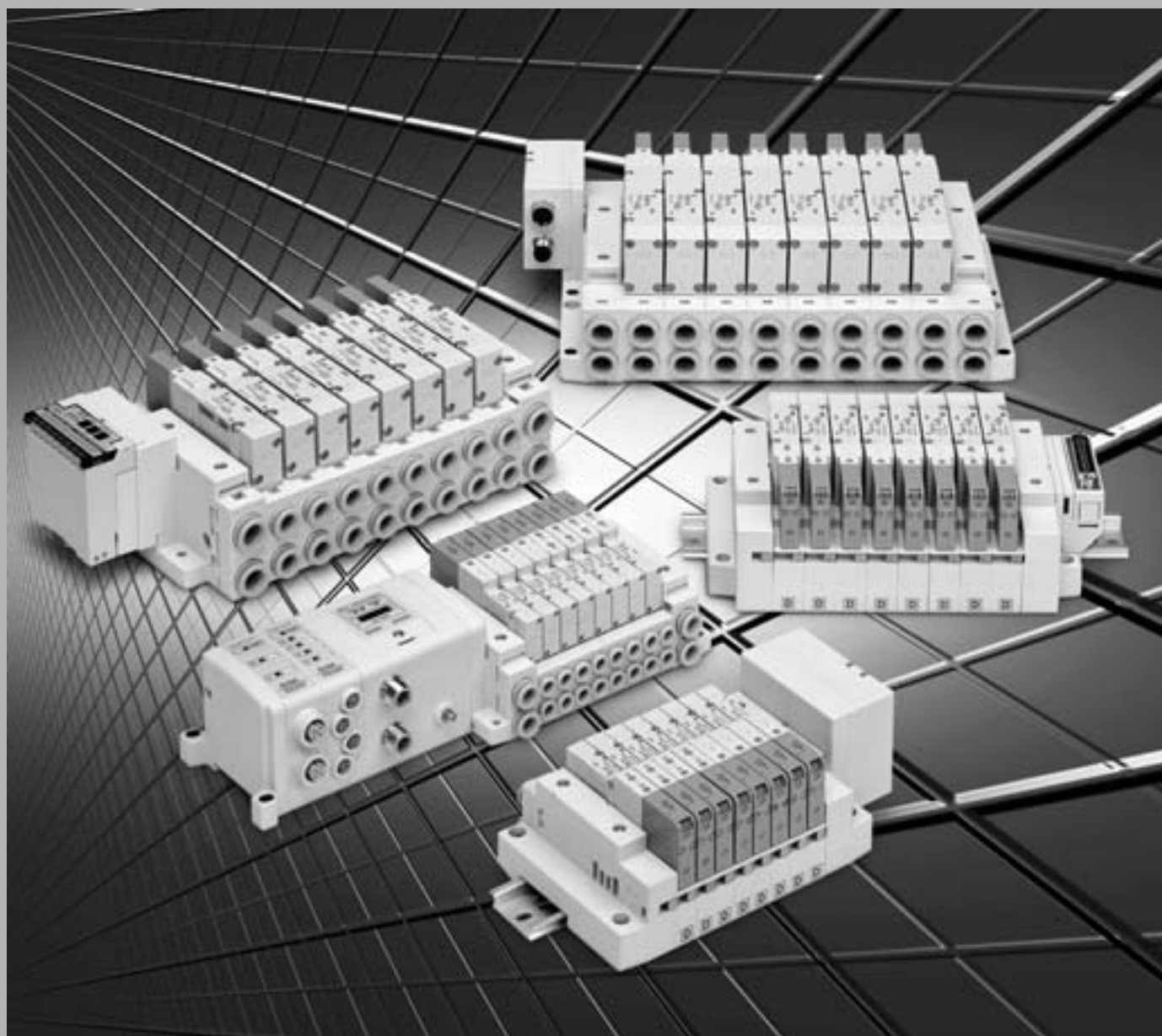


# 5 Port Solenoid Valve

## Series *SV1000/2000/3000/4000*

Rubber Seal



***New Concept* Connector Type Manifold**

SJ

SY

**SV**

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

VQ7

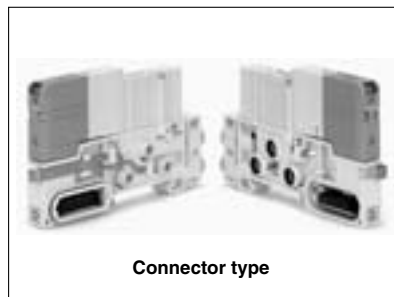
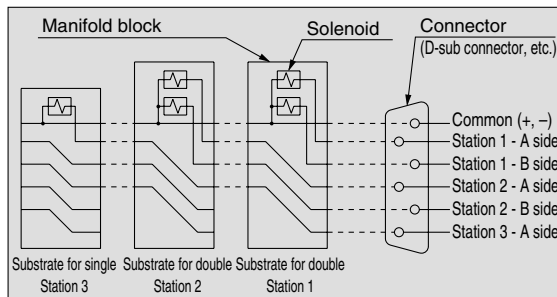
# New Concept Connector Type Manifold Series SV1000/2000/3000/4000

- The use of multi-pin connectors to replace wiring inside manifold blocks provides flexibility when adding stations or changing manifold configuration.

Series SV employs a multi-connector instead of the conventional lead wires for internal. By connecting each block with a connector, changes to manifold stations are greatly simplified.

## Connector wiring diagram

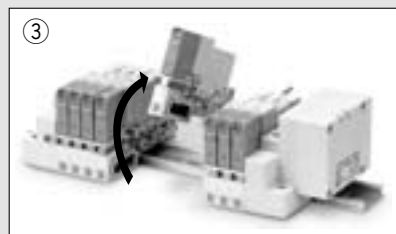
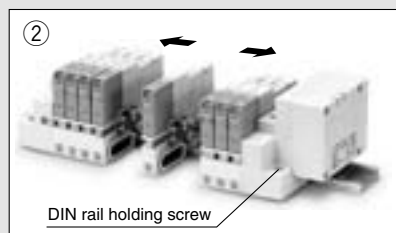
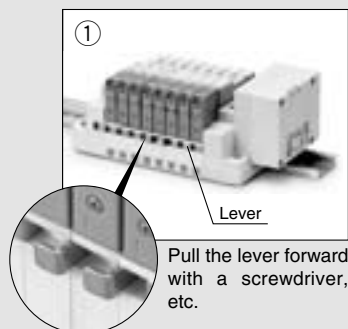
For both serial and parallel wiring, additional manifold blocks are sequentially assigned pins on the connector. This makes it completely unnecessary to disassemble the connector unit.



**Service life of 50 million cycles or more**  
(Based on SMC life test conditions)

## ■ Cassette base type manifold (For SV1000/2000)

Cassette base type manifolds offer the ultimate in flexibility. Manifold sections can be added using a simple release mechanism.



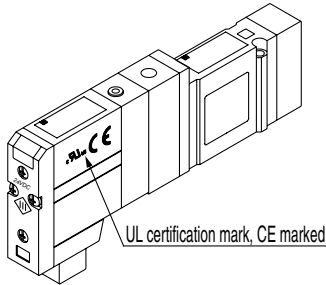
Pull the valve up at the front.

## ■ Tie-rod base manifold (For SV1000/2000/3000/4000)

Conventional tie-rod base type manifolds are also available. 34 pins connector allows up to 16 stations with double solenoids. (Refer to the tie-rod base manifold exploded view on page 430.)

## ■ A relay output module control of devices up

■ The standard product is CE-compliant and UL-standard.



■ Series EX500: Gateway system, serial transmission system

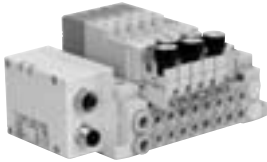
- IP67 compliant (Gateway unit and input manifold are compliant with IP65.)
- No. of input/output point: 128 points (Output 64 points, Input 64 points)
- Controls up to 4 branches with 32 I/O per branch
- A single cable from the gateway provides both signal and power for each branch, eliminating the need for separate power connections for each manifold.

■ Series EX250: Integrated type (for I/O), serial transmission system

- IP67 compliant (compliant with IP40.)
- No. of input/output point: 64 points (Output 32 points, Input 32 points)
- Double solenoid allows up to 16 stations (up to 32 solenoids).

■ Interface regulator Series SV1000, 2000, 3000, 4000

- P port regulation, A port regulation and B port regulation are selectable, depending on an application. Able to set the pressure arbitrarily for each station of the manifold just by inserting between manifold base and valve.



■ Increased moisture and dust resistance.

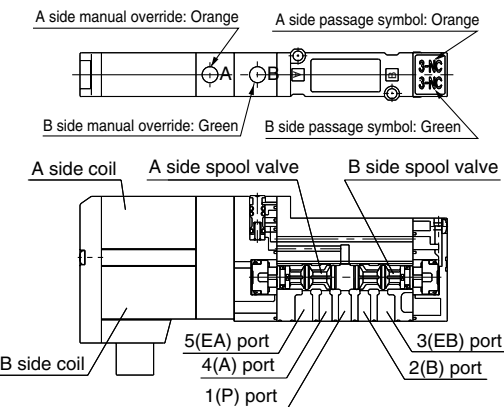
- Enclosure against foreign matters and water is conforming to IP67 \*. Can be used in an atmosphere where the valve or manifold is exposed by water, etc. directly. (\* Based on IEC60529) (Refer to the catalog contents for details, as some types of connectors do not meet these standards.)

■ 4 position dual 3 port valves available for Series SV1000/2000

- Two 3 port valves built into a single valve body.
- A and B ports can be individually controlled.
- Three combinations are available: [N.C./N.C.], [N.O./N.O.], and [N.C./N.O.].
- Mixed mounting with 5 port valves is also possible.
- Labels are attached to indicate A and B side functions, using the same color as the manual override.

Power consumption: 0.6 W  
(Current: 25 mA, 24 VDC)

is available for  
to 110 VAC, 3 A.



| Model               | A side     | B side     | JIS Symbol |
|---------------------|------------|------------|------------|
| SV <sup>1</sup> A00 | N.C. valve | N.C. valve |            |
| SV <sup>1</sup> B00 | N.O. valve | N.O. valve |            |
| SV <sup>1</sup> C00 | N.C. valve | N.O. valve |            |

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



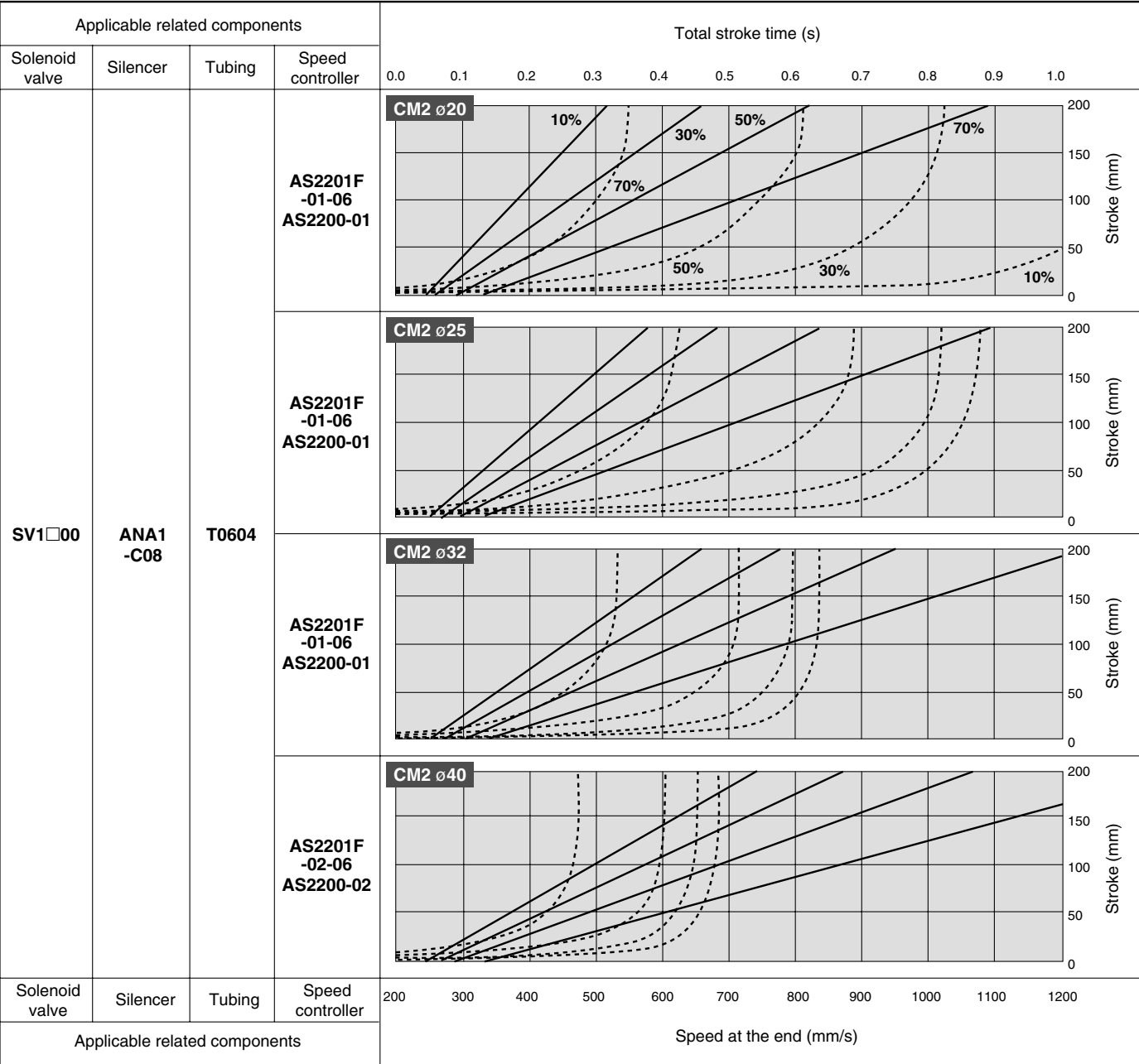
|       |
|-------|
| SJ    |
| SY    |
| SV    |
| SYJ   |
| SZ    |
| VP4   |
| S0700 |
| VQ    |
| VQ4   |
| VQ5   |
| VQC   |
| VQZ   |
| SQ    |
| VFS   |
| VFR   |
| VQ7   |

# Air Cylinders Drive System

## Full Stroke Time and Speed at the End

### Series SV1000

Applicable bore size:  $\varnothing 20$ ,  $\varnothing 25$ ,  $\varnothing 32$ ,  $\varnothing 40$



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

#### How to Read the Graph

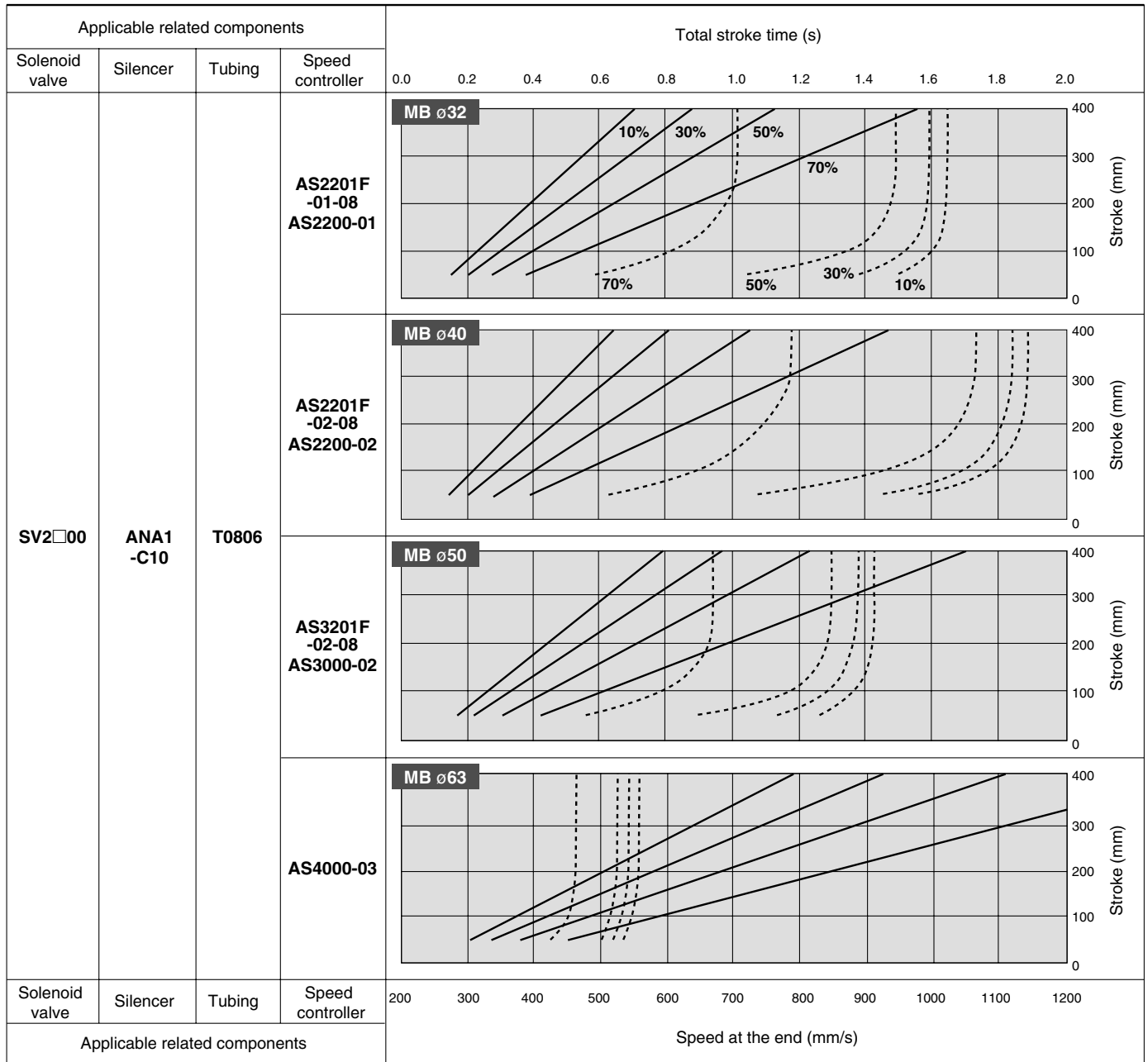
These graphs show the total stroke time and speed at the end when a cylinder drive system is composed of the ideal components. The graphs above indicate the total stroke time and speed at the end with respect to various load ratios and strokes for each cylinder bore size.

#### 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%            |

## Series SV2000

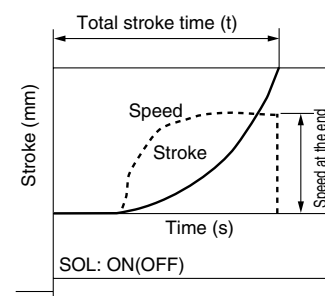
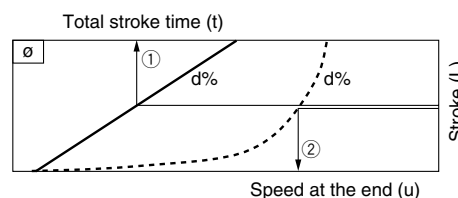
Applicable bore size:  $\varnothing 32$ ,  $\varnothing 40$ ,  $\varnothing 50$ ,  $\varnothing 63$



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

### Example

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

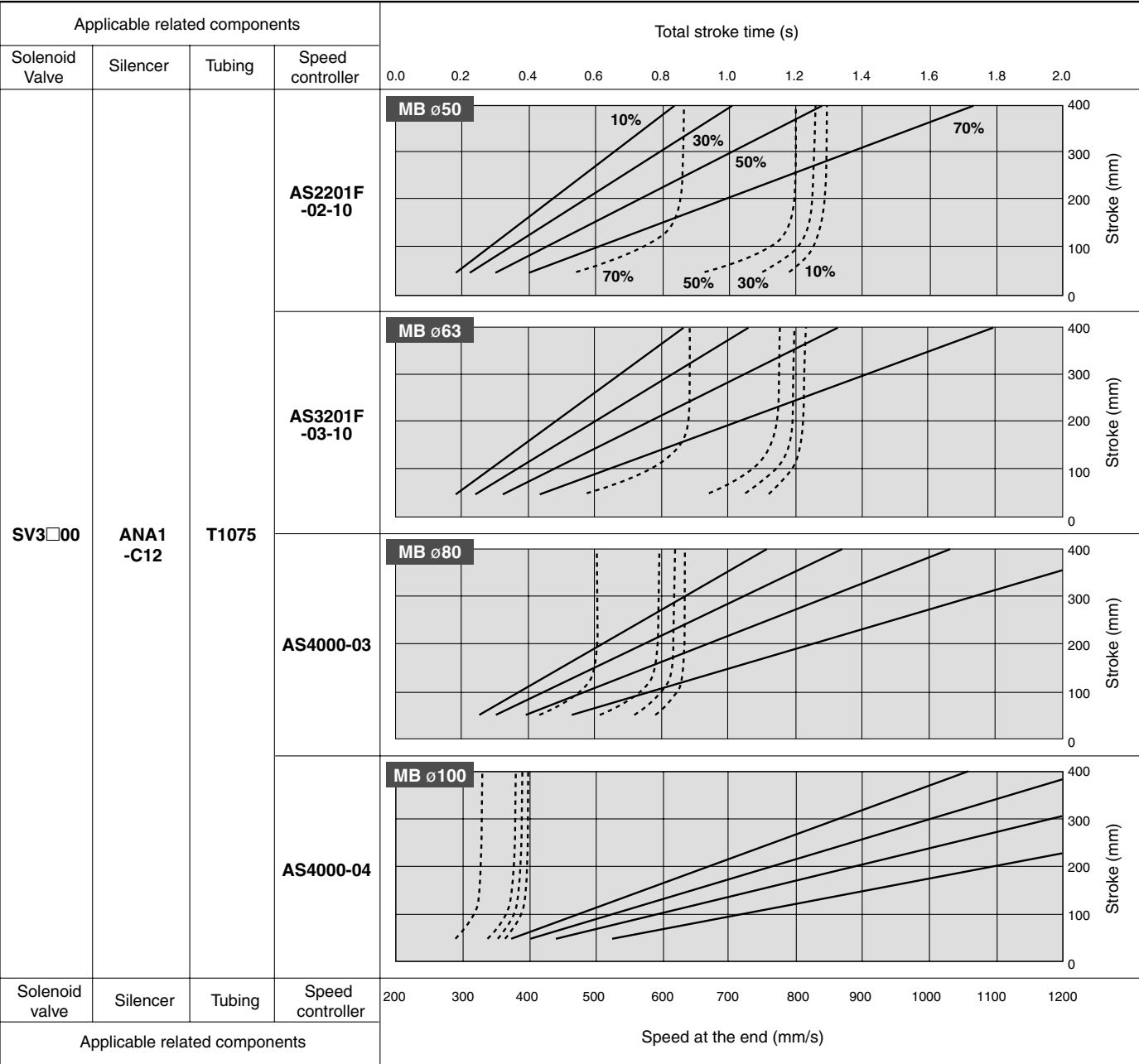


# Air Cylinders Drive System

## Full Stroke Time and Speed at the End

### Series SV3000

Applicable bore size:  $\varnothing 50$ ,  $\varnothing 63$ ,  $\varnothing 80$ ,  $\varnothing 100$



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

#### How to Read the Graph

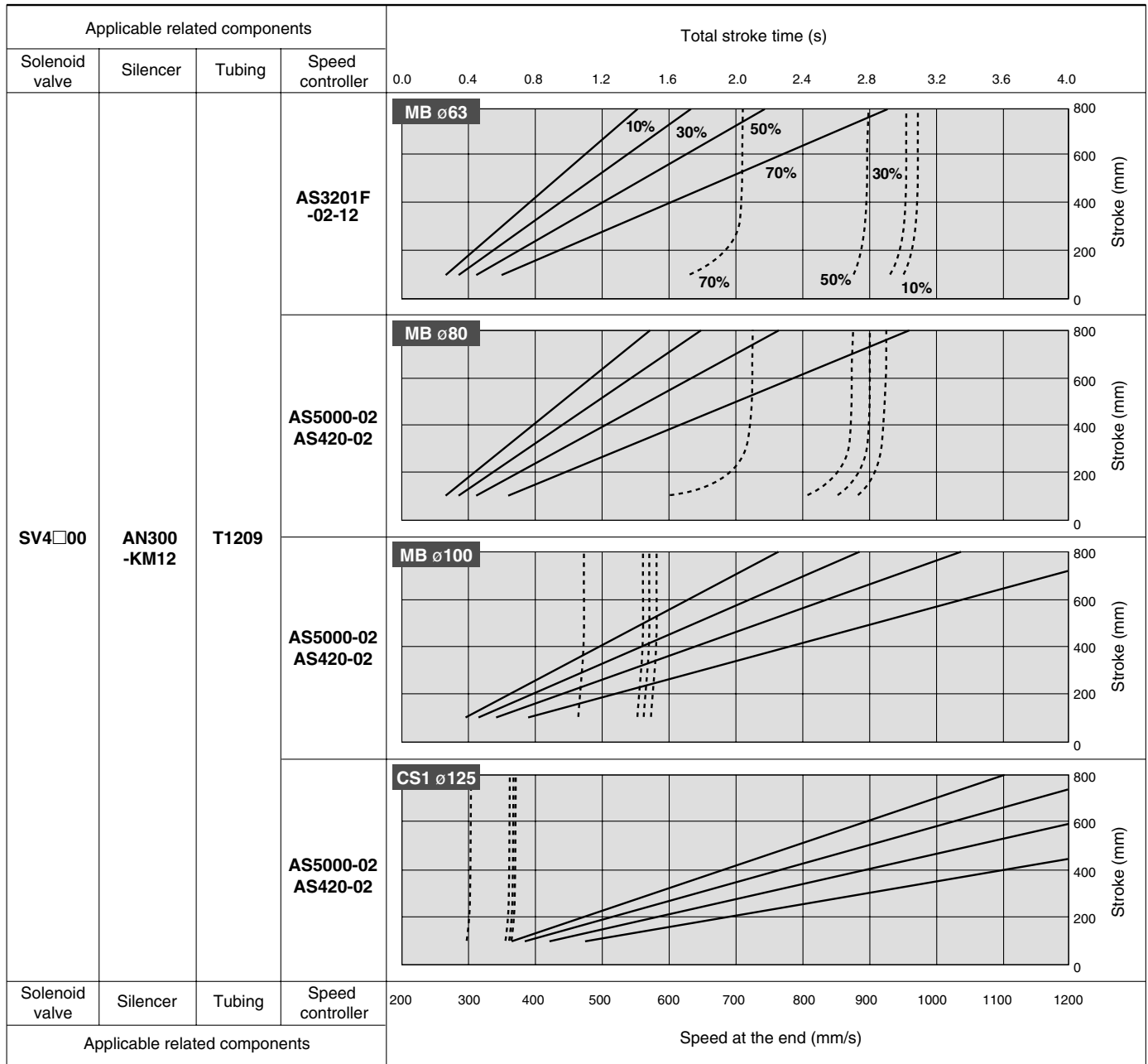
These graphs show the total stroke time and speed at the end when a cylinder drive system is composed of the ideal components. The graphs above indicate the total stroke time and speed at the end with respect to various load ratios and strokes for each cylinder bore size.

#### 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%              |

## Series SV4000

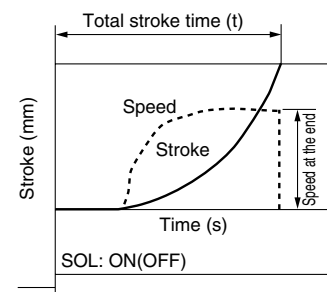
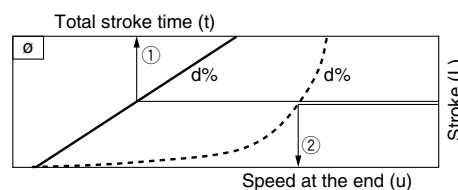
Applicable bore size:  $\varnothing 63$ ,  $\varnothing 80$ ,  $\varnothing 100$ ,  $\varnothing 125$



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

### Example

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





# INDEX

## Series SV Manifold Variations

### Serial Wiring

#### Valve Manifold Common Specifications

P. 352

##### Manifold specifications

#### EX500 Gateway System Serial Transmission System

P. 355

IP67 compliant

Applicable series

Cassette base manifold  
SV1000/SV2000

Tie-rod base manifold  
SV1000/SV2000/SV3000/SV4000

- Number of output points: 16 points
- Connected to the EX500GW unit

#### EX250 Integrated Type (for I/O) Serial Transmission System

P. 365

IP67 (partly IP40) compliant

Applicable series

Tie-rod base manifold  
SV1000/SV2000/SV3000

- Number of input/output points: Each 32 points

#### EX126 Integrated Type (for Output) Serial Transmission System

P. 371

IP67 compliant

Applicable series

Tie-rod base manifold  
SV1000/SV2000/SV3000

- Number of output points: 16 points

#### EX120 Integrated Type (for Output) Serial Transmission System

P. 377

Applicable series

Cassette base manifold  
SV1000/SV2000

Tie-rod base manifold  
SV1000/SV2000/SV3000/SV4000

- Number of output points: 16 points

### Parallel Wiring

#### For Circular Connector

P. 387

IP67 compliant

Applicable series

Cassette base manifold  
SV1000/SV2000

Tie-rod base manifold  
SV1000/SV2000/SV3000/SV4000

- Number of connectors: 26 pins

#### D-sub Connector

P. 397

Applicable series

Cassette base manifold  
SV1000/SV2000

Tie-rod base manifold  
SV1000/SV2000/SV3000/SV4000

- Number of connectors: 25 pins
- MIL-C-24308
- Conforming to JIS-X-5101

#### Flat Ribbon Cable Connector

P. 407

Applicable series

Cassette base manifold  
SV1000/SV2000

Tie-rod base manifold  
SV1000/SV2000/SV3000/SV4000

- Number of connectors: 26, 20, 10 pins
- With strain relief
- Conforming to MIL-C-83503

#### Flat Ribbon Cable PC Wiring

P. 410

Applicable series

Cassette base manifold  
SV1000/SV2000

Tie-rod base manifold  
SV1000/SV2000/SV3000/SV4000

- Number of connectors: 20 pins
- Conforming to MIL-C-83503

#### Manifold exploded view/Manifold option

P. 426

#### Single Valve/Sub-plate [IP67 compliant]

P. 440

IP67 compliant

Applicable series

SV1000/SV2000/SV3000/SV4000

- With waterproof M12 connector

#### Made to Order Specifications

P. 448

SJ

SY

SV

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

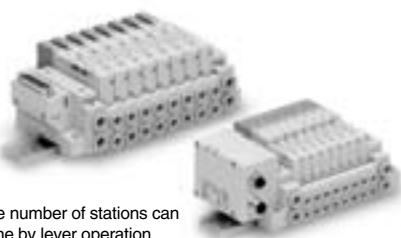
VFR

VQ7

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

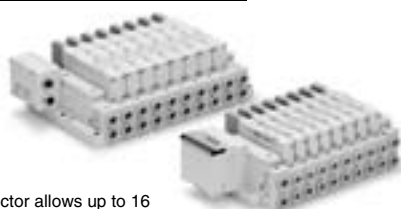
## Flow Characteristics

| Model    | Port size            |               | Flow characteristics         |      |      |                              |      |      |
|----------|----------------------|---------------|------------------------------|------|------|------------------------------|------|------|
|          | 1, 5, 3<br>(P,EA,EB) | 4, 2<br>(A,B) | 1→4/2 (P→A/B)                |      |      | 4/2→3/5 (A/B→E)              |      |      |
|          |                      |               | C [dm <sup>3</sup> /(s·bar)] | b    | Cv   | C [dm <sup>3</sup> /(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                          |
|--------------------------------------|--------------------------|--------------------------|--------------------------|----------------------------|---------------------------------|
| <b>Manifold type</b>                 |                          | Tie-rod base manifold    |                          |                            |                                 |
| <b>1 (P: SUP), 3/5 (E: EXH) type</b> |                          | Common SUP, EXH          |                          |                            |                                 |
| <b>Valve stations (maximum)</b>      |                          | 20 stations              |                          |                            |                                 |
| <b>Max. number of solenoids</b>      |                          | 32 points                |                          |                            |                                 |
| <b>Port size</b>                     | <b>1(P), 3/5(E) port</b> | C8, N9                   | C10, N11                 | C12, N11                   | C12, N11, 03                    |
|                                      | <b>4(A), 2(B) port</b>   | C3, C4, C6<br>N1, N3, N7 | C4, C6, C8<br>N3, N7, N9 | C6, C8, C10<br>N7, N9, N11 | C8, C10, C12<br>N9, N11, 02, 03 |

## Flow Characteristics

| Model    | Port size            |               | Flow characteristics         |      |      |                              |      |      |
|----------|----------------------|---------------|------------------------------|------|------|------------------------------|------|------|
|          | 1, 5, 3<br>(P,EA,EB) | 4, 2<br>(A,B) | 1→4/2 (P→A/B)                |      |      | 4/2→3/5 (A/B→E)              |      |      |
|          |                      |               | C [dm <sup>3</sup> /(s·bar)] | b    | Cv   | C [dm <sup>3</sup> /(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 IEC60529) |
|---------------------------------------------------------------|-------------------------------|
| EX500 Gateway System Serial Transmission System               | IP67 *                        |
| EX250 Integrated Type (for I/O) Serial Transmission System    | IP67 (partly IP40)            |
| EX126 Integrated Type (for output) Serial Transmission System | IP67                          |
| EX120 Integrated Type (for output) Serial Transmission System | IP20                          |
| Circular connector                                            | IP67                          |
| D-sub connector                                               | Dusttight (IP40)              |
| Flat ribbon cable                                             | Dusttight (IP40)              |

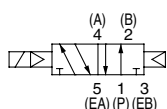
\* Enclosure of a gateway unit and input manifold is IP65.

## Series SV Solenoid Valve Specifications

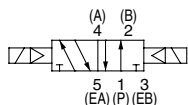
 **Made to Order Specifications**  
(For details, refer to page 448.)

### JIS Symbol

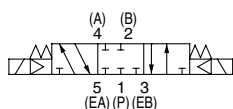
2 position single solenoid



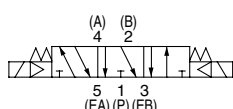
2 position double solenoid



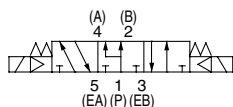
3 position closed center



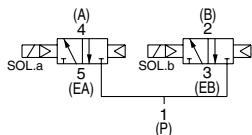
3 position exhaust center



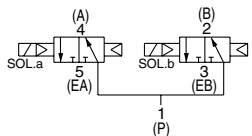
3 position pressure center



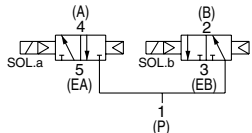
4 position dual 3 port valve: N.C./N.C.



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



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



|                                                        |                              |                                              |
|--------------------------------------------------------|------------------------------|----------------------------------------------|
| Fluid                                                  |                              | Air                                          |
| Internal pilot<br>Operating<br>pressure range<br>(MPa) | 2 position single            | 0.15 to 0.7                                  |
|                                                        | 4 position dual 3 port valve |                                              |
|                                                        | 2 position double            |                                              |
| External pilot<br>Operating<br>pressure range<br>(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                              |
|                                                        | 3 position                   |                                              |
| Ambient and fluid temperature (°C)                     |                              | -10 to 50 (No freezing. Refer to page 5.)    |
| Max. operating<br>frequency<br>(Hz)                    | 2 position single, double    | 5                                            |
|                                                        | 4 position dual 3 port valve |                                              |
|                                                        | 3 position                   | 3                                            |
| Manual override                                        |                              | Non-locking push type                        |
|                                                        |                              | Push-turn locking slotted type               |
| Pilot exhaust method                                   | Internal pilot               | Common exhaust type for main and pilot valve |
|                                                        | External pilot               |                                              |
| Lubrication                                            |                              | Not required                                 |
| Mounting orientation                                   |                              | Unrestricted                                 |
| Impact/Vibration resistance (ms <sup>2</sup> )         |                              | 150/30                                       |
| Enclosure                                              |                              | IP67 (Based on IEC60529)                     |
| 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)

### Mass

| Series | Type of actuation      | Mass (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      |
|        | 4 position dual 3 port | 110      |
| SV4000 | Single solenoid        | 186      |
|        | Double solenoid        | 190      |
|        | 3 position             | 211      |
|        | 4 position dual 3 port | 211      |



Note) Mass of solenoid valve only.

SJ

SY

SV

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

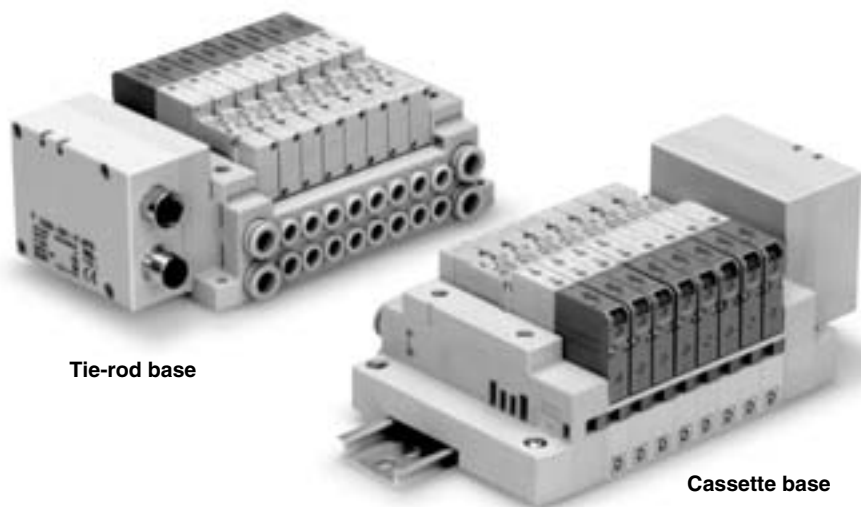
VQ7



# Gateway System Serial Transmission System

## Series *EX500*

IP67 compliant



Tie-rod base

Cassette base

|                                                                                                                                 |                                                      |
|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Applicable series                                                                                                               | Cassette base manifold<br>SV1000/SV2000              |
|                                                                                                                                 | Tie-rod base manifold<br>SV1000/SV2000/SV3000/SV4000 |
| <ul style="list-style-type: none"> <li>• Number of output points: 16 points</li> <li>• Connected to the EX500GW unit</li> </ul> |                                                      |

|       |
|-------|
| SJ    |
| SY    |
| SV    |
| SYJ   |
| SZ    |
| VP4   |
| S0700 |
| VQ    |
| VQ4   |
| VQ5   |
| VQC   |
| VQZ   |
| SQ    |
| VFS   |
| VFR   |
| VQ7   |

# EX500 Gateway System Serial Transmission System Series SV



## How to Order Manifold

**Series**

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |
| 4 | SV4000 |

● Tie-rod base  
● Cassette base

**SS5V 1 - W 10S A2W D - 05 U**

**SS5V 1 - W 16S A2W D - 05 U**

**Enclosure IP67 specifications**

**SI unit**

|     |                                           |
|-----|-------------------------------------------|
| 0   | Without SI unit                           |
| A2W | DeviceNet/PROFIBUS DP/CC-Link/EtherNet/IP |

**Mounting**

| Nil | Direct mounting                                                                                                                 |
|-----|---------------------------------------------------------------------------------------------------------------------------------|
| D   | DIN rail mounting (With DIN rail)                                                                                               |
| D0* | DIN rail mounting (Without DIN rail)                                                                                            |
| D3  | For 3 stations When a longer DIN rail is desired than the specified stations. (Specify a longer rail than the standard length.) |
| ... | ...                                                                                                                             |
| 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 Specify a longer rail than the standard length. |
| ... | ...                                                            |
| 16  | For 16 stations                                                |

**Valve stations**

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

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

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

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

**SI unit part no.**

| Symbol | Protocol type | SI unit    |
|--------|---------------|------------|
| A2W    | DeviceNet     | EX500-S001 |
|        | PROFIBUS DP   |            |
|        | CC-Link       |            |
|        | EtherNet/IP   |            |

\* 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.

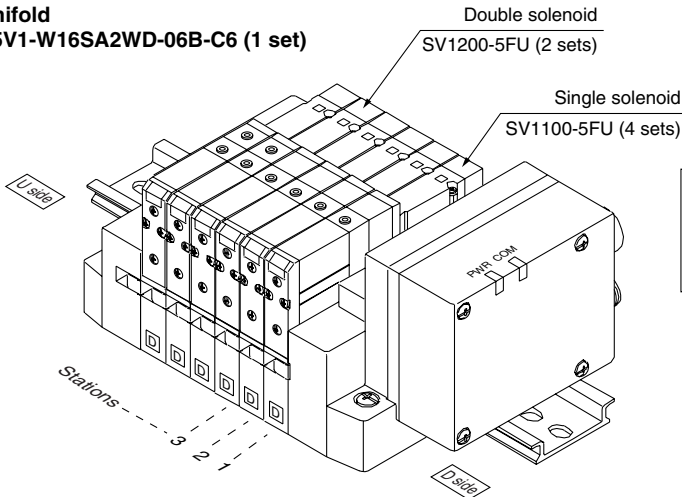
Refer to pages 1680 to 1694 for the details of EX500 gateway system serial transmission system.

## How to Order Manifold Assembly

### Ordering example (SV1000)

Manifold

SS5V1-W16SA2WD-06B-C6 (1 set)



SS5V1-W16SA2WD-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 Valve

SV 1 1 0 0 - 5 F - - -

### Series

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |
| 4 | SV4000 |

### Type of actuation

|   |                                         |
|---|-----------------------------------------|
| 1 | 2 position single                       |
| 2 | 2 position double                       |
| 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 valve.



Refer to Specific Product Precautions 2 on page 450.



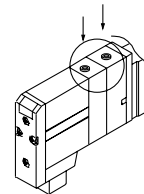
Note) Available with manifold block for station additions. Refer to pages 429 and 443.

### Made to Order

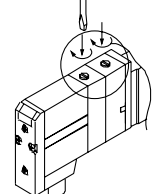
|     |                                               |
|-----|-----------------------------------------------|
| Nil | —                                             |
| X90 | Main valve fluoro rubber (Refer to page 448.) |

### 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 |
|---|--------|

SJ

SY

SV

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

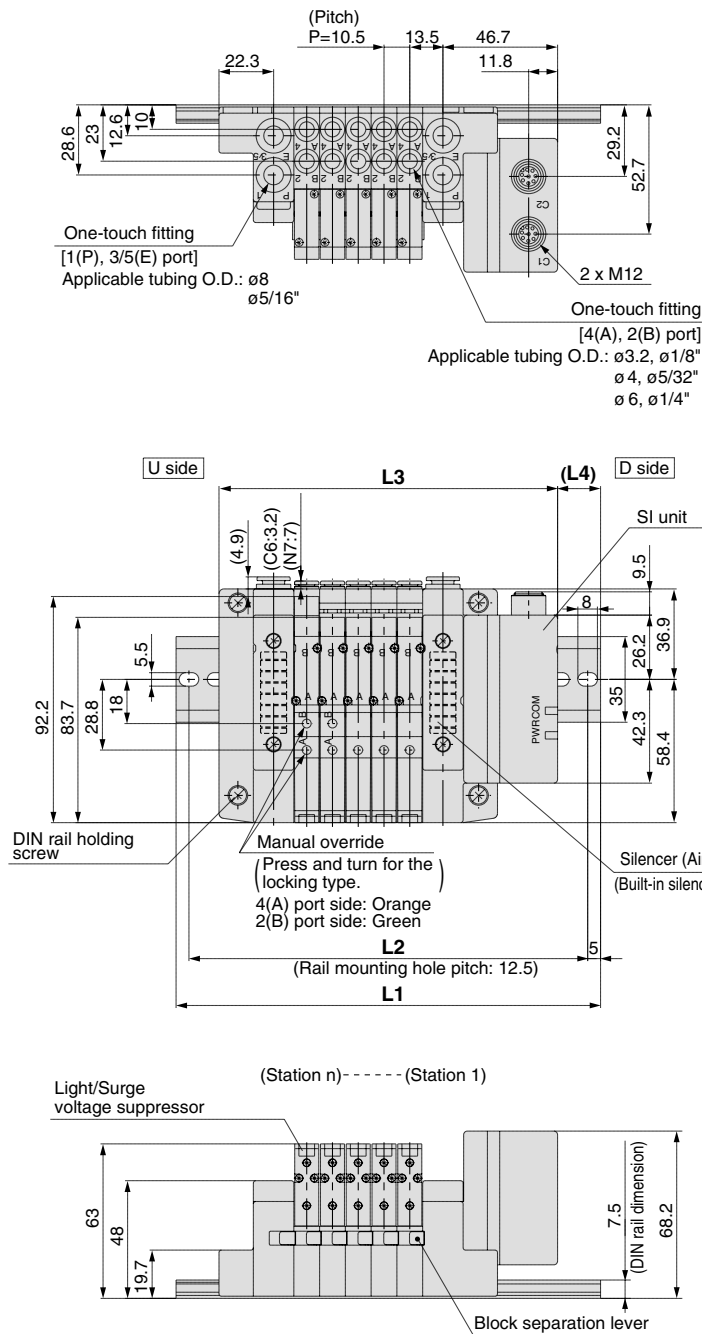
VFR

VQ7

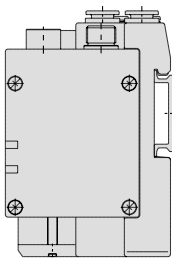
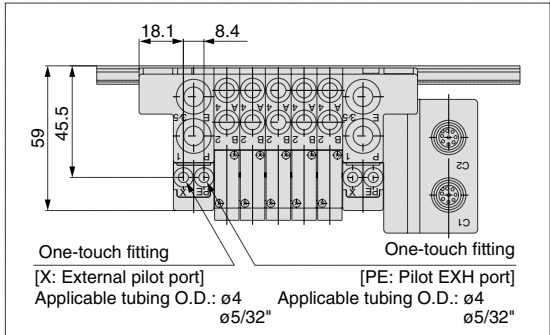
Dimensions: Series SV1000 for EX500 Gateway System Serial Transmission System

● Cassette base manifold: SS5V1-W16SA2WD-Stations<sub>U</sub><sub>D</sub>(S, R, RS)-C3, N1C4, N3C6, N7

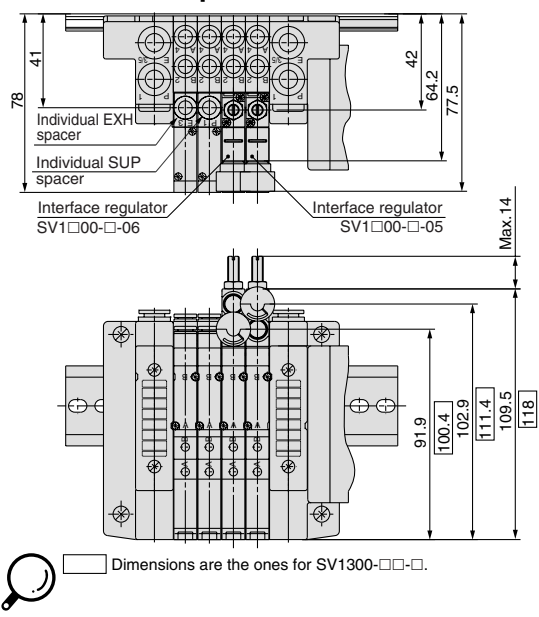
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



With option



L Dimension

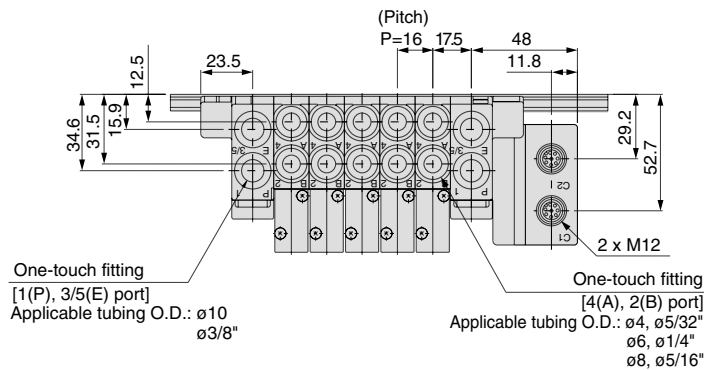
n: Stations

| L  | n | 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    |

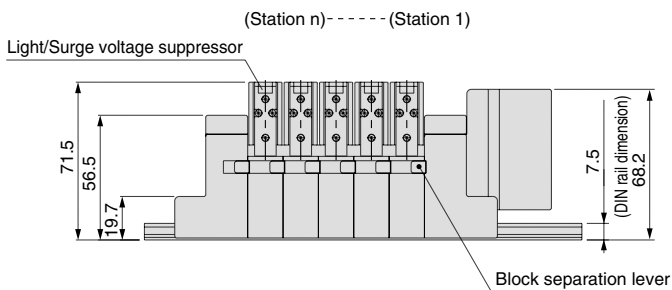
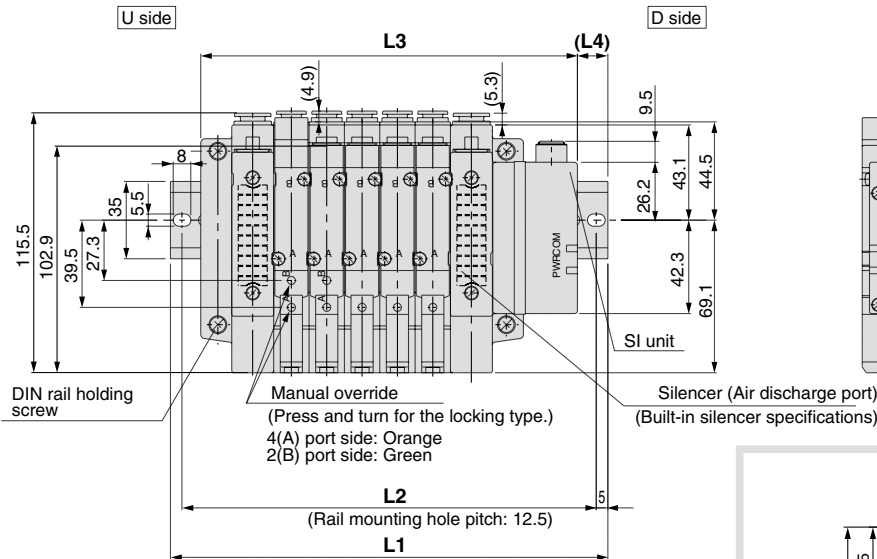
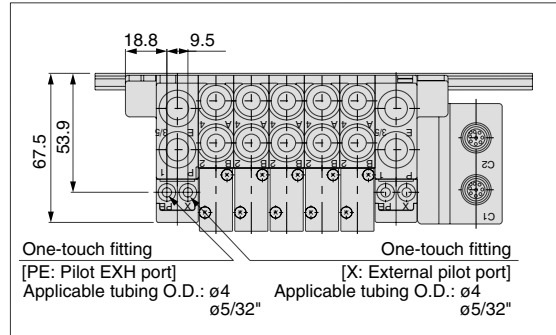
## Dimensions: Series SV2000 for EX500 Gateway System Serial Transmission System

### ● Cassette base manifold: SS5V2-W16SA2WD-<sup>U</sup><sub>B</sub>(S, R, RS)-<sup>C4, N3</sup><sub>C6, N7</sub><sup>C8, N9</sup>

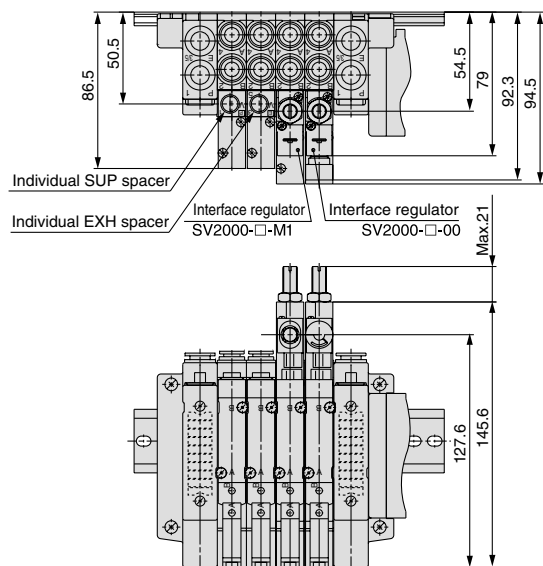
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



