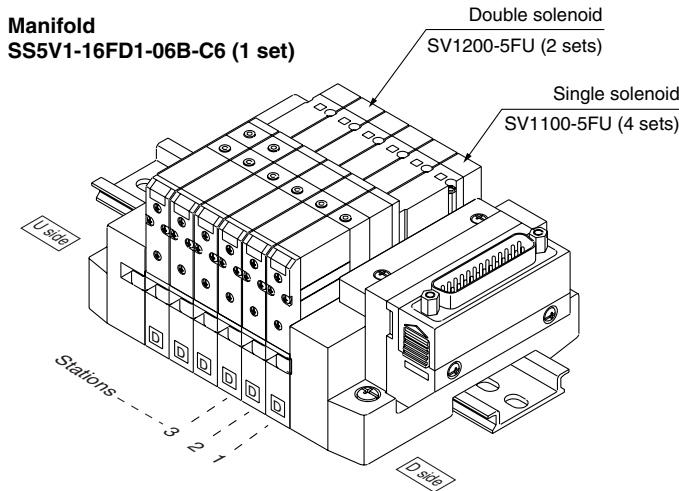
SY

SYJ

SX

## 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.

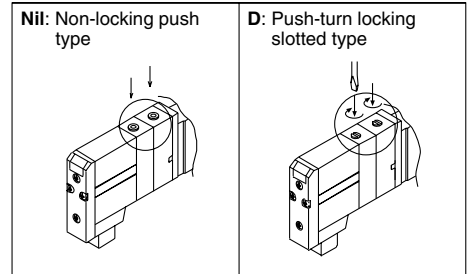
\* 4 position dual 3 port valves are applicable to Series SV1000 and SV2000 only.

**Pilot type**

Nil	Internal pilot
R	External pilot

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

**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

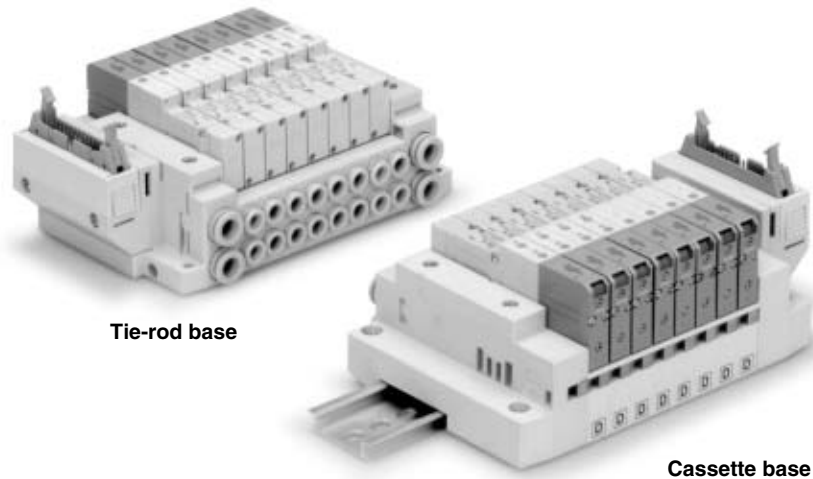
\* Built-in back pressure check valve type is applicable to series SV1000 only.