### With External Pilot Specifications



### With option



### L Dimension

n: Stations

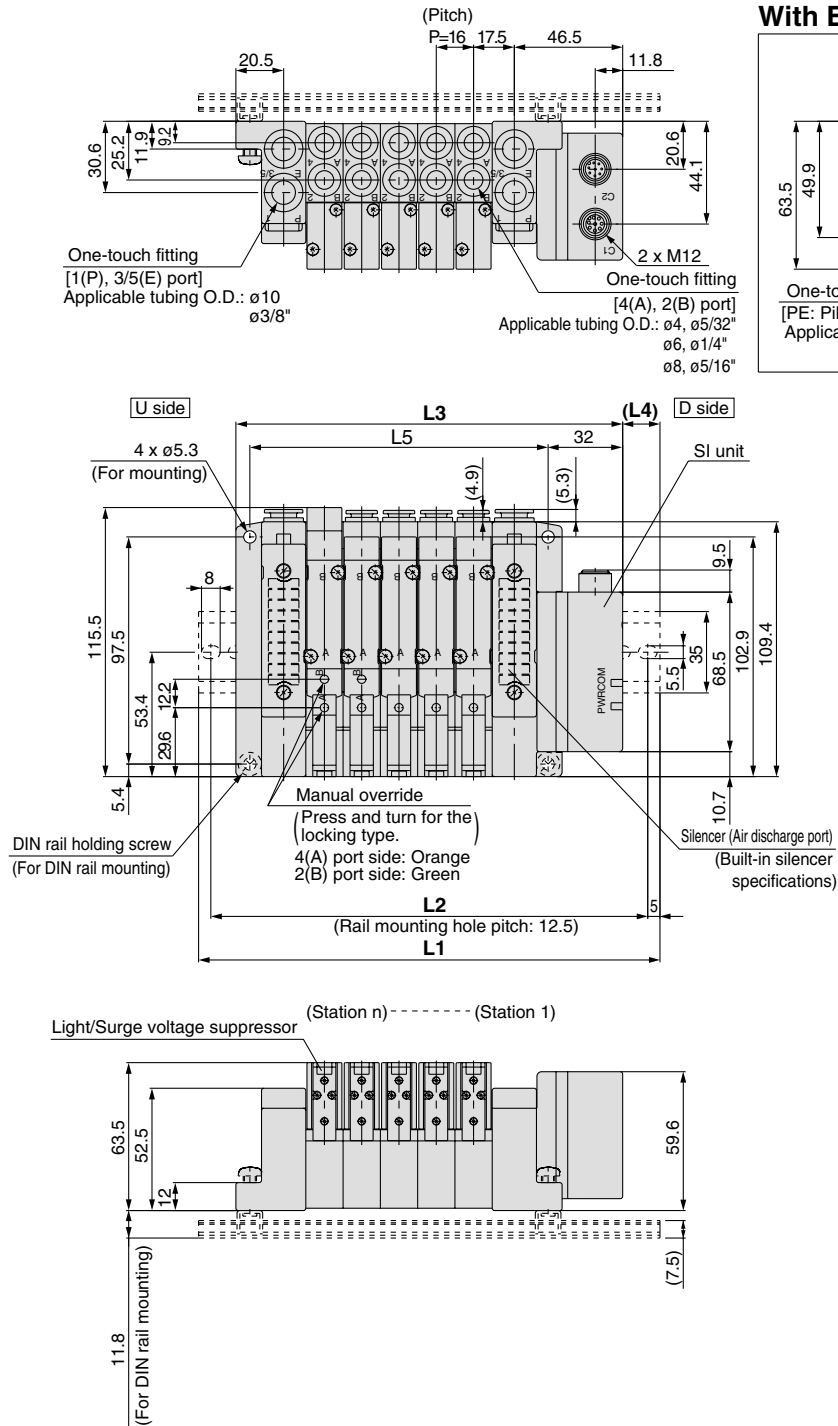
| L  | n | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|----|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1 |   | 148   | 173   | 185.5 | 198   | 210.5 | 235.5 | 248   | 260.5 | 285.5 | 298   | 310.5 | 323   | 348   | 360.5 | 373   |
| L2 |   | 137.5 | 162.5 | 175   | 187.5 | 200   | 225   | 237.5 | 250   | 275   | 287.5 | 300   | 312.5 | 337.5 | 350   | 362.5 |
| L3 |   | 122.5 | 138.5 | 154.5 | 170.5 | 186.5 | 202.5 | 218.5 | 234.5 | 250.5 | 266.5 | 282.5 | 298.5 | 314.5 | 330.5 | 346.5 |
| L4 |   | 13    | 17.5  | 15.5  | 14    | 12    | 16.5  | 15    | 13    | 17.5  | 16    | 14    | 12.5  | 17    | 15    | 13.5  |



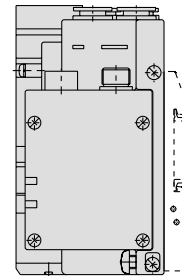
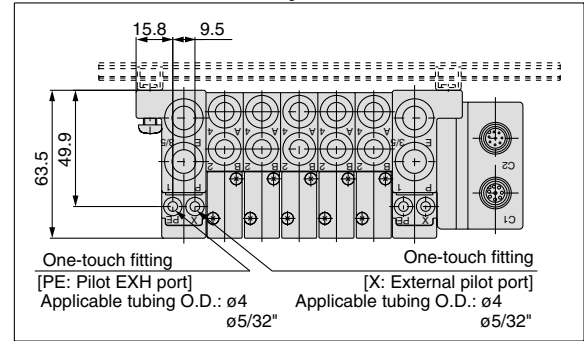
## Dimensions: Series SV2000 for EX500 Gateway System Serial Transmission System

### ● Tie-rod base manifold: SS5V2-W10SA2WD-<sup>U</sup><sub>D</sub> Stations (S, R, RS) <sup>C4, N3</sup><sub>C6, N7</sub> <sup>C8, N9</sup> (-D)

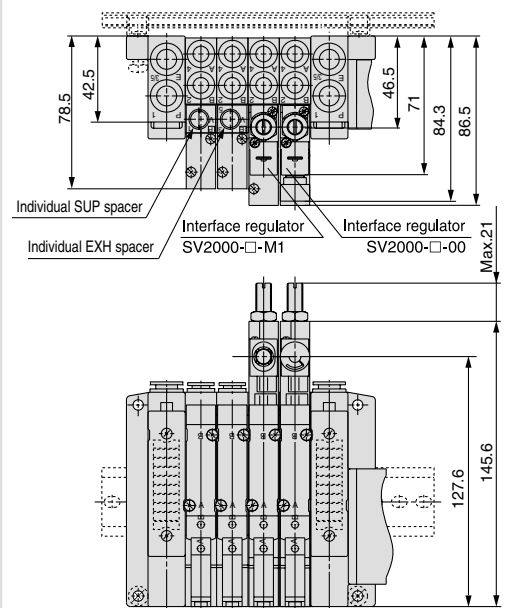
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



### With External Pilot Specifications



### With option



### L Dimension

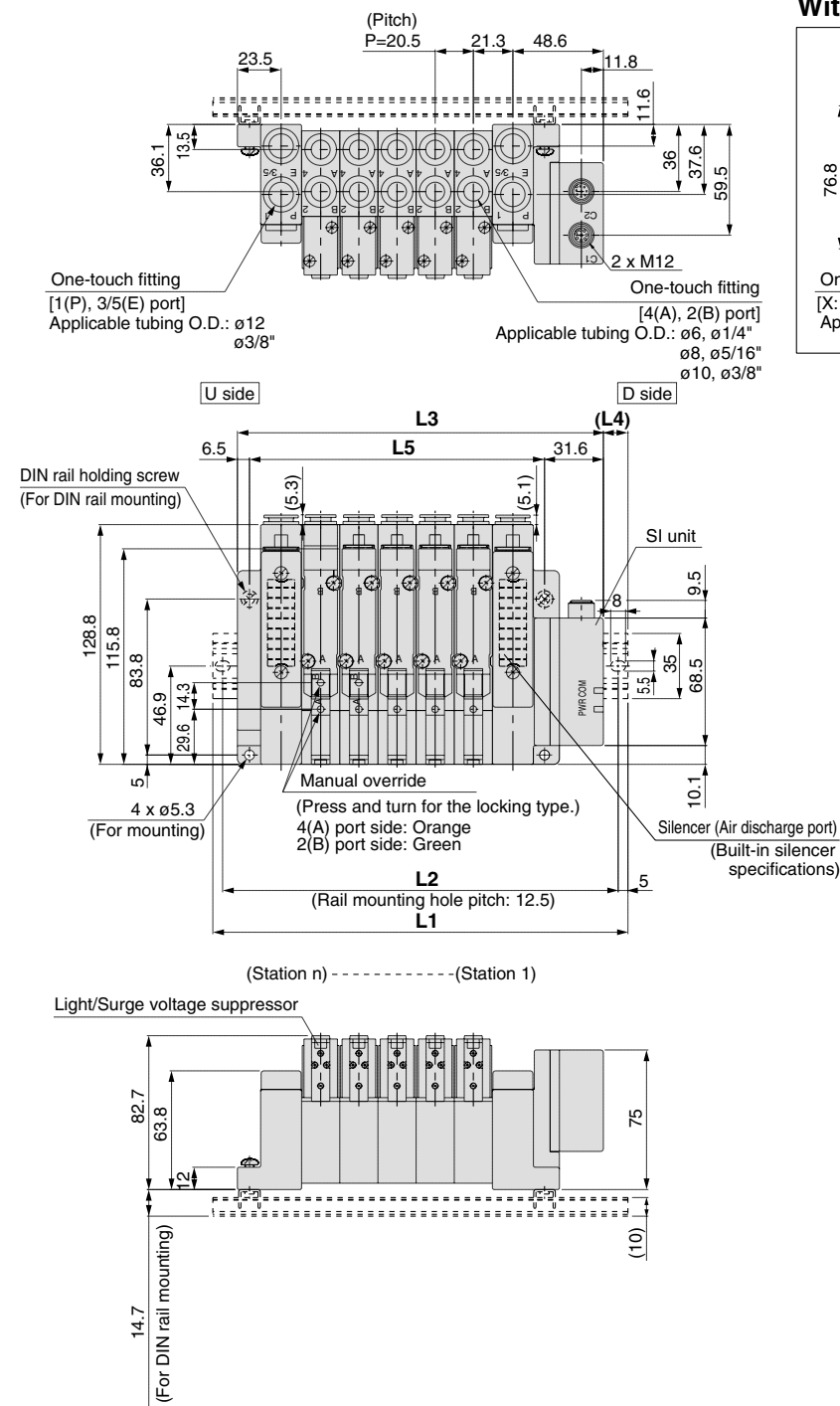
n: Stations

| L  | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1 | 148   | 160.5 | 185.5 | 198   | 210.5 | 223   | 248   | 260.5 | 273   | 285.5 | 310.5 | 323   | 335.5 | 360.5 | 373   |
| L2 | 137.5 | 150   | 175   | 187.5 | 200   | 212.5 | 237.5 | 250   | 262.5 | 275   | 300   | 312.5 | 325   | 350   | 362.5 |
| L3 | 118   | 134   | 150   | 166   | 182   | 198   | 214   | 230   | 246   | 262   | 278   | 294   | 310   | 326   | 342   |
| L4 | 15    | 13.5  | 18    | 16    | 14.5  | 12.5  | 17    | 15.5  | 13.5  | 12    | 16.5  | 14.5  | 13    | 17.5  | 15.5  |
| L5 | 80    | 96    | 112   | 128   | 144   | 160   | 176   | 192   | 208   | 224   | 240   | 256   | 272   | 288   | 304   |

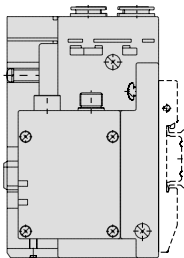
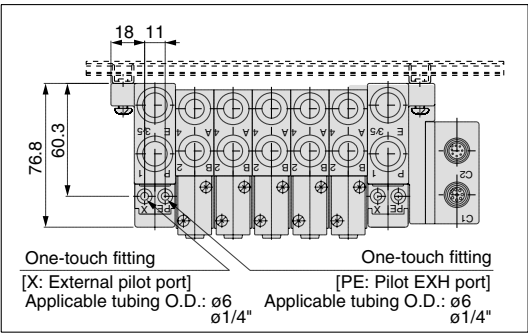
Dimensions: Series SV3000 for EX500 Gateway System Serial Transmission System

● Tie-rod base manifold: SS5V3-W10SA2WD- Stations  $\frac{U}{D}$  (S, R, RS)-  $\frac{C6, N7}{C8, N9}$   $\frac{C10, N11}{C10, N11}$  (-D)

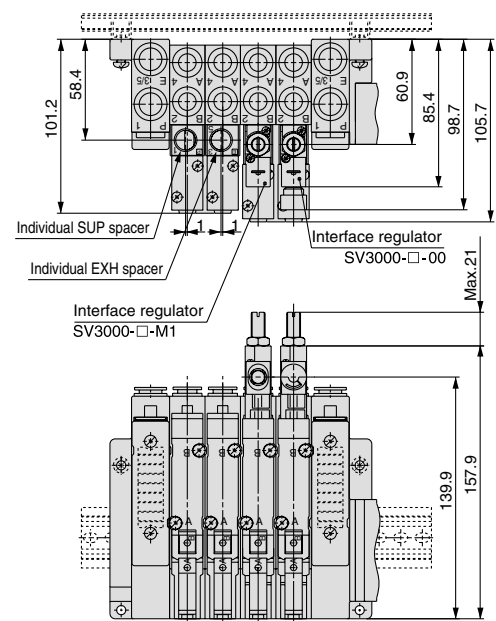
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



With option



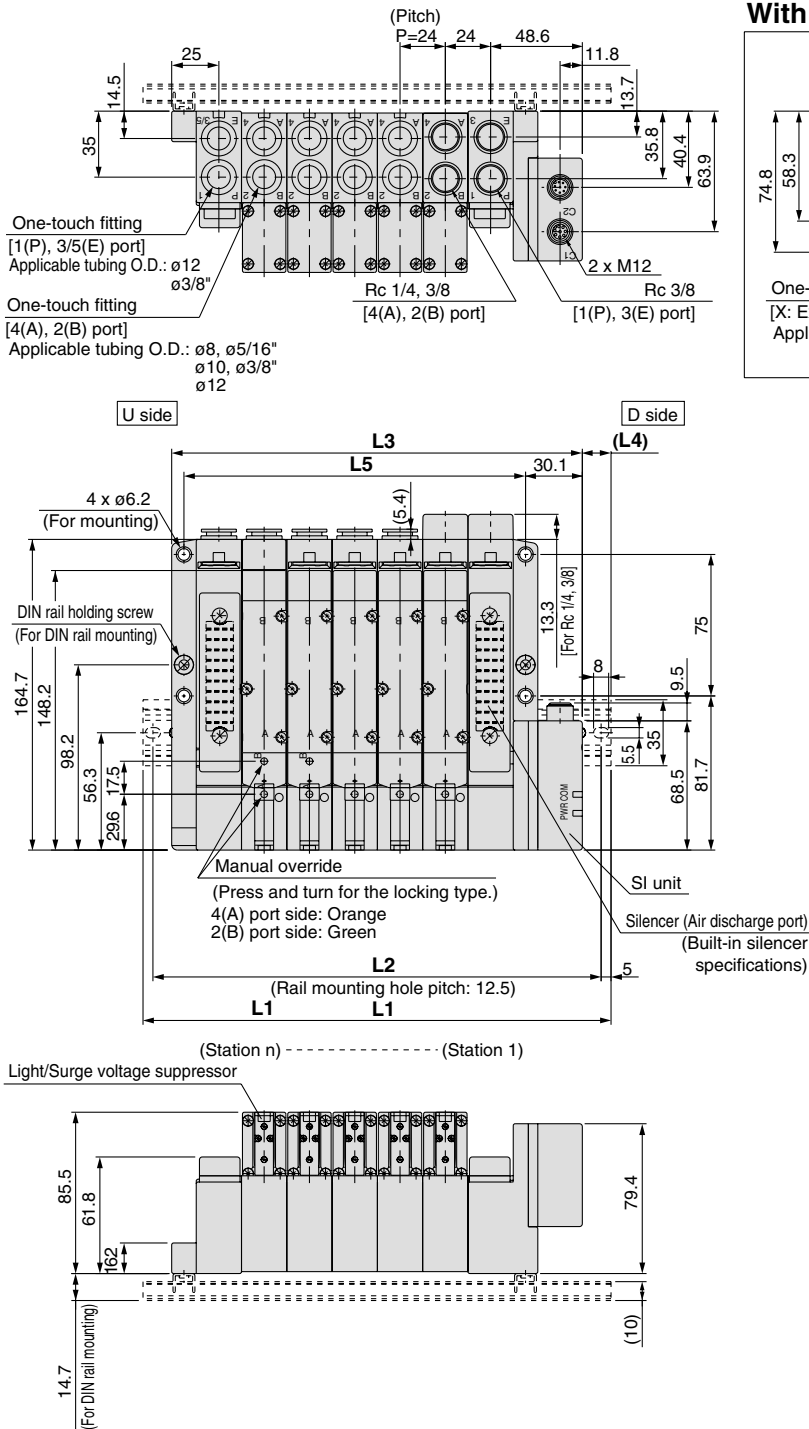
L Dimension

| L Dimension |   | n: Stations |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|-------------|---|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| L           | n | 2           | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |  |
| L1          |   | 160.5       | 185.5 | 210.5 | 223   | 248   | 273   | 285.5 | 310.5 | 323   | 348   | 373   | 385.5 | 410.5 | 435.5 | 448   |  |
| L2          |   | 150         | 175   | 200   | 212.5 | 237.5 | 262.5 | 275   | 300   | 312.5 | 337.5 | 362.5 | 375   | 400   | 425   | 437.5 |  |
| L3          |   | 135.1       | 155.6 | 176.1 | 196.6 | 217.1 | 237.6 | 258.1 | 278.6 | 299.1 | 319.6 | 340.1 | 360.6 | 381.1 | 401.6 | 422.1 |  |
| L4          |   | 12.5        | 15    | 17    | 13    | 15.5  | 17.5  | 13.5  | 16    | 12    | 14    | 16.5  | 12.5  | 14.5  | 17    | 13    |  |
| L5          |   | 97          | 117.5 | 138   | 158.5 | 179   | 199.5 | 220   | 240.5 | 261   | 281.5 | 302   | 322.5 | 343   | 363.5 | 384   |  |

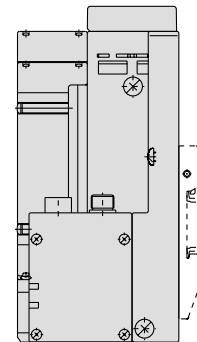
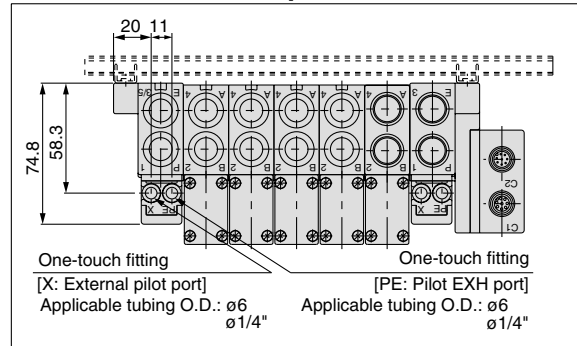
## Dimensions: Series SV4000 for EX500 Gateway System Serial Transmission System

### ● Tie-rod base manifold: SS5V4-W10SA2WD-Stations<sub>U</sub><sup>D</sup>(S, R, RS)-02, C8, N9<sub>03, C10, N11</sub>(-D)

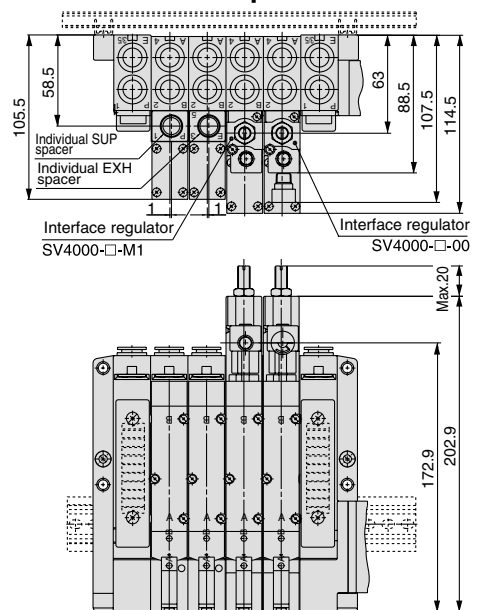
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



### With External Pilot Specifications



### With option



### L Dimension

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

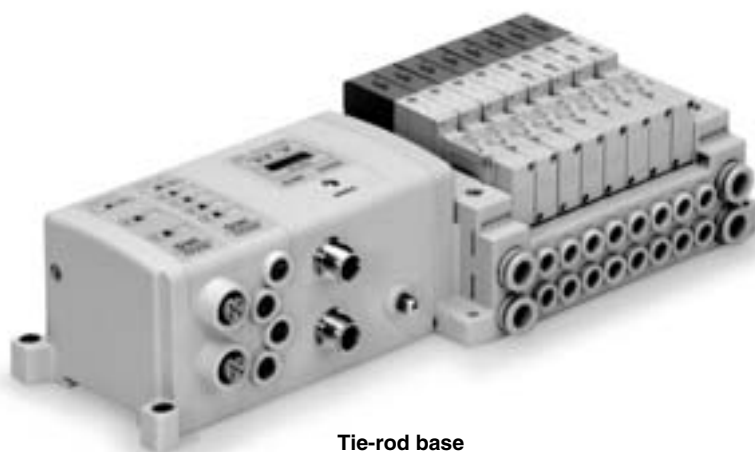
n: Stations



# Integrated Type (for I/O) Serial Transmission System

## Series **EX250**

IP67 (partly IP40) compliant



Tie-rod base

Applicable series **Tie-rod base manifold**  
**SV1000/SV2000/SV3000**

- Number of inputs/outputs points: 32 points each

SJ

SY

**SV**

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

VQ7

# EX250 Integrated Type (for I/O) Serial Transmission System Series SV



## How to Order Manifold

### • Tie-rod base

**SS5V 1 - W10S1QW [ ] [ ] [ ] D - 05 U [ ] - [ ] - [ ]**

#### Series

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |

#### SI unit

| Symbol                  | Protocol type                                               |
|-------------------------|-------------------------------------------------------------|
| W10S10                  | Without SI unit                                             |
| W10S1QW                 | DeviceNet                                                   |
| W10S1NW                 | PROFIBUS DP                                                 |
| W10S1VW                 | CC-Link                                                     |
| W10S1TAW                | AS-Interface (8in/8out 31Slave Mode 2 power supply systems) |
| W10S1TBW                | AS-Interface (4in/4out 31Slave Mode 2 power supply systems) |
| W10S1TCW <sup>(1)</sup> | AS-Interface (8in/8out 31Slave Mode 1 power supply systems) |
| W10S1TDW <sup>(1)</sup> | AS-Interface (4in/4out 31Slave Mode 1 power supply systems) |
| W10S1YW                 | CANopen                                                     |
| 10S1ZCN <sup>(2)</sup>  | ControlNet (IP40)                                           |
| W10S1ZEN                | EtherNet/IP                                                 |

• 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.

Note 1) There is a limit to the supply current to the input block and valve from SI units that have AS-Interface-compliant 1 power supply systems. Refer to page 1667 for details.

Note 2) When the SI unit is ControlNet compliant, it is also IP40-compliant. (All other SI units are IP67-compliant.)

### Input block stations

|     |            |
|-----|------------|
| Nil | None       |
| 1   | 1 station  |
| ... | ...        |
| 8   | 8 stations |

Note) Without SI unit, the symbol is nil.  
When the SI unit is AS Interface compliant, the maximum number of stations is limited. Refer to page 1667 for details.

### Input block type

| Nil | Without input block     |
|-----|-------------------------|
| 1   | M12: 2 inputs EX250-IE1 |
| 2   | M12: 4 inputs EX250-IE2 |
| 3   | M8: 4 inputs EX250-IE3  |

Note) Without SI unit, the symbol is nil.

### Input block specifications

|     |                                         |
|-----|-----------------------------------------|
| Nil | PNP input (+COM) or without input block |
| N   | NPN input (-COM)                        |

### Mounting

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

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

### 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.

### 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) |

### Valve stations

| Symbol | Stations    | Note                         |
|--------|-------------|------------------------------|
| 02     | 2 stations  | (1)                          |
| ...    | ...         |                              |
| 16     | 16 stations | Double wiring specifications |
| 02     | 2 stations  |                              |
| ...    | ...         | (2)                          |
| 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, 3 and 4 position valves cannot be used where single solenoid wiring has been specified.)

When the SI unit is AS-Interface compliant, the maximum number of solenoids is as shown below, so please be careful of the number of stations.

- 8in/8out: Max. 8 solenoids
- 4in/4out: Max. 4 solenoids

### SI Unit Part No.

| Symbol   | Protocol type                                               | Solenoid part not. |
|----------|-------------------------------------------------------------|--------------------|
| W10S1QW  | DeviceNet                                                   | EX250-SDN1         |
| W10S1NW  | PROFIBUS DP                                                 | EX250-SPR1         |
| W10S1VW  | CC-Link                                                     | EX250-SMJ2         |
| W10S1TAW | AS-Interface (8in/8out 31Slave Mode 2 power supply systems) | EX250-SAS3         |
| W10S1TBW | AS-Interface (4in/4out 31Slave Mode 2 power supply systems) | EX250-SAS5         |
| W10S1TCW | AS-Interface (8in/8out 31Slave Mode 1 power supply systems) | EX250-SAS7         |
| W10S1TDW | AS-Interface (4in/4out 31Slave Mode 1 power supply systems) | EX250-SAS9         |
| W10S1YW  | CANopen                                                     | EX250-SCA1A        |
| 10S1ZCN  | ControlNet (IP40)                                           | EX250-SCN1         |
| W10S1ZEN | EtherNet/IP                                                 | EX250-SEN1         |

### 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   | One-touch fitting for ø10 | SV2000            |
| 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"  | 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"  |                              |                   |
| 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.

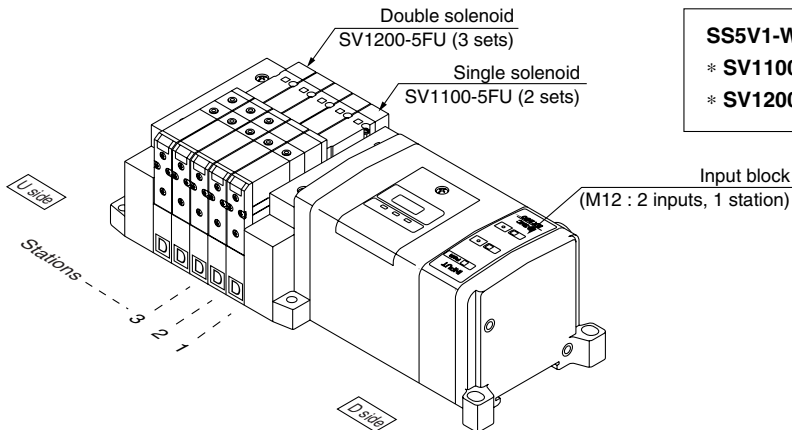
\* Port sizes of X, PE port for external pilot specifications (R, RS) are ø4 (metric), ø5/32" (inch) for SV1000/2000 and ø6 (metric) and ø1/4" (inch) for SV3000.

Refer to pages 1664 to 1679 for the details of EX250 integrated type serial transmission system.

## How to Order 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.)

## How to Order Valve

SV 1 1 0 0 - 5 F - - - (Note)

### Series

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |

### Type of actuation

|   |                                         |
|---|-----------------------------------------|
| 1 | 2 position single                       |
| 2 | 2 position double                       |
| 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 valve.



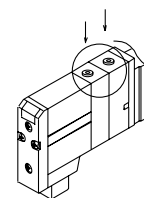
Note) Available with manifold block for station additions. Refer to page 433.

### Made to Order

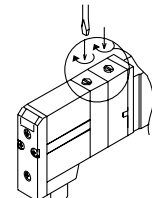
|     |                                               |
|-----|-----------------------------------------------|
| Nil | —                                             |
| X90 | Main valve fluoro rubber (Refer to page 448.) |

### 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 Specific Product Precautions 2 on page 450.

SJ

SY

SV

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

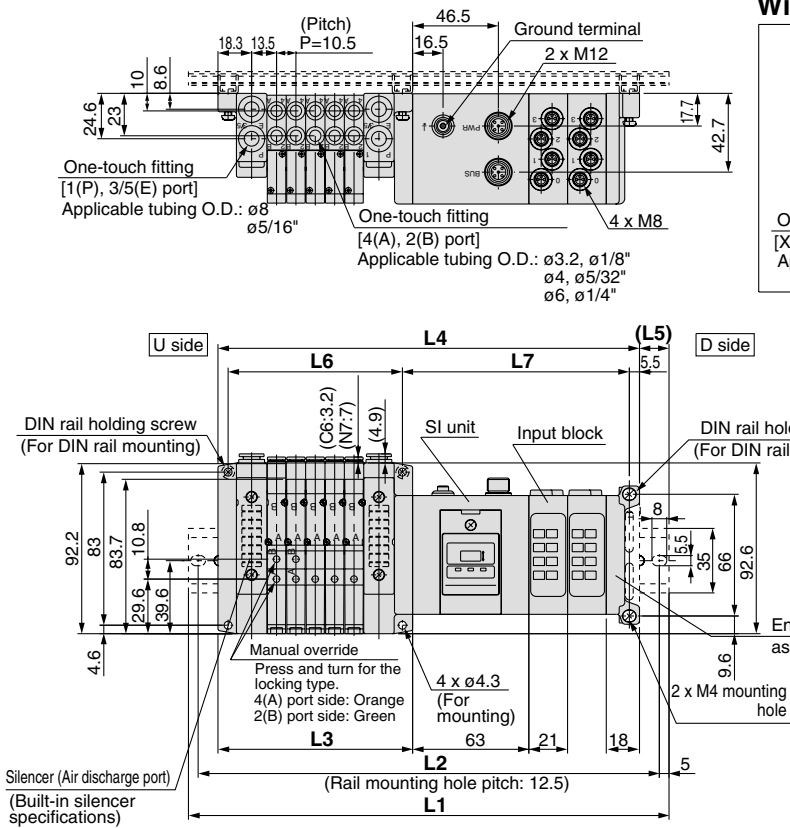
VQ7

Dimensions: Series SV1000 for EX250 Integrated Type (for I/O) Serial Transmission System

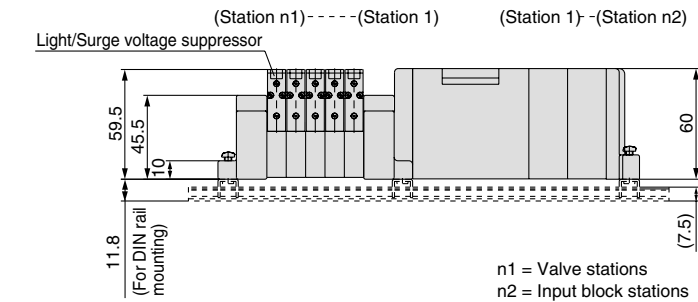
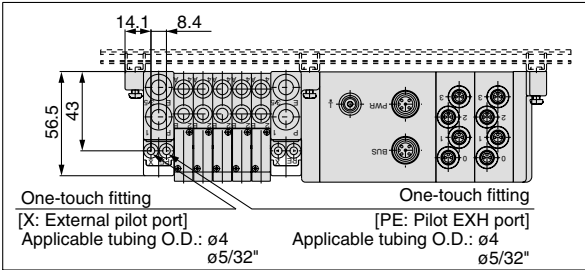
● Tie-rod base manifold: SS5V1-W10S1□□□□D- Stations  $\begin{matrix} \text{U} \\ \text{D} \end{matrix}$  (S, R, RS)-  $\begin{matrix} \text{C3, N1} \\ \text{C4, N3} \\ \text{C6, N7} \end{matrix}$  (-D)

- 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 2 input blocks)



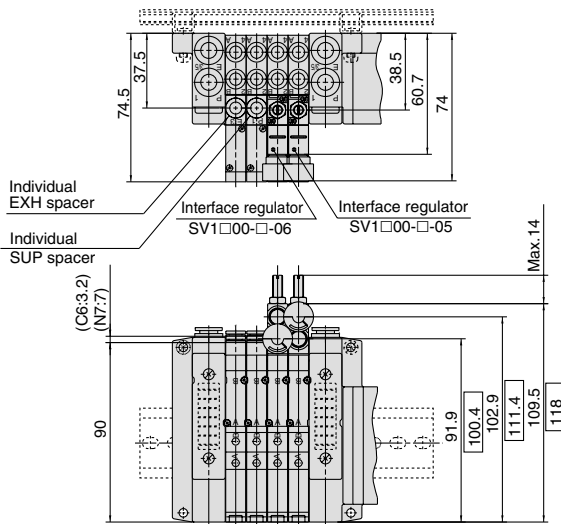
With External Pilot Specifications



n1 = Valve stations  
n2 = Input block stations

$L2 = L1 - 10.5$   
 $L3 = 10.5 \times n1 + 53$   
 $L4 = L3 + 81 + 21 \times n2$   
 $L5 = (L1 - L4) / 2$   
 $L6 = 10.5 \times n1 + 42$   
 $L7 = 21 \times n2 + 81$

With option



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

L1: DIN Rail Overall Length

| Valve stations (n1)<br>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 | 423   | 435.5 | 448   | 460.5 | 473   | 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 |

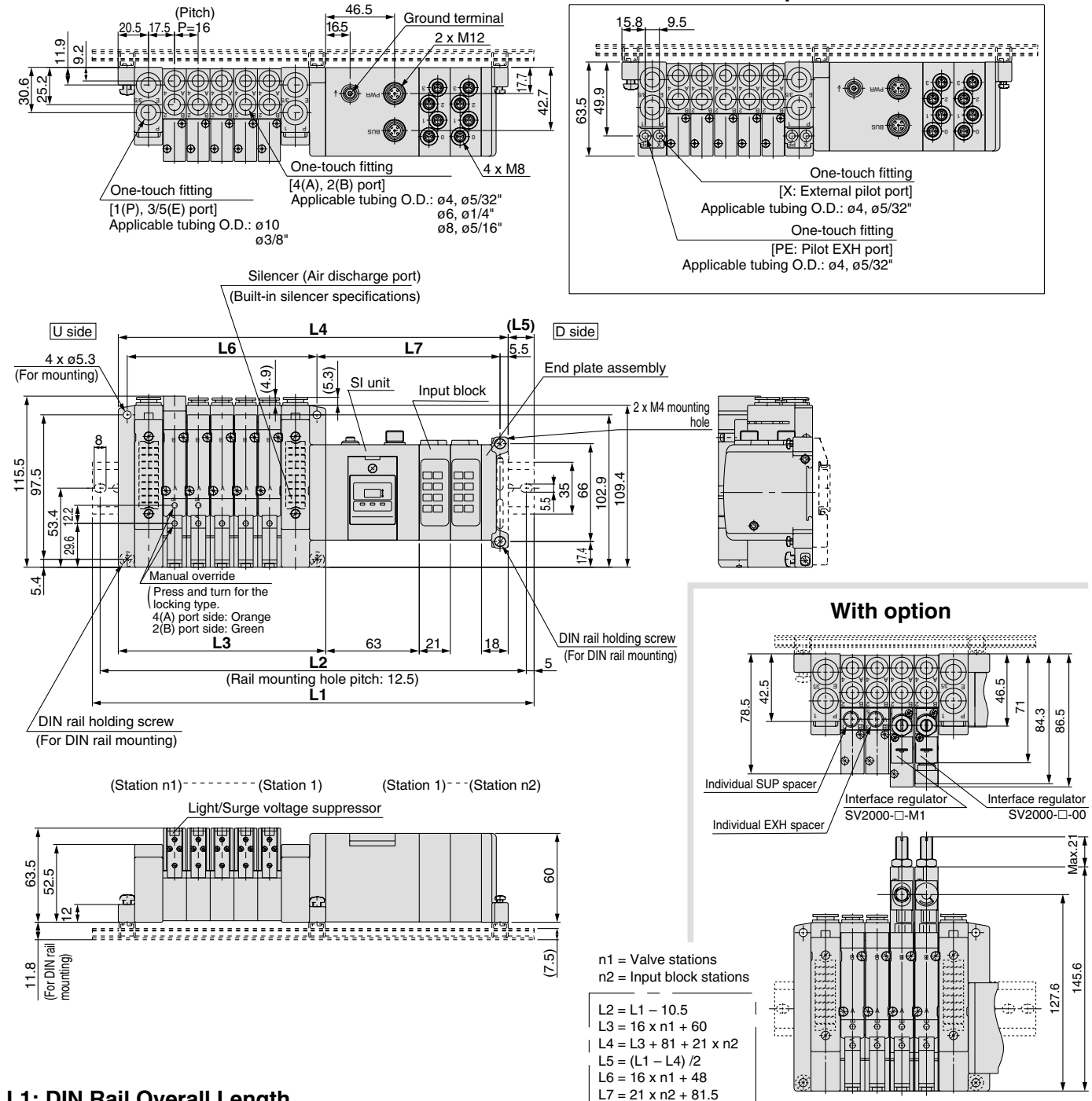
## Dimensions: Series SV2000 for EX250 Integrated Type (for I/O) Serial Transmission System

### ● Tie-rod base manifold: SS5V2-W10S1□□□□D- Stations $\frac{U}{D}$ (S, R, RS)- $\frac{C4, N3}{C6, N7}$ $\frac{C8, N9}{(-D)}$

(With 2 input blocks)

- 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



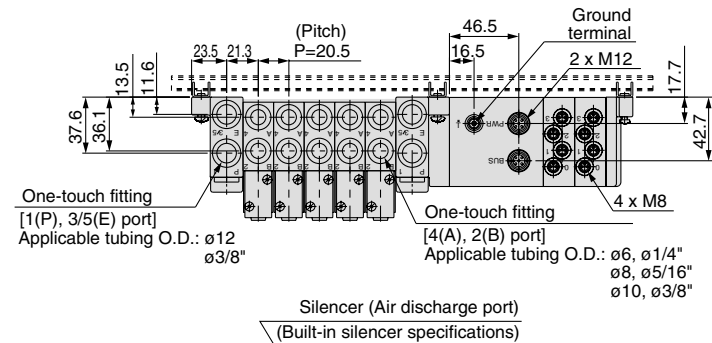
SJ  
SY  
SV  
SYJ  
SZ  
VP4  
S0700  
VQ  
VQ4  
VQ5  
VQC  
VQZ  
SQ  
VFS  
VFR  
VQ7

Dimensions: Series SV3000 for EX250 Integrated Type (for I/O) Serial Transmission System

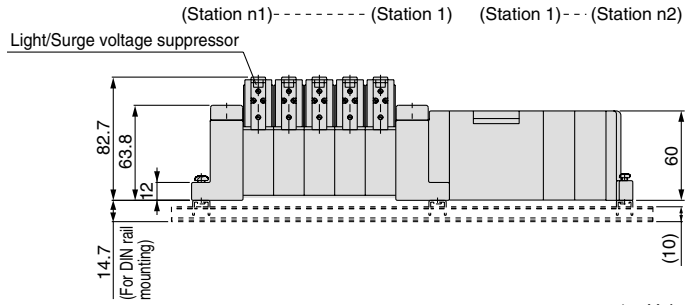
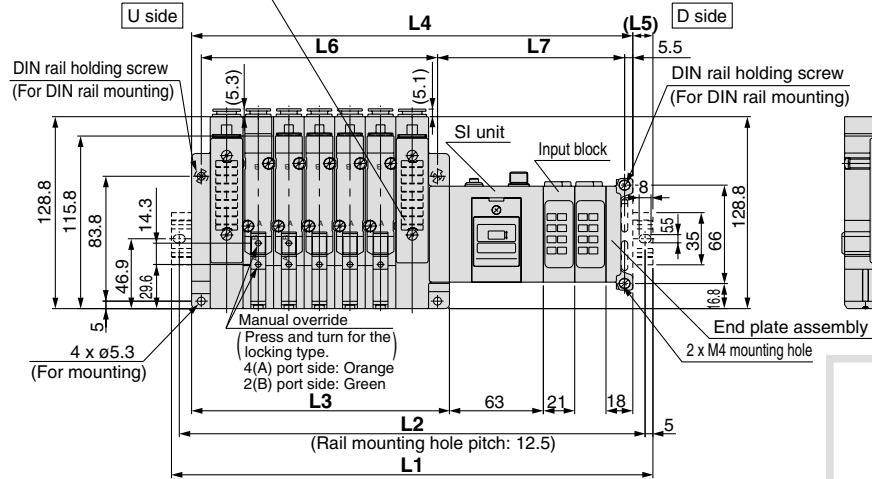
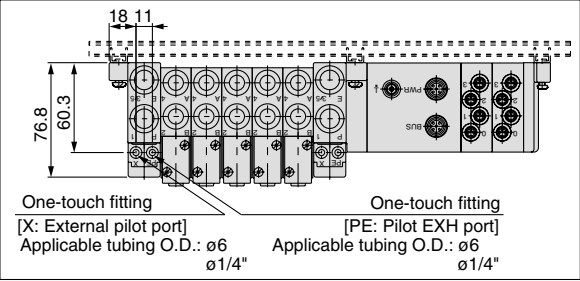
● Tie-rod base manifold: SS5V3-W10S1□□□□D- Stations  $\begin{matrix} U \\ D \end{matrix}$  (S, R, RS)  $\begin{matrix} C6, N7 \\ C8, N9 \\ C10, N11 \end{matrix}$  (-D)

(With 2 input blocks)

- 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



n1 = Valve stations  
n2 = Input block stations  
L2 = L1 - 10.5  
L3 = 20.5 x n1 + 70.5  
L4 = L3 + 81 + 21 x n2  
L5 = (L1 - L4) / 2  
L6 = 20.5 x n1 + 56  
L7 = 21 x n2 + 83.5

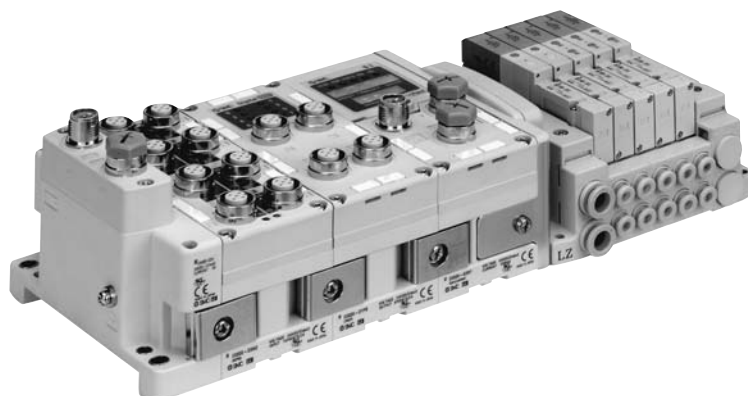
L1: DIN Rail Overall Length

| Valve stations<br>Input block<br>Stations (n2) | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0                                              | 223   | 248   | 260.5 | 285.5 | 298   | 323   | 348   | 360.5 | 385.5 | 410.5 | 423   | 448   | 473   | 485.5 | 510.5 | 535.5 | 548   | 573   | 585.5 |
| 1                                              | 248   | 260.5 | 285.5 | 310.5 | 323   | 348   | 360.5 | 385.5 | 410.5 | 423   | 448   | 473   | 485.5 | 510.5 | 535.5 | 548   | 573   | 585.5 | 610.5 |
| 2                                              | 260.5 | 285.5 | 310.5 | 323   | 348   | 360.5 | 385.5 | 410.5 | 423   | 448   | 473   | 485.5 | 510.5 | 535.5 | 548   | 573   | 598   | 610.5 | 635.5 |
| 3                                              | 285.5 | 310.5 | 323   | 348   | 373   | 385.5 | 410.5 | 423   | 448   | 473   | 485.5 | 510.5 | 535.5 | 548   | 573   | 598   | 610.5 | 635.5 | 648   |
| 4                                              | 310.5 | 323   | 348   | 373   | 385.5 | 410.5 | 423   | 448   | 473   | 485.5 | 510.5 | 535.5 | 548   | 573   | 598   | 610.5 | 635.5 | 660.5 | 673   |
| 5                                              | 323   | 348   | 373   | 385.5 | 410.5 | 435.5 | 448   | 473   | 485.5 | 510.5 | 535.5 | 548   | 573   | 598   | 610.5 | 635.5 | 660.5 | 673   | 698   |
| 6                                              | 348   | 373   | 385.5 | 410.5 | 435.5 | 448   | 473   | 485.5 | 510.5 | 535.5 | 548   | 573   | 598   | 610.5 | 635.5 | 660.5 | 673   | 698   | 723   |
| 7                                              | 373   | 385.5 | 410.5 | 435.5 | 448   | 473   | 498   | 510.5 | 535.5 | 548   | 573   | 598   | 610.5 | 635.5 | 660.5 | 673   | 698   | 723   | 735.5 |
| 8                                              | 385.5 | 410.5 | 435.5 | 448   | 473   | 498   | 510.5 | 535.5 | 548   | 573   | 598   | 610.5 | 635.5 | 660.5 | 673   | 698   | 723   | 735.5 | 760.5 |

# Integrated Type (for I/O) Serial Transmission System

## Series *EX600*

IP67 compliant



Tie-rod base

Applicable series **Tie-rod base manifold**  
**SV1000/SV2000/SV3000**

- Digital input/output: Max. 144 inputs/144 outputs
- Analog input: Max. 18 channels
- Valve output: 32 outputs

SJ

SY

**SV**

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

VQ7

# Series EX600



# Series SV1000/2000/3000

## How to Order

### ● Tie-rod Base

**SS5V 1 - W10S6 Q [ ] [ ] [ ] D - 05 U [ ] - C6 - [ ]**

| Series |        |
|--------|--------|
| 1      | SV1000 |
| 2      | SV2000 |
| 3      | SV3000 |

● Protection class IP67

● SI Unit

|   |                  |
|---|------------------|
| 0 | Without SI Unit  |
| Q | DeviceNet™ type  |
| N | PROFIBUS DP type |
| V | CC-Link type     |

- I/O units cannot be chosen without SI Unit.
- Without SI Unit type does not include the Valve Plate to connect the valve manifold and SI Unit. Refer to back page 5 in CAT.E02-24A for mounting method.

● End plate type

|     |                                                          |
|-----|----------------------------------------------------------|
| Nil | No end plate                                             |
| 2   | M12 connector power supply (Max. supply current 2A)      |
| 3   | 7/8 inch connector power supply (Max. supply current 8A) |

Note) Without SI Unit, the symbol is nil.

● SI Unit COM.

|     |       |
|-----|-------|
| Nil | +COM. |
| N   | -COM. |

Note) Without SI Unit, the symbol is nil.

● I/O unit sta. number

|     |        |
|-----|--------|
| Nil | None   |
| 1   | 1 sta. |
| ⋮   | ⋮      |
| 9   | 9 sta. |

- Note 1) Without SI Unit, the symbol is nil.  
 Note 2) SI Unit is not included in I/O unit station number.  
 Note 3) When I/O unit is selected, it is shipped separately, and assembled by customer. Refer to the attached instruction manual for mounting method.

● Valve stations

| Symbol | Stations | Note                                                                 |
|--------|----------|----------------------------------------------------------------------|
| 02     | 2 sta.   | Double wiring specification <sup>Note 1)</sup>                       |
| ⋮      | ⋮        |                                                                      |
| 16     | 16 sta.  |                                                                      |
| 02     | 2 sta.   | Specified layout <sup>Note 2)</sup><br>(Up to 32 solenoids possible) |
| ⋮      | ⋮        |                                                                      |
| 20     | 20 sta.  |                                                                      |

Note 1) Double wiring specifications: Single, double, 3 position and 4 position solenoid valves can be used at all of the manifold stations.

When single solenoid is used, control signal which is not assigned to any number is made. If empty signal is not wanted, please order with signal layout specified.

Note 2) Specified layout: Indicate wiring specifications with 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 entry

|   |                            |
|---|----------------------------|
| U | U side (2 sta. to 10 sta.) |
| D | D side (2 sta. to 10 sta.) |
| B | B side (2 sta. to 20 sta.) |

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

● Mounting

|                       |                                      |
|-----------------------|--------------------------------------|
| Nil                   | Direct mounting                      |
| D                     | DIN rail mounting (With DIN rail)    |
| D0 <sup>Note 1)</sup> | DIN rail mounting (Without DIN rail) |
| D3                    | For 3 sta.                           |
| ⋮                     | ⋮                                    |
| D20                   | For 20 sta.                          |

Note 1) In the case of D0, only DIN rail mounting bracket is attached.

Note 2) DIN rail is not attached (but shipped together) on the manifold in the case of with DIN rail. Refer to the SV series catalog for mounting method.

Note 3) When DIN rail mounting (with DIN rail) is selected for the SV3000 series, and I/O unit station number is 9, and max. valve station number is 18. DIN rail mounting (with DIN rail) cannot be specified for 19 and 20 stations. (Refer to the DIN rail total length on page 370-8 and 370-9.)

Note 4) Please consult SMC when changing from direct mounting to DIN rail mounting.

Note 5) Without SI unit (S60), DIN rail (D) is not available.

● SUP/EXH block assembly

|                     |                                   |
|---------------------|-----------------------------------|
| Nil                 | Internal pilot                    |
| S <sup>Note)</sup>  | Internal pilot, Built-in silencer |
| R                   | External pilot                    |
| RS <sup>Note)</sup> | External pilot, Built-in silencer |

● A, B port size (Metric)

| Symbol | A, B port              | P, E port             | Applicable series |
|--------|------------------------|-----------------------|-------------------|
| C3     | ø3.2 one-touch fitting | ø8 one-touch fitting  | SV1000            |
| C4     | ø4 one-touch fitting   |                       |                   |
| C6     | ø6 one-touch fitting   |                       |                   |
| C4     | ø4 one-touch fitting   | ø10 one-touch fitting | SV2000            |
| C6     | ø6 one-touch fitting   |                       |                   |
| C8     | ø8 one-touch fitting   |                       |                   |
| C6     | ø6 one-touch fitting   | ø12 one-touch fitting | SV3000            |
| C8     | ø8 one-touch fitting   |                       |                   |
| C10    | ø10 one-touch fitting  |                       |                   |
| M      | A, B port mixed        |                       |                   |

● A, B port size (Inch)

| Symbol | A, B port                | P, E port                | Applicable series |
|--------|--------------------------|--------------------------|-------------------|
| N1     | ø1/8" one-touch fitting  | ø5/16" one-touch fitting | SV1000            |
| N3     | ø5/32" one-touch fitting |                          |                   |
| N7     | ø1/4" one-touch fitting  |                          |                   |
| N3     | ø5/32" one-touch fitting | ø3/8" one-touch fitting  | SV2000            |
| N7     | ø1/4" one-touch fitting  |                          |                   |
| N9     | ø5/16" one-touch fitting |                          |                   |
| N7     | ø1/4" one-touch fitting  | ø3/8" one-touch fitting  | SV3000            |
| N9     | ø5/16" one-touch fitting |                          |                   |
| N11    | ø3/8" one-touch fitting  |                          |                   |
| M      | A, B port mixed          |                          |                   |

\* In the case of Mixed specifications (M), indicate separately with the manifold specification sheet.