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

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

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

# Flat Ribbon Cable Connector



Tie-rod base

Cassette base

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

SV

SZ

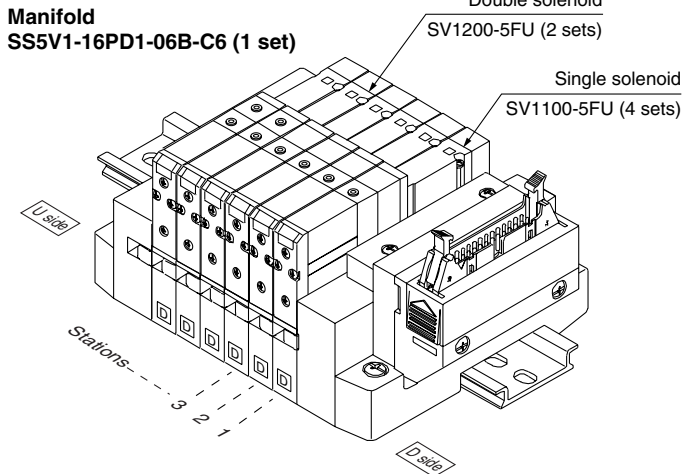
SY

SYJ

SX

## How to Order Valve Manifold Assembly

### Ordering example (SV1000)



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

SV  
SZ  
SY  
SYJ  
SX

## How to Order Solenoid Valves

SV 1 1 0 0 — 5 F

**Series**

1	SV1000
2	SV2000
3	SV3000
4	SV4000

**Type of actuation**

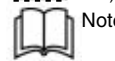
1	2 position single solenoid
2	2 position double solenoid
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
A	4 position dual 3 port valve: N.C./N.C.
B	4 position dual 3 port valve: N.O./N.O.
C	4 position dual 3 port valve: N.C./N.O.

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

**Pilot type**

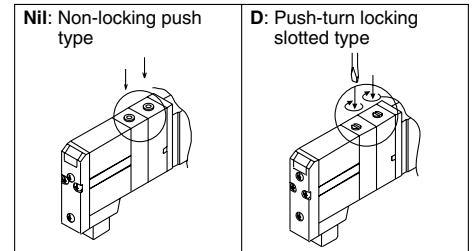
Nil	Internal pilot
R	External pilot

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



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

**Manual override**



**Light/Surge voltage suppressor**

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

**Rated voltage**

5	24 VDC
6	12 VDC

**Back pressure check valve**

Nil	None
K	Built-in

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



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

**A, B port size (Metric)**

Symbol	A, B port	P, E port	Applicable series
C3	One-touch fitting for $\phi 3.2$	One-touch fitting for $\phi 8$	SV1000
C4	One-touch fitting for $\phi 4$		
C6	One-touch fitting for $\phi 6$		
C4	One-touch fitting for $\phi 4$	One-touch fitting for $\phi 10$	SV2000
C6	One-touch fitting for $\phi 6$		
C8	One-touch fitting for $\phi 8$		
C6	One-touch fitting for $\phi 6$	One-touch fitting for $\phi 12$	SV3000
C8	One-touch fitting for $\phi 8$		
C10	One-touch fitting for $\phi 10$		
C8	One-touch fitting for $\phi 8$	One-touch fitting for $\phi 12$	SV4000
C10	One-touch fitting for $\phi 10$		
C12	One-touch fitting for $\phi 12$		
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 $\phi 1/8$ "	One-touch fitting for $\phi 5/16$ "	SV1000
N3	One-touch fitting for $\phi 5/32$ "		
N7	One-touch fitting for $\phi 1/4$ "		
N3	One-touch fitting for $\phi 5/32$ "	One-touch fitting for $\phi 3/8$ "	SV2000
N7	One-touch fitting for $\phi 1/4$ "		
N9	One-touch fitting for $\phi 5/16$ "		
N7	One-touch fitting for $\phi 1/4$ "	One-touch fitting for $\phi 3/8$ "	SV3000
N9	One-touch fitting for $\phi 5/16$ "		
N11	One-touch fitting for $\phi 3/8$ "		
N9	One-touch fitting for $\phi 5/16$ "	One-touch fitting for $\phi 3/8$ "	SV4000
N11	One-touch fitting for $\phi 3/8$ "		
02N	NPT 1/4		
03N	NPT 3/8	NPT 3/8	SV4000
02T	NPTF 1/4		
03T	NPTF 3/8		
M	A, B ports mixed		

\* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.  
 \* Port sizes of X, PE port for external pilot specification (R, RS) are  $\phi 4$  (metric),  $\phi 5/32$ " (inch) for SV1000/2000 and  $\phi 6$  (metric) and  $\phi 1/4$ " (inch) for SV3000/4000.