\* Regarding the X and PE port size of External pilot type (R), and X port size of External pilot/Built-in silencer type (RS), ø4 (mm) and ø5/32" (inch) for the SV1000/2000 series, ø6 (mm) and ø1/4" (inch) for the SV3000 series.

How to Order Manifold Assembly (Example)

**Example (SS5V1)**

**Manifold**  
Power supply with  
M12 connector

Digital Input Unit  
EX600-DXPD

Digital Output Unit  
EX600-DYPB

SI Unit (Note)  
EX600-SDN1

2 position single  
SV1100-5FU

2 position double  
SV1200-5FU

End Plate (Note)  
EX600-ED2

D side

U side

1 2 --- I/O unit stations

1 2 3 4 5 --- Valve stations

For the I/O unit part number mounted, refer to the following pages in CAT.E02-24A.

- Digital Input Unit ..... P.27
- Digital Output Unit ..... P.31
- Analog Input Unit ..... P.33

**Serial transmission kit**

SS5V1-W10S6Q2N2D-05B-C6 .... 1 set

\* SV1100-5FU ..... 3 sets

\* SV1200-5FU ..... 2 sets

\* EX600-DXPD ..... 1 set

\* EX600-DYPB ..... 1 set

→The asterisk denotes the symbol for assembly.  
Prefix it to the part nos. of the solenoid valve, etc.

**Manifold base part number**

Valve part number (Stations 1 to 3)

Valve part number (Stations 4 to 5)

I/O unit part number (Station 1)

I/O unit part number (Station 2)

Enter in order starting from the first station on the D side.  
When entry of part numbers becomes complicated, indicate with the manifold specification sheet.

Enter in order starting from the first station on the D side.  
When entry of part numbers becomes complicated, indicate with the manifold specification sheet.

Note) Do not enter the SI Unit part number and the End Plate part number together.

SJ

SY

SV

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

VQ7

How to Order Valves

**SV 1 1 00 - 5 FU -**

**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 the SV1000/2000 series only.

**Pilot specifications**

|     |                |
|-----|----------------|
| Nil | Internal pilot |
| R   | External pilot |

\* External pilot specification 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 the SV1000 series only.  
\* The 3 position valve is not available with the back pressure check valve.

**Made to Order**

|     |                               |
|-----|-------------------------------|
| Nil | —                             |
| X90 | Fluorine rubber specification |

**Manual override**

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

**Light/surge voltage suppressor**

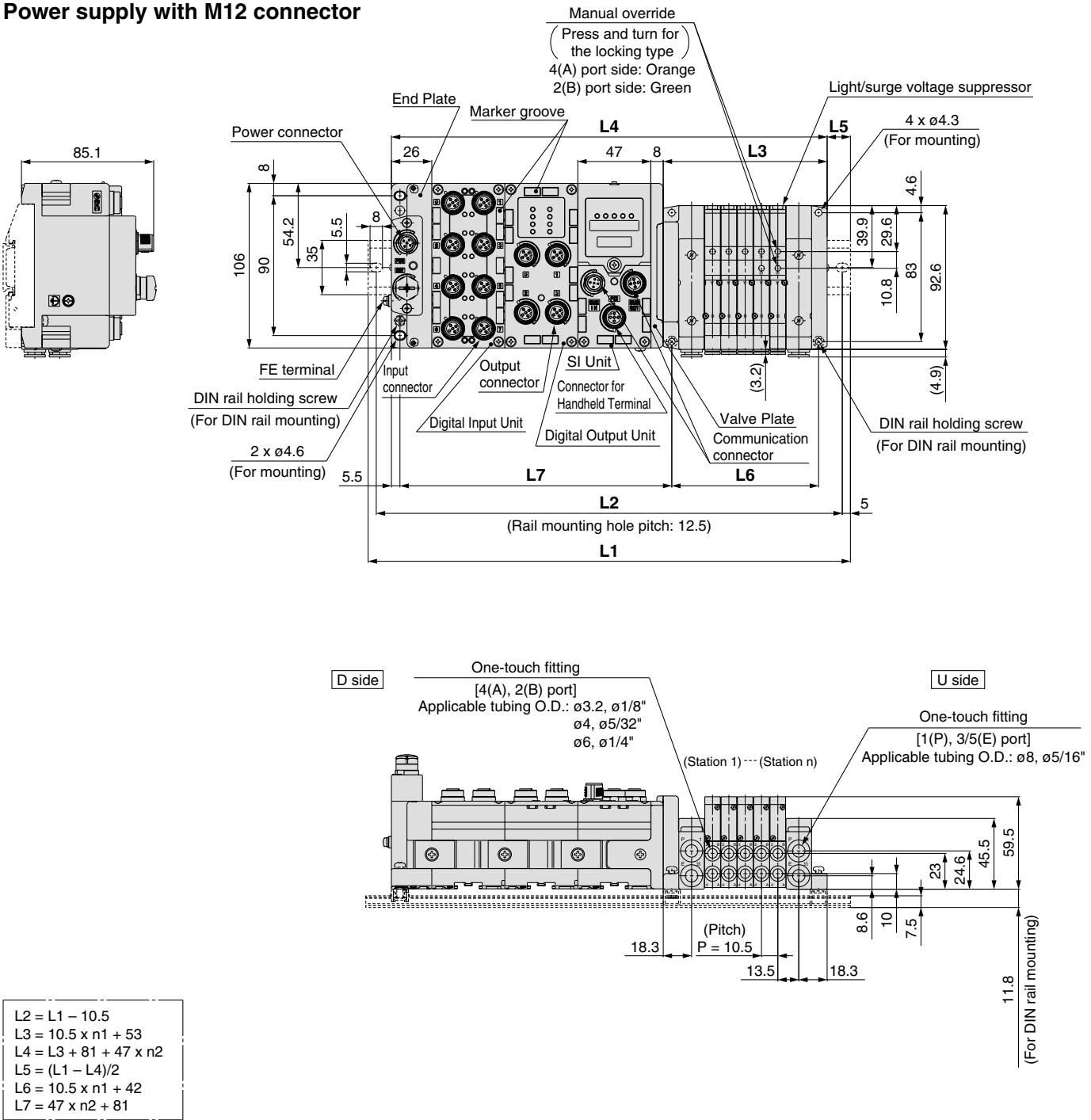
|   |                                     |
|---|-------------------------------------|
| U | With light/surge voltage suppressor |
| R | With surge voltage suppressor       |

**Coil voltage**

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

Dimensions: Series SV1000

Power supply with M12 connector

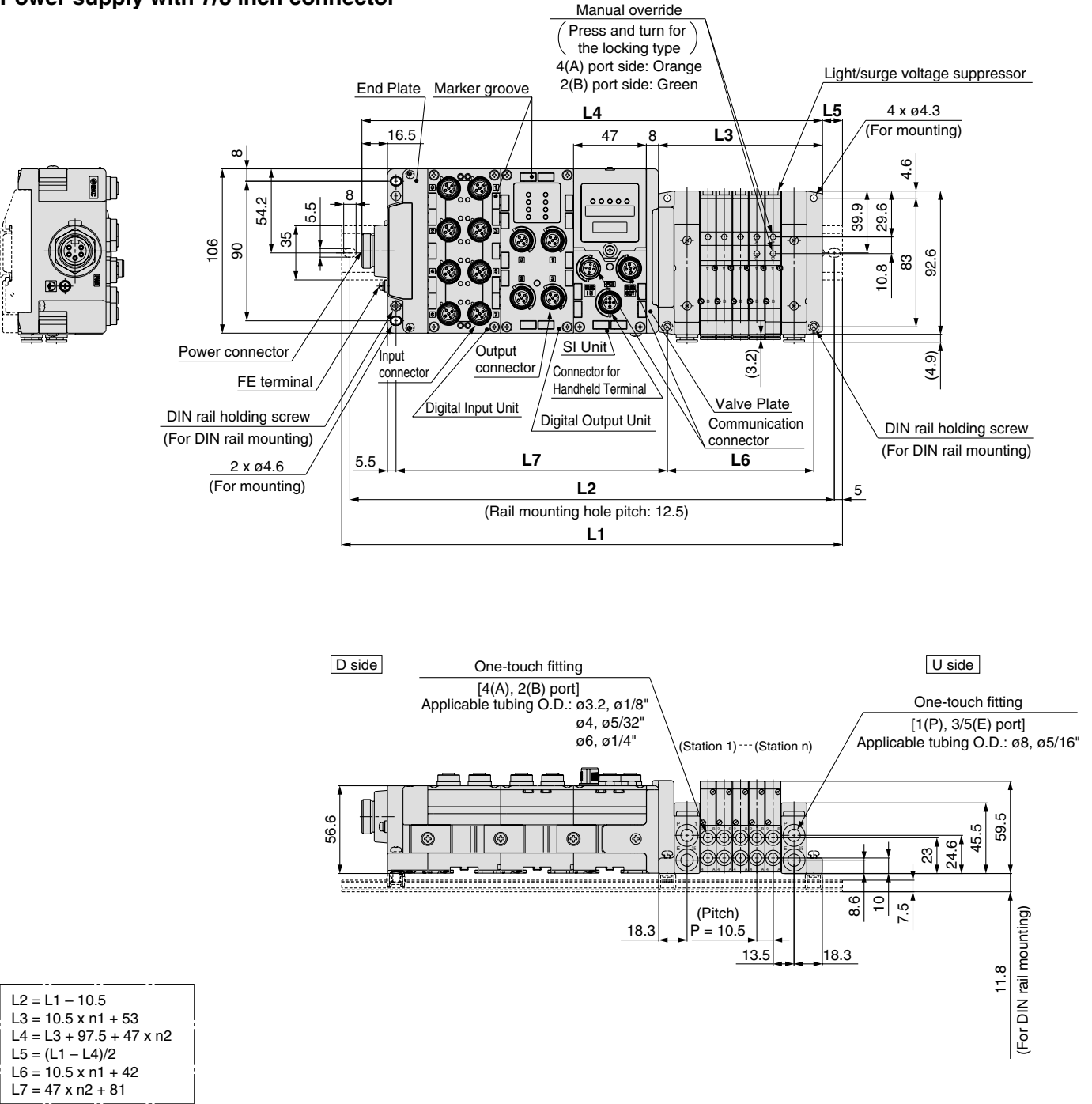


L1: DIN Rail Overall Length

| I/O unit stations (n2) \ Valve stations (n1) | 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                                            | 235.5 | 248   | 248   | 260.5 | 273   | 285.5 | 298   | 310.5 | 310.5 | 323   | 335.5 | 348   | 360.5 | 373   | 373   | 385.5 | 398   | 410.5 | 423   |
| 2                                            | 273   | 285.5 | 298   | 310.5 | 323   | 335.5 | 335.5 | 348   | 360.5 | 373   | 385.5 | 398   | 410.5 | 410.5 | 423   | 435.5 | 448   | 460.5 | 473   |
| 3                                            | 323   | 335.5 | 348   | 360.5 | 373   | 373   | 385.5 | 398   | 410.5 | 423   | 435.5 | 435.5 | 448   | 460.5 | 473   | 485.5 | 498   | 498   | 510.5 |
| 4                                            | 373   | 385.5 | 398   | 398   | 410.5 | 423   | 435.5 | 448   | 460.5 | 473   | 473   | 485.5 | 498   | 510.5 | 523   | 535.5 | 535.5 | 548   | 560.5 |
| 5                                            | 423   | 435.5 | 435.5 | 448   | 460.5 | 473   | 485.5 | 498   | 498   | 510.5 | 523   | 535.5 | 548   | 560.5 | 560.5 | 573   | 585.5 | 598   | 610.5 |
| 6                                            | 460.5 | 473   | 485.5 | 498   | 510.5 | 523   | 535.5 | 535.5 | 548   | 560.5 | 573   | 585.5 | 598   | 598   | 610.5 | 623   | 635.5 | 648   | 660.5 |
| 7                                            | 510.5 | 523   | 535.5 | 548   | 560.5 | 560.5 | 573   | 585.5 | 598   | 610.5 | 623   | 623   | 635.5 | 648   | 660.5 | 673   | 685.5 | 698   | 698   |
| 8                                            | 560.5 | 573   | 585.5 | 598   | 598   | 610.5 | 623   | 635.5 | 648   | 660.5 | 660.5 | 673   | 685.5 | 698   | 710.5 | 723   | 723   | 735.5 | 748   |
| 9                                            | 610.5 | 623   | 623   | 635.5 | 648   | 660.5 | 673   | 685.5 | 685.5 | 698   | 710.5 | 723   | 735.5 | 748   | 760.5 | 760.5 | 773   | 785.5 | 798   |

Dimensions: Series SV1000

Power supply with 7/8 inch connector

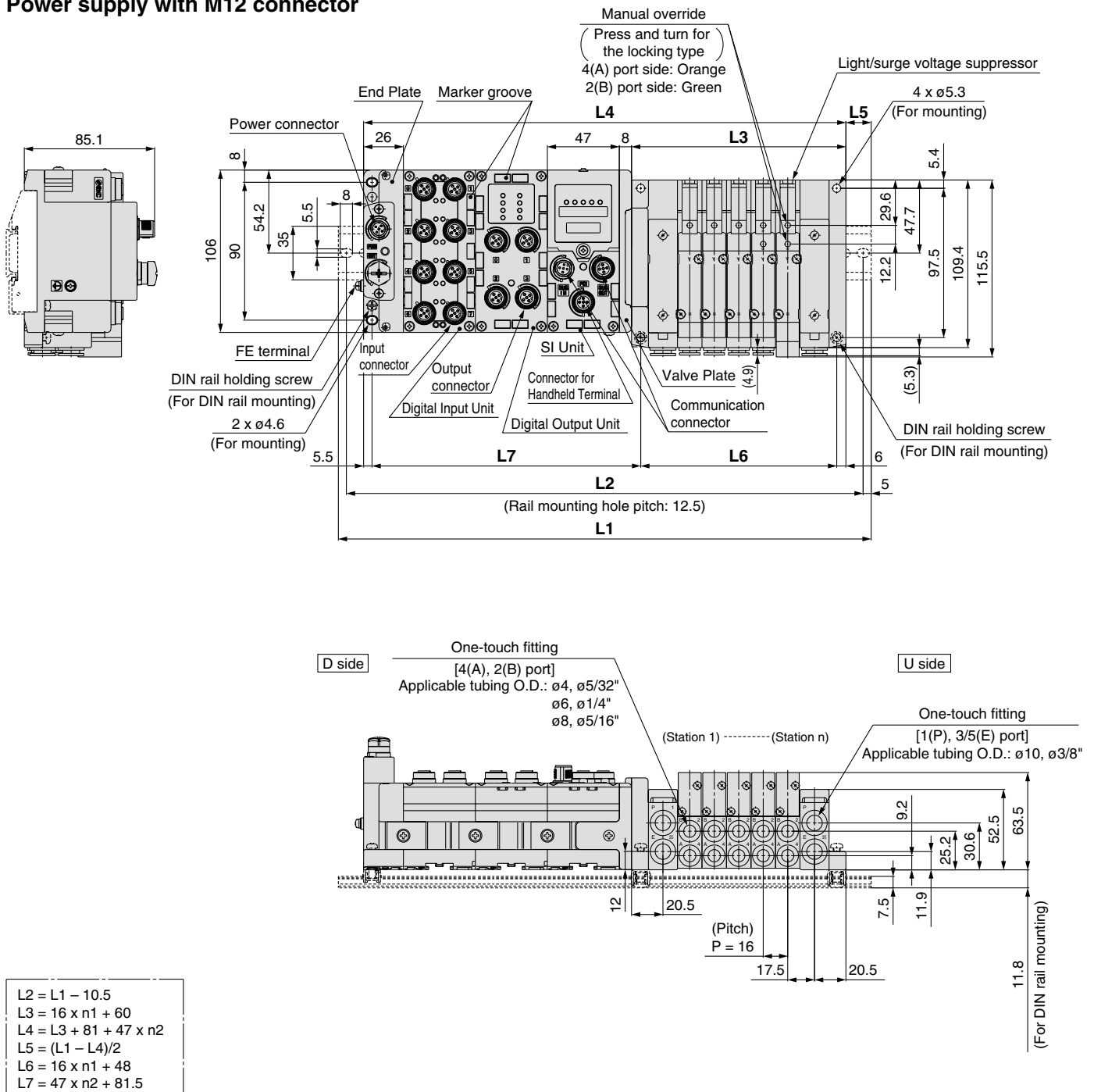


L1: DIN Rail Overall Length

| I/O unit stations (n2) \ Valve stations (n1) | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
|----------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0                                            | 198   | 210.5 | 223   | 235.5 | 248   | 248   | 260.5 | 273   | 285.5 | 298   | 310.5 | 310.5 | 323   | 335.5 | 348   | 360.5 | 373   | 385.5 | 385.5 |
| 1                                            | 248   | 260.5 | 273   | 285.5 | 285.5 | 298   | 310.5 | 323   | 335.5 | 348   | 348   | 360.5 | 373   | 385.5 | 398   | 410.5 | 410.5 | 423   | 435.5 |
| 2                                            | 298   | 310.5 | 310.5 | 323   | 335.5 | 348   | 360.5 | 373   | 373   | 385.5 | 398   | 410.5 | 423   | 435.5 | 448   | 448   | 460.5 | 473   | 485.5 |
| 3                                            | 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   | 535.5 |
| 4                                            | 385.5 | 398   | 410.5 | 423   | 435.5 | 435.5 | 448   | 460.5 | 473   | 485.5 | 498   | 510.5 | 510.5 | 523   | 535.5 | 548   | 560.5 | 573   | 573   |
| 5                                            | 435.5 | 448   | 460.5 | 473   | 473   | 485.5 | 498   | 510.5 | 523   | 535.5 | 535.5 | 548   | 560.5 | 573   | 585.5 | 598   | 598   | 610.5 | 623   |
| 6                                            | 485.5 | 498   | 498   | 510.5 | 523   | 535.5 | 548   | 560.5 | 573   | 573   | 585.5 | 598   | 610.5 | 623   | 635.5 | 635.5 | 648   | 660.5 | 673   |
| 7                                            | 535.5 | 535.5 | 548   | 560.5 | 573   | 585.5 | 598   | 598   | 610.5 | 623   | 635.5 | 648   | 660.5 | 660.5 | 673   | 685.5 | 698   | 710.5 | 723   |
| 8                                            | 573   | 585.5 | 598   | 610.5 | 623   | 635.5 | 635.5 | 648   | 660.5 | 673   | 685.5 | 698   | 698   | 710.5 | 723   | 735.5 | 748   | 760.5 | 760.5 |
| 9                                            | 623   | 635.5 | 648   | 660.5 | 660.5 | 673   | 685.5 | 698   | 710.5 | 723   | 723   | 735.5 | 748   | 760.5 | 773   | 785.5 | 798   | 798   | 810.5 |

## Dimensions: Series SV2000

### Power supply with M12 connector

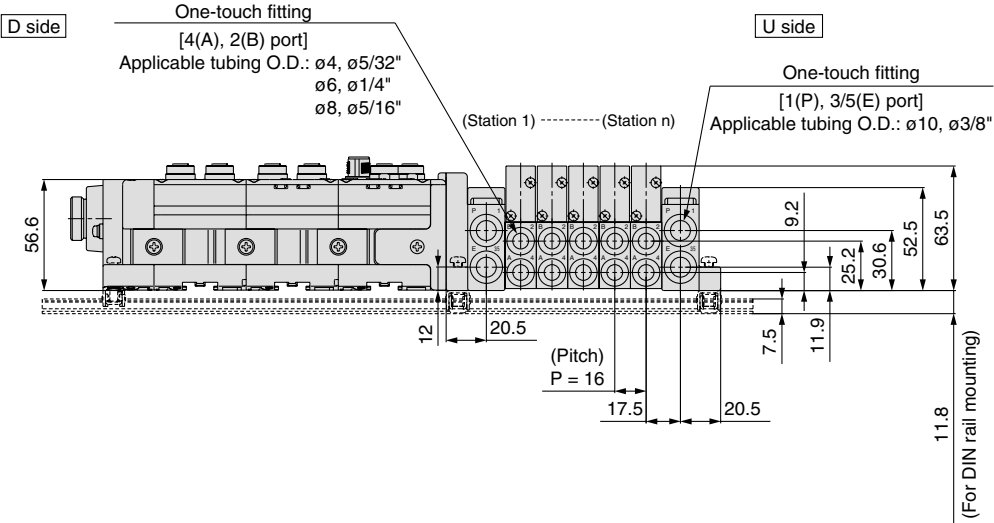
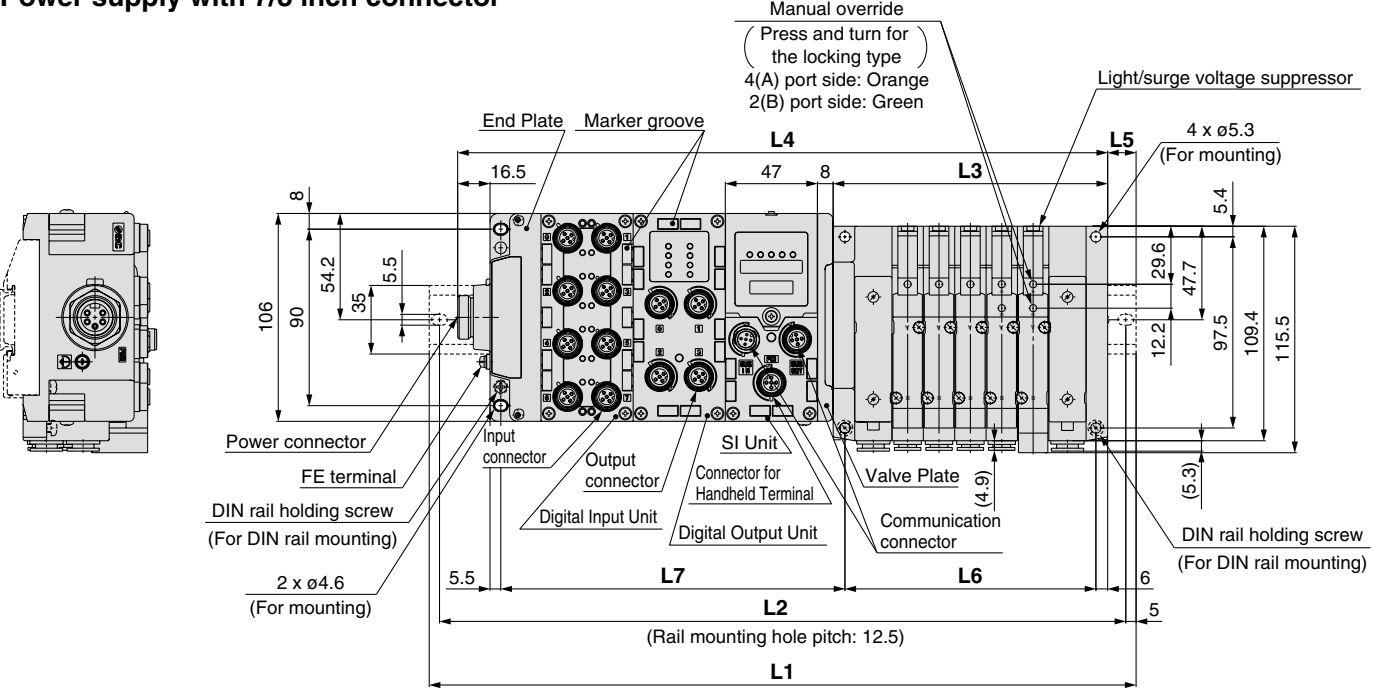


### L1: DIN Rail Overall Length

| I/O unit stations (n2) \ Valve stations (n1) | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
|----------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0                                            | 198   | 223   | 235.5 | 248   | 260.5 | 285.5 | 298   | 310.5 | 335.5 | 348   | 360.5 | 373   | 398   | 410.5 | 423   | 448   | 460.5 | 473   | 485.5 |
| 1                                            | 248   | 260.5 | 285.5 | 298   | 310.5 | 335.5 | 348   | 360.5 | 373   | 398   | 410.5 | 423   | 435.5 | 460.5 | 473   | 485.5 | 510.5 | 523   | 535.5 |
| 2                                            | 298   | 310.5 | 323   | 348   | 360.5 | 373   | 398   | 410.5 | 423   | 435.5 | 460.5 | 473   | 485.5 | 510.5 | 523   | 535.5 | 548   | 573   | 585.5 |
| 3                                            | 348   | 360.5 | 373   | 385.5 | 410.5 | 423   | 435.5 | 460.5 | 473   | 485.5 | 498   | 523   | 535.5 | 548   | 573   | 585.5 | 598   | 610.5 | 635.5 |
| 4                                            | 385.5 | 410.5 | 423   | 435.5 | 460.5 | 473   | 485.5 | 498   | 523   | 535.5 | 548   | 560.5 | 585.5 | 598   | 610.5 | 635.5 | 648   | 660.5 | 673   |
| 5                                            | 435.5 | 448   | 473   | 485.5 | 498   | 523   | 535.5 | 548   | 560.5 | 585.5 | 598   | 610.5 | 635.5 | 648   | 660.5 | 673   | 698   | 710.5 | 723   |
| 6                                            | 485.5 | 498   | 510.5 | 535.5 | 548   | 560.5 | 585.5 | 598   | 610.5 | 623   | 648   | 660.5 | 673   | 698   | 710.5 | 723   | 735.5 | 760.5 | 773   |
| 7                                            | 535.5 | 548   | 560.5 | 585.5 | 598   | 610.5 | 623   | 648   | 660.5 | 673   | 685.5 | 710.5 | 723   | 735.5 | 760.5 | 773   | 785.5 | 798   | 823   |
| 8                                            | 573   | 598   | 610.5 | 623   | 648   | 660.5 | 673   | 685.5 | 710.5 | 723   | 735.5 | 760.5 | 773   | 785.5 | 798   | 823   | 835.5 | 848   | 860.5 |
| 9                                            | 623   | 635.5 | 660.5 | 673   | 685.5 | 710.5 | 723   | 735.5 | 748   | 773   | 785.5 | 798   | 823   | 835.5 | 848   | 860.5 | 885.5 | 898   | 910.5 |

Dimensions: Series SV2000

Power supply with 7/8 inch connector



$L2 = L1 - 10.5$   
 $L3 = 16 \times n1 + 60$   
 $L4 = L3 + 97.5 + 47 \times n2$   
 $L5 = (L1 - L4)/2$   
 $L6 = 16 \times n1 + 48$   
 $L7 = 47 \times n2 + 81.5$

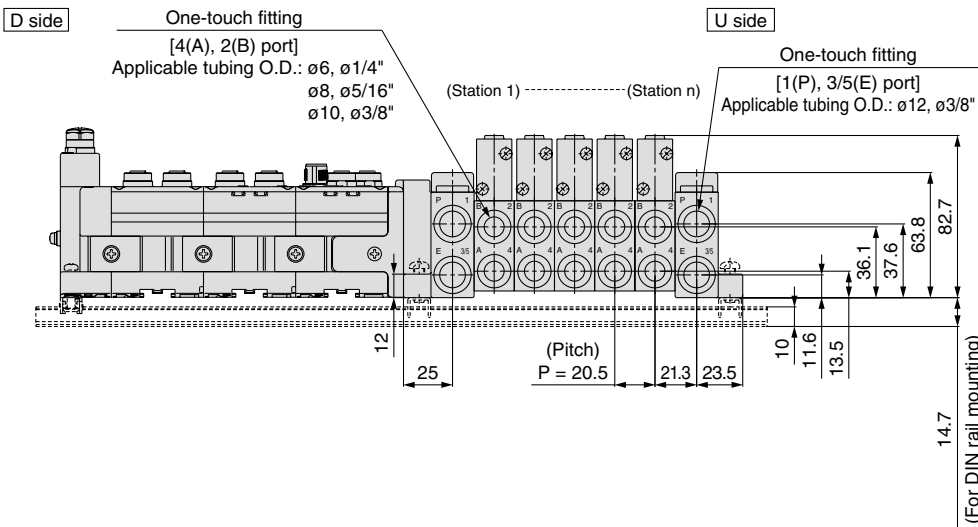
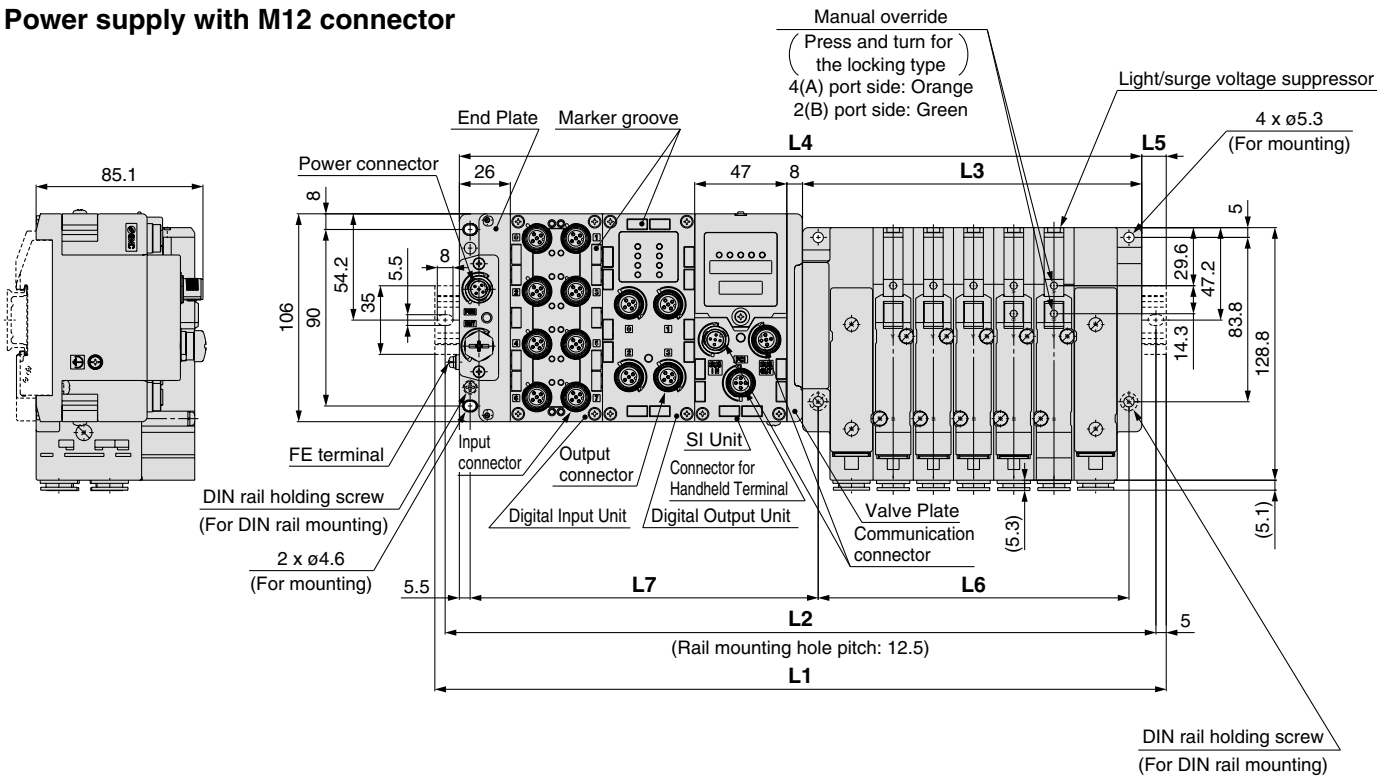
L1: DIN Rail Overall Length

| I/O unit stations (n2) \ Valve stations (n1) | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
|----------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0                                            | 223   | 235.5 | 248   | 273   | 285.5 | 298   | 310.5 | 335.5 | 348   | 360.5 | 373   | 398   | 410.5 | 423   | 448   | 460.5 | 473   | 485.5 | 510.5 |
| 1                                            | 260.5 | 285.5 | 298   | 310.5 | 335.5 | 348   | 360.5 | 373   | 398   | 410.5 | 423   | 448   | 460.5 | 473   | 485.5 | 510.5 | 523   | 535.5 | 548   |
| 2                                            | 310.5 | 323   | 348   | 360.5 | 373   | 398   | 410.5 | 423   | 435.5 | 460.5 | 473   | 485.5 | 510.5 | 523   | 535.5 | 548   | 573   | 585.5 | 598   |
| 3                                            | 360.5 | 373   | 398   | 410.5 | 423   | 435.5 | 460.5 | 473   | 485.5 | 498   | 523   | 535.5 | 548   | 573   | 585.5 | 598   | 610.5 | 635.5 | 648   |
| 4                                            | 410.5 | 423   | 435.5 | 460.5 | 473   | 485.5 | 498   | 523   | 535.5 | 548   | 573   | 585.5 | 598   | 610.5 | 635.5 | 648   | 660.5 | 673   | 698   |
| 5                                            | 448   | 473   | 485.5 | 498   | 523   | 535.5 | 548   | 560.5 | 585.5 | 598   | 610.5 | 635.5 | 648   | 660.5 | 673   | 698   | 710.5 | 723   | 748   |
| 6                                            | 498   | 523   | 535.5 | 548   | 560.5 | 585.5 | 598   | 610.5 | 623   | 648   | 660.5 | 673   | 698   | 710.5 | 723   | 735.5 | 760.5 | 773   | 785.5 |
| 7                                            | 548   | 560.5 | 585.5 | 598   | 610.5 | 623   | 648   | 660.5 | 673   | 698   | 710.5 | 723   | 735.5 | 760.5 | 773   | 785.5 | 798   | 823   | 835.5 |
| 8                                            | 598   | 610.5 | 623   | 648   | 660.5 | 673   | 685.5 | 710.5 | 723   | 735.5 | 760.5 | 773   | 785.5 | 798   | 823   | 835.5 | 848   | 873   | 885.5 |
| 9                                            | 648   | 660.5 | 673   | 685.5 | 710.5 | 723   | 735.5 | 748   | 773   | 785.5 | 798   | 823   | 835.5 | 848   | 860.5 | 885.5 | 898   | 910.5 | 935.5 |

|       |
|-------|
| SJ    |
| SY    |
| SV    |
| SYJ   |
| SZ    |
| VP4   |
| S0700 |
| VQ    |
| VQ4   |
| VQ5   |
| VQC   |
| VQZ   |
| SQ    |
| VFS   |
| VFR   |
| VQ7   |

Dimensions: Series SV3000

Power supply with M12 connector



$$L2 = L1 - 10.5$$
$$L3 = 20.5 \times n1 + 70.5$$
$$L4 = L3 + 81 + 47 \times n2$$
$$L5 = (L1 - L4)/2$$
$$L6 = 20.5 \times n1 + 56$$
$$L7 = 47 \times n2 + 83.5$$

L1: DIN Rail Overall Length

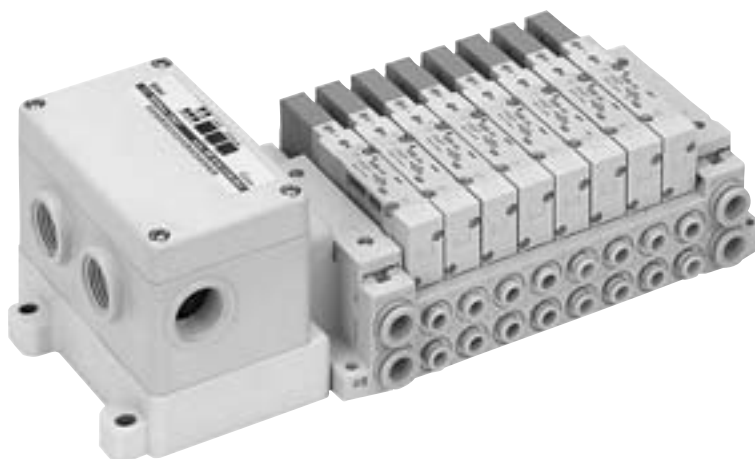
| Valve stations (n1)<br>I/O unit stations (n2) | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
|-----------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0                                             | 223   | 248   | 260.5 | 285.5 | 298   | 323   | 348   | 360.5 | 385.5 | 410.5 | 423   | 448   | 473   | 485.5 | 510.5 | 535.5 | 548   | 573   | 585.5 |
| 1                                             | 273   | 285.5 | 310.5 | 335.5 | 348   | 373   | 398   | 410.5 | 435.5 | 448   | 473   | 498   | 510.5 | 535.5 | 560.5 | 573   | 598   | 623   | 635.5 |
| 2                                             | 310.5 | 335.5 | 360.5 | 373   | 398   | 423   | 435.5 | 460.5 | 485.5 | 498   | 523   | 535.5 | 560.5 | 585.5 | 598   | 623   | 648   | 660.5 | 685.5 |
| 3                                             | 360.5 | 385.5 | 398   | 423   | 448   | 460.5 | 485.5 | 510.5 | 523   | 548   | 573   | 585.5 | 610.5 | 635.5 | 648   | 673   | 685.5 | 710.5 | 735.5 |
| 4                                             | 410.5 | 435.5 | 448   | 473   | 498   | 510.5 | 535.5 | 548   | 573   | 598   | 610.5 | 635.5 | 660.5 | 673   | 698   | 723   | 735.5 | 760.5 | 773   |
| 5                                             | 460.5 | 473   | 498   | 523   | 535.5 | 560.5 | 585.5 | 598   | 623   | 635.5 | 660.5 | 685.5 | 698   | 723   | 748   | 760.5 | 785.5 | 810.5 | 823   |
| 6                                             | 498   | 523   | 548   | 560.5 | 585.5 | 610.5 | 623   | 648   | 673   | 685.5 | 710.5 | 735.5 | 748   | 773   | 785.5 | 810.5 | 835.5 | 848   | 873   |
| 7                                             | 548   | 573   | 598   | 610.5 | 635.5 | 648   | 673   | 698   | 710.5 | 735.5 | 760.5 | 773   | 798   | 823   | 835.5 | 860.5 | 873   | 898   | 923   |
| 8                                             | 598   | 623   | 635.5 | 660.5 | 685.5 | 698   | 723   | 735.5 | 760.5 | 785.5 | 798   | 823   | 848   | 860.5 | 885.5 | 910.5 | 923   | 948   | 973   |
| 9                                             | 648   | 660.5 | 685.5 | 710.5 | 723   | 748   | 773   | 785.5 | 810.5 | 835.5 | 848   | 873   | 885.5 | 910.5 | 935.5 | 948   | 973   | —     | —     |

|           |
|-----------|
| SJ        |
| SY        |
| <b>SV</b> |
| SYJ       |
| SZ        |
| VP4       |
| S0700     |
| VQ        |
| VQ4       |
| VQ5       |
| VQC       |
| VQZ       |
| SQ        |
| VFS       |
| VFR       |
| VQ7       |

# Integrated Type (for Output) Serial Transmission System

## Series *EX126*

IP67 compliant



Applicable series **Tie-rod base manifold  
SV1000/SV2000/SV3000**

• Number of outputs points: 16 points

SJ

SY

**SV**

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

VQ7

# EX126 Integrated Type (for Output) Serial Transmission System

## Series SV



### How to Order

#### ● Tie-rod base

SS5V **1** - W 10S4   D - **05** **U**   -   -  

#### Series

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |

#### Enclosure IP67 specifications

#### SI unit

|    |                               |
|----|-------------------------------|
| 0  | Without SI unit and end plate |
| VW | CC-Link                       |

- When the SI unit is not included, only the terminal block plate is included.

#### 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.

#### Valve stations

| Symbol | Stations    | Note                                                      |
|--------|-------------|-----------------------------------------------------------|
| 02     | 2 stations  | (1)<br>Double wiring specifications                       |
| ⋮      | ⋮           |                                                           |
| 08     | 8 stations  |                                                           |
| 02     | 2 stations  | (2)<br>Specified layout<br>(up to 16 solenoids possible.) |
| ⋮      | ⋮           |                                                           |
| 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 a manifold specification sheet. (Note that double, 3 and 4 position valves cannot be used where single solenoid wiring has been specified.)

#### 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.

#### SI Unit Part No.

| Symbol | Protocol type | SI unit part no. |
|--------|---------------|------------------|
| VW     | CC-Link       | EX126D-SMJ1      |

Refer to pages 1653 to 1655 for the details of the EX126 integrated type (for output) serial transmission system.

#### 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) |

#### 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             |                              |                   |

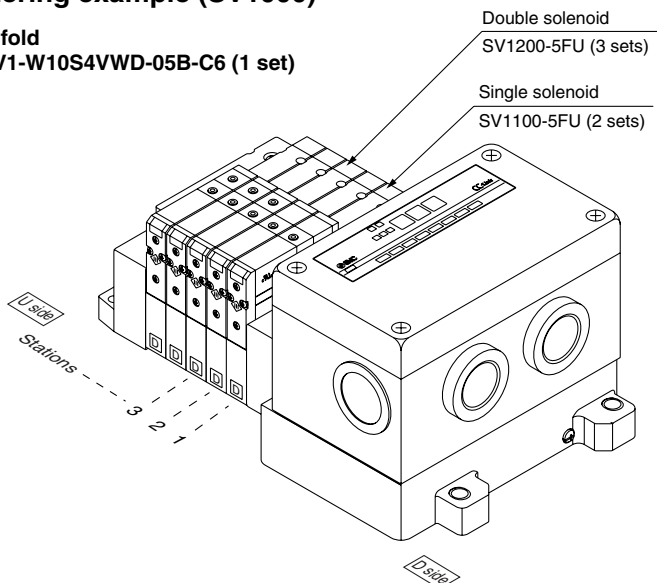
\* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

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

## How to Order Manifold Assembly

### Ordering example (SV1000)

Manifold  
SS5V1-W10S4VWD-05B-C6 (1 set)



SS5V1-W10S4VWD-05B-C6 ..... 1 set (manifold part no.)  
\* SV1100-5FU ..... 2 sets (manifold part no.)  
\* SV1200-5FU ..... 3 sets (manifold part no.)

## How to Order Valve

SV 1 1 0 0 - 5 F - - -

Series

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |

### Type of actuation

|   |                                         |
|---|-----------------------------------------|
| 1 | 2 position single                       |
| 2 | 2 position double                       |
| 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 valve.

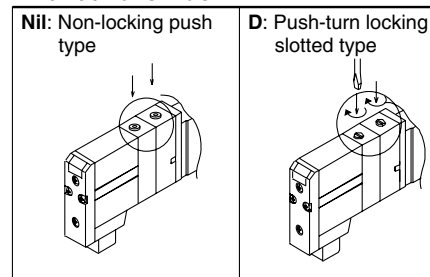


Note) Available with manifold block for station additions. Refer to page 433.

### Made to Order

|     |                                               |
|-----|-----------------------------------------------|
| Nil | —                                             |
| X90 | Main valve fluoro rubber (Refer to page 448.) |

### Manual override



### Light/Surge voltage suppressor

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

### Rated voltage

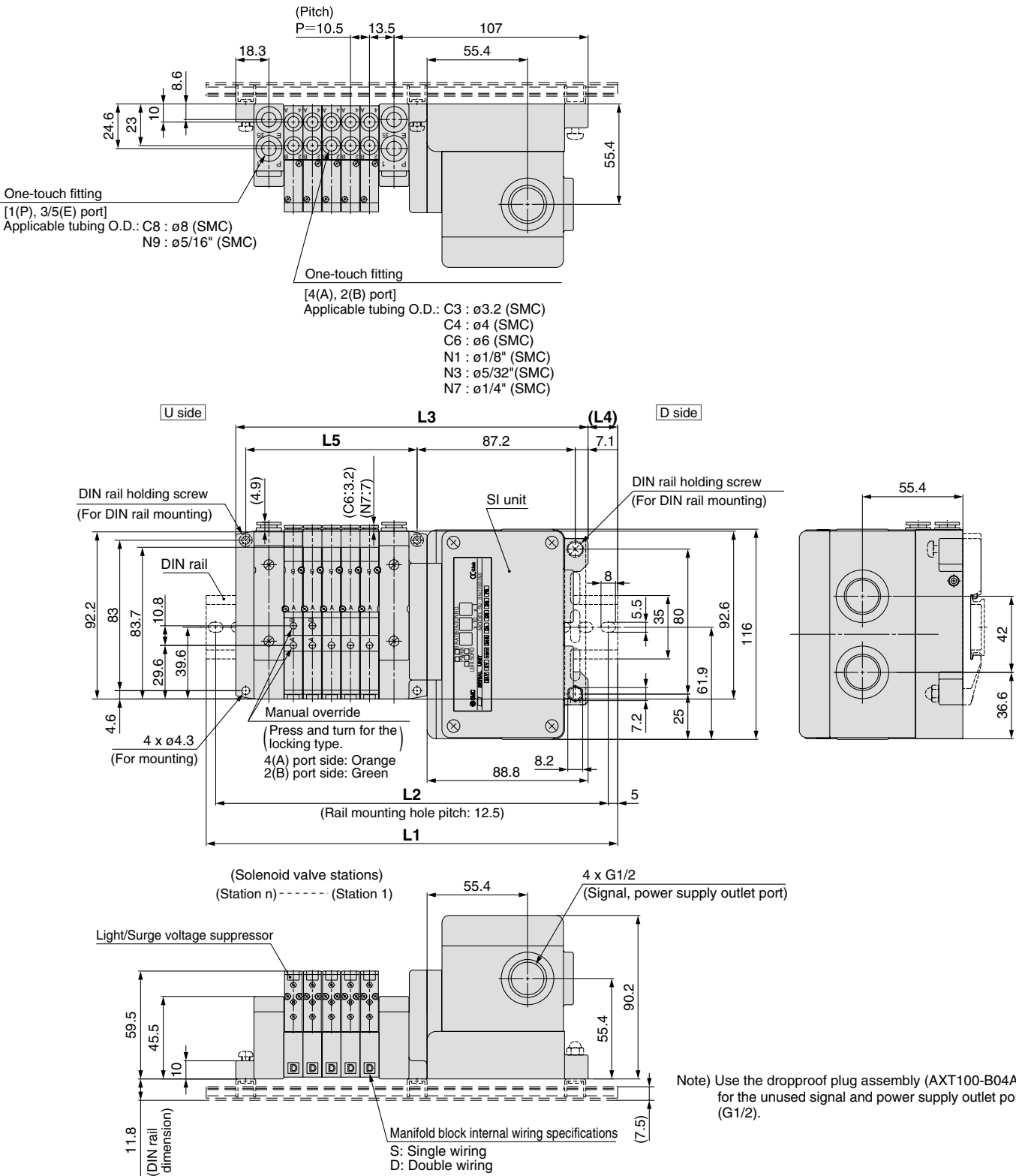
|   |        |
|---|--------|
| 5 | 24 VDC |
|---|--------|



Refer to Specific Product Precautions 2 on page 450.

Dimensions: Series SV1000 for EX126 Integrated Type (for Output) Serial Transmission System

● Tie-rod base manifold : SS5V1-W10S4 □ D- Stations  $\frac{U}{D}$  (S, R, RS)-  $\frac{C3, N1}{C4, N3}$  (-D)  
 $\frac{C6, N7}{C6, N7}$

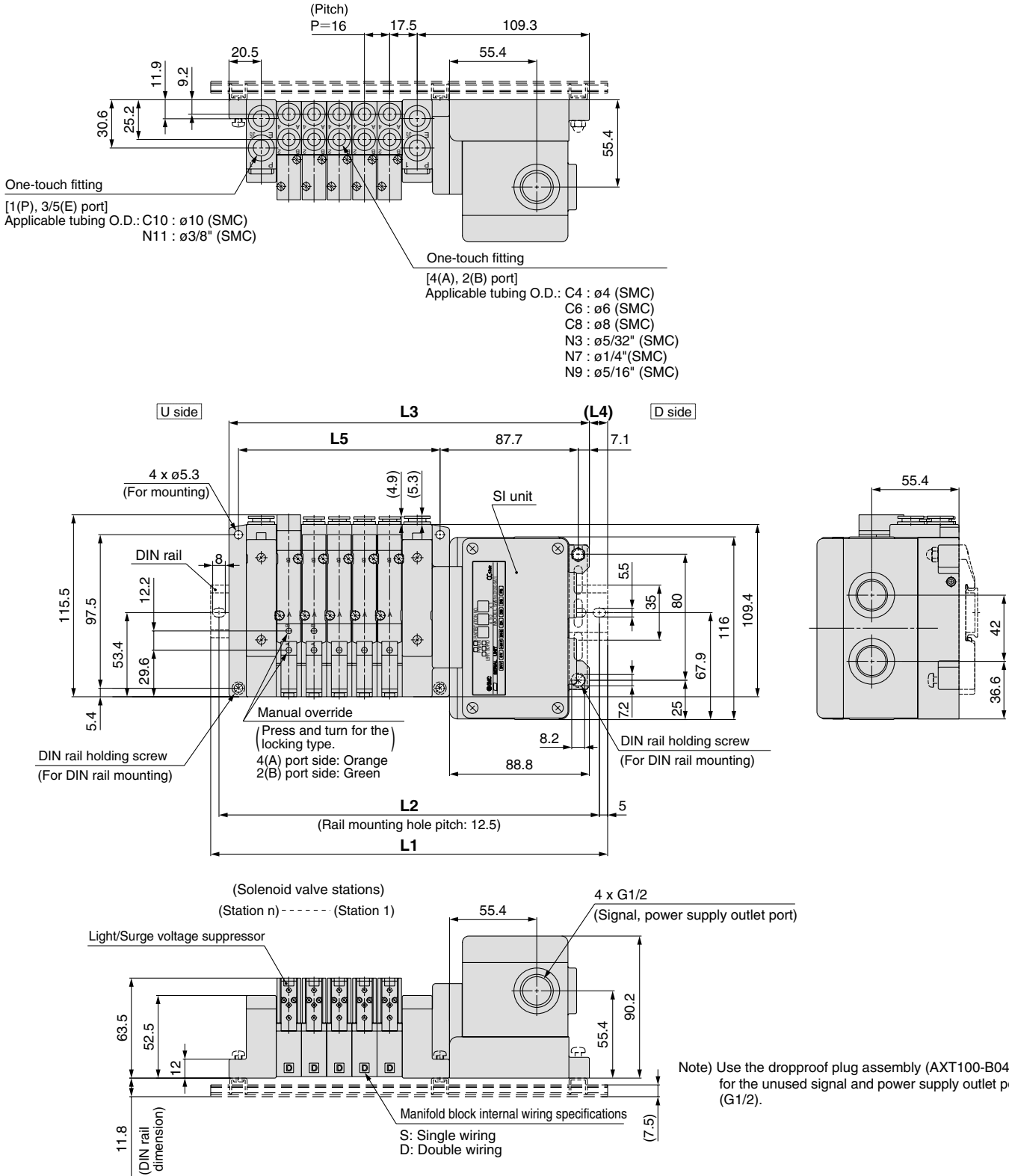


**L Dimension**

| L  |       | n: Stations |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|----|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| n  |       | 2           | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |  |
| L1 | 198   | 198         | 210.5 | 223   | 235.5 | 248   | 260.5 | 260.5 | 273   | 285.5 | 298   | 310.5 | 323   | 323   | 323   | 335.5 |  |
| L2 | 187.5 | 187.5       | 200   | 212.5 | 225   | 237.5 | 250   | 250   | 262.5 | 275   | 287.5 | 300   | 312.5 | 312.5 | 325   |       |  |
| L3 | 162.8 | 173.3       | 183.8 | 194.3 | 204.8 | 215.3 | 225.8 | 236.3 | 246.8 | 257.3 | 267.8 | 278.3 | 288.8 | 299.3 | 309.8 |       |  |
| L4 | 17.5  | 12.5        | 13.5  | 14.5  | 15.5  | 16.5  | 17.5  | 12    | 13    | 14    | 15    | 16    | 17    | 12    | 13    |       |  |
| L5 | 63    | 73.5        | 84    | 94.5  | 105   | 115.5 | 126   | 136.5 | 147   | 157.5 | 168   | 178.5 | 189   | 199.5 | 210   |       |  |

**Dimensions: Series SV2000 for EX126 Integrated Type (for Output) Serial Transmission System**

● Tie-rod base manifold : SS5V2-W10S4 □ D-Stations  $\frac{U}{D}$  (S, R, RS)- $\frac{C4, N3}{C6, N7}$  (-D)  
C8, N9

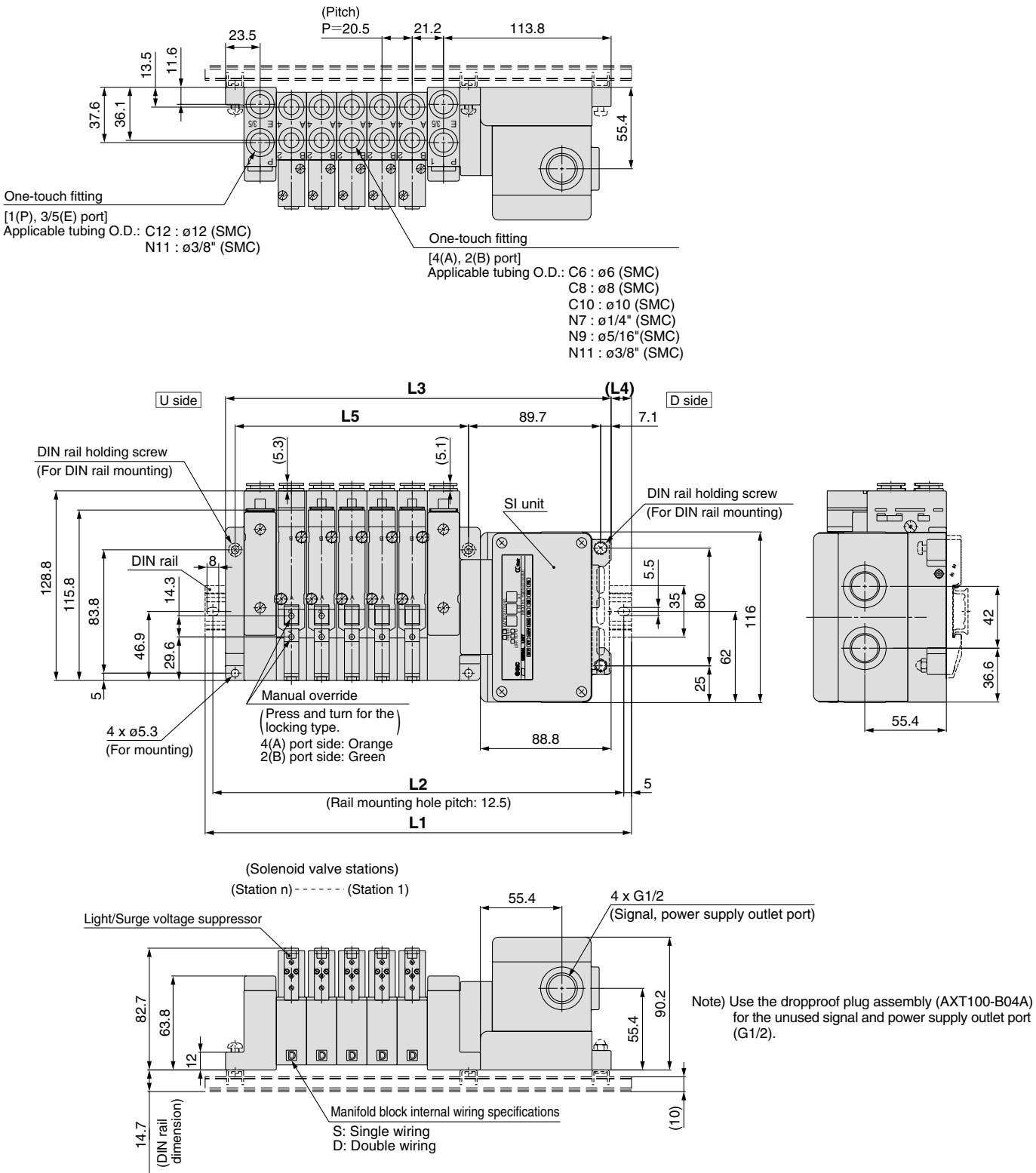


**L Dimension**

|    |   | n : Stations |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|----|---|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| L  | n | 2            | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |  |
| L1 |   | 210.5        | 223   | 248   | 260.5 | 273   | 285.5 | 310.5 | 323   | 335.5 | 348   | 373   | 385.5 | 398   | 423   | 435.5 |  |
| L2 |   | 200          | 212.5 | 237.5 | 250   | 262.5 | 275   | 300   | 312.5 | 325   | 337.5 | 362.5 | 375   | 387.5 | 412.5 | 425   |  |
| L3 |   | 180.8        | 196.8 | 212.8 | 228.8 | 244.8 | 260.8 | 276.8 | 292.8 | 308.8 | 324.8 | 340.8 | 356.8 | 372.8 | 388.8 | 404.8 |  |
| L4 |   | 15           | 13    | 17.5  | 16    | 14    | 12.5  | 17    | 15    | 13.5  | 11.5  | 16    | 14.5  | 12.5  | 17    | 15.5  |  |
| L5 |   | 80           | 96    | 112   | 128   | 144   | 160   | 176   | 192   | 208   | 224   | 240   | 256   | 272   | 288   | 304   |  |

Dimensions: Series SV3000 for EX126 Integrated Type (for Output) Serial Transmission System

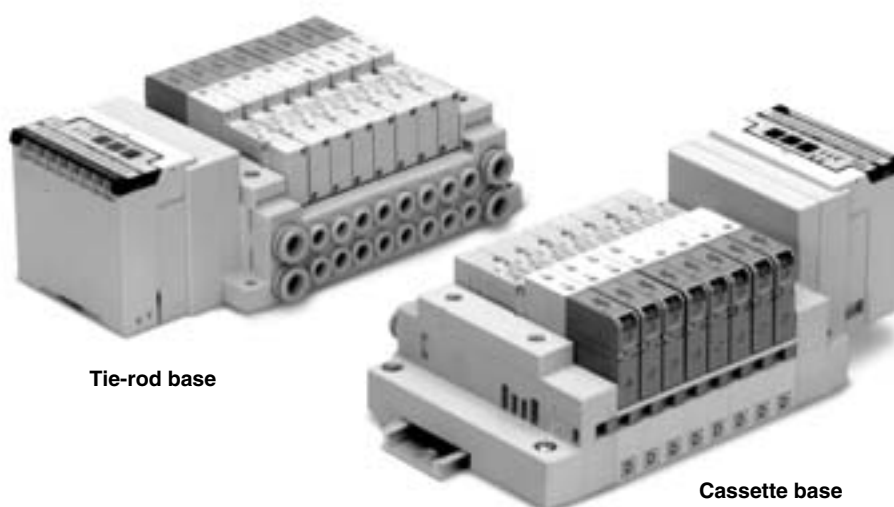
● Tie-rod base manifold : SS5V3-W10S4 □ D- Stations  $\frac{U}{D}$  (S, R, RS)-  $\frac{C6, N7}{C8, N9}$   $\frac{C10, N11}{C10, N11}$  (-D)



| L Dimension |   | n : Stations |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|-------------|---|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| L           | n | 2            | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |  |
| L1          |   | 235.5        | 248   | 273   | 285.5 | 310.5 | 335.5 | 348   | 373   | 398   | 410.5 | 435.5 | 460.5 | 473   | 498   | 510.5 |  |
| L2          |   | 225          | 237.5 | 262.5 | 275   | 300   | 325   | 337.5 | 362.5 | 387.5 | 400   | 425   | 450   | 462.5 | 487.5 | 500   |  |
| L3          |   | 200.3        | 220.8 | 241.3 | 261.8 | 282.3 | 302.8 | 323.3 | 343.8 | 364.3 | 384.8 | 405.3 | 425.8 | 446.3 | 466.8 | 487.3 |  |
| L4          |   | 17.5         | 13.5  | 16    | 12    | 14    | 16.5  | 12.5  | 14.5  | 17    | 13    | 15    | 17.5  | 13.5  | 15.5  | 11.5  |  |
| L5          |   | 97           | 117.5 | 138   | 158.5 | 179   | 199.5 | 220   | 240.5 | 261   | 281.5 | 302   | 322.5 | 343   | 363.5 | 384   |  |

# Integrated Type (for Output) Serial Transmission System

## 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

SJ

SY

**SV**

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

VQ7

# EX120 Integrated Type (for Output) Serial Transmission System

## Series SV



### How to Order Manifold

● **Tie-rod base**

● **Cassette base**

**Series**

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |
| 4 | SV4000 |

**SI Unit**

|    |                                            |
|----|--------------------------------------------|
| 0  | Without SI unit                            |
| F1 | NKE Corp.: Uni-wire System                 |
| H  | NKE Corp.: Uni-wire H System               |
| J1 | SUNX Corp.: S-LINK (16 output points)      |
| J2 | SUNX Corp.: S-LINK (8 output points)       |
| Q  | DeviceNet                                  |
| R1 | OMRON Corp.: CompoBus/S (16 output points) |
| R2 | OMRON Corp.: CompoBus/S (8 output points)  |
| V  | CC-LINK                                    |

**Valve stations**

|    |             |                                                           |
|----|-------------|-----------------------------------------------------------|
| 02 | 2 stations  | (1)<br>Double wiring specifications                       |
| 08 | 8 stations  |                                                           |
| 02 | 2 stations  | (2)<br>Specified layout<br>(up to 16 solenoids possible.) |
| 16 | 16 stations |                                                           |

● **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 |

● **SUP/EXH block assembly specifications**

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

● **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) |

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 a manifold specification sheet. (Note that double, 3 and 4 position valves cannot be used where single solenoid wiring has been specified.)

#### SI Unit Part No.

| Symbol | Protocol type                              | SI unit part no. | CE-compliant |
|--------|--------------------------------------------|------------------|--------------|
| F1     | NKE Corp.: Uni-wire System                 | EX120-SUW1       | —            |
| H      | NKE Corp.: Uni-wire H System               | EX120-SUH1       | —            |
| J1     | SUNX Corp.: S-LINK (16 output points)      | EX120-SSL1       | —            |
| J2     | SUNX Corp.: S-LINK (8 output points)       | EX120-SSL2       | —            |
| Q      | DeviceNet                                  | EX120-SDN1       | ○            |
| R1     | OMRON Corp.: CompoBus/S (16 output points) | EX120-SCS1       | ○            |
| R2     | OMRON Corp.: CompoBus/S (8 output points)  | EX120-SCS2       | ○            |
| V      | CC-LINK                                    | EX120-SMJ1       | ○            |

Refer to pages 1650 to 1652 for the details of EX120 integrated type (For output) serial transmission system.

#### 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   | One-touch fitting for ø10 | SV2000            |
| C4     | One-touch fitting for ø4   |                           |                   |
| C6     | One-touch fitting for ø6   | One-touch fitting for ø12 | SV3000            |
| C8     | One-touch fitting for ø8   |                           |                   |
| C10    | One-touch fitting for ø10  | One-touch fitting for ø12 | SV4000            |
| C8     | One-touch fitting for ø8   |                           |                   |
| C10    | One-touch fitting for ø10  | Rc 3/8                    | SV4000            |
| C12    | One-touch fitting for ø12  |                           |                   |
| 02     | Rc 1/4                     | G 3/8                     | SV4000            |
| 03     | Rc 3/8                     |                           |                   |
| 02F    | G 1/4                      | G 3/8                     | SV4000            |
| 03F    | G 3/8                      |                           |                   |
| M      | A, B ports mixed           |                           |                   |

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

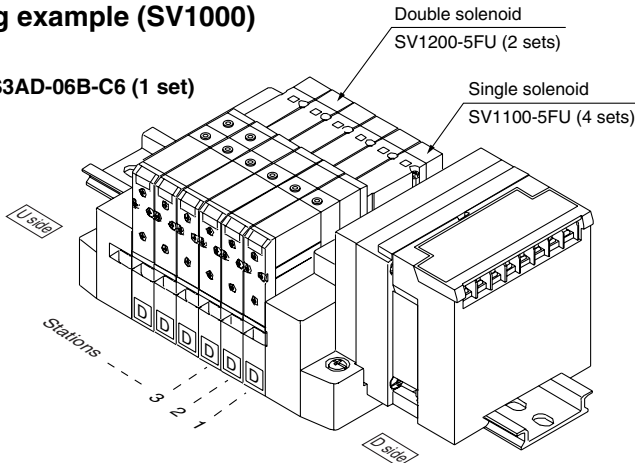
| Symbol | A, B port                    | P, E port                    | Applicable series |
|--------|------------------------------|------------------------------|-------------------|
| N1     | One-touch fitting for ø1/8"  | One-touch fitting for ø5/16" | SV1000            |
| N3     | One-touch fitting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

## How to Order Manifold Assembly

### Ordering example (SV1000)

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



SS5V1-16S3CD-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 00 - 5 F - -

### Series

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |
| 4 | SV4000 |

### Type of actuation

|   |                                         |
|---|-----------------------------------------|
| 1 | 2 position single                       |
| 2 | 2 position double                       |
| 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.



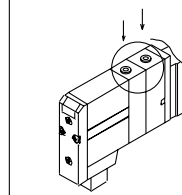
Note) Available with manifold block for station additions. Refer to pages 429 and 433.

### Made to Order

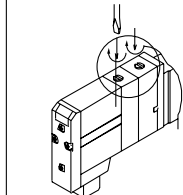
|     |                                               |
|-----|-----------------------------------------------|
| Nil | —                                             |
| X90 | Main valve fluoro rubber (Refer to page 448.) |

### 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 |
|---|--------|

### 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 Valve.



Refer to Specific Product Precautions 2 on page 450.

SJ

SY

SV

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

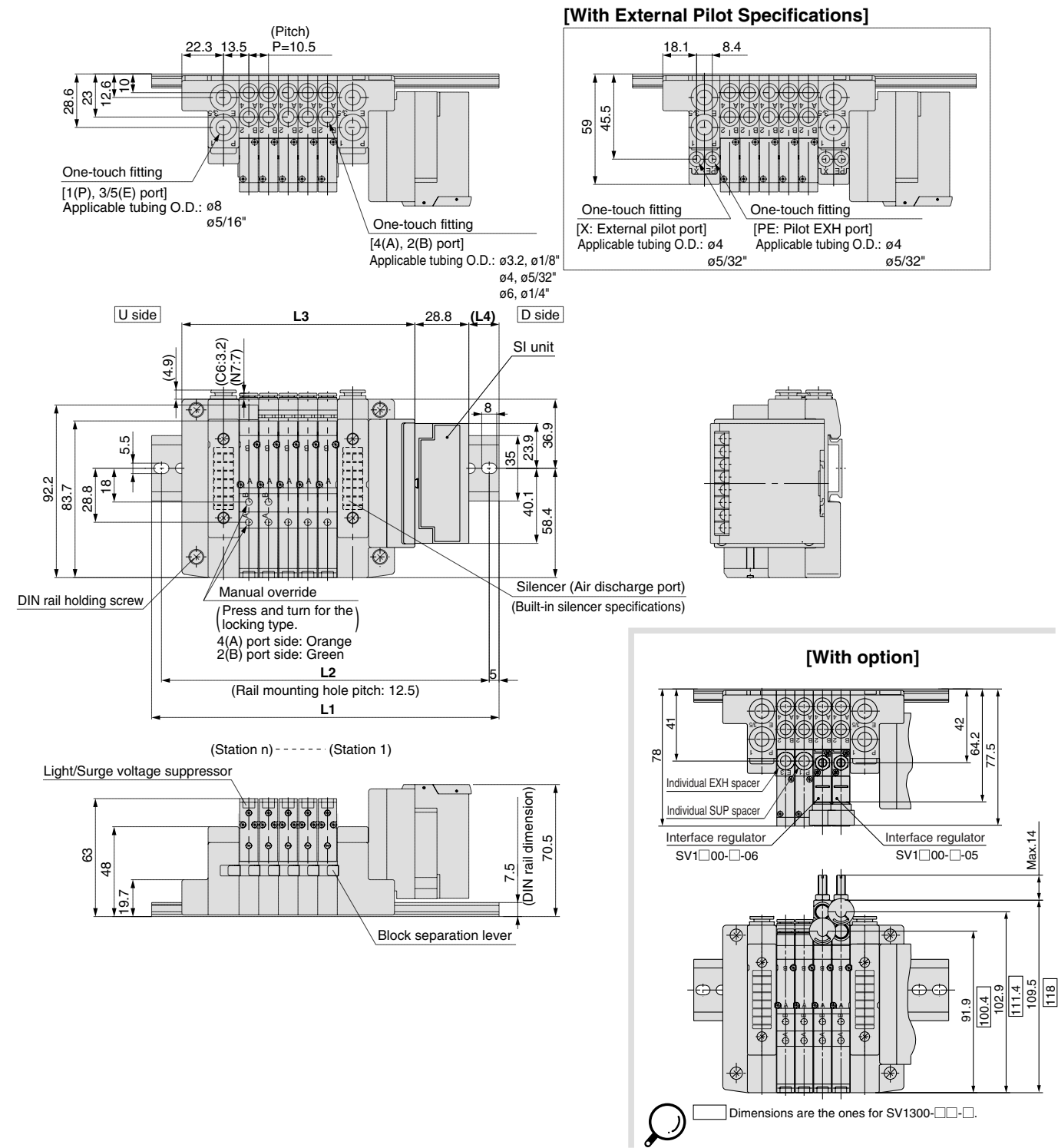
VFR

VQ7

Dimensions: Series SV1000 for EX120 Integrated Type (for Output) Serial Transmission System

● Cassette base manifold : SS5V1-16S3□D- Stations <sup>U</sup><sub>D</sub>(S, R, RS)-<sup>C3, N1</sup><sub>C4, N3</sub><sup>C6, N7</sup>

- 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.

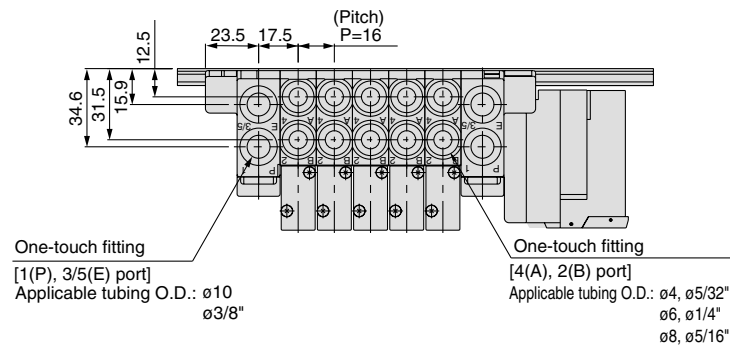


| L Dimension |   | n : Stations |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|-------------|---|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 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  |  |

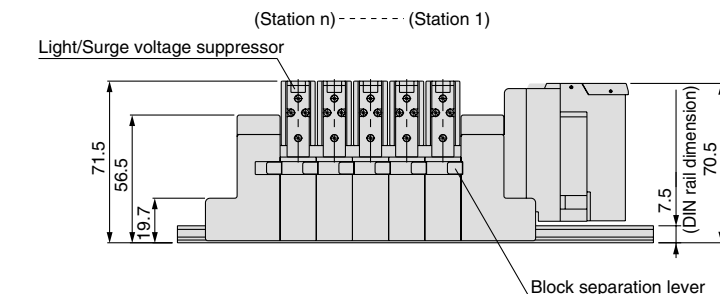
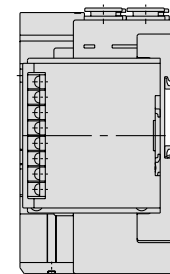
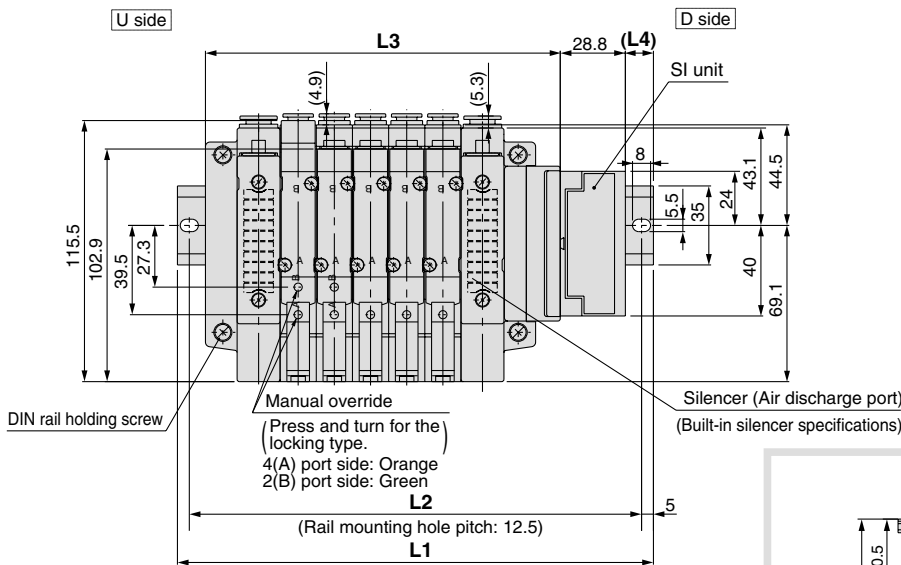
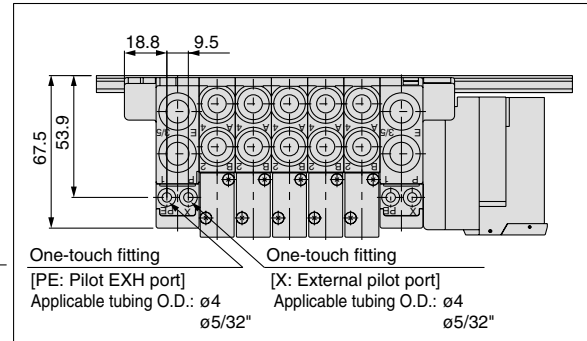
## Dimensions: Series SV2000 for EX120 Integrated Type (for Output) Serial Transmission System

### ● Cassette base manifold : SS5V2-16S3 □ D- Stations $\frac{U}{D}$ (S, R, RS) $\frac{C4, N3}{C6, N7}$ $\frac{C8, N9}{C8, N9}$

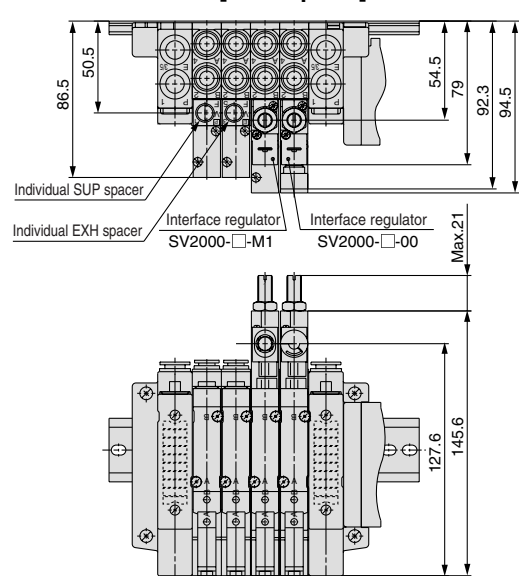
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



#### [With External Pilot Specifications]



#### [With option]



#### L Dimension

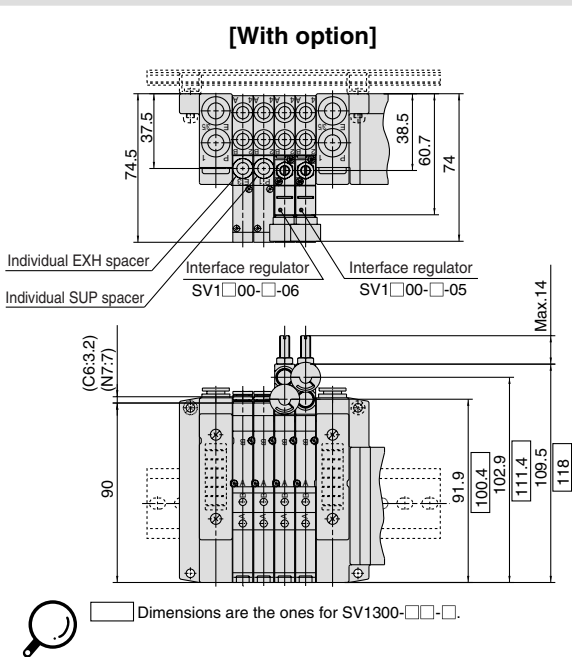
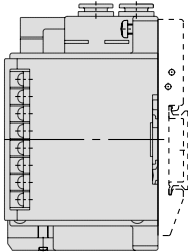
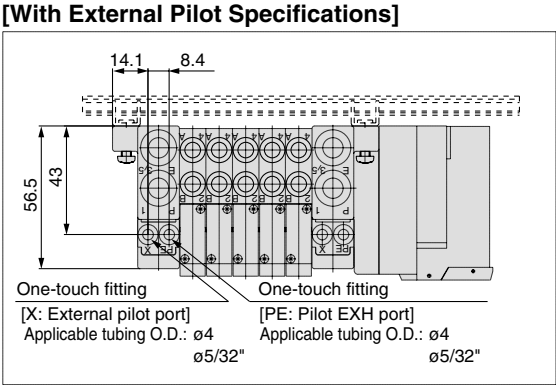
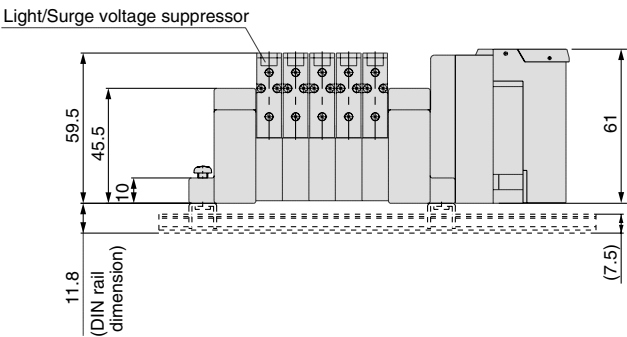
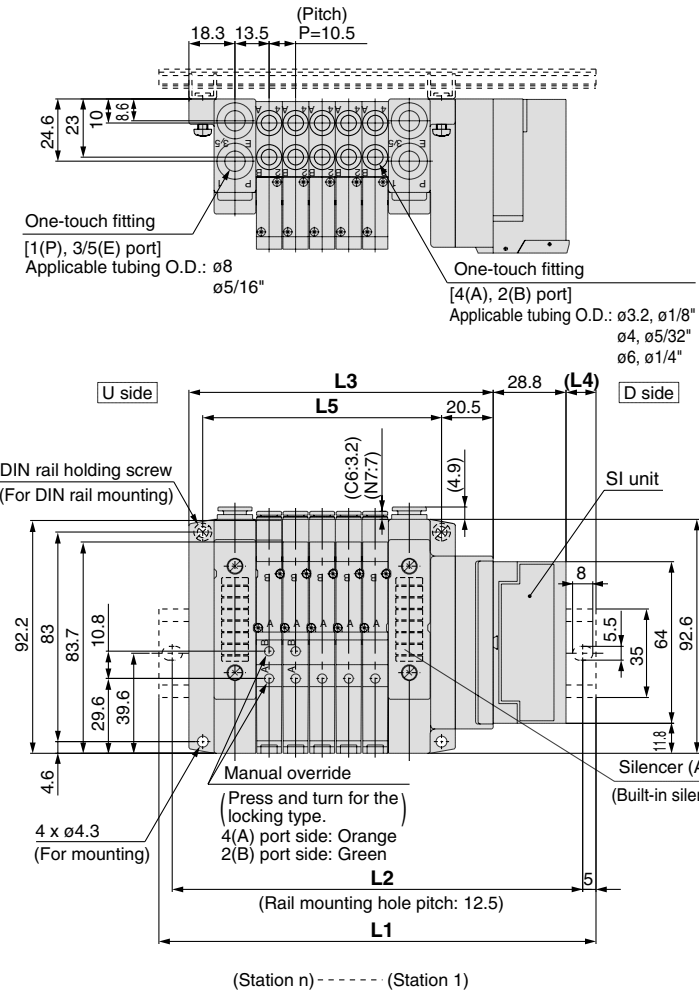
| $\frac{L}{n}$ | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1            | 173   | 185.5 | 198   | 210.5 | 235.5 | 248   | 260.5 | 273   | 298   | 310.5 | 323   | 348   | 360.5 | 373   | 385.5 |
| L2            | 162.5 | 175   | 187.5 | 200   | 225   | 237.5 | 250   | 262.5 | 287.5 | 300   | 312.5 | 337.5 | 350   | 362.5 | 375   |
| L3            | 108.9 | 124.9 | 140.9 | 156.9 | 172.9 | 188.9 | 204.9 | 220.9 | 236.9 | 252.9 | 268.9 | 284.9 | 300.9 | 316.9 | 332.9 |
| L4            | 17.5  | 16    | 14    | 12.5  | 17    | 15    | 13.5  | 11.5  | 16    | 14.5  | 12.5  | 17    | 15.5  | 13.5  | 12    |

n : Stations

Dimensions: Series SV1000 for EX120 Integrated Type (for Output) Serial Transmission System

● Tie-rod base manifold : SS5V1-10S3□D- Stations <sup>U</sup><sub>D</sub>(S, R, RS)- <sup>C3, N1</sup><sub>C4, N3</sub><sup>C6, N7</sup>(-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.



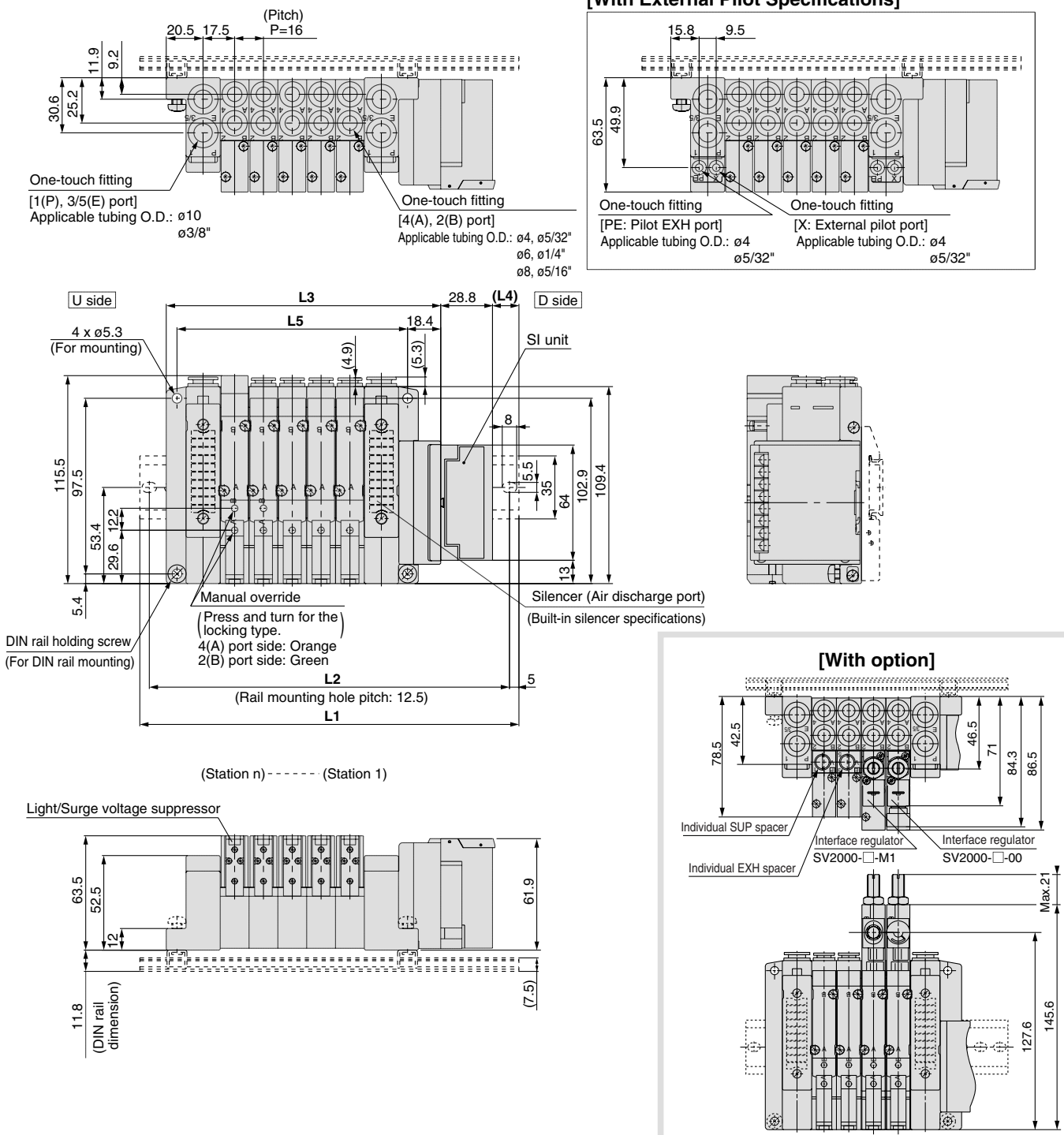
L Dimension

|    |   | n : Stations |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|----|---|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 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   |  |

## Dimensions: Series SV2000 for EX120 Integrated Type (for Output) Serial Transmission System

### ● Tie-rod base manifold : SS5V2-10S3□D-<sup>U</sup><sub>D</sub>Stations (S, R, RS)-<sup>C4, N3</sup><sub>C6, N7</sub><sup>C8, N9</sup>(-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.



### L Dimension

| L  | n | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|----|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1 | n | 160.5 | 173   | 198   | 210.5 | 223   | 248   | 260.5 | 273   | 285.5 | 310.5 | 323   | 335.5 | 360.5 | 373   | 385.5 |
| L2 | n | 150   | 162.5 | 187.5 | 200   | 212.5 | 237.5 | 250   | 262.5 | 275   | 300   | 312.5 | 325   | 350   | 362.5 | 375   |
| L3 | n | 104.4 | 120.4 | 136.4 | 152.4 | 168.4 | 184.4 | 200.4 | 216.4 | 232.4 | 248.4 | 264.4 | 280.4 | 296.4 | 312.4 | 328.4 |
| L4 | n | 13.5  | 12    | 16.5  | 14.5  | 13    | 17.5  | 15.5  | 14    | 12    | 16.5  | 15    | 13    | 17.5  | 16    | 14    |
| L5 | n | 80    | 96    | 112   | 128   | 144   | 160   | 176   | 192   | 208   | 224   | 240   | 256   | 272   | 288   | 304   |

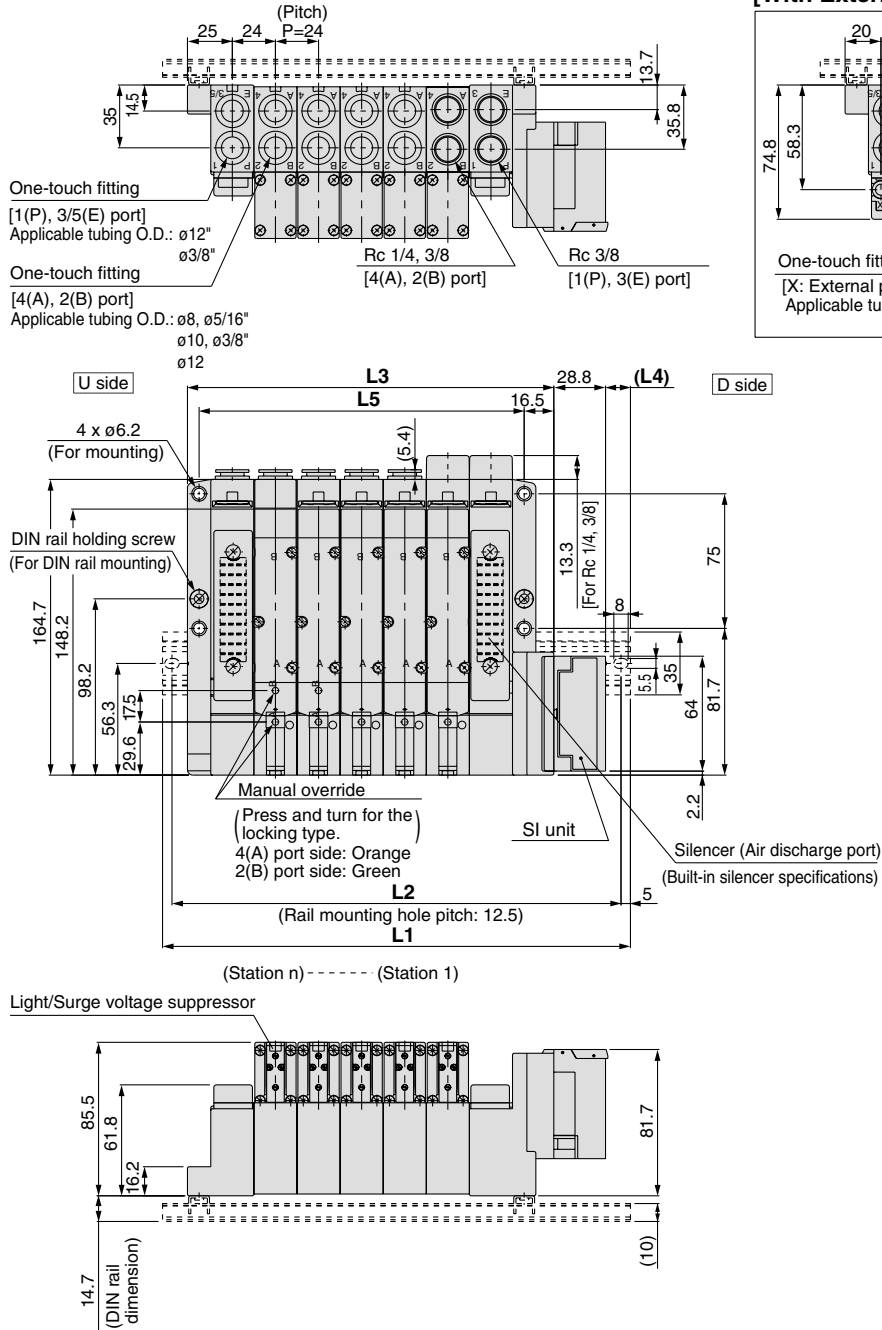
n : Stations



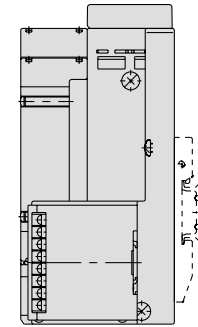
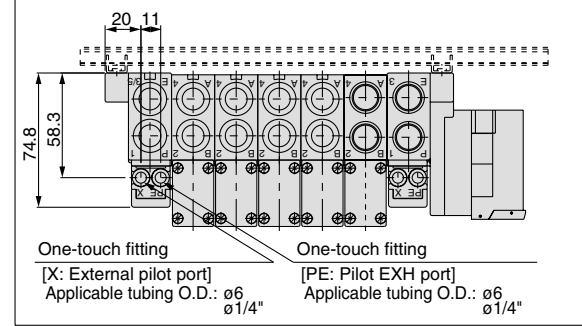
## Dimensions: Series SV4000 for EX120 Integrated Type (for Output) Serial Transmission System

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

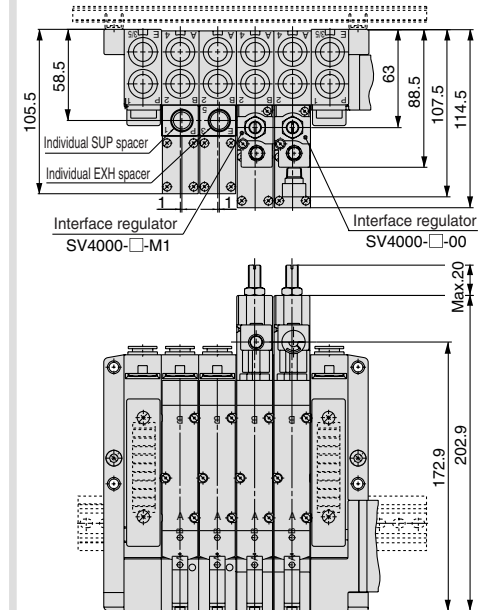
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



### [With External Pilot Specifications]



### [With option]



### L Dimension

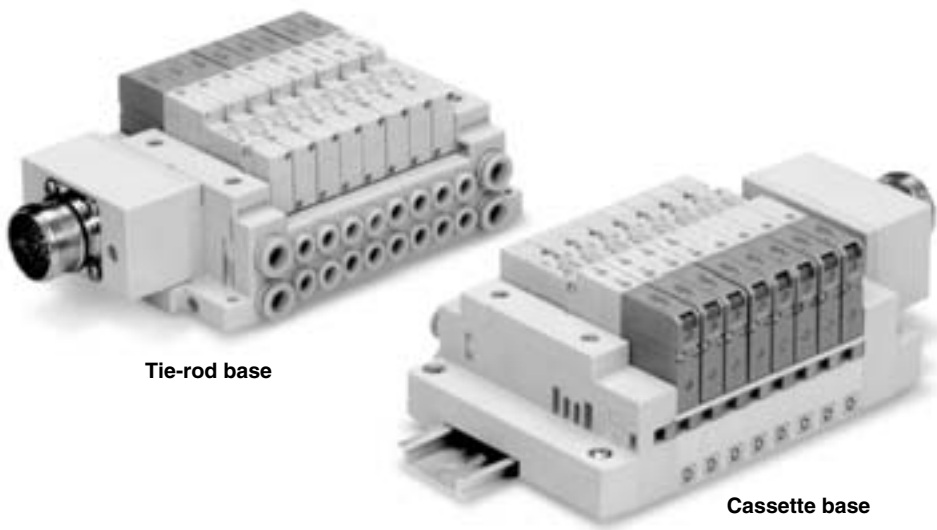
| L  | n     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16 |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| L1 | 185.5 | 210.5 | 235.5 | 260.5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

n : Stations



# Circular Connector

IP67 compliant



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

|           |
|-----------|
| SJ        |
| SY        |
| <b>SV</b> |
| SYJ       |
| SZ        |
| VP4       |
| S0700     |
| VQ        |
| VQ4       |
| VQ5       |
| VQC       |
| VQZ       |
| SQ        |
| VFS       |
| VFR       |
| VQ7       |

# Circular Connector Series SV



## How to Order Manifold

**Series**

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |
| 4 | SV4000 |

**Valve stations**

| Symbol | Stations    | Note                                                              |
|--------|-------------|-------------------------------------------------------------------|
| 02     | 2 stations  | Double wiring specifications <sup>(1)</sup>                       |
| 12     | 12 stations |                                                                   |
| 02     | 2 stations  | Specified layout <sup>(2)</sup><br>(Up to 24 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                       | When a longer DIN rail is desired than the specified stations.<br>(Specify a longer rail than the standard length.) |
| ... | ...                                  |                                                                                                                     |
| D20 | For 20 stations                      |                                                                                                                     |

**DIN rail length specified**

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

**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   | One-touch fitting for ø10 | SV2000            |
| C4     | One-touch fitting for ø4   |                           |                   |
| C6     | One-touch fitting for ø6   | One-touch fitting for ø12 | SV3000            |
| C8     | One-touch fitting for ø8   |                           |                   |
| C10    | One-touch fitting for ø10  | One-touch fitting for ø12 | SV4000            |
| C8     | One-touch fitting for ø8   |                           |                   |
| C12    | One-touch fitting for ø12  | Rc 3/8                    |                   |
| 02     | Rc 1/4                     |                           |                   |
| 03     | Rc 3/8                     | G 3/8                     |                   |
| 02F    | G 1/4                      |                           |                   |
| 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" |                              |                   |
| 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                      |                   |
| 02N    | NPT 1/4                      |                              |                   |
| 03N    | NPT 3/8                      | NPTF 3/8                     |                   |
| 02T    | NPTF 1/4                     |                              |                   |
| 03T    | NPTF 3/8                     |                              |                   |
| M      | A, B ports mixed             |                              |                   |

**Enclosure IP67 specifications**

**Valve stations**

**Type 16: Series SV1000**

| Symbol | Stations    | Note                                                              |
|--------|-------------|-------------------------------------------------------------------|
| 02     | 2 stations  | Double wiring specifications <sup>(1)</sup>                       |
| ...    | ...         |                                                                   |
| 09     | 9 stations  | Specified layout <sup>(2)</sup><br>(up to 18 solenoids possible.) |
| 02     | 2 stations  |                                                                   |
| ...    | ...         |                                                                   |
| 18     | 18 stations |                                                                   |

**Type 16: Series SV2000**

| Symbol | Stations    | Note                                                              |
|--------|-------------|-------------------------------------------------------------------|
| 02     | 2 stations  | Double wiring specifications <sup>(1)</sup>                       |
| ...    | ...         |                                                                   |
| 12     | 12 stations | Specified layout <sup>(2)</sup><br>(up to 24 solenoids possible.) |
| 02     | 2 stations  |                                                                   |
| ...    | ...         |                                                                   |
| 20     | 20 stations |                                                                   |

**P, E port location**

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

**SUP/EXH block assembly specifications**

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

**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.)

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

**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.)

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

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

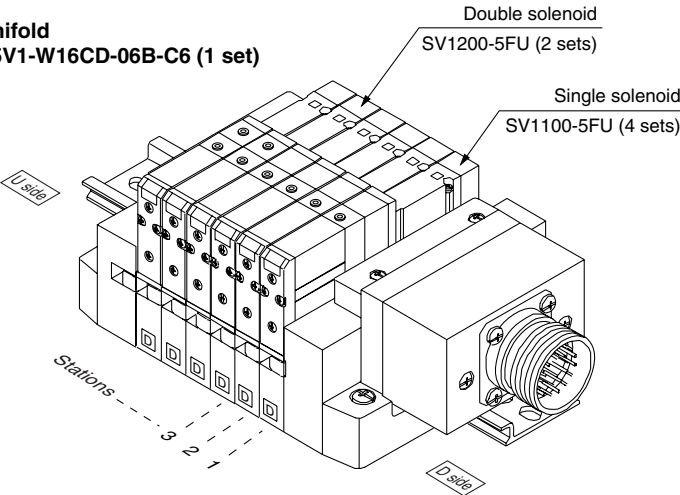
**\* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.**

**\* 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 Manifold Assembly

Ordering example (SV1000)

Manifold  
SS5V1-W16CD-06B-C6 (1 set)



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.)

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                       |
| 2 | 2 position double                       |
| 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 valve.

Rated voltage

|   |       |
|---|-------|
| 5 | DC24V |
| 6 | DC12V |

Note) Available with manifold block for station additions. Refer to pages 429 and 433.