## 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

### 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.

### A, B port size

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

### Manifold wiring specifications

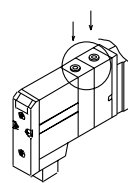
Nil	Double wiring
S	Single wiring

### Manifold block type

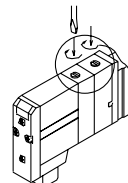
C	Cassette base type 16 with manifold block
---	---

### Manual override

Nil: Non-locking push type



D: Push-turn locking slotted type



### Light/Surge voltage suppressor

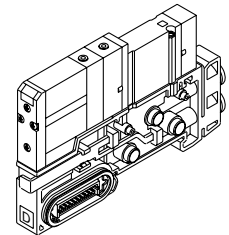
U	With light/surge voltage suppressor
R	With surge voltage suppressor

### 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

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

For A, B port

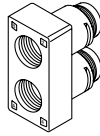
**SY9000 – 58A – 02 03**

For P, E port

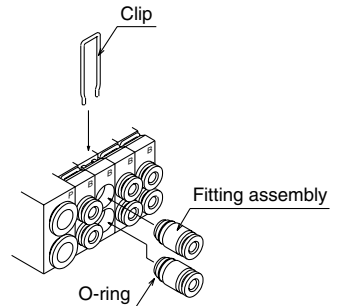
**SY9000 – 58B – 03**

### Thread type

Nil	Rc
F	G
N	NPT
T	NPTF



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



SV
SZ
SY
SYJ
SX

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

[Series SV1000 to SV4000]

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

**SV 1 1 0 0** — **5 F**

### Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

### Type of actuation

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

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

### Pilot type

Nil	Internal pilot
R	External pilot

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

### Back pressure check valve

Nil	None
K	Built-in

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

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



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

### A, B port size

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

### Manifold wiring specifications

Nil	Double wiring
S	Single wiring

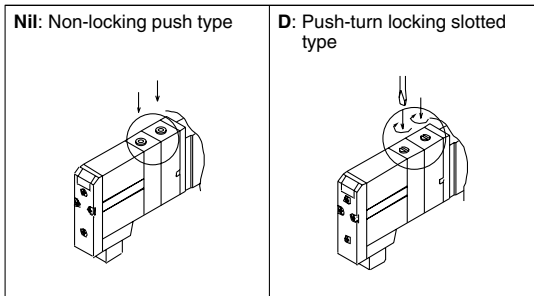
### Manifold block type

T	For Tie-rod base type 10 with manifold block
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Note) Tie-rod type 10 includes tie-rods for station additions.

### Manual override



### Light/Surge voltage suppressor

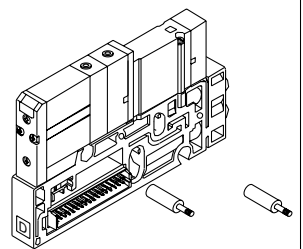
U	With light/surge voltage suppressor
R	With surge voltage suppressor

### Rated voltage

5	24 VDC
6	12 VDC

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

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



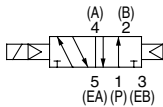
**Series SV Solenoid Valve Specifications**



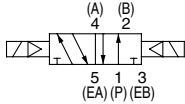
**Made to Order Specifications**  
(For details, refer to page 1-2-108.)

**JIS Symbol**

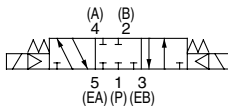
2 position single solenoid



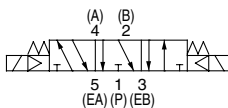
2 position double solenoid



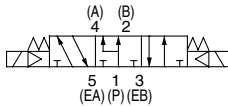
3 position closed center



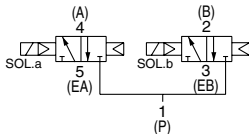
3 position exhaust center



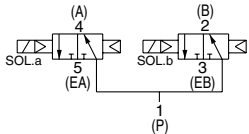
3 position pressure center



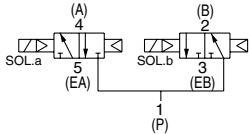
4 position dual 3 port valve: N.C./N.C.



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	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	
	3 position		
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 <sup>2</sup> )	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		

**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 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.