Made to Order

|     |                                               |
|-----|-----------------------------------------------|
| Nil | —                                             |
| X90 | Main valve fluoro rubber (Refer to page 448.) |

Manual override

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

Light/Surge voltage suppressor

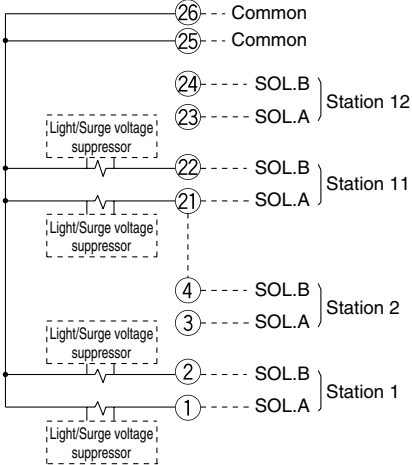
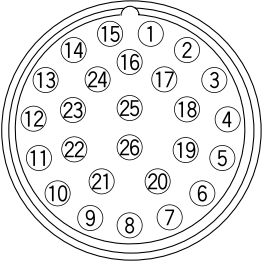
|   |                                     |
|---|-------------------------------------|
| U | With light/surge voltage suppressor |
| R | With surge voltage suppressor       |

Refer to Specific Product Precautions 2 on page 450.

|       |
|-------|
| SJ    |
| SY    |
| SV    |
| SYJ   |
| SZ    |
| VP4   |
| S0700 |
| VQ    |
| VQ4   |
| VQ5   |
| VQC   |
| VQZ   |
| SQ    |
| VFS   |
| VFR   |
| VQ7   |

Manifold Electrical Wiring

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



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

Usable No. of Solenoids

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



Dimensions: Series SV2000 for Circular Connector

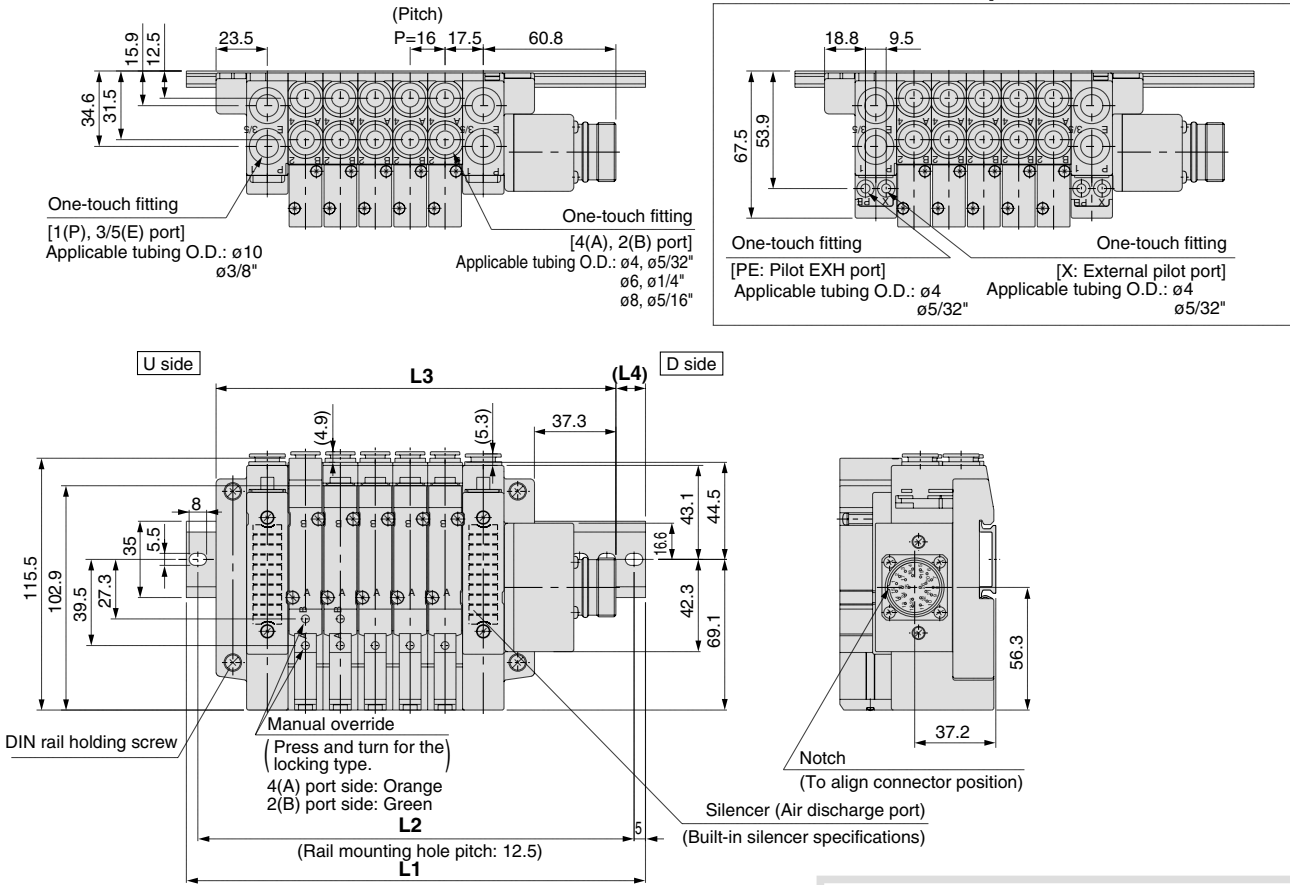
● Cassette base manifold: SS5V2-W16CD-

|   |        |
|---|--------|
| U | C4, N3 |
| D | C6, N7 |
| B | C8, N9 |

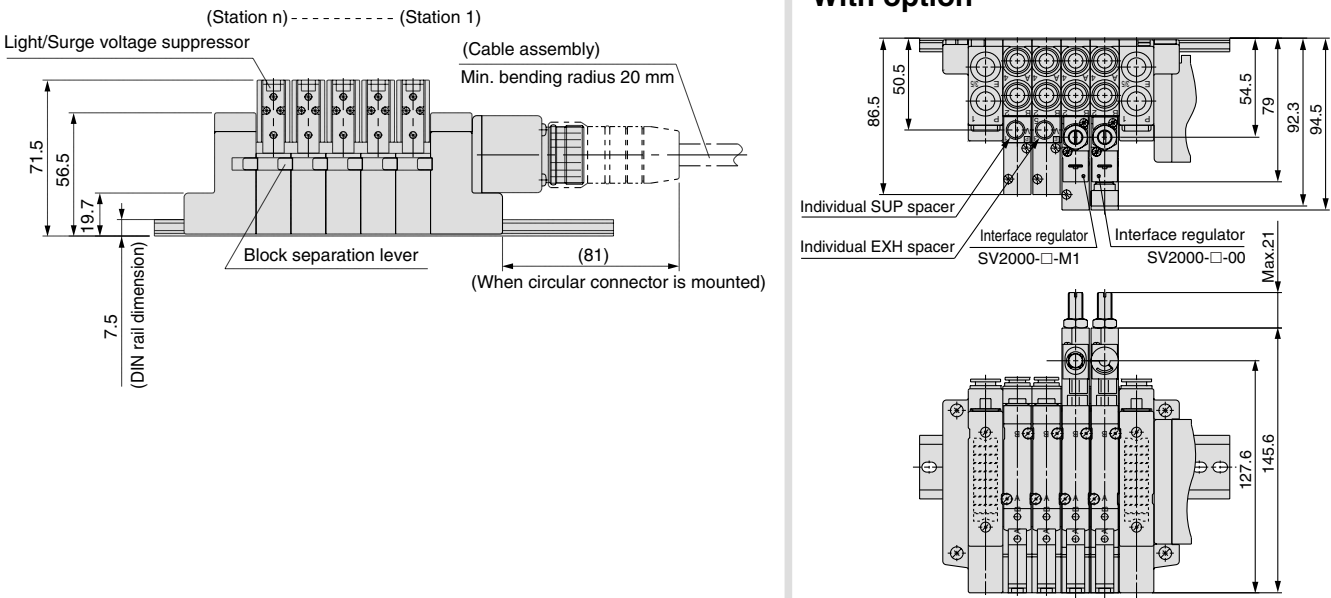
 (S, R, RS)-

- 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

| L  | n | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
|----|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1 |   | 160.5 | 185.5 | 198   | 210.5 | 223   | 248   | 260.5 | 273   | 298   | 310.5 | 323   | 335.5 | 360.5 | 373   | 385.5 | 410.5 | 423   | 435.5 | 448   |
| L2 |   | 150   | 175   | 187.5 | 200   | 212.5 | 237.5 | 250   | 262.5 | 287.5 | 300   | 312.5 | 325   | 350   | 362.5 | 375   | 400   | 412.5 | 425   | 437.5 |
| L3 |   | 135.3 | 151.3 | 167.3 | 183.3 | 199.3 | 215.3 | 231.3 | 247.3 | 263.3 | 279.3 | 295.3 | 311.3 | 327.3 | 343.3 | 359.3 | 375.3 | 391.3 | 407.3 | 423.3 |
| L4 |   | 12.5  | 17    | 15.5  | 13.5  | 12    | 16.5  | 14.5  | 13    | 17.5  | 15.5  | 14    | 12    | 16.5  | 15    | 13    | 17.5  | 16    | 14    | 12.5  |

Dimensions: Series SV1000 for Circular Connector

● Tie-rod base manifold: SS5V1-W10CD-

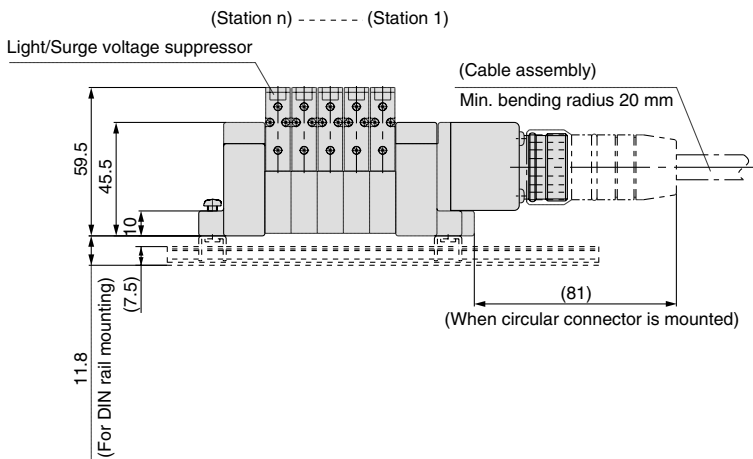
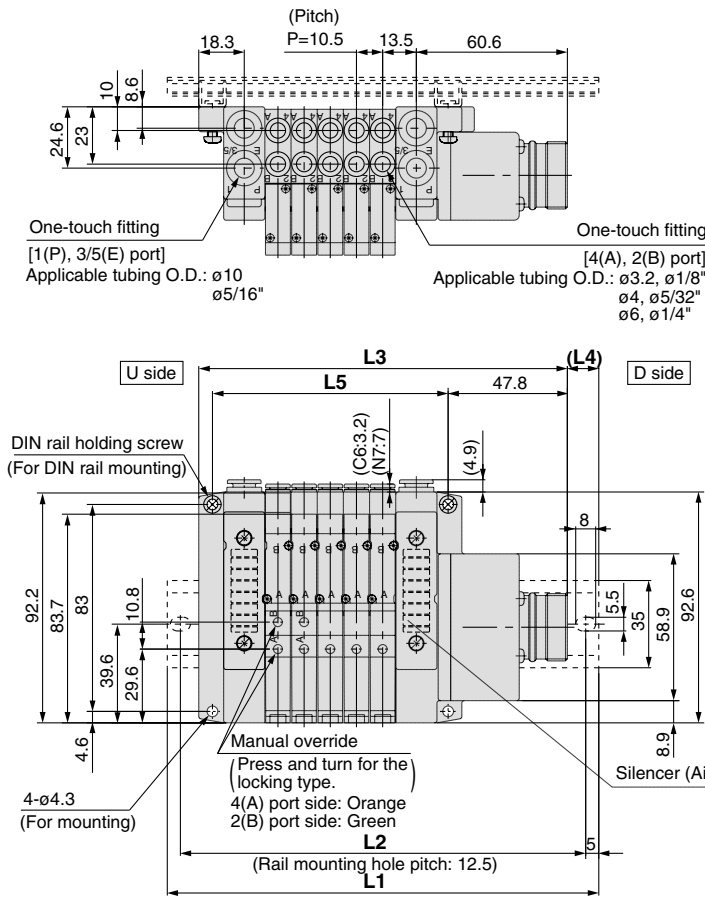
|          |   |
|----------|---|
| Stations | U |
|          | D |
|          | B |

(S, R, RS)-

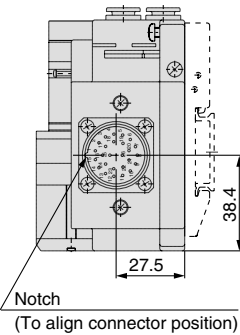
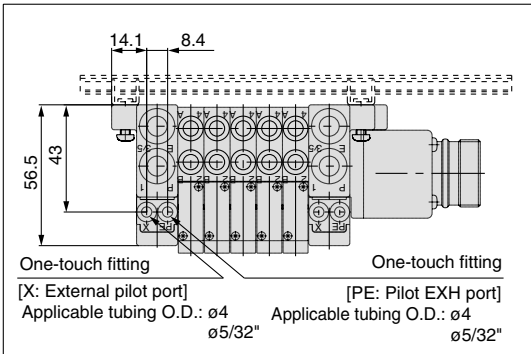
|        |
|--------|
| C3, N1 |
| C4, N3 |
| C6, N7 |

(-D)

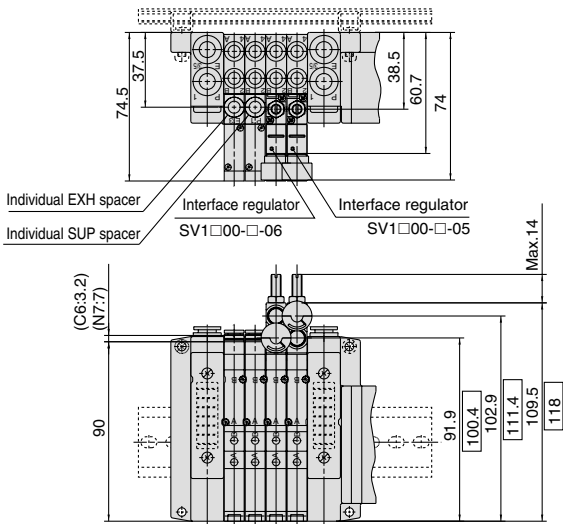
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



With option



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

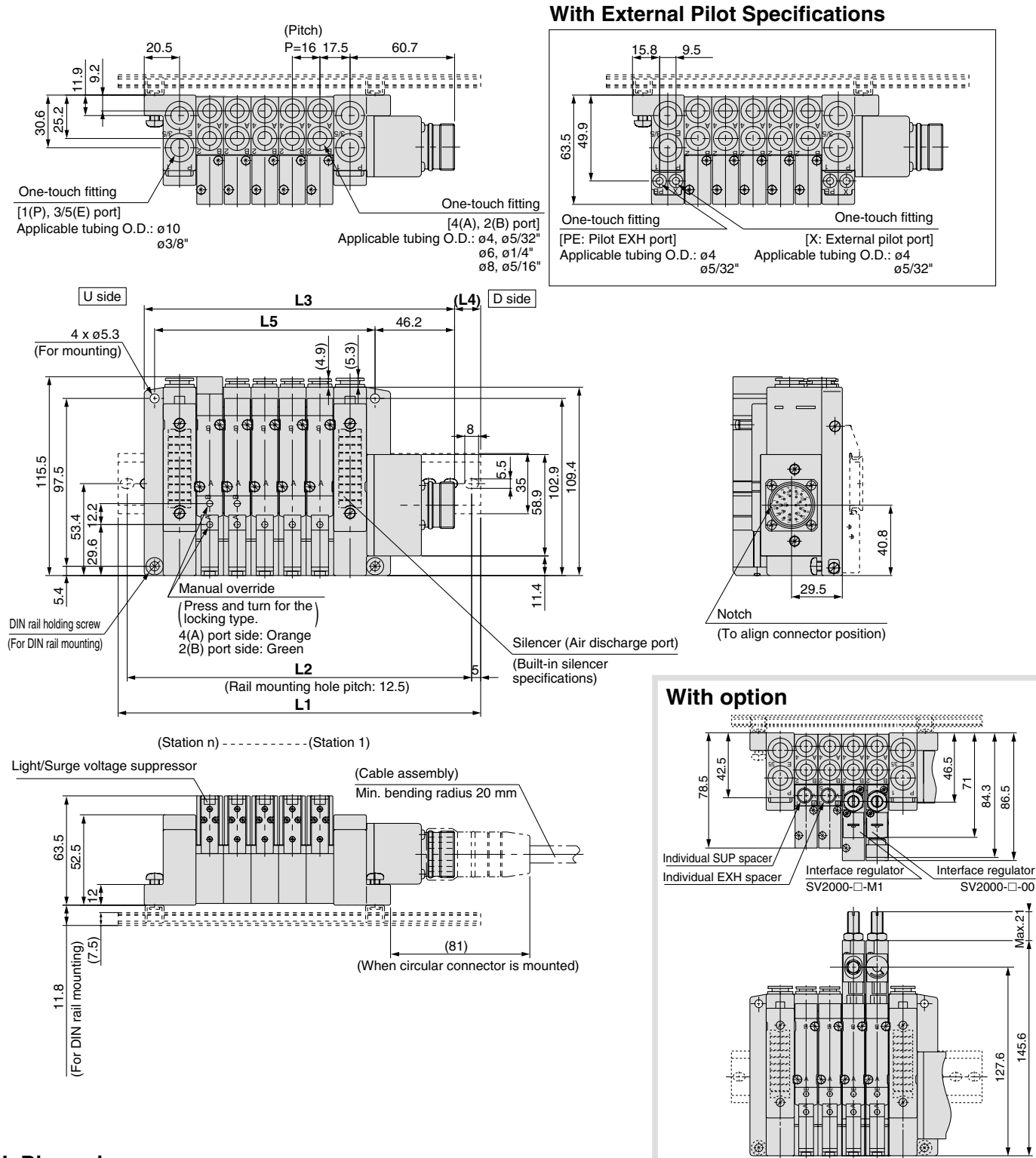
L Dimension

| 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   |

Dimensions: Series SV2000 for Circular Connector

● Tie-rod base manifold: SS5V2-W10CD- Stations  $\frac{U}{D}$  (S, R, RS)-  $\frac{C4, N3}{C6, N7}$  (-D)  
 $\frac{C8, N9}{C8, N9}$

- 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 |       | n: Stations |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|-----|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L   | n     | 2           | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
| L1  | 160.5 | 173         | 198   | 210.5 | 223   | 235.5 | 260.5 | 273   | 285.5 | 310.5 | 323   | 323   | 335.5 | 348   | 373   | 385.5 | 398   | 423   | 435.5 | 448   |
| L2  | 150   | 162.5       | 187.5 | 200   | 212.5 | 225   | 250   | 262.5 | 275   | 300   | 312.5 | 325   | 337.5 | 375   | 362.5 | 375   | 387.5 | 412.5 | 425   | 437.5 |
| L3  | 132.2 | 148.2       | 164.2 | 180.2 | 196.2 | 212.2 | 228.2 | 244.2 | 260.2 | 276.2 | 292.2 | 308.2 | 324.2 | 340.2 | 356.2 | 372.2 | 388.2 | 404.2 | 420.2 |       |
| L4  | 14    | 12.5        | 17    | 15    | 13.5  | 11.5  | 16    | 14.5  | 12.5  | 17    | 15.5  | 13.5  | 12    | 16.5  | 14.5  | 13    | 17.5  | 15.5  | 14    |       |
| L5  | 80    | 96          | 112   | 128   | 144   | 160   | 176   | 192   | 208   | 224   | 240   | 256   | 272   | 288   | 304   | 320   | 336   | 352   | 368   |       |

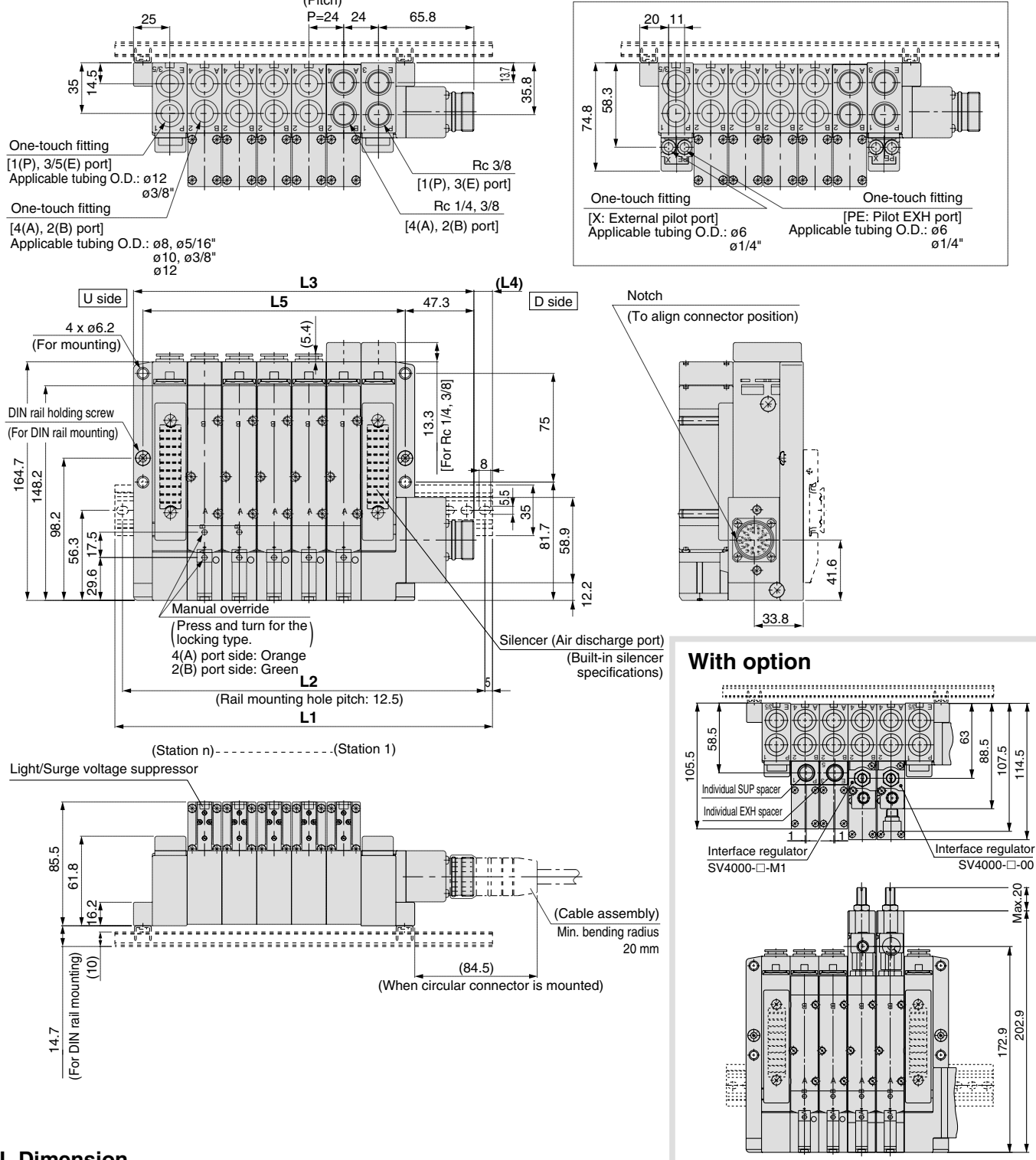


Dimensions: Series SV4000 for Circular Connector

● Tie-rod base manifold: SS5V4-W10CD- Stations  $\frac{U}{D}$  (S, R, RS)-  $\frac{O2, C8}{O3, C12}$ ,  $\frac{N9}{N11}$  (-D)

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

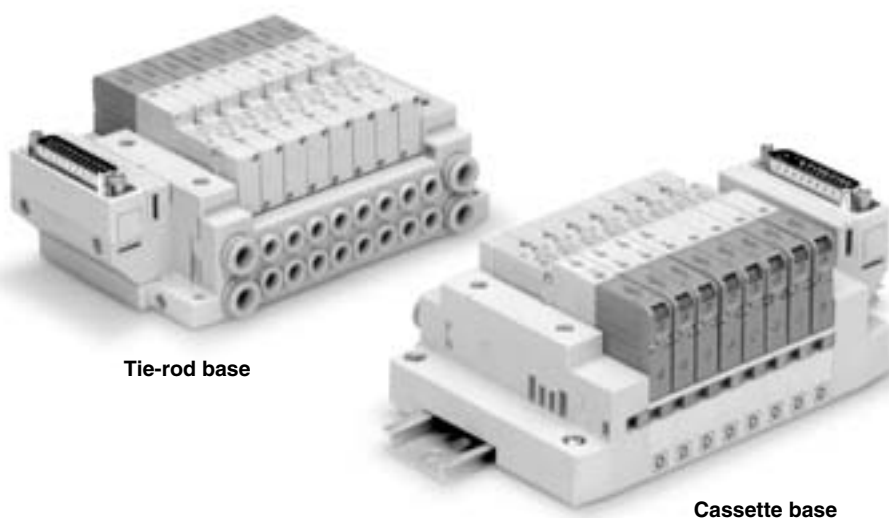
With External Pilot Specifications



L Dimension

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

# D-sub Connector



Tie-rod base

Cassette base

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

SJ

SY

**SV**

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

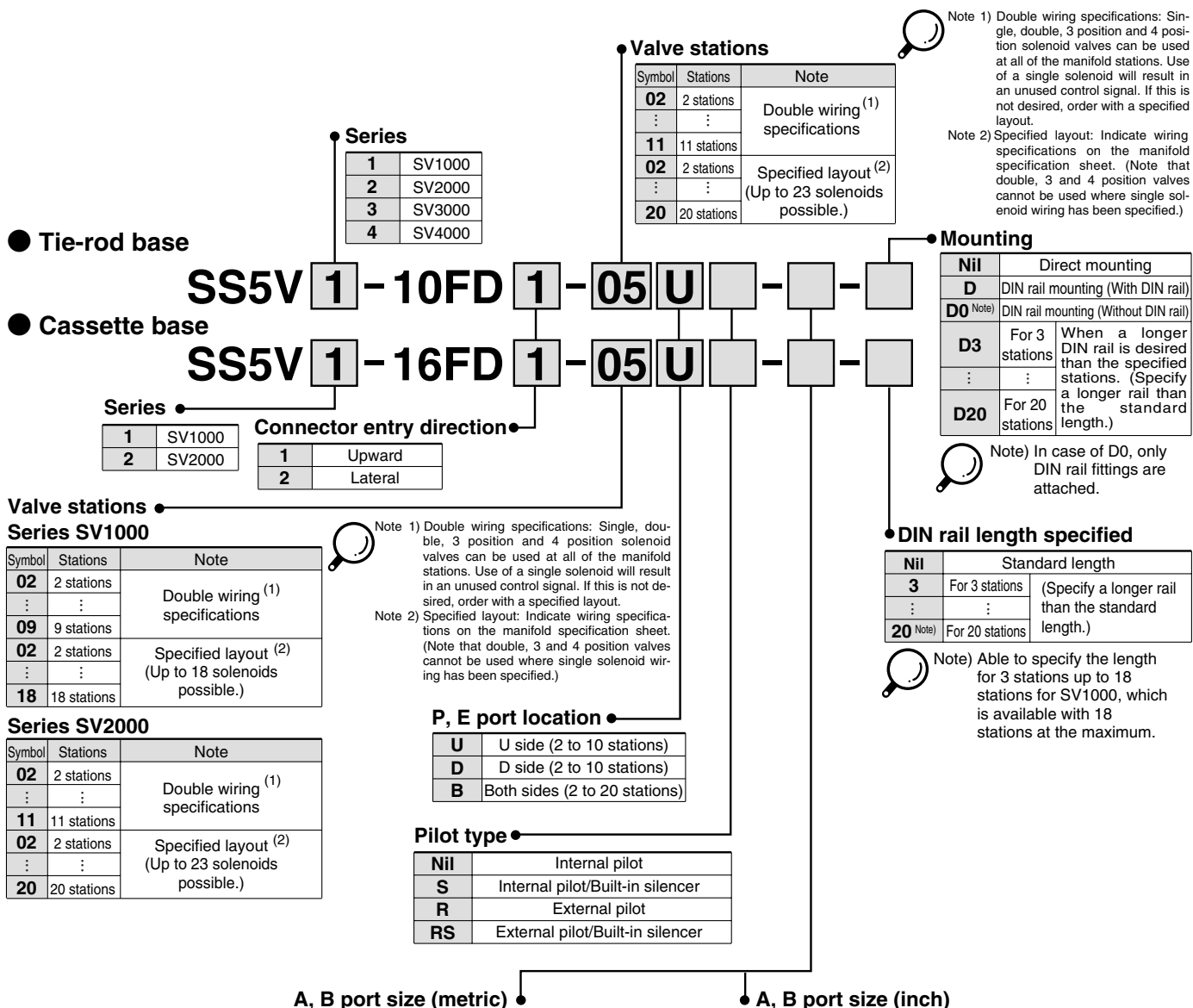
VFR

VQ7

# D-sub Connector Series SV



## How to Order Manifold



### A, B port size (metric)

| Symbol     | A, B port                  | P, E port                 | Applicable series |
|------------|----------------------------|---------------------------|-------------------|
| <b>C3</b>  | One-touch fitting for ø3.2 | One-touch fitting for ø8  | SV1000            |
| <b>C4</b>  | One-touch fitting for ø4   |                           |                   |
| <b>C6</b>  | One-touch fitting for ø6   |                           |                   |
| <b>C4</b>  | One-touch fitting for ø4   | One-touch fitting for ø10 | SV2000            |
| <b>C6</b>  | One-touch fitting for ø6   |                           |                   |
| <b>C8</b>  | One-touch fitting for ø8   |                           |                   |
| <b>C6</b>  | One-touch fitting for ø6   | One-touch fitting for ø12 | SV3000            |
| <b>C8</b>  | One-touch fitting for ø8   |                           |                   |
| <b>C10</b> | One-touch fitting for ø10  |                           |                   |
| <b>C8</b>  | One-touch fitting for ø8   | One-touch fitting for ø12 | SV4000            |
| <b>C10</b> | One-touch fitting for ø10  |                           |                   |
| <b>C12</b> | One-touch fitting for ø12  |                           |                   |
| <b>02</b>  | Rc 1/4                     | Rc 3/8                    | SV4000            |
| <b>03</b>  | Rc 3/8                     |                           |                   |
| <b>02F</b> | G 1/4                      | G 3/8                     |                   |
| <b>03F</b> | G 3/8                      |                           |                   |
| <b>M</b>   | 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"  | 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" |                              |                   |
| N9     | One-touch fitting for ø5/16" | One-touch fitting for ø3/8"  | SV4000            |
| 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                      | NPT 3/8                      | SV4000            |
| 03N    | NPT 3/8                      |                              |                   |
| 02T    | NPTF 1/4                     | NPTF 3/8                     | SV4000            |
| 03T    | NPTF 3/8                     |                              |                   |
| M      | A, B ports mixed             |                              |                   |

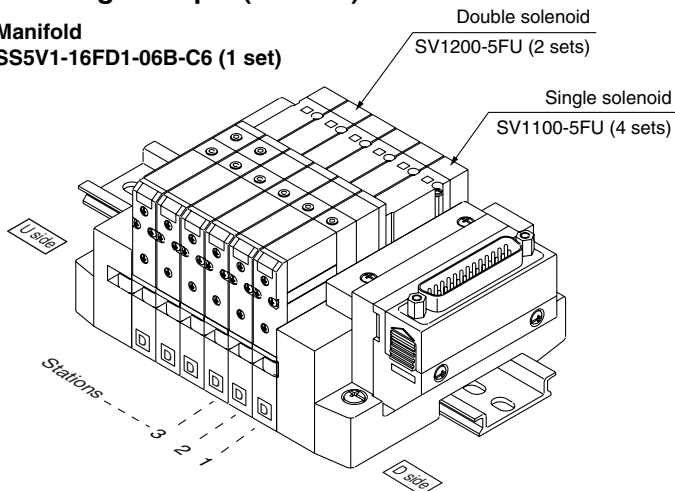
\* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

\* 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 Manifold Assembly

### Ordering example (SV1000)

Manifold  
SS5V1-16FD1-06B-C6 (1 set)



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.)

## 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                       |
| 2 | 2 position double                       |
| 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.



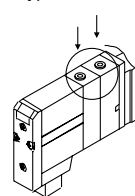
Note) Available with manifold block for station additions. Refer to pages 429 and 433.

### Made to Order

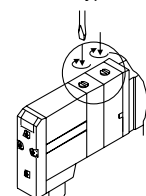
|     |                                               |
|-----|-----------------------------------------------|
| Nil | —                                             |
| X90 | Main valve fluoro rubber (Refer to page 448.) |

### 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 |

### 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 valve.



Refer to Specific Product Precautions 2 on page 450.

SJ

SY

**SV**

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

VQ7

Manifold Electrical Wiring

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

13 Common  
12 Common  
24 SOL.B  
11 SOL.A Station 11  
15 SOL.B  
2 SOL.A Station 2  
14 SOL.B  
1 SOL.A Station 1

Light/Surge voltage suppressor

- 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                    |
|                       |                  |                       |
| Cassette base type 16 | SV1000           | 18                    |
|                       | SV2000           | 23                    |

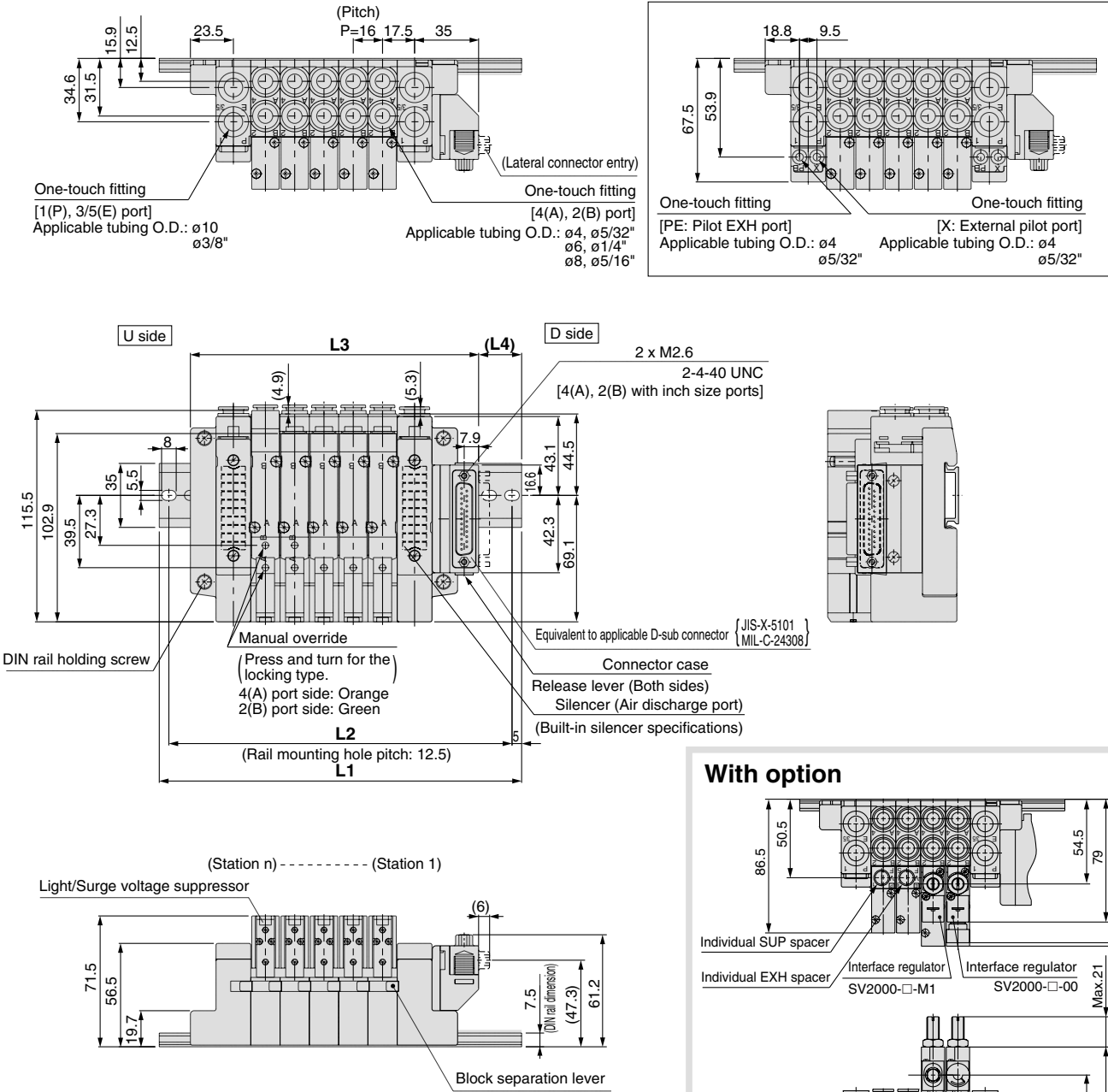


Dimensions: Series SV2000 for D-sub Connector

● Cassette base manifold: SS5V2-16FD<sub>2</sub><sup>1</sup> - Stations  $\begin{matrix} \text{U} \\ \text{D} \\ \text{B} \end{matrix}$  (S, R, RS)-  $\begin{matrix} \text{C4, N3} \\ \text{C6, N7} \\ \text{C8, N9} \end{matrix}$

- 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



L Dimension

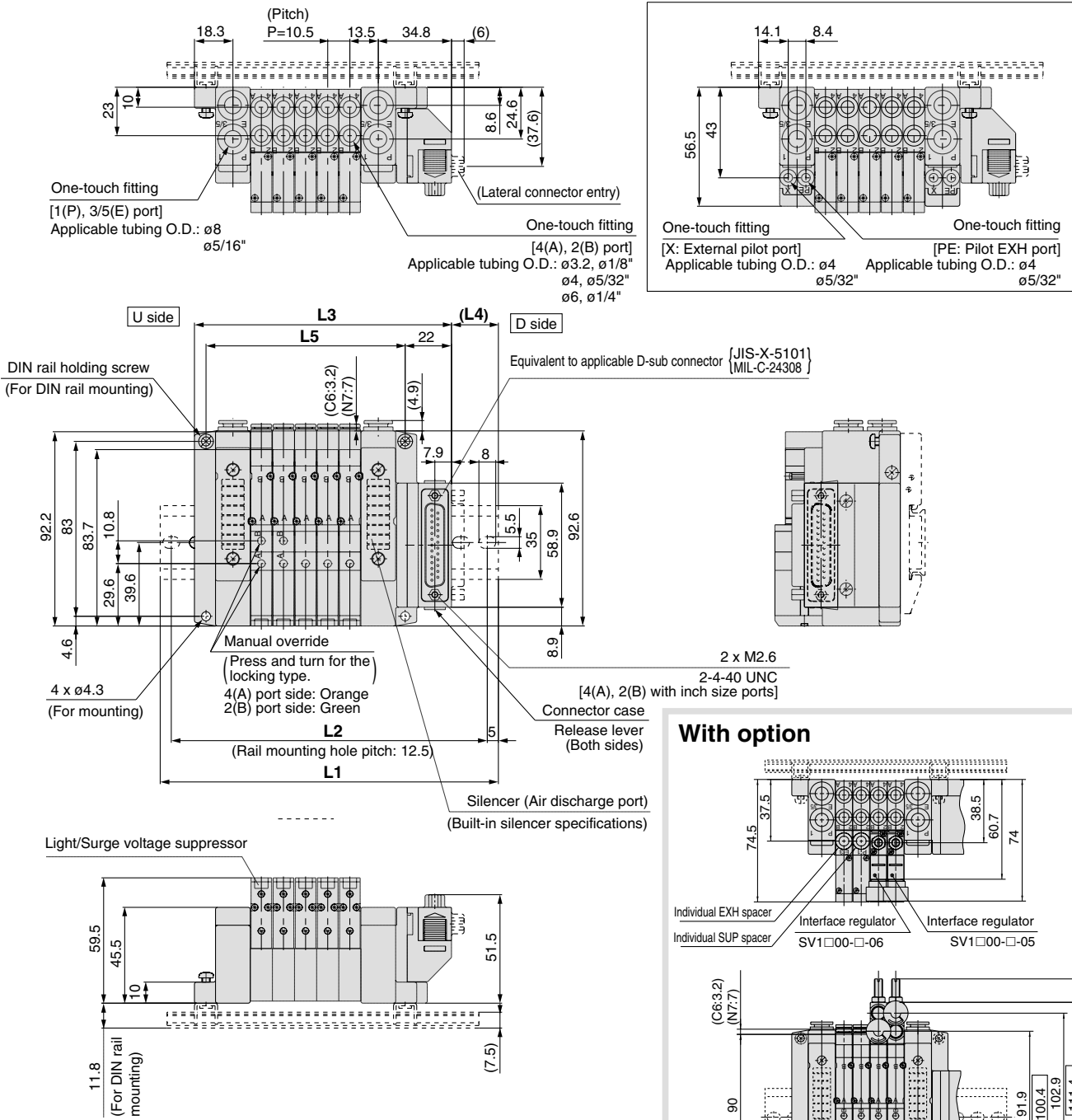
| n  | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1 | 148   | 160.5 | 173   | 198   | 210.5 | 223   | 235.5 | 260.5 | 273   | 285.5 | 310.5 | 323   | 335.5 | 348   | 373   | 385.5 | 398   | 423   | 435.5 |
| L2 | 137.5 | 150   | 162.5 | 187.5 | 200   | 212.5 | 225   | 250   | 262.5 | 275   | 300   | 312.5 | 325   | 337.5 | 362.5 | 375   | 387.5 | 412.5 | 425   |
| L3 | 109.5 | 125.5 | 141.5 | 157.5 | 173.5 | 189.5 | 205.5 | 221.5 | 237.5 | 253.5 | 269.5 | 285.5 | 301.5 | 317.5 | 333.5 | 349.5 | 365.5 | 381.5 | 397.5 |
| L4 | 22.5  | 20.5  | 19    | 23.5  | 21.5  | 20    | 18    | 22.5  | 21    | 19    | 23.5  | 22    | 20    | 18.5  | 23    | 21    | 19.5  | 24    | 22    |

Dimensions: Series SV1000 for D-sub Connector

● Tie-rod base manifold: SS5V1-10FD<sub>2</sub> - Stations  $\begin{matrix} \text{U} \\ \text{D} \\ \text{B} \end{matrix}$  (S, R, RS)-  $\begin{matrix} \text{C3, N1} \\ \text{C4, N3} \\ \text{C6, N7} \end{matrix}$  (-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



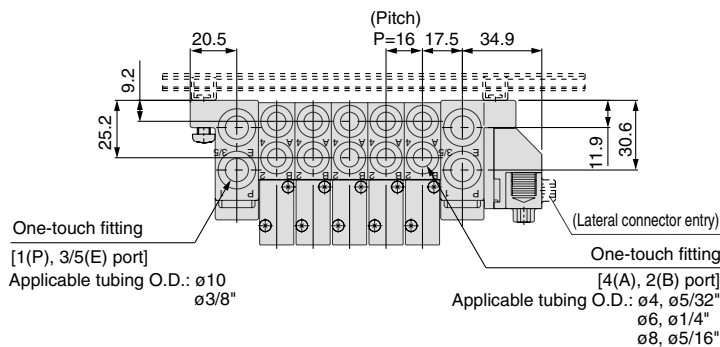
L Dimension

| L \ 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   |

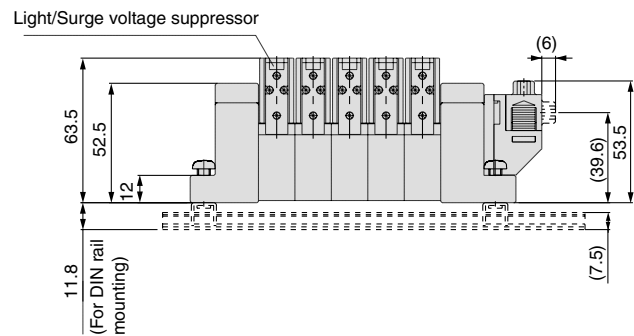
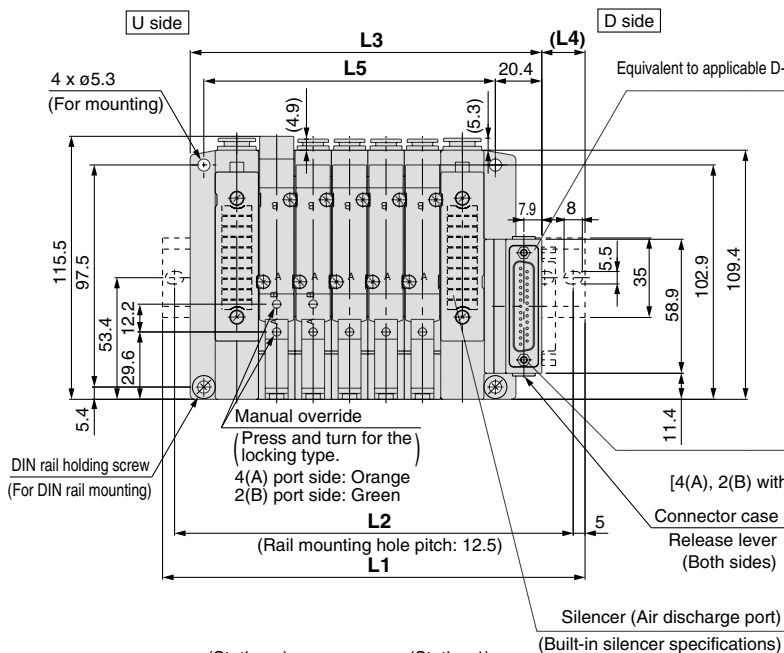
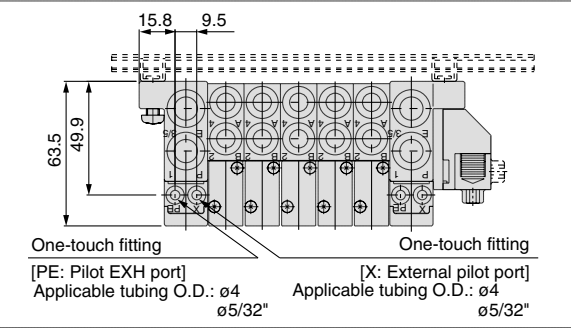
Dimensions: Series SV2000 for D-sub Connector

● Tie-rod base manifold: SS5V2-10FD<sub>2</sub><sup>1</sup> - Stations  $\begin{matrix} \text{U} \\ \text{D} \end{matrix}$  (S, R, RS)-  $\begin{matrix} \text{C4, N3} \\ \text{C6, N7} \\ \text{C8, N9} \end{matrix}$  (-D)

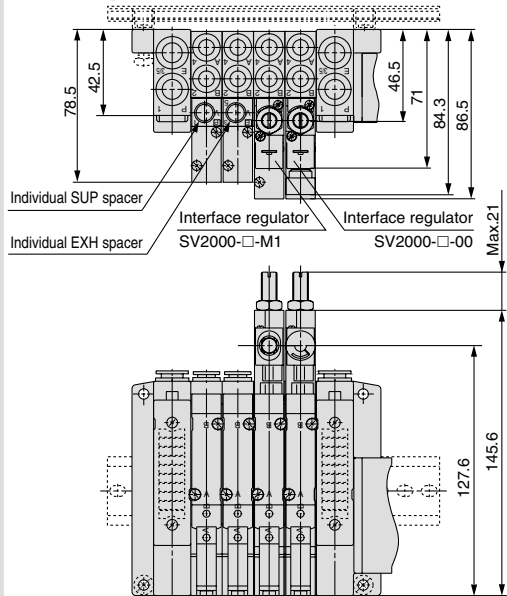
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



With option



L Dimension

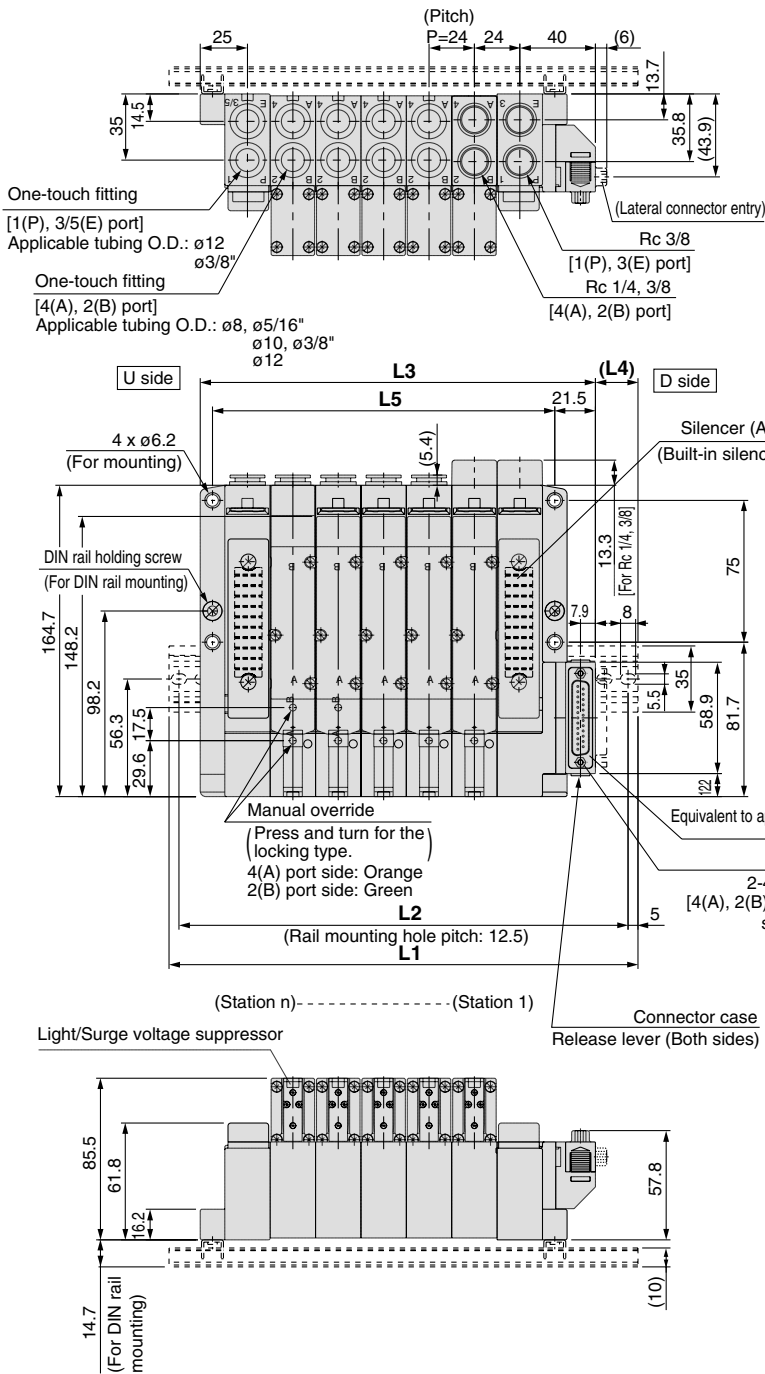
| L  | n | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
|----|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1 |   | 135.5 | 160.5 | 173   | 185.5 | 210.5 | 223   | 235.5 | 248   | 273   | 285.5 | 298   | 323   | 335.5 | 348   | 360.5 | 385.5 | 398   | 410.5 | 435.5 |
| L2 |   | 125   | 150   | 162.5 | 175   | 200   | 212.5 | 225   | 237.5 | 262.5 | 275   | 287.5 | 312.5 | 325   | 337.5 | 350   | 375   | 387.5 | 400   | 425   |
| L3 |   | 106.4 | 122.4 | 138.4 | 154.4 | 170.4 | 186.4 | 202.4 | 218.4 | 234.4 | 250.4 | 266.4 | 282.4 | 298.4 | 314.4 | 330.4 | 346.4 | 362.4 | 378.4 | 394.4 |
| L4 |   | 17.5  | 22    | 20.5  | 18.5  | 23    | 21.5  | 19.5  | 18    | 22.5  | 20.5  | 19    | 23.5  | 21.5  | 20    | 18    | 22.5  | 21    | 19    | 23.5  |
| L5 |   | 80    | 96    | 112   | 128   | 144   | 160   | 176   | 192   | 208   | 224   | 240   | 256   | 272   | 288   | 304   | 320   | 336   | 352   | 368   |



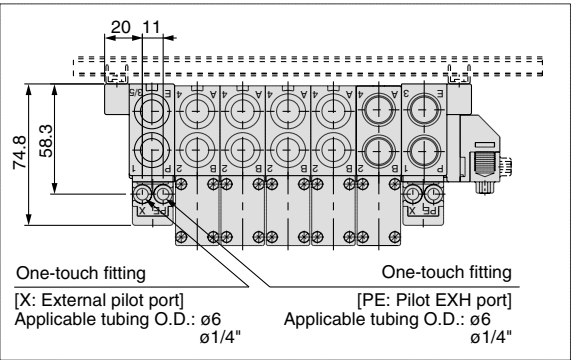
Dimensions: Series SV4000 for D-sub Connector

● Tie-rod base manifold: SS5V4-10FD<sub>2</sub><sup>1</sup> - Stations  $\frac{U}{D}$   $\frac{B}{B}$  (S, R, RS)-<sup>02, C8, N9</sup><sub>03, C10, C12</sub> (-D)

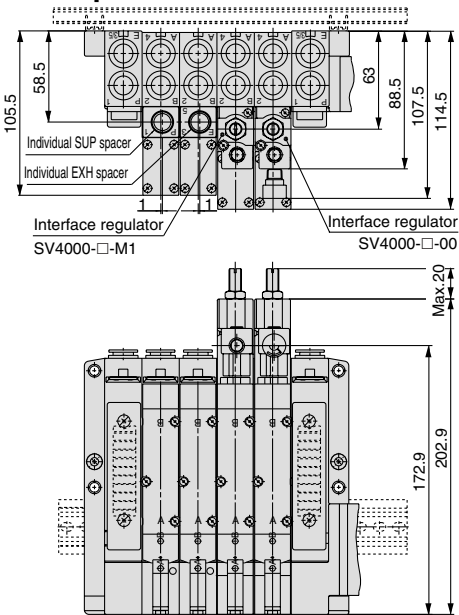
- When P, E port outlets are indicated on the U side or D side, the P, E ports on the opposite side are plugged.
- External pilot port positions and silencer discharge port positions are the same as P, E port outlet positions.



With External Pilot Specifications



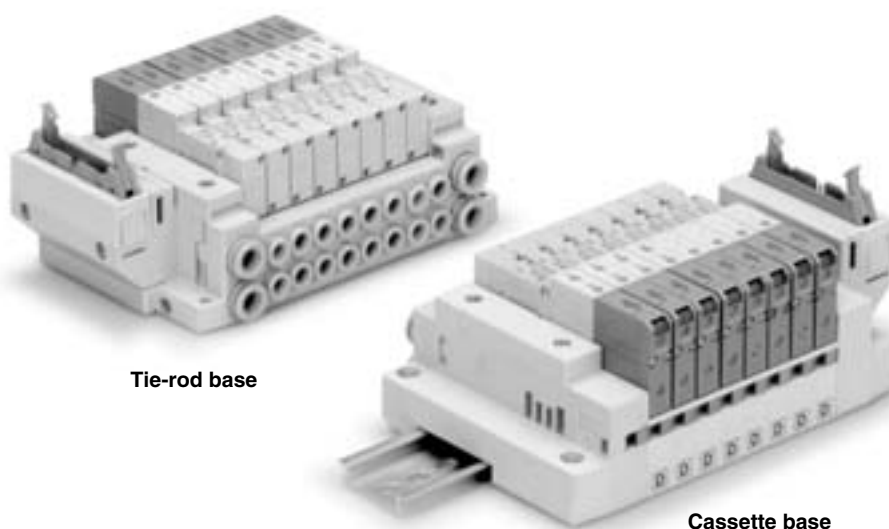
With option



L Dimension

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

# Flat Ribbon Cable Connector



Tie-rod base

Cassette base

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

SJ

SY

**SV**

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

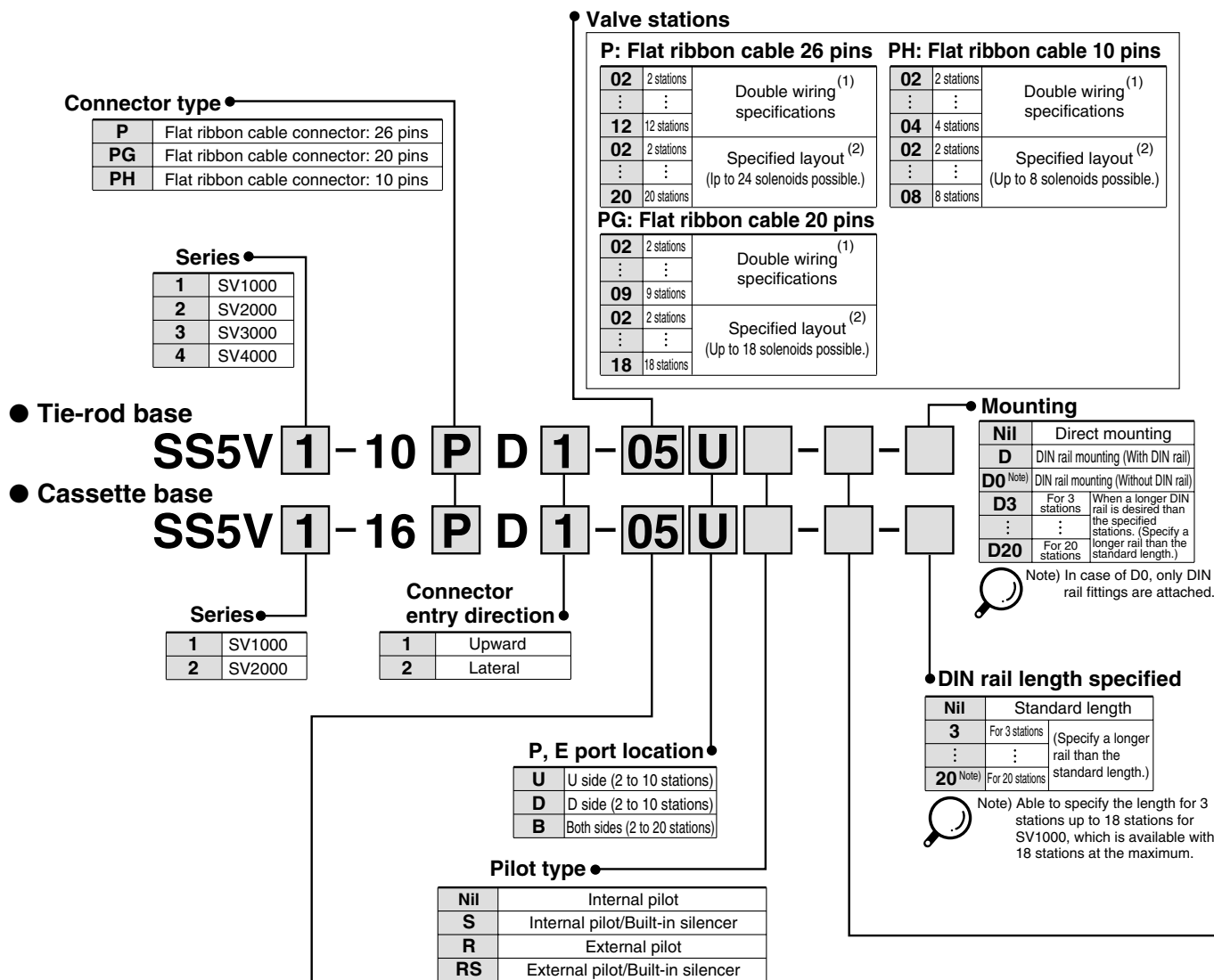
VFR

VQ7

# Flat Ribbon Cable Connector Series SV



## How to Order Manifold



### Valve stations • Series SV1000

|                                      |             |                                      |            |
|--------------------------------------|-------------|--------------------------------------|------------|
| <b>P: Flat ribbon cable 26 pins</b>  |             | <b>PH: Flat ribbon cable 10 pins</b> |            |
| <b>02</b>                            | 2 stations  | <b>02</b>                            | 2 stations |
| <b>09</b>                            | 9 stations  | <b>04</b>                            | 4 stations |
| <b>02</b>                            | 2 stations  | <b>02</b>                            | 2 stations |
| <b>18</b>                            | 18 stations | <b>08</b>                            | 8 stations |
| <b>PG: Flat ribbon cable 20 pins</b> |             |                                      |            |
| <b>02</b>                            | 2 stations  |                                      |            |
| <b>09</b>                            | 9 stations  |                                      |            |
| <b>02</b>                            | 2 stations  |                                      |            |
| <b>18</b>                            | 18 stations |                                      |            |

### Series SV2000

|                                      |             |                                      |            |
|--------------------------------------|-------------|--------------------------------------|------------|
| <b>P: Flat ribbon cable 26 pins</b>  |             | <b>PH: Flat ribbon cable 10 pins</b> |            |
| <b>02</b>                            | 2 stations  | <b>02</b>                            | 2 stations |
| <b>12</b>                            | 12 stations | <b>04</b>                            | 4 stations |
| <b>02</b>                            | 2 stations  | <b>02</b>                            | 2 stations |
| <b>20</b>                            | 20 stations | <b>08</b>                            | 8 stations |
| <b>PG: Flat ribbon cable 20 pins</b> |             |                                      |            |
| <b>02</b>                            | 2 stations  |                                      |            |
| <b>09</b>                            | 9 stations  |                                      |            |
| <b>02</b>                            | 2 stations  |                                      |            |
| <b>18</b>                            | 18 stations |                                      |            |

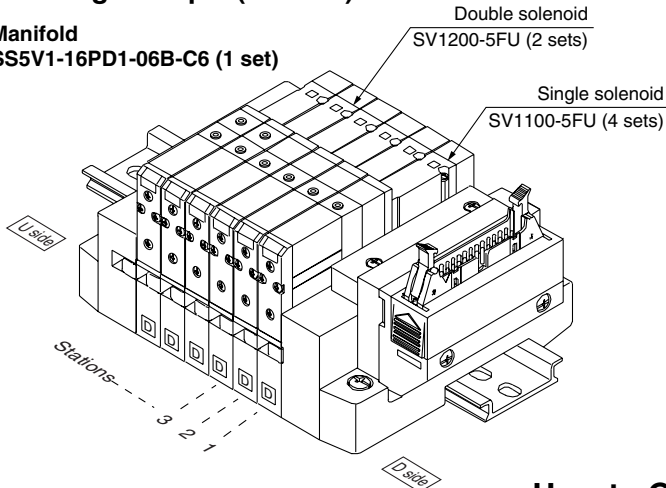
Note 1 Double wiring specifications: Single, double, 3 and 4 position solenoid valves can be used on all manifold stations. Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

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

## 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.)

## How to Order Valve

SV 1 1 0 0 - 5 F

### Series

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |
| 4 | SV4000 |

### Type of actuation

|   |                                         |
|---|-----------------------------------------|
| 1 | 2 position single                       |
| 2 | 2 position double                       |
| 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.

### 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 valve.



Refer to Specific Product Precautions 2 on page 450.

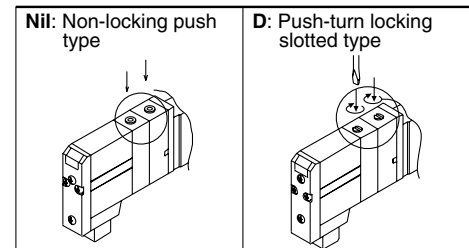


Note) Available with manifold block for station additions. Refer to pages 429 and 433.

### Made to Order

|     |                                               |
|-----|-----------------------------------------------|
| Nil | —                                             |
| X90 | Main valve fluoro rubber (Refer to page 448.) |

### 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 |
|------------|----------------------------|---------------------------|-------------------|
| <b>C3</b>  | One-touch fitting for ø3.2 | One-touch fitting for ø8  | SV1000            |
| <b>C4</b>  | One-touch fitting for ø4   |                           |                   |
| <b>C6</b>  | One-touch fitting for ø6   |                           |                   |
| <b>C4</b>  | One-touch fitting for ø4   | One-touch fitting for ø10 | SV2000            |
| <b>C6</b>  | One-touch fitting for ø6   |                           |                   |
| <b>C8</b>  | One-touch fitting for ø8   |                           |                   |
| <b>C6</b>  | One-touch fitting for ø6   | One-touch fitting for ø12 | SV3000            |
| <b>C8</b>  | One-touch fitting for ø8   |                           |                   |
| <b>C10</b> | One-touch fitting for ø10  |                           |                   |
| <b>C8</b>  | One-touch fitting for ø8   | One-touch fitting for ø12 | SV4000            |
| <b>C10</b> | One-touch fitting for ø10  |                           |                   |
| <b>C12</b> | One-touch fitting for ø12  |                           |                   |
| <b>02</b>  | Rc 1/4                     | Rc 3/8                    |                   |
| <b>03</b>  | Rc 3/8                     |                           |                   |
| <b>02F</b> | G 1/4                      | G 3/8                     |                   |
| <b>03F</b> | G 3/8                      |                           |                   |
| <b>M</b>   | 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.

# Flat Ribbon Cable PC Wiring

## Series SV



### How to Order Manifold

**Series**

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |
| 4 | SV4000 |

**Mounting**

|                    |                                      |
|--------------------|--------------------------------------|
| Nil                | Direct mounting                      |
| D                  | DIN rail mounting (With DIN rail)    |
| D0 <sup>Note</sup> | DIN rail mounting (Without DIN rail) |
| D3                 | For 3 stations                       |
| :                  | :                                    |
| D16                | For 16 stations                      |

<sup>Note</sup> In the case of D0, only DIN rail fittings are attached.

**Tie-rod base**

**Cassette base**

**Valve stations**

| Symbol | Stations    | Note                                                           |
|--------|-------------|----------------------------------------------------------------|
| 02     | 2 stations  | Double wiring <sup>(1)</sup> specifications                    |
| :      | :           |                                                                |
| 08     | 8 stations  | Specified layout <sup>(2)</sup> (up to 16 solenoids possible.) |
| 02     | 2 stations  |                                                                |
| :      | :           |                                                                |
| 16     | 16 stations |                                                                |

<sup>Note1</sup> 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.

<sup>Note2</sup> 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.)

**Connector entry direction**

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |

|   |         |
|---|---------|
| 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 16 stations) |

**SUP/EXH block assembly specifications**

|                    |                                  |
|--------------------|----------------------------------|
| Nil                | Internal pilot                   |
| S <sup>Note</sup>  | Internal pilot/Built-in silencer |
| R                  | External pilot                   |
| RS <sup>Note</sup> | External pilot/Built-in silencer |

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

**DIN rail length specified**

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

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

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

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

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

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

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

How to Order Valve

SV 1 1 0 0 - 5 F -

Series

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |
| 4 | SV4000 |

Type of actuation

|   |                                         |
|---|-----------------------------------------|
| 1 | 2 position single                       |
| 2 | 2 position double                       |
| 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.

Rated voltage

|   |        |
|---|--------|
| 5 | 24 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 valve.

Made to Order

|     |                                               |
|-----|-----------------------------------------------|
| Nil | —                                             |
| X90 | Main valve fluoro rubber (Refer to page 448.) |

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       |

SJ

SY

SV

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

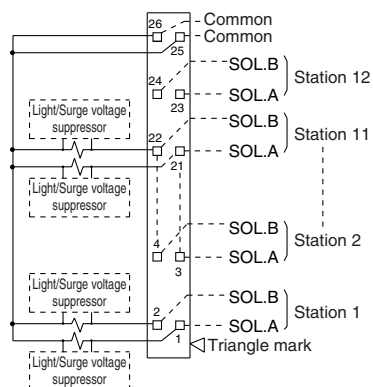
VFS

VFR

VQ7

## Manifold Electrical Wiring

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

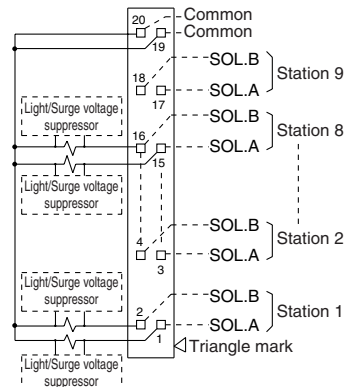


- This circuit has double wiring specifications for up to 12 stations. Since the usable number of solenoids differs depending on the manifold type, refer to the table below. In the case of single solenoids, connect to SOL. A. Furthermore, when wiring is specified on a manifold specification sheet, connections 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                    |
|                       |                  |                       |
| Cassette base type 16 | SV1000           | 18                    |
|                       | SV2000           | 24                    |

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

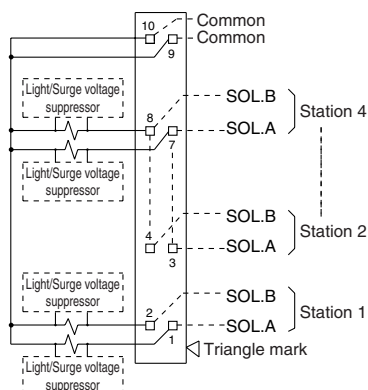


- This circuit has double wiring specifications for up to 9 stations. Since the usable number of solenoids differs depending on the manifold type, refer to the table below. In the case of single solenoids, connect to SOL. A. Furthermore, when wiring is specified on a manifold specification sheet, connections 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                    |
|                       |                  |                       |
| Cassette base type 16 | SV1000           |                       |
|                       | SV2000           |                       |

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

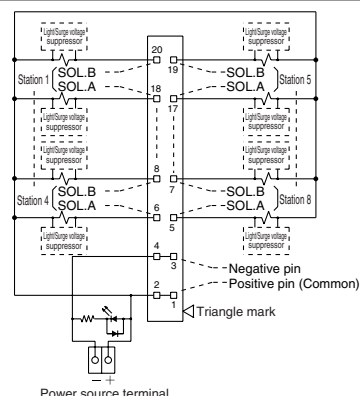


- This circuit has double wiring specifications for up to 4 stations. Since the usable number of solenoids differs depending on the manifold type, refer to the table below. In the case of single solenoids, connect to SOL. A. Furthermore, when wiring is specified on a manifold specification sheet, connections 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                     |
|                       |                  |                       |
| Cassette base type 16 | SV1000           |                       |
|                       | SV2000           |                       |

10GD/16GD Flat Ribbon Cable Type (PC Wiring)



- This circuit has double wiring specifications for up to 8 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 signals A for single and A, B for double are in order 20→18→16→14, 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.

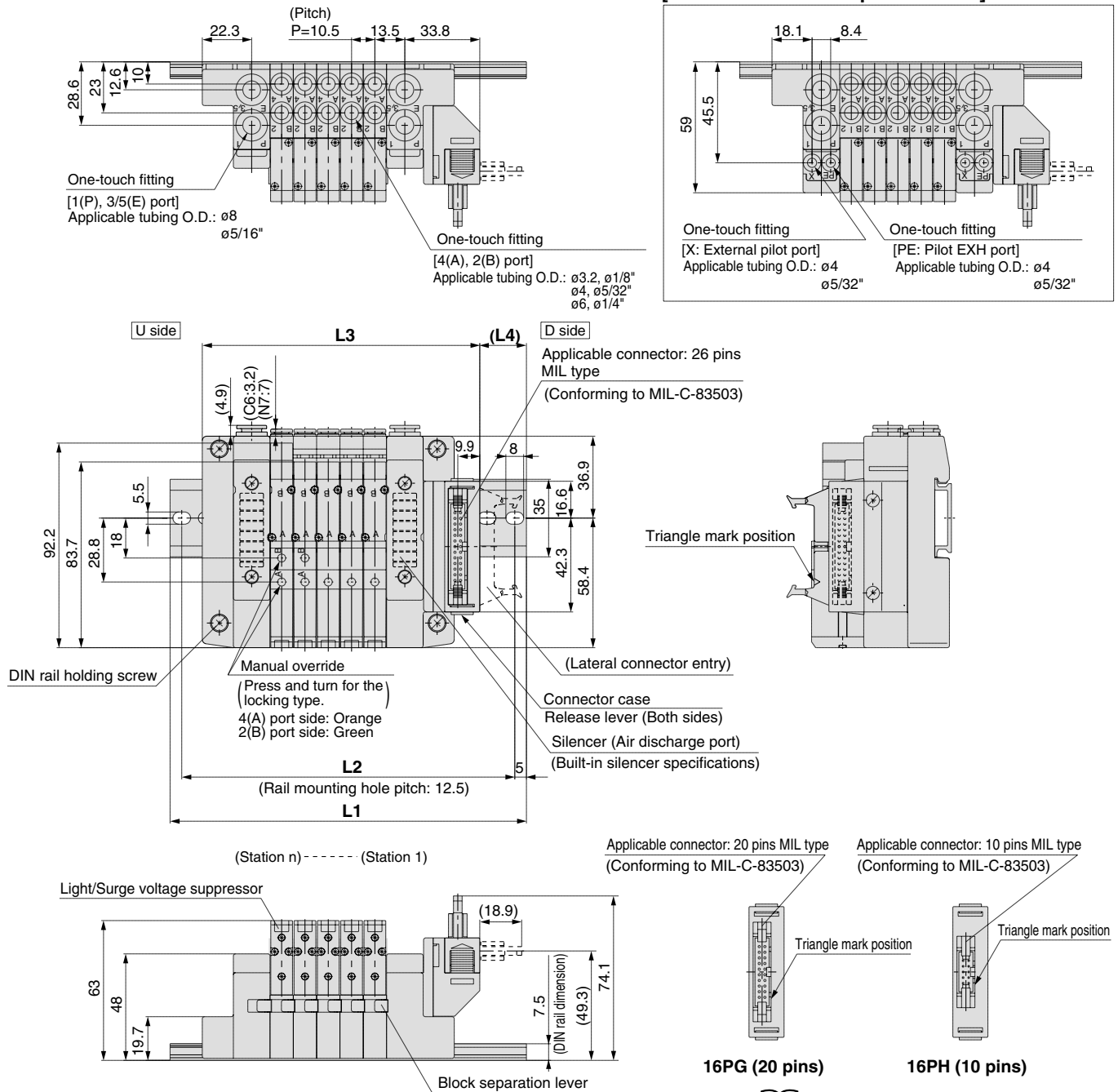
### Usable No. of Solenoids

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

## Dimensions : Series SV1000 for Flat Ribbon Cable

### ● Cassette base manifold : SS5V1-16<sup>P</sup><sub>PG</sub>D<sub>2</sub><sup>U</sup><sub>B</sub> - Stations (S, R, RS) - C<sub>3</sub>, N<sub>1</sub> C<sub>4</sub>, N<sub>3</sub> C<sub>6</sub>, N<sub>7</sub>

- 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

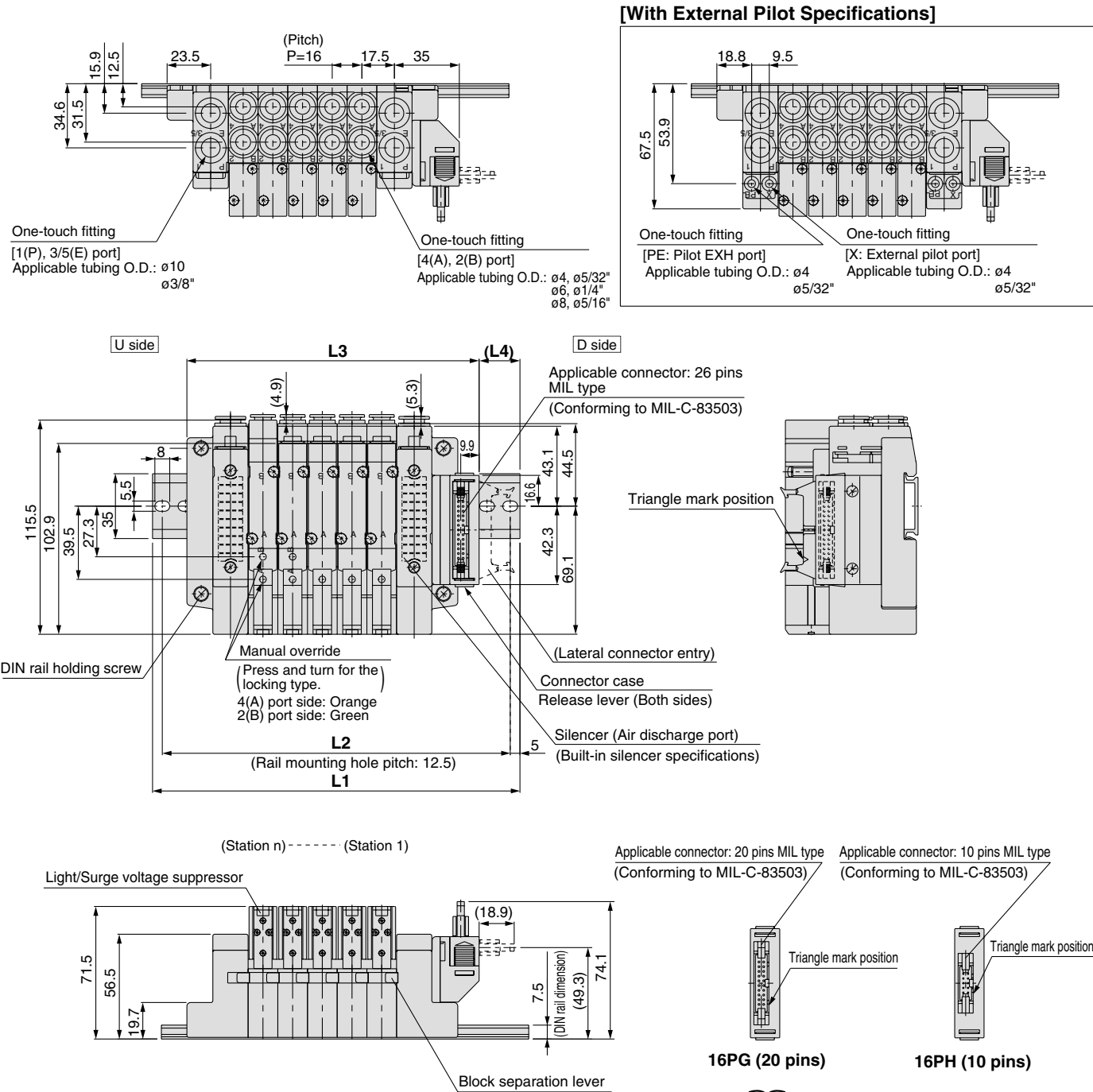
| L <sup>n</sup> | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 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

Dimensions : Series SV2000 for Flat Ribbon Cable

● Cassette base manifold : SS5V2-16<sup>P</sup><sub>PG</sub><sup>D</sup><sub>PH</sub> - Stations<sup>U</sup><sub>B</sub>(S, R, RS)-<sup>C4, N3</sup><sub>C6, N7</sub><sup>C8, N9</sup>

- 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.



Refer to page 402 (compliant for D-sub connector) for dimensions with interface regulator and individual SUP/EXH spacer.

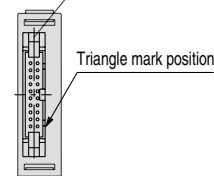
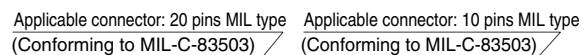
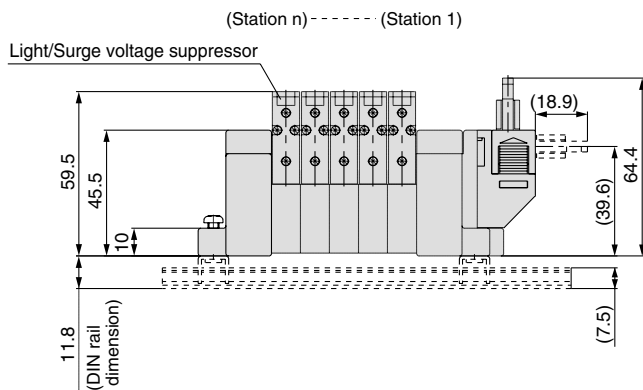
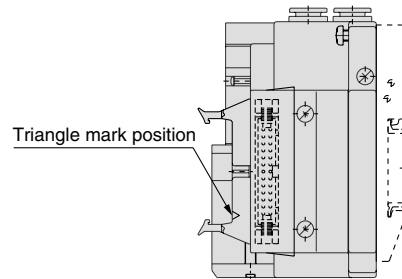
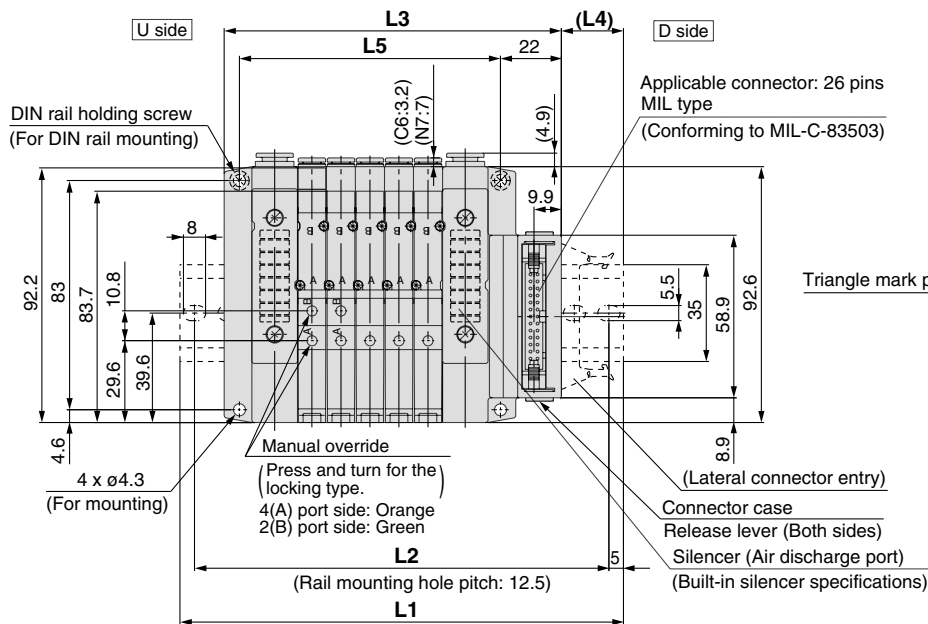
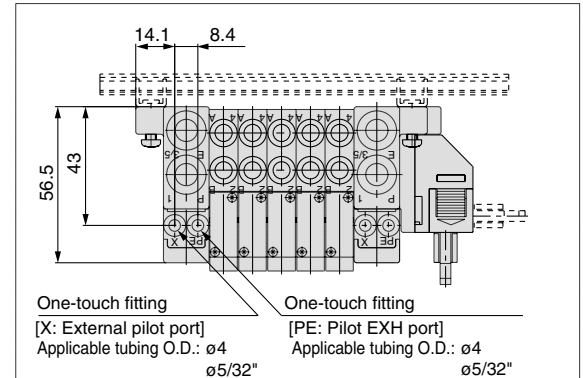
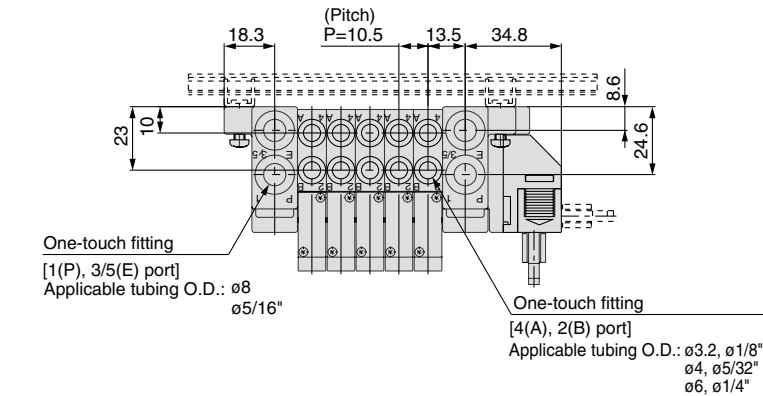
L Dimension

| 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        | 173   | 198   | 210.5 | 223   | 235.5 | 260.5 | 273   | 285.5 | 310.5 | 323   | 335.5 | 348   | 373   | 385.5 | 398   | 423   | 435.5 |  |
| L2          | 137.5 | 150          | 162.5 | 187.5 | 200   | 212.5 | 225   | 250   | 262.5 | 275   | 300   | 312.5 | 325   | 337.5 | 362.5 | 375   | 387.5 | 412.5 | 425   |  |
| L3          | 109.5 | 125.5        | 141.5 | 157.5 | 173.5 | 189.5 | 205.5 | 221.5 | 237.5 | 253.5 | 269.5 | 285.5 | 301.5 | 317.5 | 333.5 | 349.5 | 365.5 | 381.5 | 397.5 |  |
| L4          | 22.5  | 21           | 19    | 23.5  | 22    | 20    | 18.5  | 23    | 21    | 19.5  | 24    | 22    | 20.5  | 18.5  | 23    | 21.5  | 19.5  | 24    | 22.5  |  |

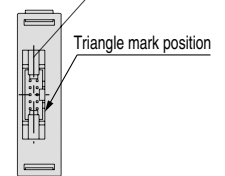
### **Dimensions : Series SV1000 for Flat Ribbon Cable**

● Tie-rod base manifold : SS5V1-10<sup>P</sup><sub>PG</sub>D<sub>2</sub><sup>1</sup>-Stations<sup>U</sup><sub>D</sub>(S, R, RS)-<sup>C3, N1</sup><sub>C4, N3</sub><sup>C6, N7</sup>(-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.



**10PG (20 pins)**



**10PH (10 pins)**



Refer to page 403 (compliant for D-sub connector) for dimensions with interface regulator and individual SUP/EXH spacer.

## L Dimension

| $\backslash n$ | 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 | 248   | 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   | 237.5 | 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  | 18.5  | 19.5  | 20.5  | 21.5  | 22.5  | 23.5  | 24.5  | 19    | 20    | 21    | 22    | 23    | 24    | 19    |
| 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   |

**SJ**

SY

SV

SYJ

SZ

## VP4

**S0700**

**VQ**

## VQ4

## VQ5

## VQC

**VQZ**

SO

**VFS**

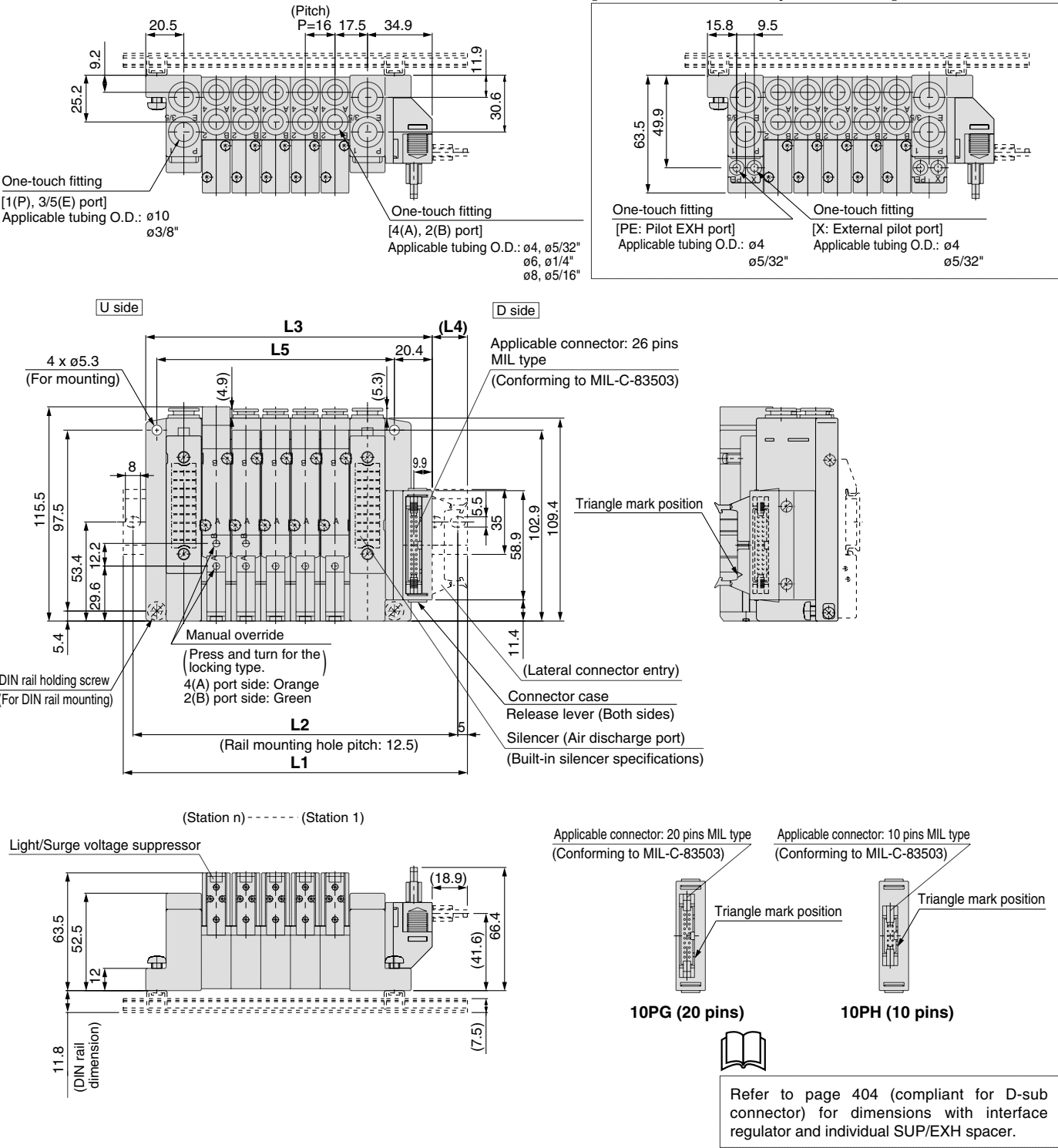
## VFR

V07

Dimensions : Series SV2000 for Flat Ribbon Cable

● Tie-rod base manifold : SS5V2-10<sup>P</sup><sub>PG</sub> D<sub>2</sub><sup>1</sup> - Stations<sup>U</sup><sub>B</sub> (S, R, RS) - C<sub>4</sub>, N<sub>3</sub> C<sub>6</sub>, N<sub>7</sub> C<sub>8</sub>, N<sub>9</sub> (-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.



L Dimension

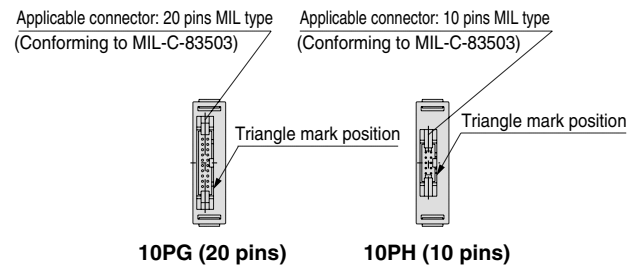
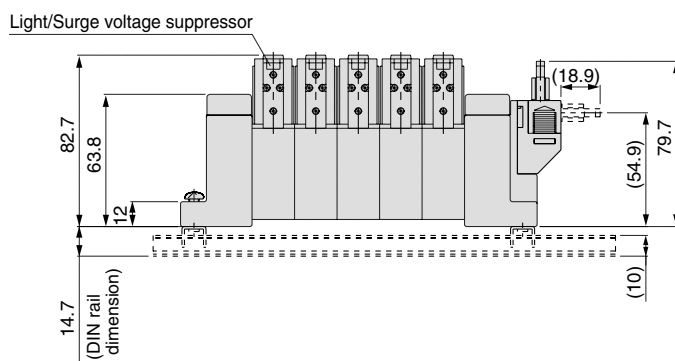
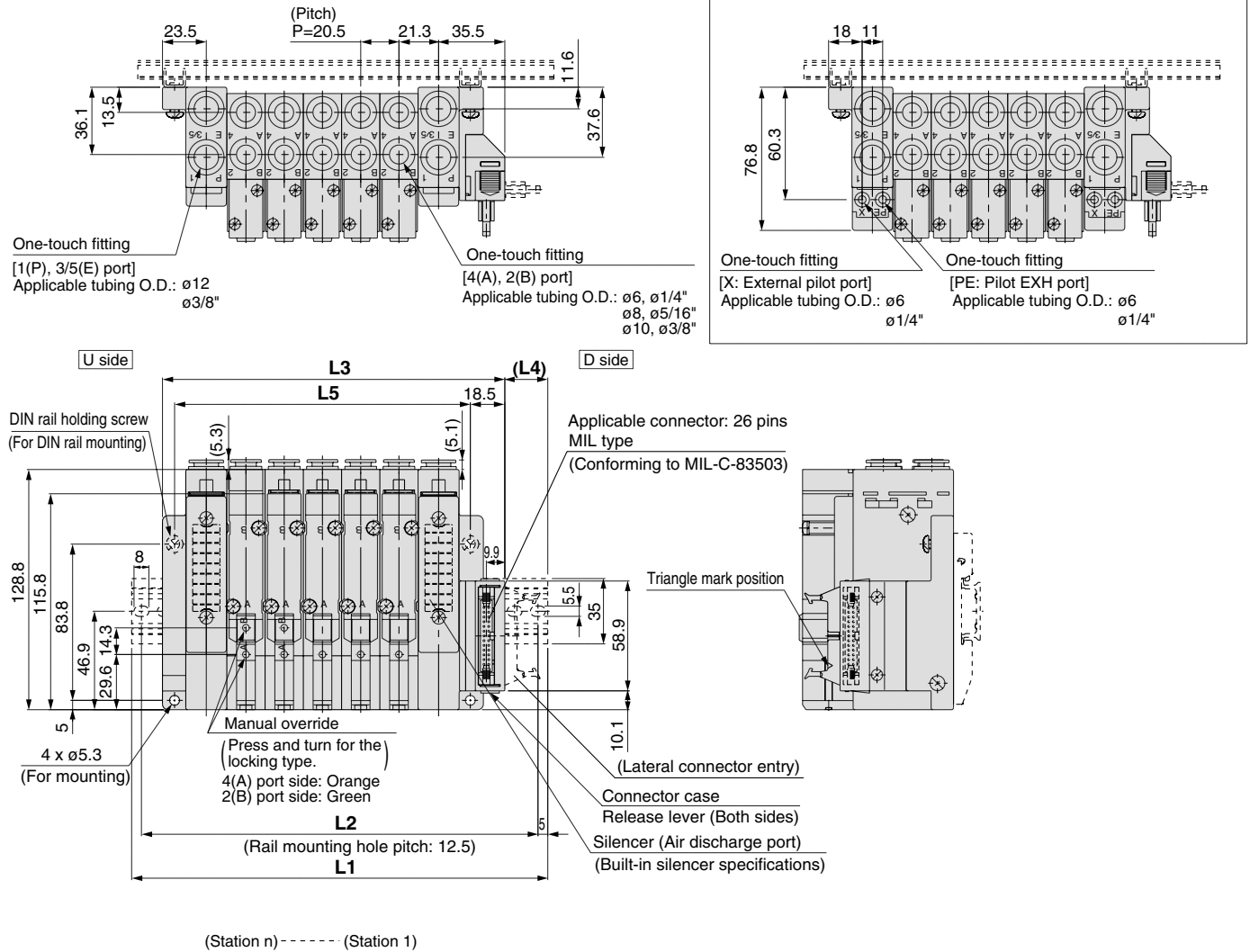
| L \ n | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1    | 148   | 160.5 | 173   | 185.5 | 210.5 | 223   | 235.5 | 248   | 273   | 285.5 | 298   | 323   | 335.5 | 348   | 360.5 | 385.5 | 398   | 410.5 | 435.5 |
| L2    | 137.5 | 150   | 162.5 | 175   | 200   | 212.5 | 225   | 237.5 | 262.5 | 275   | 287.5 | 312.5 | 325   | 337.5 | 350   | 375   | 387.5 | 400   | 425   |
| L3    | 106.4 | 122.4 | 138.4 | 154.4 | 170.4 | 186.4 | 202.4 | 218.4 | 234.4 | 250.4 | 266.4 | 282.4 | 298.4 | 314.4 | 330.4 | 346.4 | 362.4 | 378.4 | 394.4 |
| L4    | 24    | 22.5  | 20.5  | 19    | 23.5  | 21.5  | 20    | 18    | 22.5  | 21    | 19    | 23.5  | 22    | 20    | 18.5  | 23    | 21    | 19.5  | 24    |
| L5    | 80    | 96    | 112   | 128   | 144   | 160   | 176   | 192   | 208   | 224   | 240   | 256   | 272   | 288   | 304   | 320   | 336   | 352   | 368   |

## Dimensions : Series SV3000 for Flat Ribbon Cable

### ● Tie-rod base manifold : SS5V3-10<sup>P</sup><sub>PH</sub> D<sub>2</sub> - Stations<sup>U</sup><sub>B</sub> (S, R, RS) - C<sub>6, N7</sub><sub>C8, N9</sub> C<sub>10, N11</sub> (-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]



Refer to page 405 (compliant for D-sub connector) for dimensions with interface regulator and individual SUP/EXH spacer.

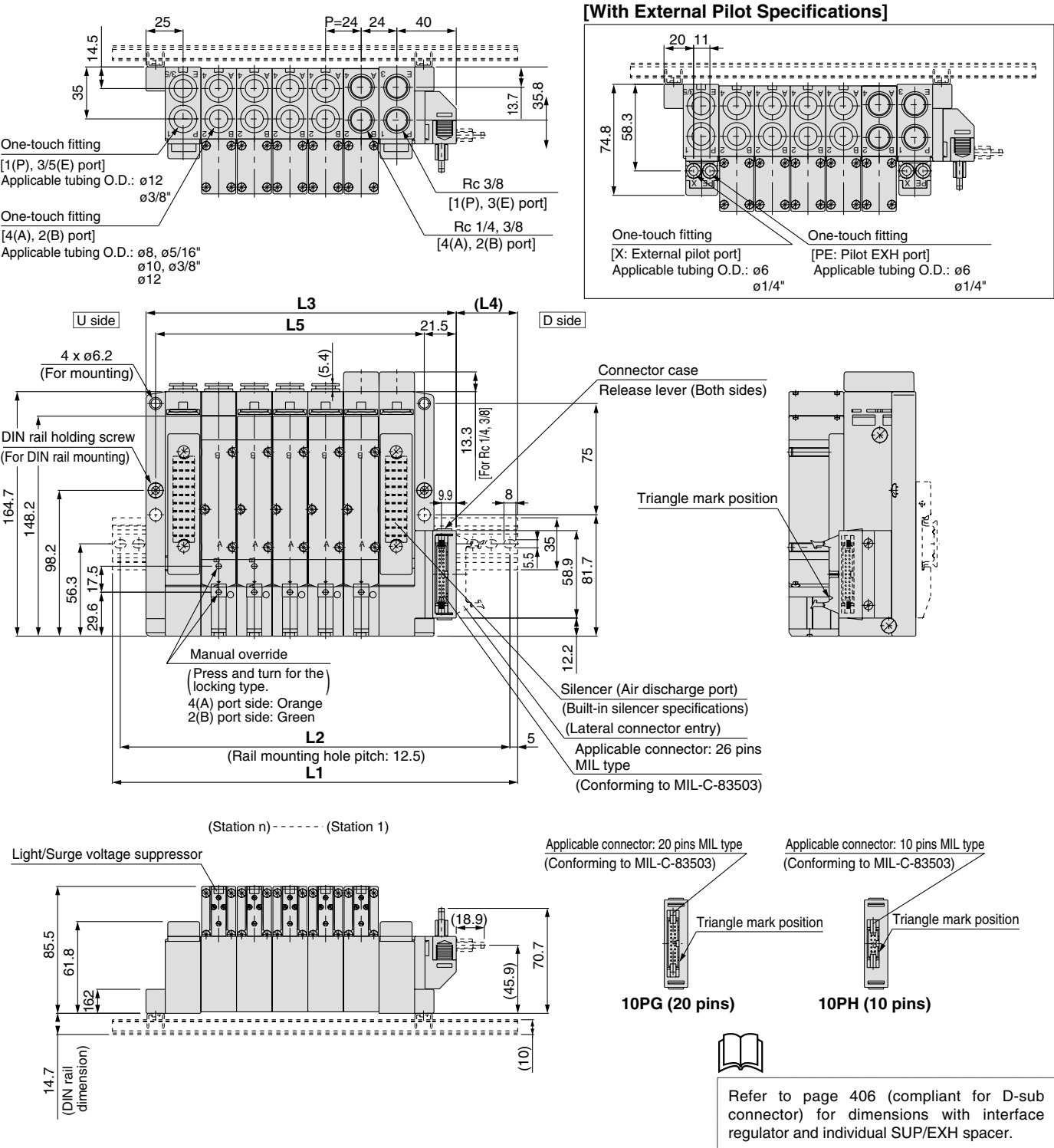
#### L Dimension

| L  |   | n : Stations |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|----|---|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L  | n | 2            | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
| L1 |   | 160.5        | 173   | 198   | 223   | 235.5 | 260.5 | 285.5 | 298   | 323   | 348   | 360.5 | 385.5 | 398   | 423   | 448   | 460.5 | 485.5 | 510.5 | 523   |
| L2 |   | 150          | 162.5 | 187.5 | 212.5 | 225   | 250   | 275   | 287.5 | 312.5 | 337.5 | 350   | 375   | 387.5 | 412.5 | 437.5 | 450   | 475   | 500   | 512.5 |
| L3 |   | 122          | 142.5 | 163   | 183.5 | 204   | 224.5 | 245   | 265.5 | 286   | 306.5 | 327   | 347.5 | 368   | 388.5 | 409   | 429.5 | 450   | 470.5 | 491   |
| L4 |   | 22.5         | 18.5  | 21    | 23    | 19    | 21.5  | 23.5  | 19.5  | 22    | 24    | 20    | 22.5  | 18.5  | 20.5  | 23    | 19    | 21    | 23.5  | 19.5  |
| L5 |   | 97           | 117.5 | 138   | 158.5 | 179   | 199.5 | 220   | 240.5 | 261   | 281.5 | 302   | 322.5 | 343   | 363.5 | 384   | 404.5 | 425   | 445.5 | 466   |

Dimensions : Series SV4000 for Flat Ribbon Cable

● Tie-rod base manifold : SS5V4-10<sup>PG</sup><sub>PH</sub> D<sub>2</sub><sup>1</sup> - Stations<sup>U</sup><sub>B</sub> (S, R, RS) -<sup>02, C8, N9, C10, N11</sup><sub>03, C12</sub> (-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.



L Dimension

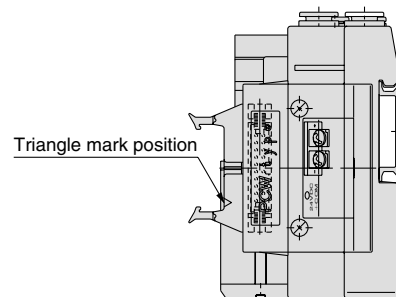
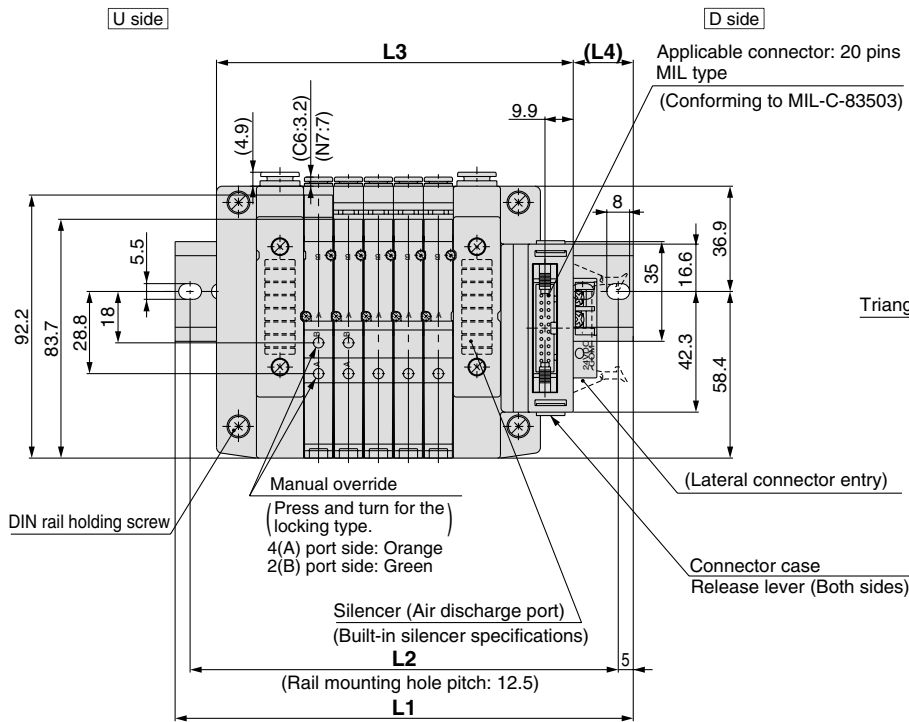
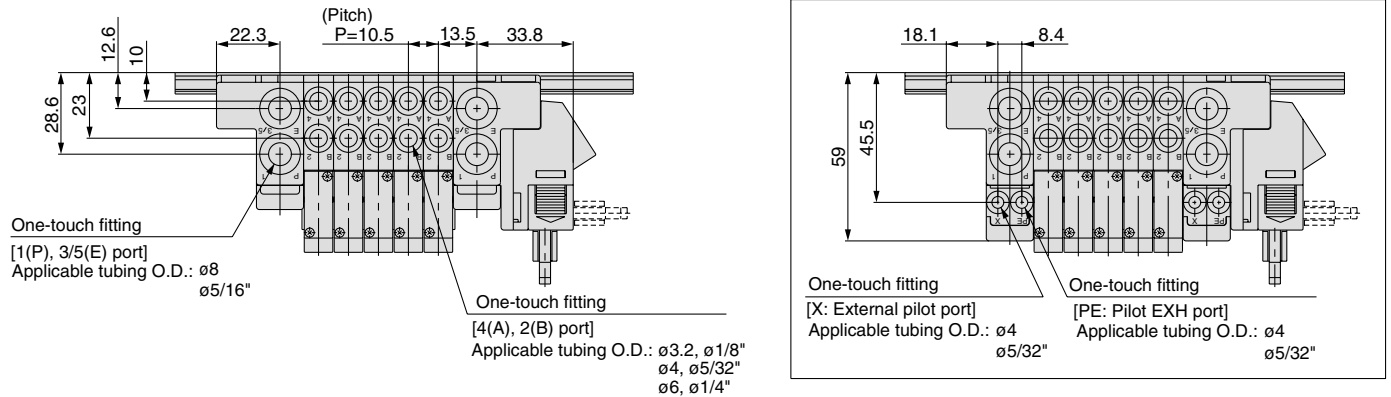
| L Dimension |       | n : Stations |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|-------------|-------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|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

## Dimensions : Series SV1000 for PC Wiring

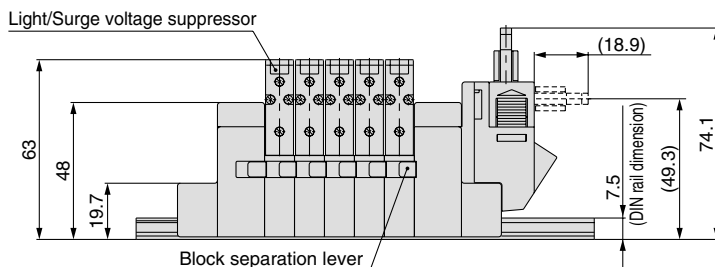
### ● Cassette base manifold : SS5V1-16GD<sub>2</sub><sup>1</sup> - Stations $\frac{U}{D}$ (S, R, RS) - $\frac{C3, N1}{C4, N3}$ $\frac{C6, N7}{C6, N7}$

- 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 External Pilot Specifications]



(Station n) ----- (Station 1)



Refer to page 401 (compliant for D-sub connector) for dimensions with interface regulator and individual SUP/EXH spacer.

### L Dimension

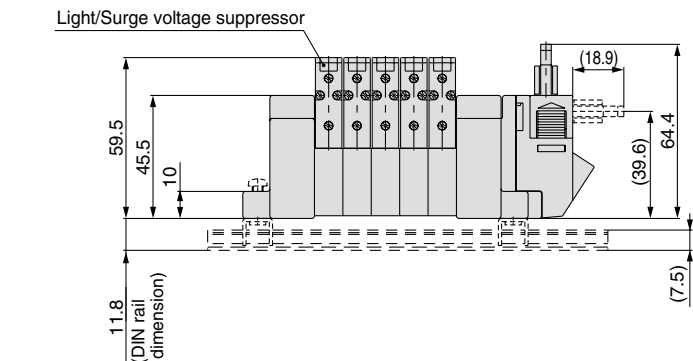
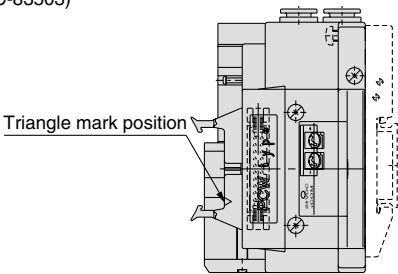
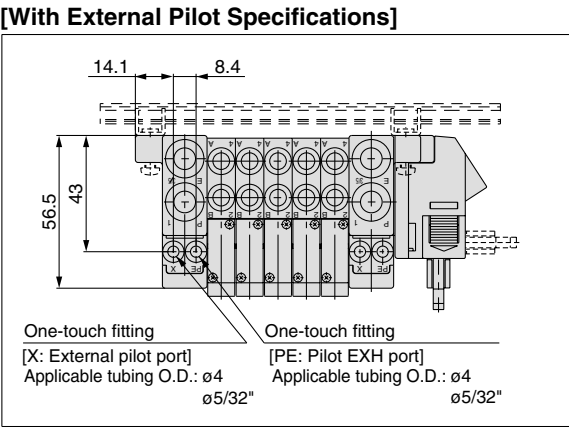
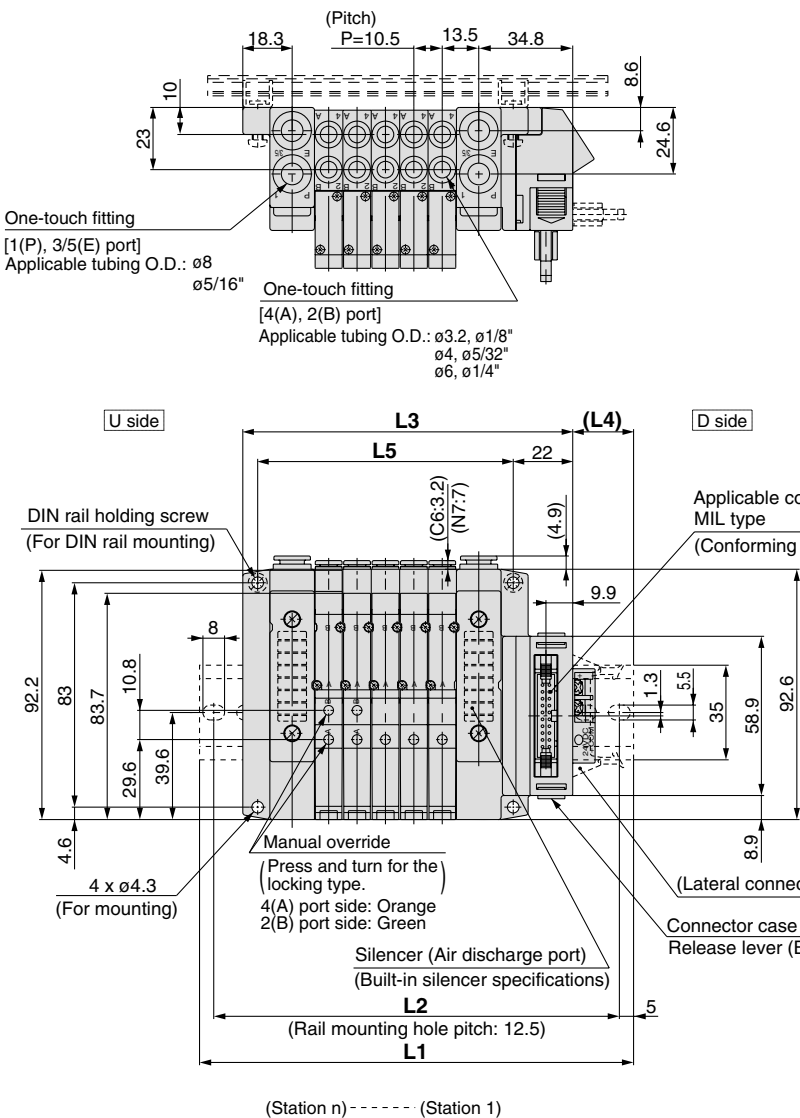
n : Stations

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

Dimensions : Series SV1000 for PC Wiring

● Tie-rod base manifold : SS5V1-10GD<sup>1</sup> - Stations <sup>U</sup><sub>B</sub>(S, R, RS) - <sup>C3, N1</sup><sub>C4, N3</sub><sup>C6, N7</sup>(-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.



Refer to page 403 (compliant for D-sub connector) for dimensions with interface regulator and individual SUP/EXH spacer.

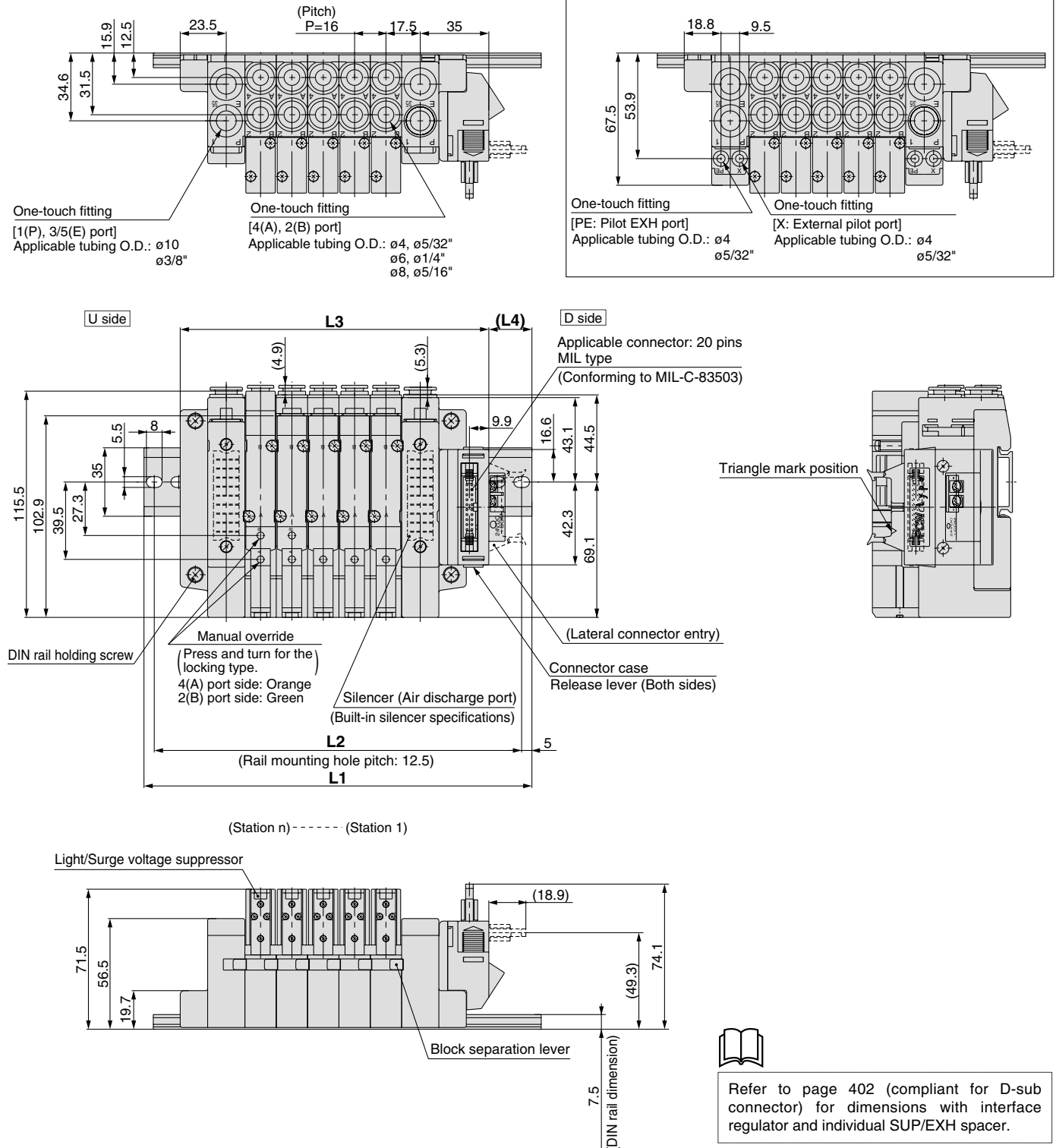
| L Dimension |       | n : Stations |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
|-------------|-------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| L           | n     | 2            | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16 |
| L1          | 123   | 135.5        | 148   | 160.5 | 173   | 173   | 185.5 | 198   | 210.5 | 223   | 235.5 | 248   | 248   | 260.5 | 273   |    |
| L2          | 112.5 | 125          | 137.5 | 150   | 162.5 | 162.5 | 175   | 187.5 | 200   | 212.5 | 225   | 237.5 | 237.5 | 250   | 262.5 |    |
| L3          | 90.5  | 101          | 111.5 | 122   | 132.5 | 143   | 153.5 | 164   | 174.5 | 185   | 195.5 | 206   | 216.5 | 227   | 237.5 |    |
| L4          | 19.5  | 20.5         | 21.5  | 22.5  | 23.5  | 18.5  | 19.5  | 20.5  | 21.5  | 22.5  | 23.5  | 24.5  | 19    | 20    | 21    |    |
| L5          | 63    | 73.5         | 84    | 94.5  | 105   | 115.5 | 126   | 136.5 | 147   | 157.5 | 168   | 178.5 | 189   | 199.5 | 210   |    |

## Dimensions : Series SV2000 for PC Wiring

### ● Cassette base manifold : SS5V2-16GD<sub>2</sub> - Stations $\begin{matrix} U \\ D \end{matrix}$ (S, R, RS) - $\begin{matrix} C4, N3 \\ C6, N7 \\ C8, N9 \end{matrix}$

- 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]



#### L Dimension

| L  | n | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|----|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1 |   | 148   | 160.5 | 173   | 198   | 210.5 | 223   | 235.5 | 260.5 | 273   | 285.5 | 310.5 | 323   | 335.5 | 348   | 373   |
| L2 |   | 137.5 | 150   | 162.5 | 187.5 | 200   | 212.5 | 225   | 250   | 262.5 | 275   | 300   | 312.5 | 325   | 337.5 | 362.5 |
| L3 |   | 109.5 | 125.5 | 141.5 | 157.5 | 173.5 | 189.5 | 205.5 | 221.5 | 237.5 | 253.5 | 269.5 | 285.5 | 301.5 | 317.5 | 333.5 |
| L4 |   | 22.5  | 21    | 19    | 23.5  | 22    | 20    | 18.5  | 23    | 21    | 19.5  | 24    | 22    | 20.5  | 18.5  | 23    |

n : Stations

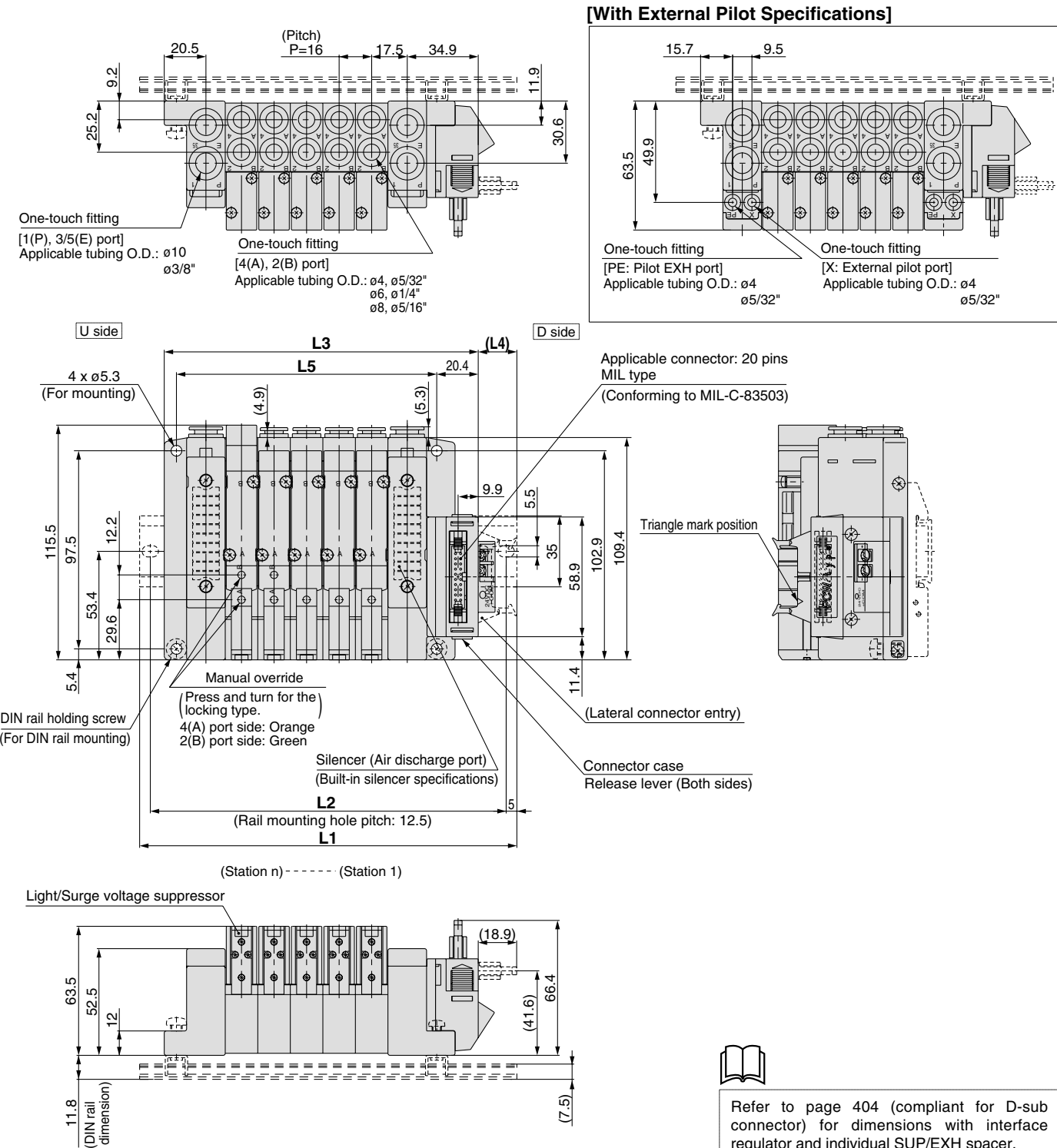


Refer to page 402 (compliant for D-sub connector) for dimensions with interface regulator and individual SUP/EXH spacer.

Dimensions : Series SV2000 for PC Wiring

● Tie-rod base manifold : SS5V2-10GD<sub>2</sub><sup>1</sup> - Stations <sup>U</sup><sub>D</sub>(S, R, RS) - <sup>C4, N3</sup><sub>C6, N7</sub><sup>C8, N9</sup>(-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.



L Dimension

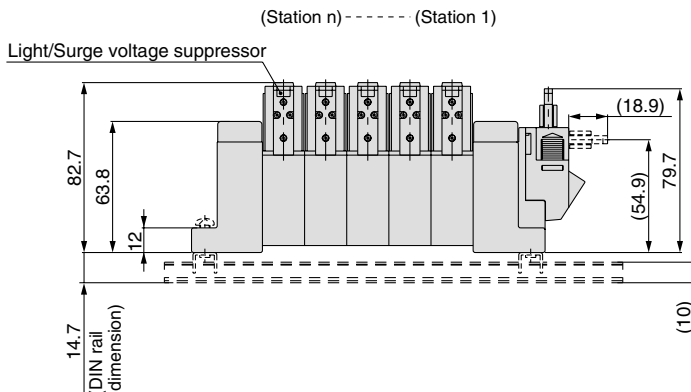
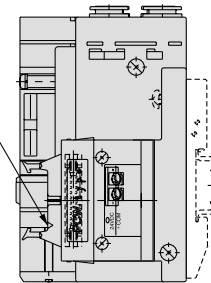
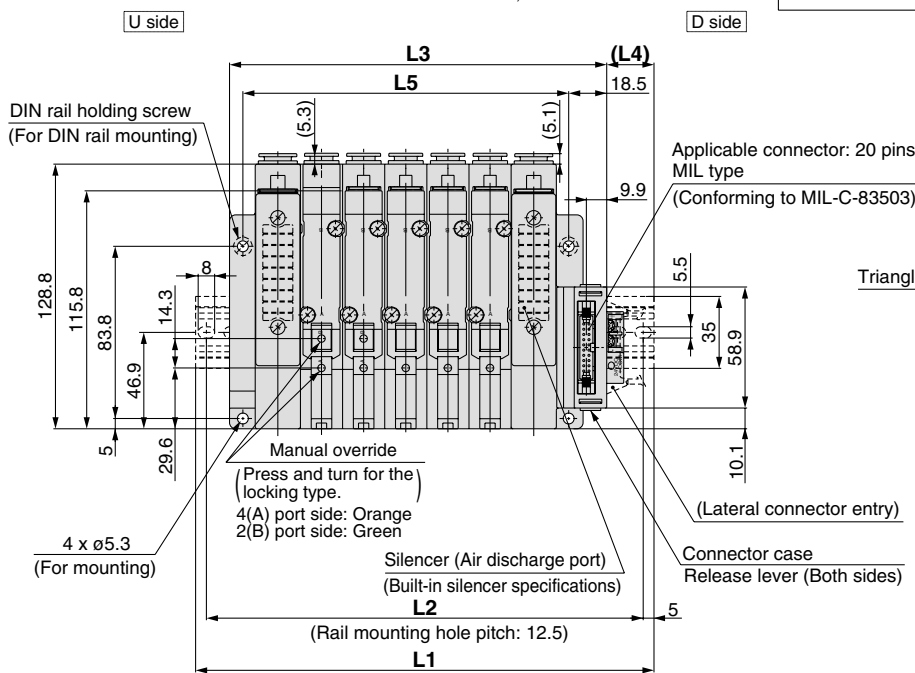
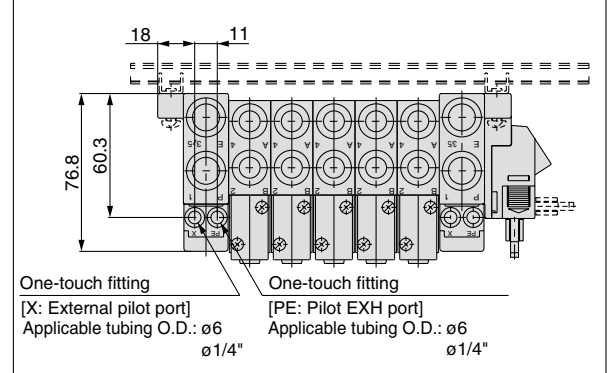
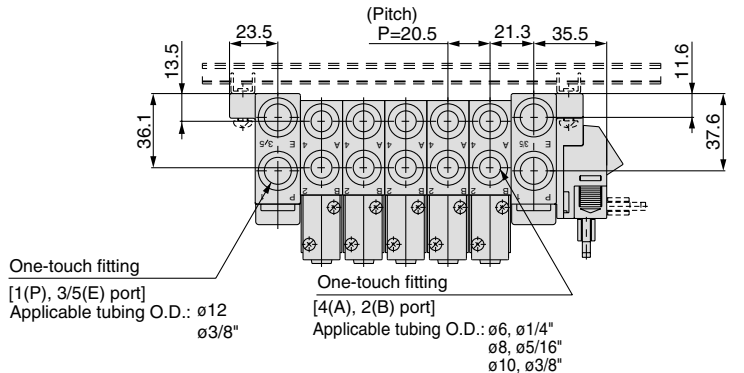
|    |   | n : Stations |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|----|---|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L  | n | 2            | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
| L1 |   | 148          | 160.5 | 173   | 185.5 | 210.5 | 223   | 235.5 | 248   | 273   | 285.5 | 298   | 323   | 335.5 | 348   | 360.5 |
| L2 |   | 137.5        | 150   | 162.5 | 175   | 200   | 212.5 | 225   | 237.5 | 262.5 | 275   | 287.5 | 312.5 | 325   | 337.5 | 350   |
| L3 |   | 106.4        | 122.4 | 138.4 | 154.4 | 170.4 | 186.4 | 202.4 | 218.4 | 234.4 | 250.4 | 266.4 | 282.4 | 298.4 | 314.4 | 330.4 |
| L4 |   | 24.5         | 22.5  | 20.5  | 19    | 23.5  | 21.5  | 20    | 18.5  | 22.5  | 21    | 19.5  | 23.5  | 22    | 20.5  | 18.5  |
| L5 |   | 80           | 96    | 112   | 128   | 144   | 160   | 176   | 192   | 208   | 224   | 240   | 256   | 272   | 288   | 304   |

## Dimensions : Series SV3000 for PC Wiring

### ● Tie-rod base manifold : SS5V3-10GD<sub>2</sub> = Stations $\frac{U}{D}$ (S, R, RS) - $\frac{C6, N7}{C8, N9}$ (-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]



Refer to page 405 (compliant for D-sub connector) for dimensions with interface regulator and individual SUP/EXH spacer.

### L Dimension

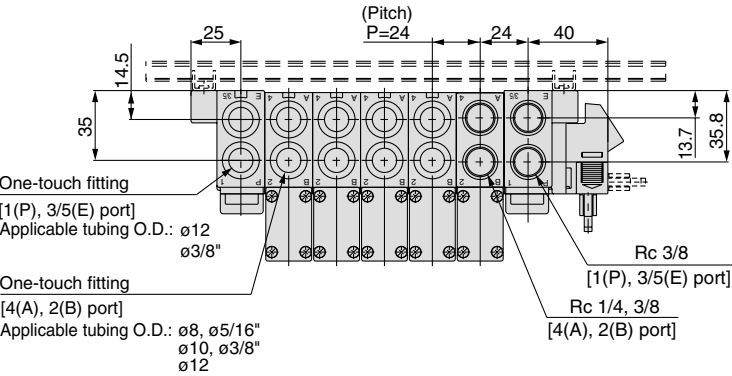
n : Stations

| L \ n | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1    | 160.5 | 173   | 198   | 223   | 235.5 | 260.5 | 285.5 | 298   | 323   | 348   | 360.5 | 385.5 | 398   | 423   | 448   |
| L2    | 150   | 162.5 | 187.5 | 212.5 | 225   | 250   | 275   | 287.5 | 312.5 | 337.5 | 350   | 375   | 387.5 | 412.5 | 437.5 |
| L3    | 122   | 142.5 | 163   | 183.5 | 204   | 224.5 | 245   | 265.5 | 286   | 306.5 | 327   | 347.5 | 368   | 388.5 | 409   |
| L4    | 22.5  | 18.5  | 21    | 23    | 19    | 21.5  | 23.5  | 19.5  | 22    | 24    | 20    | 22.5  | 18.5  | 20.5  | 23    |
| L5    | 97    | 117.5 | 138   | 158.5 | 179   | 199.5 | 220   | 240.5 | 261   | 281.5 | 302   | 322.5 | 343   | 363.5 | 384   |

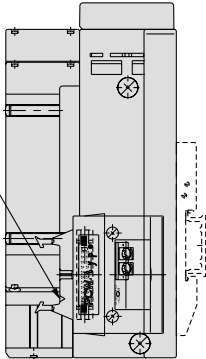
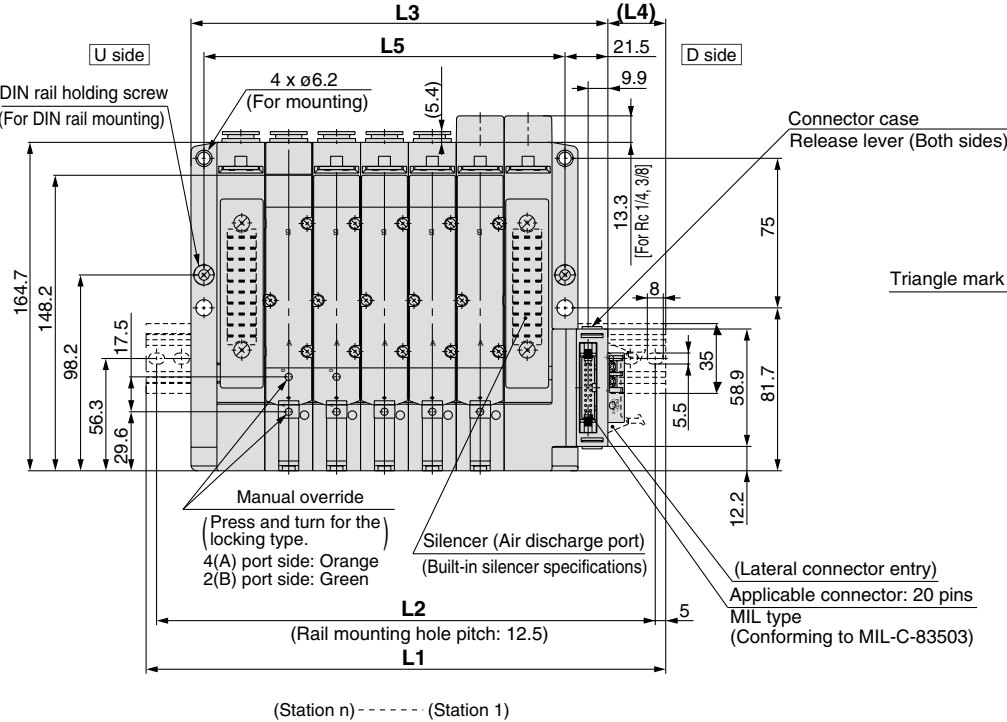
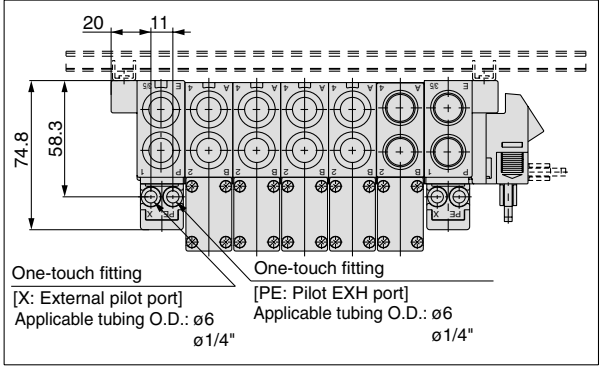
Dimensions : Series SV4000 for PC Wiring

● Tie-rod base manifold : SS5V4-10GD<sup>1</sup><sub>2</sub> - [Stations]<sup>U</sup><sub>D</sub> (S, R, RS) -<sup>02, C8, N9,</sup><sub>03, C10, N11</sub> (-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]



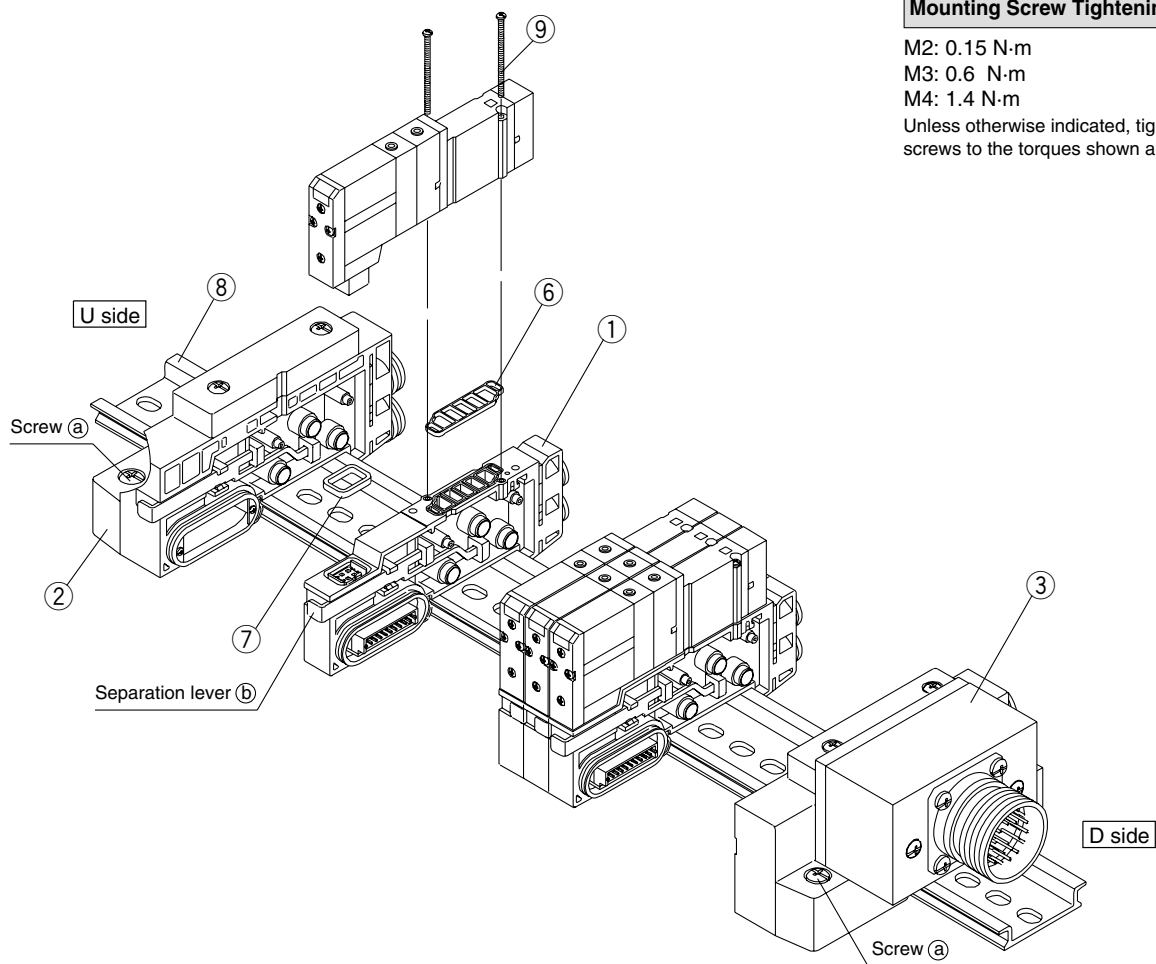
Refer to page 406 (compliant for D-sub connector) for dimensions with interface regulator and individual SUP/EXH spacer.

L Dimension

|    | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1 | 185.5 | 210.5 | 235.5 | 260.5 | 285.5 | 310.5 | 335.5 | 348   | 373   | 398   | 423   | 448   | 473   | 498   | 523   |
| L2 | 175   | 200   | 225   | 250   | 275   | 300   | 325   | 337.5 | 362.5 | 387.5 | 412.5 | 437.5 | 462.5 | 487.5 | 512.5 |
| L3 | 137   | 161   | 185   | 209   | 233   | 257   | 281   | 305   | 329   | 353   | 377   | 401   | 425   | 449   | 473   |
| L4 | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  |
| L5 | 109   | 133   | 157   | 181   | 205   | 229   | 253   | 277   | 301   | 325   | 349   | 373   | 397   | 421   | 445   |

|              |
|--------------|
| <b>SJ</b>    |
| <b>SY</b>    |
| <b>SV</b>    |
| <b>SYJ</b>   |
| <b>SZ</b>    |
| <b>VP4</b>   |
| <b>S0700</b> |
| <b>VQ</b>    |
| <b>VQ4</b>   |
| <b>VQ5</b>   |
| <b>VQC</b>   |
| <b>VQZ</b>   |
| <b>SQ</b>    |
| <b>VFS</b>   |
| <b>VFR</b>   |
| <b>VQ7</b>   |

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  
Unless otherwise indicated, tighten mounting screws to the torques shown above.

| ③ SUP/EXH block assembly             |                                    |                                                    |
|--------------------------------------|------------------------------------|----------------------------------------------------|
| <p>EX500 (Type 16SA2W)</p>           | <p>EX120 (Type 16S3□)</p>          |                                                    |
| <p>Circular connector (Type 16C)</p> | <p>D-sub connector (Type 16F□)</p> | <p>For Flat ribbon cable connector (Type 16P□)</p> |

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"<br>C4: With One-touch fitting for ø4 N3: One-touch fitting for ø5/32"<br>C6: With One-touch fitting for ø6 N7: One-touch fitting for ø1/4"<br>(Gaskets ⑥ and ⑦ are included.) |
|        | Double                | SV1000-50-4A-□□                  |                                                                                                                                                                                                                                                   |
| SV2000 | Single                | SV2000-50-3A-□□                  | C4: With One-touch fitting for ø4 N3: One-touch fitting for ø5/32"<br>C6: With One-touch fitting for ø6 N7: One-touch fitting for ø1/4"<br>C8: With One-touch fitting for ø8 N9: One-touch fitting for ø5/16"<br>(Gaskets ⑥ and ⑦ are included.)  |
|        | Double                | SV2000-50-4A-□□                  |                                                                                                                                                                                                                                                   |

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 |

• 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.

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) |
| 37 | For flat ribbon cable PC wiring           |
| 38 | For EX120 (dedicated output serial)       |

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

• 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         | EX500-S0001                                            |                                                       |                                                 |
| ⑤   | Series EX120 SI unit         | Refer to page 378.                                     |                                                       |                                                 |
| 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 437. |
| ⑨   | Round head combination screw | SX3000-22-2<br>(M2 x 24)<br>Tightening torque: 0.16N·m | SV2000-21-1<br>(M3 x 30)<br>Tightening torque: 0.8N·m |                                                 |

SJ  
SY  
SV  
SYJ  
SZ  
VP4  
S0700  
VQ  
VQ4  
VQ5  
VQC  
VQZ  
SQ  
VFS  
VFR  
VQ7

## Type 16: Cassette Base Manifold

### How to increase manifold bases (Type 16)

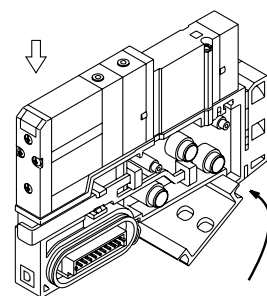
(1) Loosen the screws (a) (2 pcs. on one side) that hold the manifold base onto the DIN rail.  
(When removing the manifold base from the DIN rail, loosen the holding screws at four locations.)

(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 (b) 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**

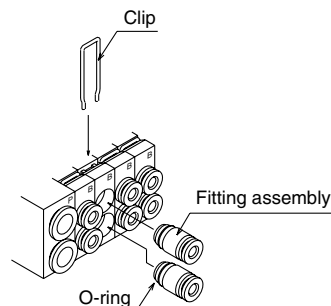
## ⚠ Caution

### 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 |

**Type of actuation**

|   |                                         |
|---|-----------------------------------------|
| 1 | 2 position single                       |
| 2 | 2 position double                       |
| 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 valve.  
\* Built-in back pressure check valve type is applicable to series SV1000 only.

Note) Refer to Specific Product Precautions 2 on page 450.

**Made to Order**

|     |                                               |
|-----|-----------------------------------------------|
| Nil | —                                             |
| X90 | Main valve fluoro rubber (Refer to page 488.) |

**A, B port size**  
Refer to A, B ports size tables on pages 356, 378, 398 and 409.

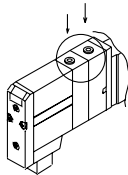
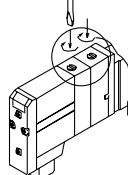
**Manifold wiring specifications**

|     |               |
|-----|---------------|
| Nil | Double wiring |
| S   | Single wiring |

**Manifold block type**

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

**Manual override**

|                                                                                      |                                                                                       |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Nil:</b> Non-locking push type                                                    | <b>D:</b> Push-turn locking slotted type                                              |
|  |  |

**Light/Surge voltage suppressor**

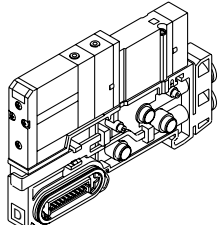
|   |                                     |
|---|-------------------------------------|
| U | With light/surge voltage suppressor |
| R | With surge voltage suppressor       |

**Rated voltage**

|   |        |
|---|--------|
| 5 | 24 VDC |
| 6 | 12 VDC |

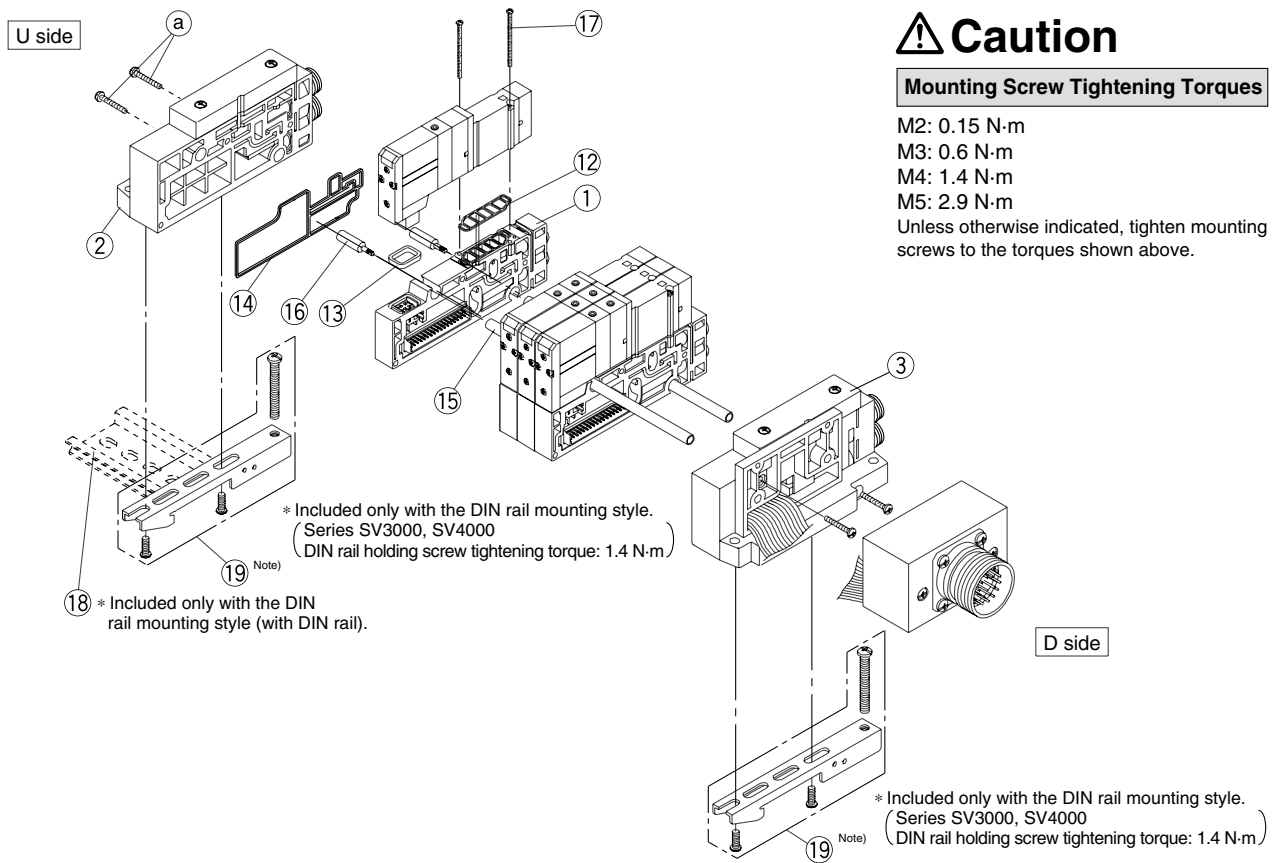
\* Note that serial wiring manifolds (EX500, EX120) are only available with 24 VDC.

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



SJ  
SY  
SV  
SYJ  
SZ  
VP4  
S0700  
VQ  
VQ4  
VQ5  
VQC  
VQZ  
SQ  
VFS  
VFR  
VQ7

## Type 10: Tie-rod Base Manifold Exploded View



| ③ SUP/EXH block assembly                                                                                                                                                                                                     |                                                           |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--|
| <p><b>EX250 (Type 10S1□W)</b></p> <p>* ⑤, ⑥, ⑦ and ⑧ are not included in the SUP/EXH block assembly.</p> <p>* Included only with the DIN rail mounting style.<br/>(Tightening torque of DIN rail holding screw: 0.5 N-m)</p> | <p><b>Circular connector (Type 10C)</b></p>               |  |
| <p><b>EX500 (Type 10SA□W)</b></p> <p>* ④ is not included in the SUP/EXH block assembly.</p>                                                                                                                                  | <p><b>D-sub connector (Type 10F)</b></p>                  |  |
| <p><b>EX126 (Type 10S4□D)</b></p> <p>* ⑨ and ⑩ are not included in the SUP/EXH block assembly.</p>                                                                                                                           | <p><b>For flat ribbon cable connector (Type 10P□)</b></p> |  |
| <p><b>EX120 (Type 10S3□)</b></p> <p>* ⑪ is not included in the SUP/EXH block assembly.</p>                                                                                                                                   |                                                           |  |

Note) ⑧ and ⑯ are for SV2000. Mounting orientation onto DIN rail gets reversed.

① Manifold Block Assembly Part No.

| Series | Wiring specifications | Manifold block assembly part no. | Note                                                                                                                                                                                                                                                                                                                                                                    |
|--------|-----------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SV1000 | Single                | SV1000-50-1A-□□                  | C3: With One-touch fitting for ø3.2 N1: One-touch fitting for ø1/8"<br>C4: With One-touch fitting for ø4 N3: One-touch fitting for ø5/32"<br>C6: With One-touch fitting for ø6 N7: One-touch fitting for ø1/4"<br>(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"<br>C6: With One-touch fitting for ø6 N7: One-touch fitting for ø1/4"<br>C8: With One-touch fitting for ø8 N9: One-touch fitting for ø5/16"<br>(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"<br>C8: With One-touch fitting for ø8 N9: One-touch fitting for ø5/16"<br>C10: With One-touch fitting for ø10 N11: One-touch fitting for ø3/8"<br>(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"<br>C10: With One-touch fitting for ø10 N11: One-touch fitting for ø3/8"<br>C12: With One-touch fitting for ø12<br>02: Rc 1/4 02N: NPT 1/4<br>03: Rc 3/8 03N: NPT 3/8<br>02F: G1/4 02T: NPTF1/4<br>03F: G3/8 03T: NPTF 3/8<br>(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 |

Mounting

|     |                   |
|-----|-------------------|
| Nil | Direct mounting   |
| DO  | DIN rail mounting |

SUP/EXH block assembly  
specifications

|    |                                                                                |
|----|--------------------------------------------------------------------------------|
| 10 | For EX500 (decentralized serial)                                               |
| 11 | For EX250 (serial wiring with I/O unit)<br>For EX126 (dedicated output serial) |
| 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)                                      |
| 17 | For flat ribbon cable PC wiring                                                |
| 18 | For EX120 (dedicated output serial)                                            |

Pilot type

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

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 |

\* Since EX500 EX250, EX126 and EX120 type SI units are not included, order them separately.

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

| No. | Description                                            | SV1000                                                  | SV2000                                                 | SV3000                                                 | SV4000                                                 |                                                 |
|-----|--------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------|
| 4   | Series EX500 SI unit                                   | Refer to page 356.                                      |                                                        |                                                        |                                                        |                                                 |
| 5   | Series EX250 SI unit                                   | Refer to page 366.                                      |                                                        |                                                        |                                                        |                                                 |
| 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   | For EX250 clamp assembly                               | SV1000-78A                                              |                                                        |                                                        |                                                        |                                                 |
| 9   | Series EX126 SI unit                                   | Refer to page 372.                                      |                                                        |                                                        |                                                        |                                                 |
| 10  | Terminal block plate                                   | VVQC1000-74A-2                                          |                                                        |                                                        |                                                        | For mounting EX126 SI unit                      |
| 11  | Series EX120 SI unit                                   | Refer to page 378.                                      |                                                        |                                                        |                                                        |                                                 |
| 12  | Gasket                                                 | SX3000-57-4                                             | SX5000-57-6                                            | SX7000-57-5                                            | SY9000-11-2                                            |                                                 |
| 13  | Connector gasket                                       | SX3000-146-2                                            | SX3000-146-2                                           | SX3000-146-2                                           | SX3000-146-2                                           |                                                 |
| 14  | Manifold block gasket                                  | SX3000-181-1                                            | SX5000-138-1                                           | SV3000-65-1                                            | SV4000-65-2                                            |                                                 |
| 15  | Tie-rod                                                | SV1000-55-1-□□                                          | SV2000-55-1-□□                                         | SV3000-55-1-□□                                         | SV4000-55-1-□□                                         |                                                 |
| 16  | Tie-rod for station addition                           | SV1000-55-2-1                                           | SV2000-55-2A                                           | SV3000-55-2A                                           | SV4000-55-2A                                           | □□: Manifold stations                           |
| 17  | Round head combination screw<br>(Valve mounting screw) | SX3000-22-2<br>(M2 x 24)<br>Tightening torque: 0.16 N·m | SV2000-21-1<br>(M3 x 30)<br>Tightening torque: 0.8 N·m | SV3000-21-1<br>(M4 x 35)<br>Tightening torque: 1.4 N·m | SV2000-21-2<br>(M3 x 40)<br>Tightening torque: 0.8 N·m |                                                 |
|     |                                                        | VZ1000-11-1-□                                           | VZ1000-11-1-□                                          | VZ1000-11-4-□                                          | VZ1000-11-4-□                                          | Refer to DIN rail dimension tables on page 437. |
| 18  | DIN rail                                               | VZ1000-11-1-□                                           | VZ1000-11-1-□                                          | VZ1000-11-4-□                                          | VZ1000-11-4-□                                          |                                                 |
| 19  | Clamp assembly                                         | SV1000-69A                                              | SV1000-69A                                             | SV3000-69A                                             | SV3000-69A                                             |                                                 |



Note) Two pieces of ⑮ and ⑯ (tie-rod) are required for Series SV1000, and three pieces are required for Series SV2000, 3000 and 4000.  
Two pieces of ⑰ (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)

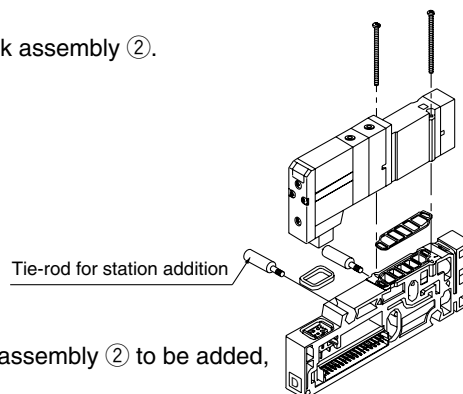
- (1) Loosen the U side screws ①, and remove the SUP/EXH end block assembly ②.



- (2) Screw in the tie-rods ⑬ 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

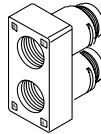
**SY9000-58A-02** 

For P, E port

**SY9000-58B-03** 

### • Thread type

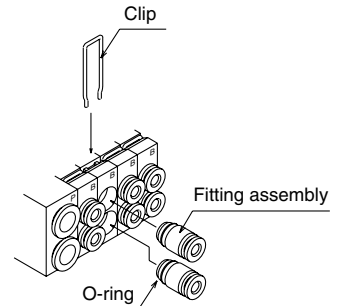
|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |



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.



## ■ 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** 

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |
| 4 | SV4000 |

### • A, B port size

Refer to A, B port size table on pages 356, 366, 372, 378, 388, 398 and 409

### • Manifold wiring specifications

|     |               |
|-----|---------------|
| Nil | Double wiring |
| S   | Single wiring |

### • Made to Order

|     |                                               |
|-----|-----------------------------------------------|
| Nil | —                                             |
| X90 | Main valve fluoro rubber (Refer to page 448.) |

### • Type of actuation

|   |                                         |
|---|-----------------------------------------|
| 1 | 2 position single                       |
| 2 | 2 position double                       |
| 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 valve.

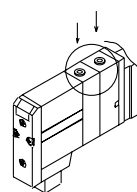
### • Manifold block type

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

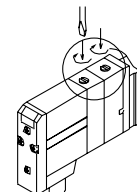
Note) Tie-rod type 10 includes tie-rods for station additions.

### • 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

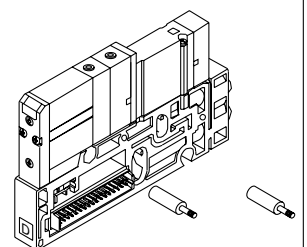
|   |        |
|---|--------|
| 5 | 24 VDC |
| 6 | 12 VDC |

\* Note that serial wiring (EX500, EX250 and EX12□) are only available with 24 VDC.



Note) Refer to Specific Product Precautions 2 on page 450.

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



# 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

SV 000-60-5 A-1A

Series

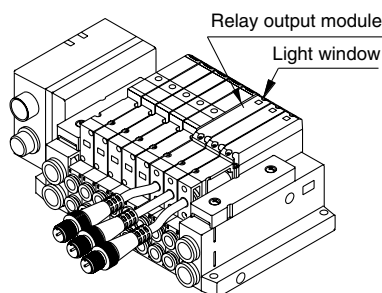
|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |
| 4 | SV4000 |

• No. of output point

|   |           |
|---|-----------|
| A | 1 output  |
| B | 2 outputs |

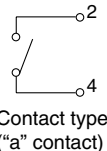
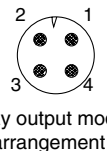
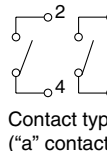
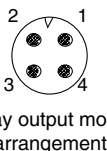
• Rated voltage

|   |        |
|---|--------|
| 5 | 24 VDC |
| 6 | 12 VDC |



\* Note that serial wiring manifolds (EX500, EX250 and EX12□) are available with 24 VDC only.

## Relay Output Module Specifications

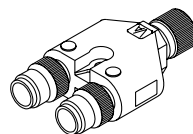
| Item                 | Specifications                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                         |  |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 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<br><br>1. —<br>2. Output A<br>3. —<br>4. Output A<br><br>Contact type ("a" contact)<br><br>Relay output module side pin arrangement |  | 4 pins connector (M12) plug<br><br>1. Output B<br>2. Output A<br>3. Output B<br>4. Output A<br><br>Contact type ("a" contact)<br><br>Relay output module side pin arrangement |  |
| Load voltage         | 110 VAC                                                                                                                                                                                                                                                                                                                               |  | 30 VDC                                                                                                                                                                                                                                                                                                                                                  |  |
| Load current         | 3 A                                                                                                                                                                                                                                                                                                                                   |  | 3 A                                                                                                                                                                                                                                                                                                                                                     |  |
| Indicator light      | Orange                                                                                                                                                                                                                                                                                                                                |  | 110 VAC                                                                                                                                                                                                                                                                                                                                                 |  |
| Enclosure            | Based on IP67 (IEC60529)                                                                                                                                                                                                                                                                                                              |  | 30 VDC                                                                                                                                                                                                                                                                                                                                                  |  |
| Current consumption  | 20 mA or less                                                                                                                                                                                                                                                                                                                         |  | 0.3 A                                                                                                                                                                                                                                                                                                                                                   |  |
| Polarity             | Non-polar                                                                                                                                                                                                                                                                                                                             |  | 1 A                                                                                                                                                                                                                                                                                                                                                     |  |
| weight (g)           | 48                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                         |  |

## Y type connector

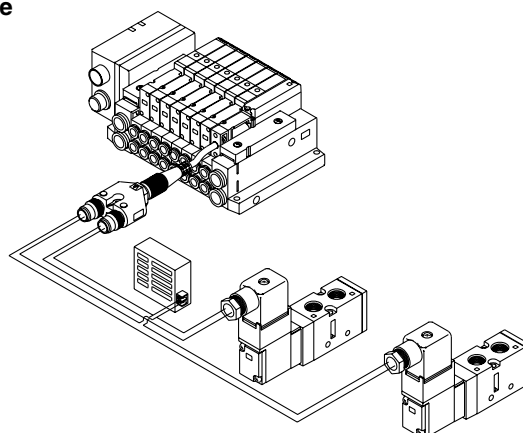
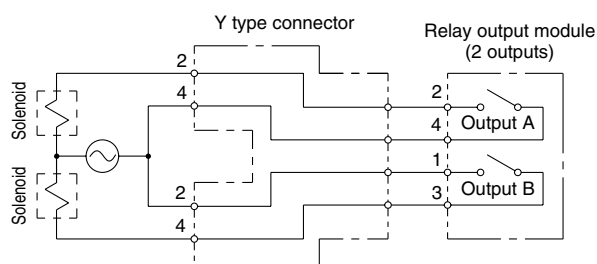
Used to branch a two output relay output module to two separate systems.

### How to Order

EX500 — ACY00 — S



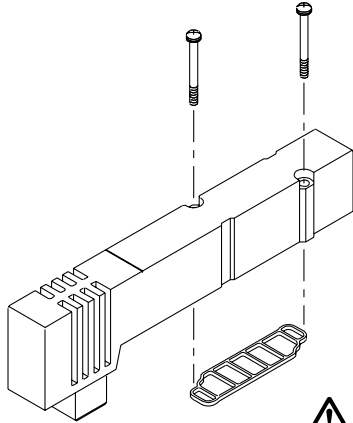
### Relay output module and Y type connector wiring example



## Manifold Option

### ■ Blanking plate assembly

Used in situations where valves will be added in the future or for maintenance.



| Series        | Blanking plate assembly part no. |
|---------------|----------------------------------|
| <b>SV1000</b> | SV1000-67-1A                     |
| <b>SV2000</b> | SV2000-67-1A                     |
| <b>SV3000</b> | SV3000-67-1A                     |
| <b>SV4000</b> | SV4000-67-1A                     |

### ⚠ Caution

#### Mounting screw tightening torques

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

### ■ SUP/EXH block disk

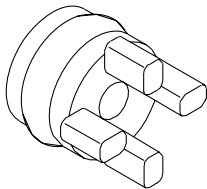
[SUP block disk]

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.

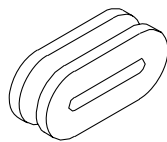
[EXH block disk]

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 |
|---------------|----------------|----------------|----------------|
| <b>SV1000</b> | 10             | SV1000-59-1A   | SV1000-59-2A   |
|               | 16             | SX3000-77-1A   | SX3000-77-1A   |
| <b>SV2000</b> | 10             | SV2000-59-1A   | SV2000-59-2A   |
|               | 16             | SV2000-59-3A   | SV2000-59-3A   |
| <b>SV3000</b> | 10             | SV3000-59-1A   | SV3000-59-1A   |
| <b>SV4000</b> | 10             | SY9000-57-1A   | SY9000-57-1A   |

### ■ Label for block disk

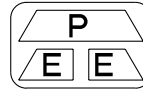
These labels are attached to manifolds in which SUP and EXH block disks have been installed, in order to identify the installed locations. (Three sheets each included.)

#### SV1000-74-1A

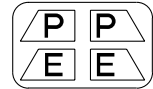
Label for SUP block disk



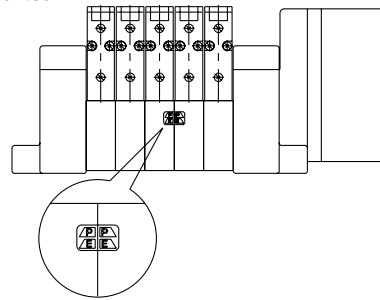
Label for EXH block disk



Label for SUP/EXH block disk

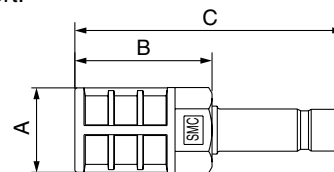


\* When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.



### ■ Silencer with One-touch fitting

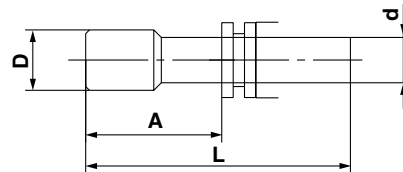
This silencer can be quickly mounted on the manifold's E (exhaust) port.



| Series                                   | Model      | Effective area     | A   | B    | C    |
|------------------------------------------|------------|--------------------|-----|------|------|
| <b>SV1000</b> (For ø8)                   | AN203-KM8  | 14 mm <sup>2</sup> | ø16 | 26   | 51   |
|                                          | AN200-KM10 | 26 mm <sup>2</sup> | ø22 | 53.8 | 80.8 |
| <b>SV2000</b> (For ø10)                  | AN300-KM10 | 30 mm <sup>2</sup> | ø25 | 70   | 97   |
| <b>SV3000</b><br><b>SV4000</b> (For ø12) | AN300-KM12 | 41 mm <sup>2</sup> | 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                        | <b>KQ2P-04</b> | 16   | 32   | ø6    |
| ø6                        | <b>KQ2P-06</b> | 18   | 35   | ø8    |
| ø8                        | <b>KQ2P-08</b> | 20.5 | 39   | ø10   |
| ø10                       | <b>KQ2P-10</b> | 22   | 43   | ø12   |
| ø12                       | <b>KQ2P-12</b> | 24   | 44.5 | ø14   |
| ø1/8"                     | <b>KQ2P-01</b> | 16   | 31.5 | ø5    |
| ø5/32"                    | <b>KQ2P-03</b> | 16   | 32   | ø6    |
| ø1/4"                     | <b>KQ2P-07</b> | 18   | 35   | ø8.5  |
| ø5/16"                    | <b>KQ2P-09</b> | 20.5 | 39   | ø10   |
| ø3/8"                     | <b>KQ2P-11</b> | 22   | 43   | ø11.5 |

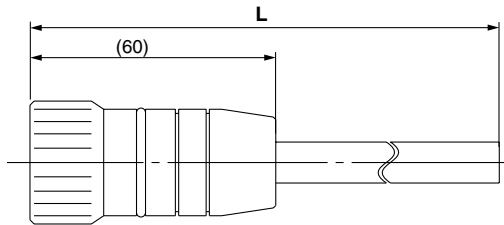
## Manifold Option

### ■ Circular connector/Cable assembly (26 pins)

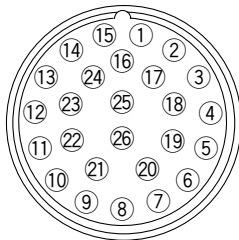
**AXT100 – MC26 –** 

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.

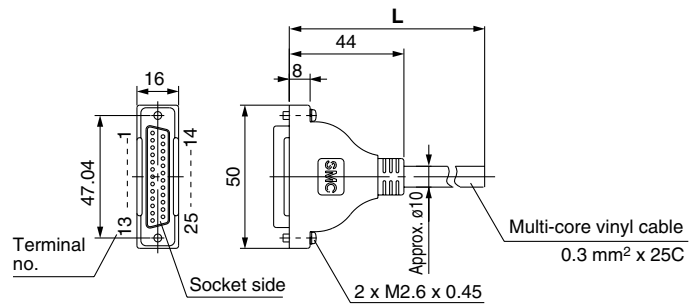
### ■ D-sub connector/Cable assembly (25 pins)

**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 Ω/km, 20°C   | 65 or less      |
| Withstand voltage VAC, 1 min.     | 1000            |
| Insulation resistance, MΩkm, 20°C | 5 or less       |

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

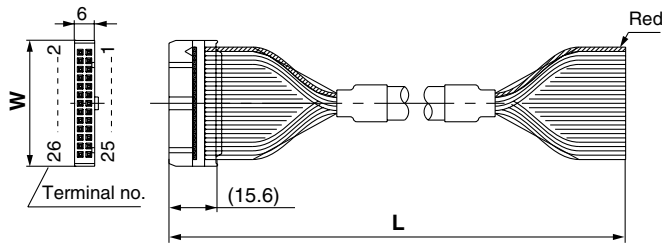
## Manifold Option

### ■ 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.

### ■ Connector cable for M12 waterproof connector (Female side)

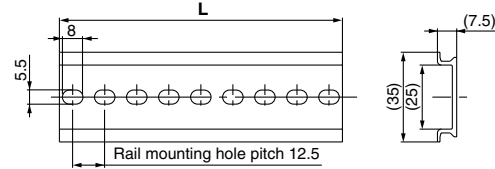
Connector manufacturers' example

- Correns Corp.
- OMRON Corp.
- Yamatake-Honeywell Corp.
- Hirose Electric Co., Ltd.
- DDK Ltd.

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

**VZ1000-11-1-** ☐

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

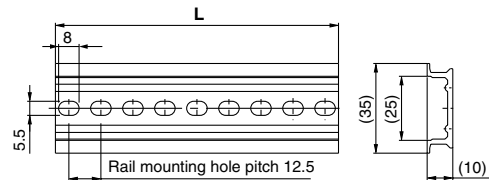


| No.         | 0     | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L dimension | 98    | 110.5 | 123   | 135.5 | 148   | 160.5 | 173   | 185.5 | 198   | 210.5 |
| Mass (g)    | 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 |
| Mass (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 |
| Mass (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 |
| Mass (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 |
| Mass (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 |
| Mass (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 |
| Mass (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 |       |       |       |       |       |       |       |       |
| Mass (g)    | 175.1 | 177.4 |       |       |       |       |       |       |       |       |

### ■ SV3000 and 4000 DIN rail dimensions and mass

**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   |
| Mass (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 |
| Mass (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   |
| Mass (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 |       |       |       |       |       |       |       |       |       |       |       |       |
| Mass (g)    | 224   | 227.2 | 230.4 | 233.5 | 236.7 | 239.8 | 243   | 246.2 | 249.3 |       |       |       |       |       |       |       |       |       |       |       |       |

## Manifold Option

### Interface regulator

#### How to order interface regulator

Series SV1000

SV1 0 00 - 05 - P

#### Applicable valve

|   |                    |
|---|--------------------|
| 0 | For single, double |
| 3 | For 3 position     |

#### Regulating port

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

#### Option

|    |                                                  |
|----|--------------------------------------------------|
| 05 | With pressure gauge<br>[For odd number station]  |
| 06 | With pressure gauge<br>[For even number station] |
| M1 | Without pressure gauge                           |

Series SV2000/SV3000/SV4000

SV 2 000 - 00 - P

#### 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) |



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.

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

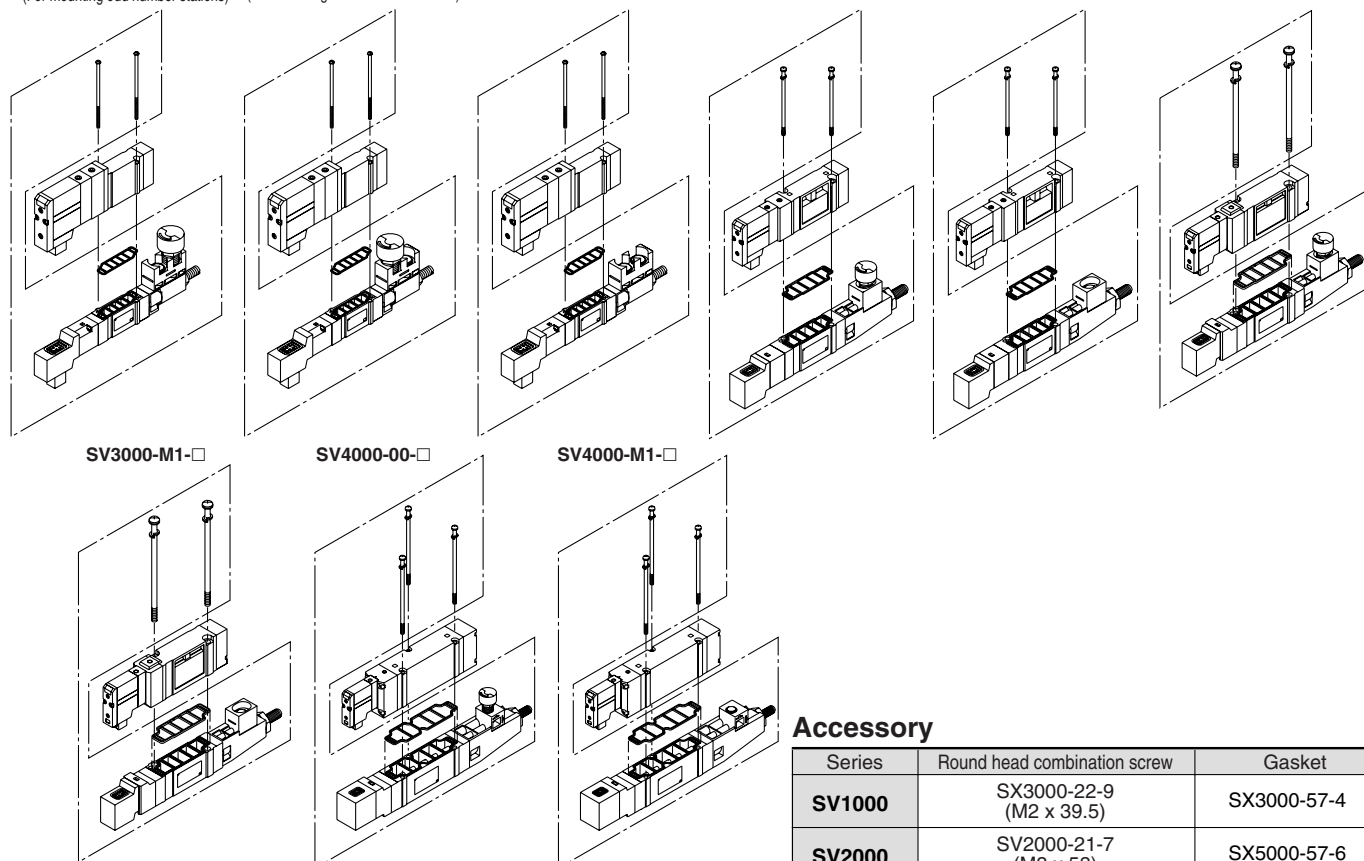
SV1000-06-□  
(For mounting even number stations)

SV1000-M1-□

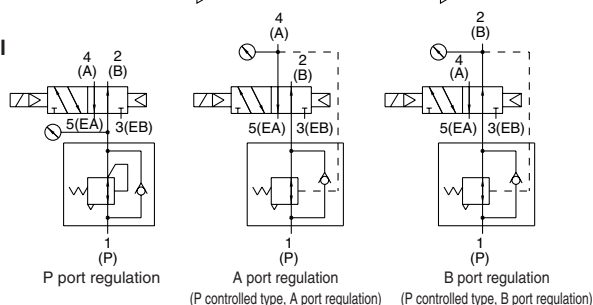
SV2000-00-□

SV2000-M1-□

SV3000-00-□



#### JIS Symbol



#### Accessory

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

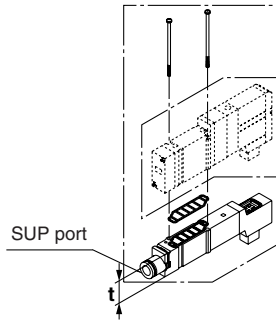
### Caution

#### Mounting Screw Tightening Torques

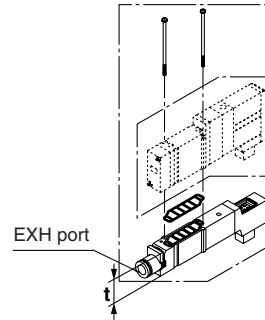
M2: 0.16 N·m  
M3: 0.8 N·m  
M4: 1.4 N·m

## Manifold Option

### ■ Individual SUP spacer assembly



### ■ Individual EXH spacer assembly



### How to order individual SUP/EXH spacer assembly

Series SV1000

**SV1000 - 38 - 1A - C6**

\* t: 15

#### ● Port size

|           |                              |
|-----------|------------------------------|
| <b>C3</b> | One-touch fitting for ø3.2   |
| <b>C4</b> | One-touch fitting for ø4     |
| <b>C6</b> | One-touch fitting for ø6     |
| <b>N1</b> | One-touch fitting for ø1/8"  |
| <b>N3</b> | One-touch fitting for ø5/32" |
| <b>N7</b> | One-touch fitting for ø1/4"  |

#### ● Spacer type

|           |                                                        |
|-----------|--------------------------------------------------------|
| <b>38</b> | Individual SUP spacer                                  |
| <b>39</b> | Individual EXH spacer                                  |
| <b>88</b> | Individual SUP + Individual EXH spacers (Double-stack) |

\* In the series SV3000, only type 10 is compatible with the double-stack spacers.  
The series SV4000 is not compatible with the double-stack spacers. Individual SUP and EXH spacers can be mounted either on the top or the bottom.

Series SV2000/SV3000/SV4000

**SV 2 000 - 38 - 1 A**

#### ● Series

| Symbol   | Series | t    |
|----------|--------|------|
| <b>2</b> | SV2000 | 15   |
| <b>3</b> | SV3000 | 18.5 |
| <b>4</b> | SV4000 | 20   |

#### ● Thread type Note)

|            |      |
|------------|------|
| <b>Nil</b> | Rc   |
| <b>F</b>   | G    |
| <b>N</b>   | NPT  |
| <b>T</b>   | NPTF |

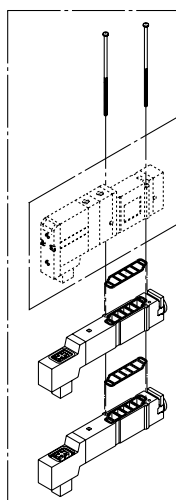


Note) SV2000/3000/4000 port size

| Series        | Port size |
|---------------|-----------|
| <b>SV2000</b> | 1/8       |
| <b>SV3000</b> | 1/4       |
| <b>SV4000</b> | 1/4       |

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

### ■ Individual SUP/EXH spacer assembly (Double-stack)



# Single Valve/Sub-plate Type IP67 Compliant Series *SV1000/2000/3000/4000*



## How to Order

SV 1 1 00 - 5 W1 U D - - -

### Series

|   |        |
|---|--------|
| 1 | SV1000 |
| 2 | SV2000 |
| 3 | SV3000 |
| 4 | SV4000 |

### Made to order

|     |                                                  |
|-----|--------------------------------------------------|
| Nil | —                                                |
| X90 | Main valve fluoro rubber<br>(Refer to page 448.) |

### Type of actuation

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

### 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<br>SV3000  |
| 03     | 3/8               | SV3000<br>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 4 position dual 3 port valve.

## Series SV Solenoid Valve Specifications



|                                                      |                              |                                              |
|------------------------------------------------------|------------------------------|----------------------------------------------|
| <b>Fluid</b>                                         |                              | Air                                          |
| <b>Internal pilot operating pressure range (MPa)</b> | 2 position single            | 0.15 to 0.7                                  |
|                                                      | 4 position dual 3 port valve | 0.1 to 0.7                                   |
|                                                      | 2 position double            | 0.2 to 0.7                                   |
|                                                      | 3 position                   | 0.2 to 0.7                                   |
| <b>External pilot operating pressure range (MPa)</b> | Operating pressure range     | −100 kPa to 0.7                              |
|                                                      | 2 position single, double    | 0.25 to 0.7                                  |
|                                                      | 3 position                   | 0.25 to 0.7                                  |
| <b>Ambient and fluid temperature (°C)</b>            |                              | −10 to 50 (No freezing. Refer to page 5.)    |
| <b>Max. operating frequency (Hz)</b>                 | 2 position single, double    | 5                                            |
|                                                      | 4 position dual 3 port valve | 3                                            |
|                                                      | 3 position                   | 3                                            |
| <b>Manual override</b>                               |                              | Non-locking push type                        |
|                                                      |                              | Push-turn locking slotted type               |
| <b>Pilot exhaust method</b>                          | Internal pilot               | Common exhaust type for main and pilot valve |
|                                                      | External pilot               | Pilot valve individual exhaust               |
| <b>Lubrication</b>                                   |                              | Not required                                 |
| <b>Mounting orientation</b>                          |                              | Unrestricted                                 |
| <b>Impact/Vibration resistance (ms<sup>2</sup>)</b>  |                              | 150/30 (8.3 to 2000 Hz)                      |
| <b>Enclosure</b>                                     |                              | IP67 (Based on IEC60529)                     |
| <b>Electrical entry</b>                              |                              | M12 waterproof connector                     |
| <b>Coil rated voltage</b>                            |                              | 24 VDC, 12 VDC                               |
| <b>Allowable voltage fluctuation</b>                 |                              | ±10% of rated voltage                        |
| <b>Power consumption (W)</b>                         |                              | 0.6 (With indicator light: 0.65)             |
| <b>Surge voltage suppressor</b>                      |                              | Zener diode                                  |
| <b>Indicator light</b>                               |                              | 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)

## M12 Waterproof Connector Wiring Specifications

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



Note) Solenoid valves have no polarity.

## Flow Characteristics/Mass

### Series SV1000

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

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

### Series SV2000

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

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

### Series SV3000

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

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

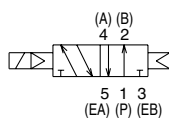
### Series SV4000

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

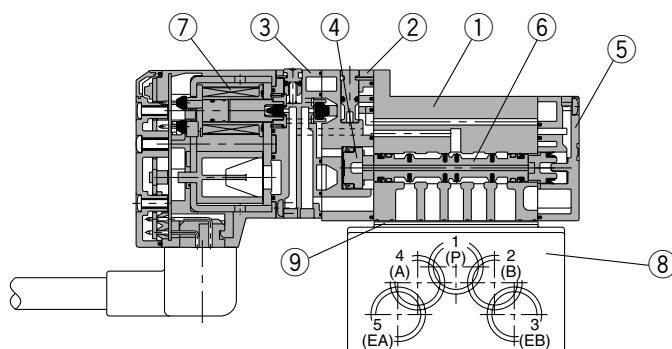
Note 1) [ ]: Denotes the normal position. Note 2) ( ): Denotes without sub-plate.

## Construction: SV1000/2000/3000/4000 Single Valve/Sub-plate Type

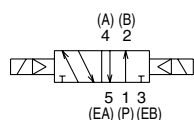
2 position single



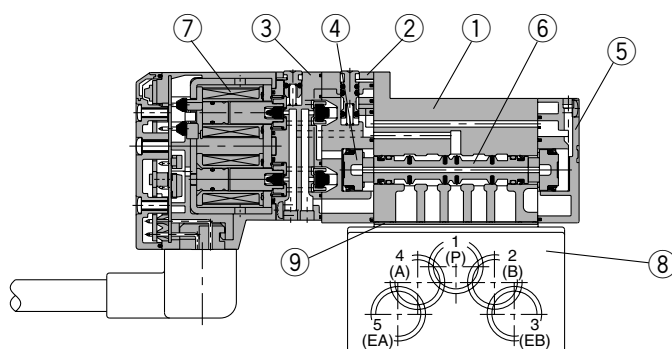
2 position single



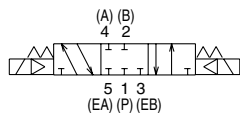
2 position double



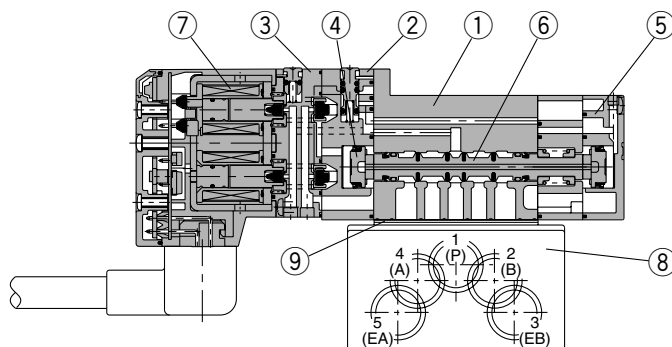
2 position double



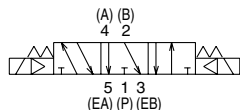
3 position closed center



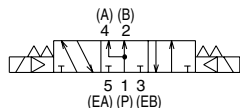
3 position closed center/exhaust center/pressure center



3 position exhaust center



3 position pressure center



### Component Parts

| No. | Description          | Material                                           | Note  |
|-----|----------------------|----------------------------------------------------|-------|
| ①   | Body                 | Aluminum die-casted<br>(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  |

### 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<br>3/8: SY7000-27-2□-Q | 3/8: SY9000-27-1□<br>1/2: SY9000-27-2□ | Aluminum die-casted<br>Refer to thread types on page 440 for □. |
| ⑨   | Gasket                       | SY3000-11-25             | SY5000-11-18             | SY7000-11-14                               | SY9000-11-2                            |                                                                 |
| —   | Round head combination screw | SX3000-22-2<br>(M2 x 24) | SV2000-21-1<br>(M3 x 30) | SV3000-21-1<br>(M4 x 35)                   | SV2000-21-2<br>(M3 x 40)               | For valve mounting<br>(Matt nickel plated)                      |

### ⚠ Caution

#### Mounting screw tightening torques

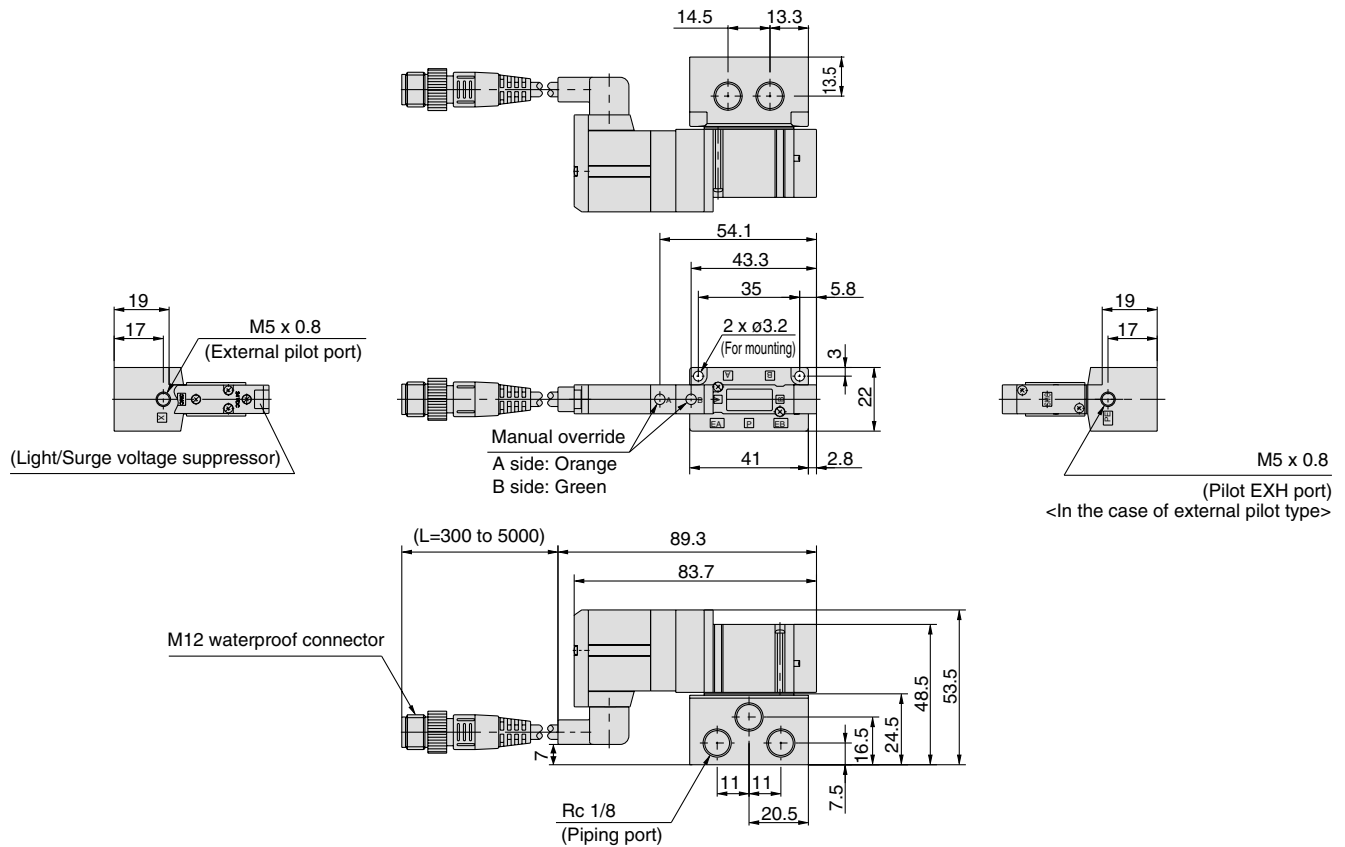
M2: 0.16 N·m  
M3: 0.8 N·m  
M4: 1.4 N·m

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

## Dimensions: Series SV1000

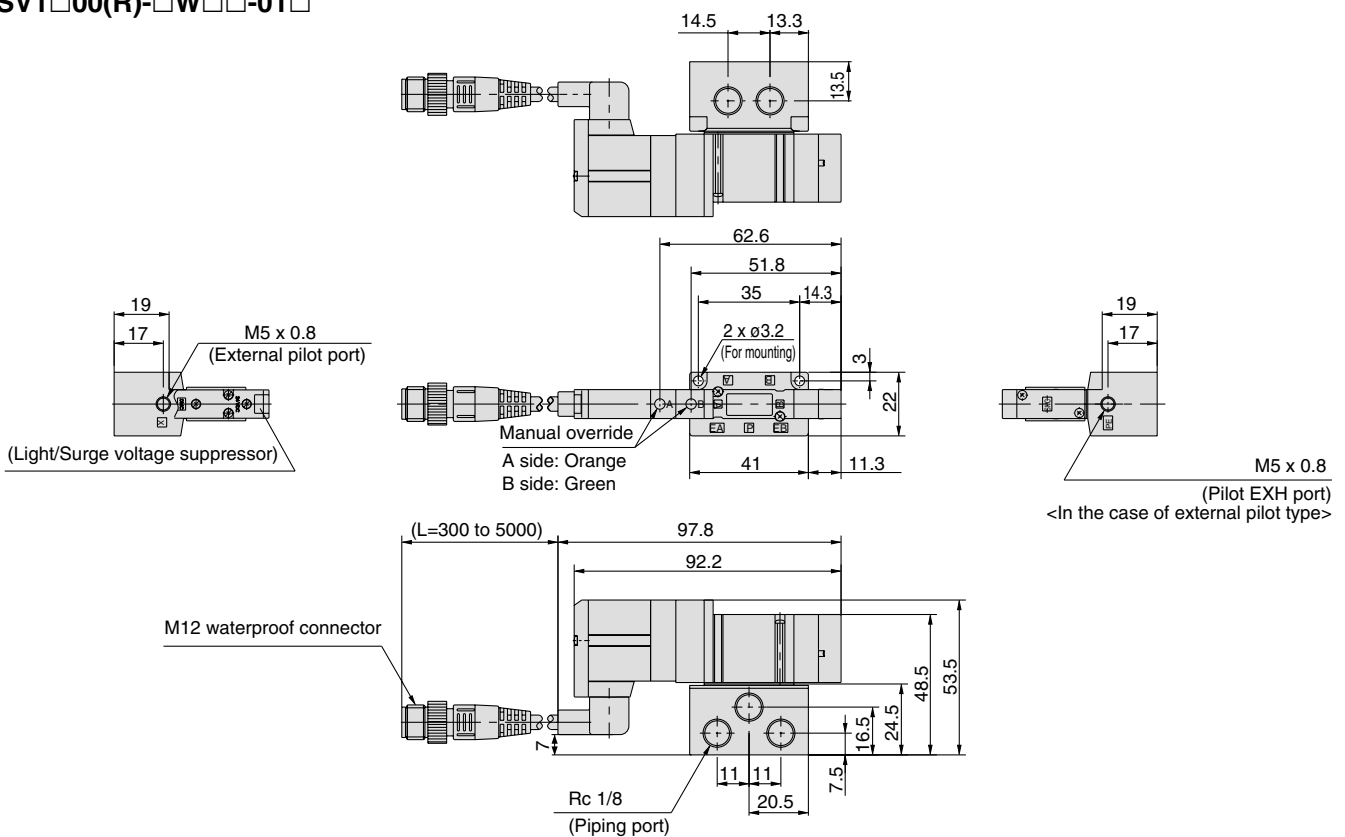
### 2 position single/double, 4 position dual 3 port [M12 waterproof connector type]

SV1□00(R)-□W□□-01□

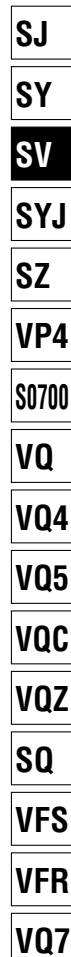


### 3 position closed center/exhaust center/pressure center [M12 waterproof connector type]

SV1□00(R)-□W□□-01□



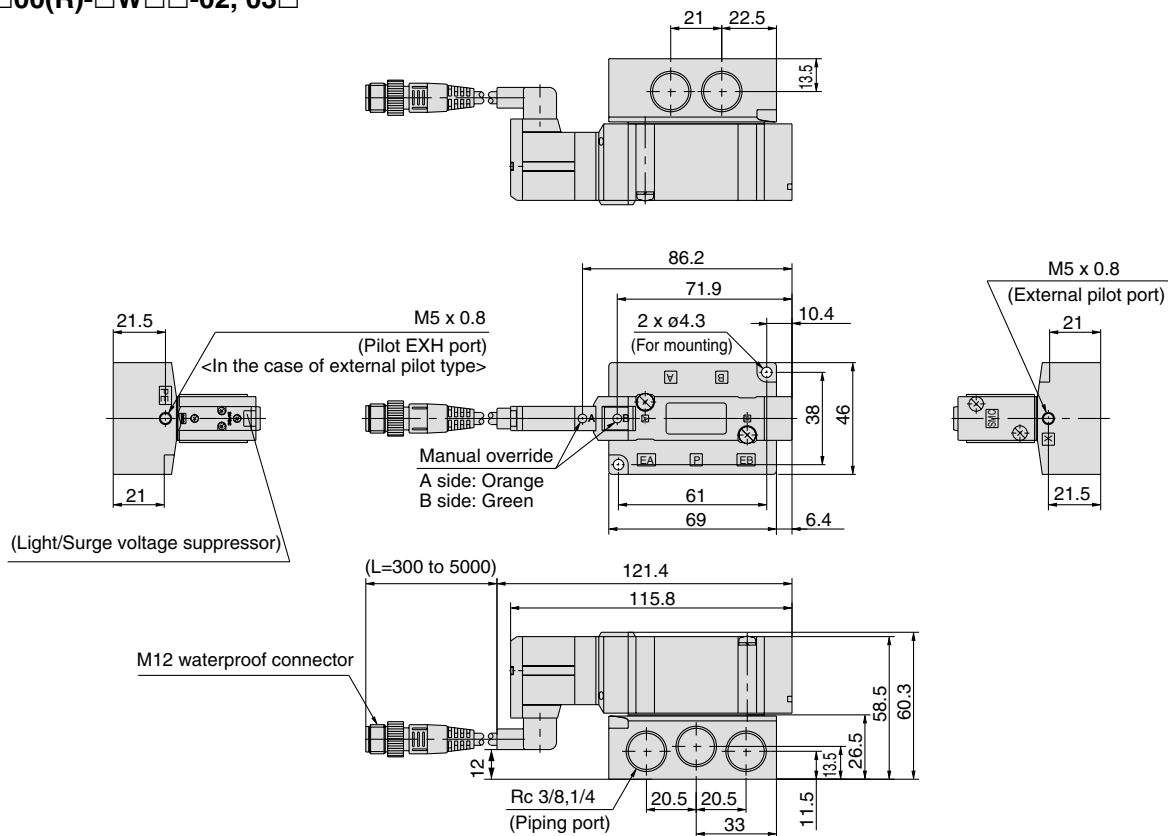
**2 position single/double, 4 position dual 3 port [M12 waterproof connector type]**  
**SV2□00(R)-□W□□-02□**



## Dimensions: Series SV3000

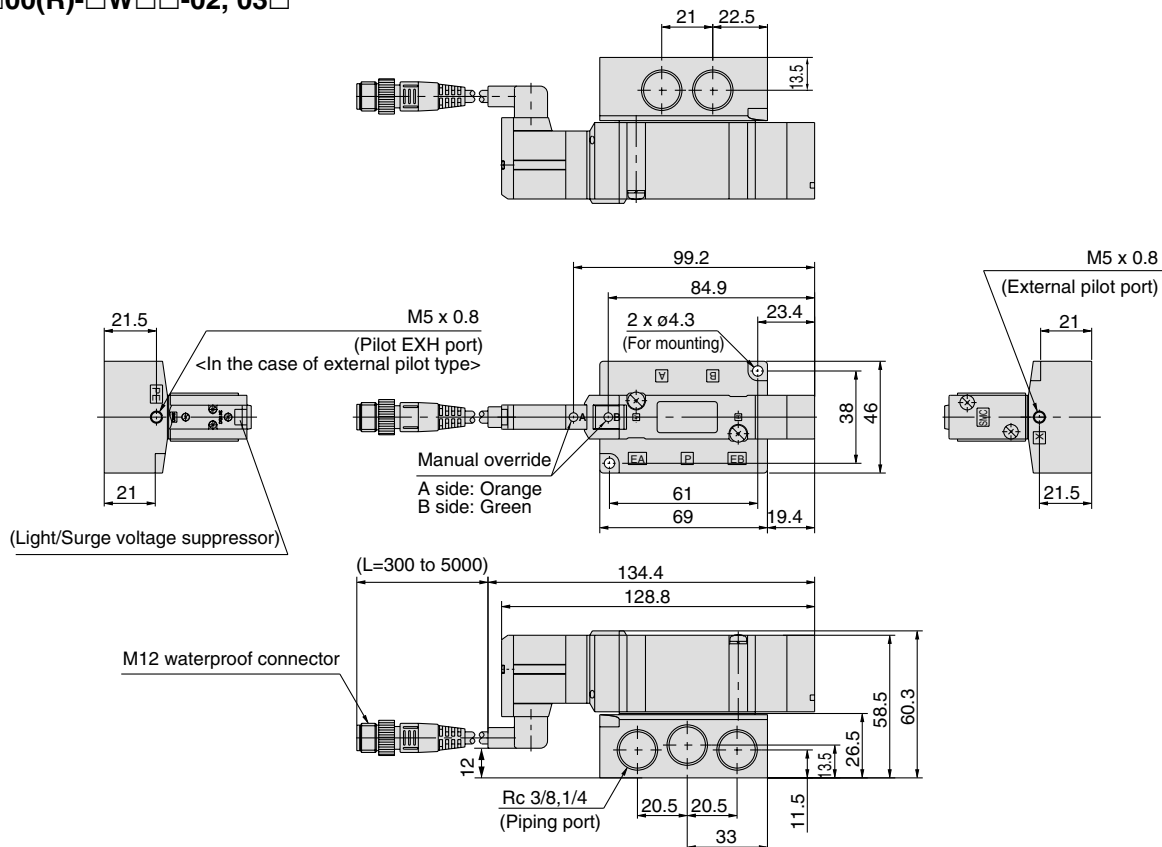
### 2 position single/double [M12 waterproof connector type]

SV3□00(R)-□W□□-02, 03□



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

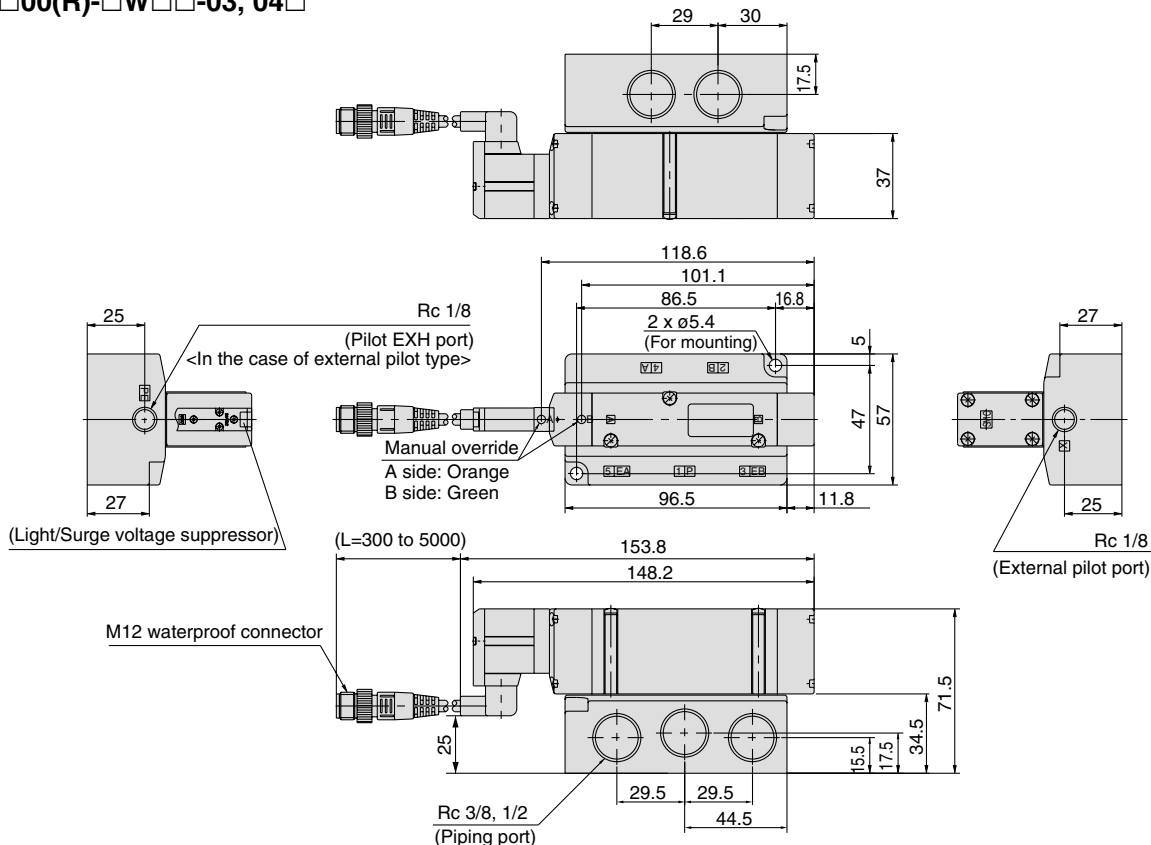
SV3□00(R)-□W□□-02, 03□



## Dimensions: Series SV4000

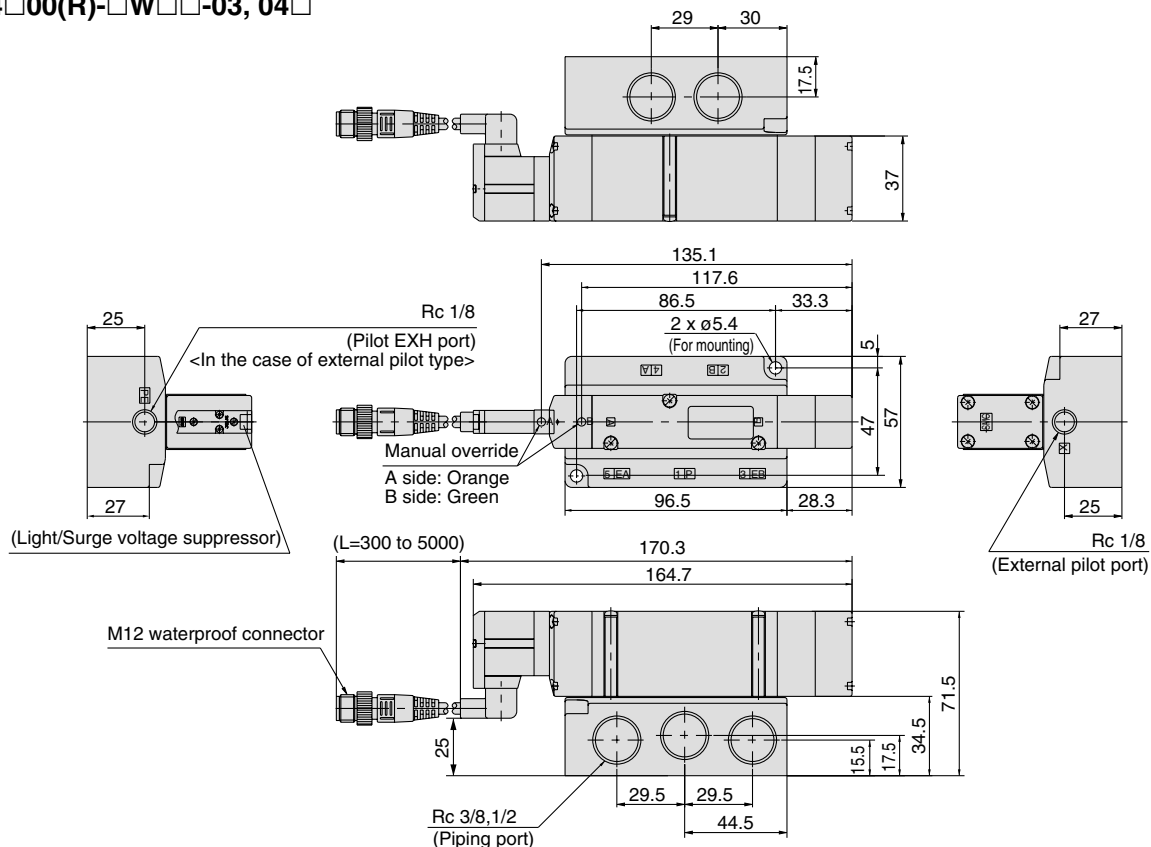
### 2 position single/double [M12 waterproof connector type]

SV4□00(R)-□W□□-03, 04□



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

SV4□00(R)-□W□□-03, 04□

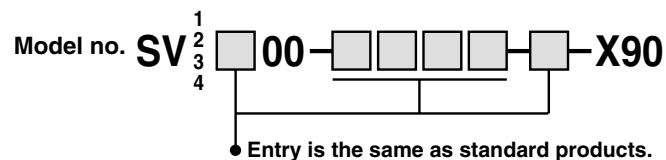




## 1 Main Valve Fluoro Rubber Specifications **-X90**

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.



# Series SV Specific Product Precautions 1

Be sure to read before handling.

Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

## Environment

### Warning

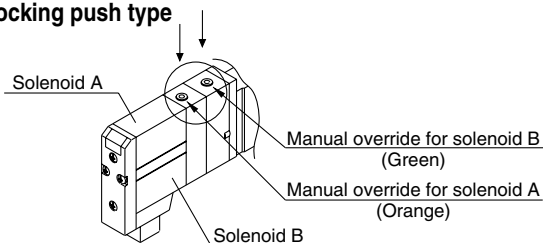
1. Do not use valves in atmospheres of corrosive gases, chemicals, salt water, water, steam, or where there is direct contact with any of these.
2. Products compliant with IP65 and IP67 enclosures (Based on IEC60529) are protected against dust and water, however, these products cannot be used in water.
3. Products compliant with IP65 and IP67 enclosures satisfy the specifications by mounting each product properly. Be sure to read the Specific Product Precautions for each product.
4. When using built-in silencer type manifold with an IP67 enclosure, keep the exhaust port of the silencer from coming in direct contact with water or other liquids. Liquid filtration through the exhaust port of the silencer can cause damage to the valve.

## Manual Override Operation

### Warning

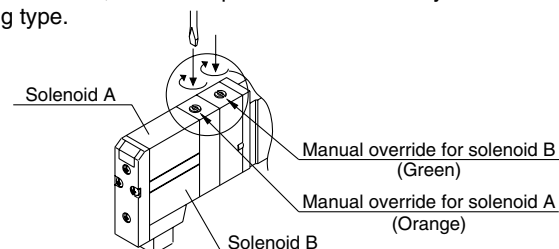
Handle carefully, as connected equipment can be actuated through manual override operation.

#### ■ Non-locking push type



#### ■ Push-turn locking slotted type

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



### Caution

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

## Exhaust Restriction

### Caution

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

## Series SV Used as a 3 Port Valve

### Caution

#### In the case of using a 5 port valve (as a 3 port valve)

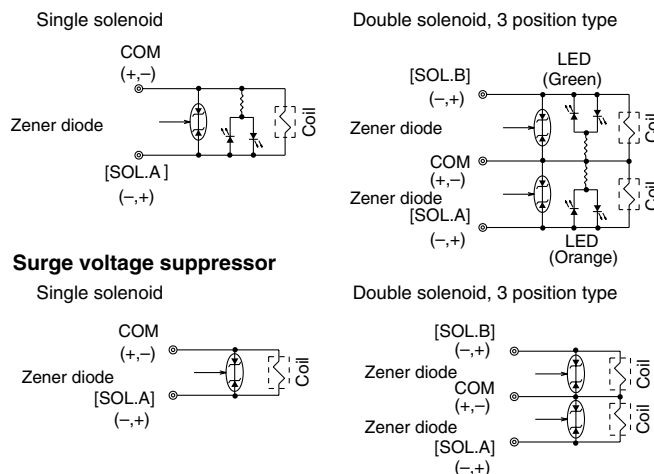
Series SV can be used as normally closed (N.C.) or normally open (N.O.) 3 port valves by closing one of the cylinder ports (A or B) with a plug. However, they should be used with the exhaust ports kept open. They are convenient at times when a double solenoid type 3 port valve is required.

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

## Light/Surge Voltage Suppressor

### Caution

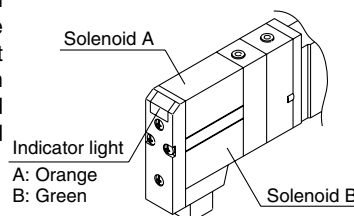
Solenoid valves have no polarity. Light/Surge voltage suppressor



## Light Indication

### Caution

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





# Series SV Specific Product Precautions 2

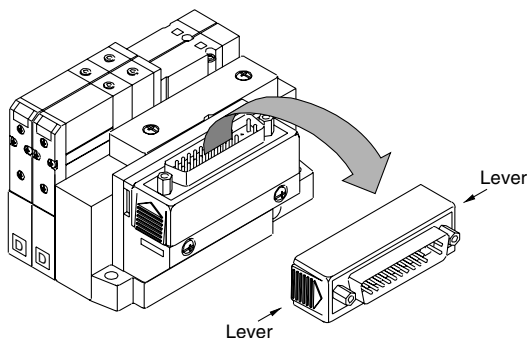
Be sure to read before handling.

Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

## Connector Entry Directions

### ⚠ Caution

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

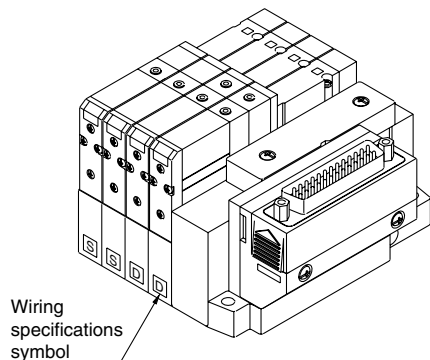


## How to Order Manifold

### ⚠ Caution

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

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



## Substrate Assemblies inside Manifolds

### ⚠ Caution

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

## One-touch Fittings

### ⚠ Caution

#### 1. Tube attachment/detachment for One-touch fittings

##### 1) Attaching of tube

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

##### 2) Detaching of tube

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

## Other Tubing Brands

### ⚠ Caution

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

- |                        |                                       |
|------------------------|---------------------------------------|
| 1) Nylon tubing        | within $\pm 0.1$ mm                   |
| 2) Soft nylon tubing   | within $\pm 0.1$ mm                   |
| 3) Polyurethane tubing | within $+0.15$ mm<br>within $-0.2$ mm |

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

## Back Pressure Check Valve Built-in Type

### ⚠ Caution

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



# Series SV

## Specific Product Precautions 3

Be sure to read before handling.

Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

### Interface Regulator

## ⚠ Caution

### Specifications

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

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

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

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

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

### How to Calculate the Flow Rate

For obtaining the flow rate, refer to front matters 44 to 47

SJ

SY

SV

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

VQ7



## Series SV

# Specific Product Precautions 4

Be sure to read before handling.

Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

### Serial Wiring EX500/EX250/EX120 Precautions

#### Warning

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

#### Caution

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

#### Caution

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

### Power Supply Safety Instructions

#### Caution

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

| No-load voltage (V peak) | Max. current rating |
|--------------------------|---------------------|
| 0 to 20 [V]              | 5.0                 |
| Over 20 [V] to 30 [V]    | 100                 |
| Peak voltage value       |                     |

- 2) A circuit (class 2 circuit) with maximum 30 Vrms (42.4 V peak) or less, and a power supply consisting of a class 2 power supply unit conforming to UL1310, or a class 2 transformer conforming to UL1585

### Safety Instructions for Cable

#### Caution

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