

Series SX3000/5000 Base Mounted Manifold Stacking Type DIN Rail Mounted Plug-in

How to Order Manifold

Type 45F (D-sub connector, 25 pins type)

SS5X **3** - 45 **F** **D** - 05 **U** - **C4**

Series

3	SX3000
5	SX5000

Common specifications

Symbol	Mounting position
Nil	Positive common
N	Negative common

Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring specifications ⁽¹⁾
:	:	
10	10 stations	Available up to 20 solenoids. Specify ⁽²⁾ the wiring specifications on the manifold specification sheet.
02	2 stations	
:	:	
20	20 stations	

• This also includes the number of blanking plate assembly.
 Note 1) Double wiring specifications: Single, double and 3 position solenoid valves can be used on all manifold stations.
 Note 2) Specified layout: Indicate wiring specifications on the manifold specification sheet. (Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.)

SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 10 stations
D	D side	2 to 10 stations
B	Both sides	2 to 20 stations
M	Special specifications	

* For special specifications, indicate separately by the manifold specification sheet.

A, B port size (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SX3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SX5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

(Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SX3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SX5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

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

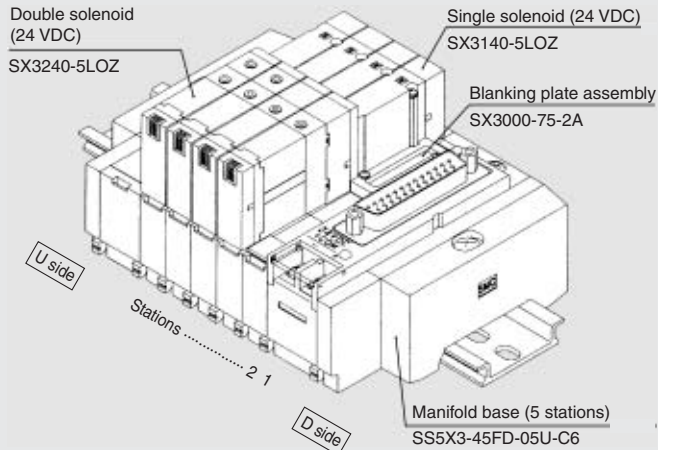
Voltage

Nil	24 VDC
12V	12 VDC

Option When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

How to Order Valve Manifold Assembly

Ordering example (Type 45F/D-sub connector (25 pins) type)



SS5X3-45FD-05U-C6 .. 1 set (Type 45F D-sub connector 5 stations manifold base no.)
 *SX3000-75-2A 1 set (Blanking plate assembly part no.)
 *SX3140-5LOZ 2 sets (Single solenoid part no.)
 *SX3240-5LOZ 2 sets (Double solenoid part no.)

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

- They will be assembled in the order listed starting at the first station at the D side even if the connector box is located at either end. When ordering with the double wiring specification, specify it in order, beginning with the 1 station on the D side.
- When special wiring is required, use the manifold specification sheet.

How to Order Valves (Type 45F, 45P□, 45T, 45T1)

SX **3** **2** 40 - **5** **LOZ**

Series

3	SX3000
5	SX5000

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

Rated voltage

5	24 VDC
6	12 VDC
V*	6 VDC
S*	5 VDC
R*	3 VDC

* Only Type 45T and 45T1 are available.

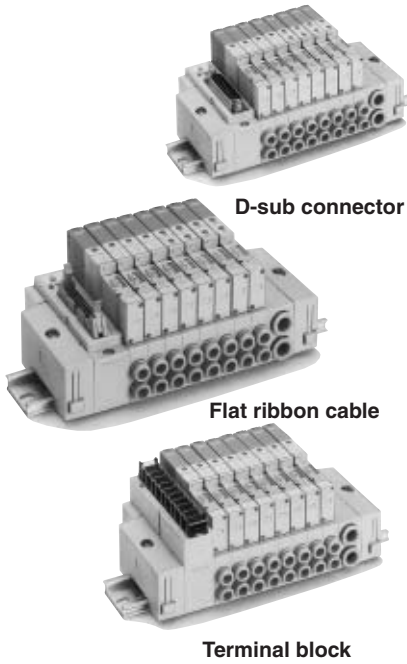
Common specifications

Nil	Positive common
N	Negative common

* Common specifications for the valve must correspond with common specifications for the manifold.

Manual override

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



Manifold Specifications

Model	D-sub connector Type 45F	Flat ribbon cable type 45P□			Terminal block		Flat ribbon cable PC wiring system compatible	
		Type 45P	Type 45PG	Type 45PH	Type 45T	Type 45T1		Type 45G
Manifold		Plug-in type						
P(SUP), R(EXH)		Common SUP/Common EXH						
Valve stations (Note)		2 to 20 stations	2 to 16 stations	2 to 8 stations	2 to 17 stations	2 to 16 stations		
A, B porting specifications		Location						Base
		Direction						Side
Port size		P, R port	SX3000					C8 (One-touch fitting for ø8)
		A, B port	SX5000					C10 (One-touch fitting for ø10)
Connector		D-sub connector: Conforms to MIL-C-24308	Flat ribbon cable connector socket: 26 pins MIL with strain relief; Conforming to MIL-C-83503	Flat ribbon cable connector socket: 20 pins MIL with strain relief; Conforming to MIL-C-83503	Flat ribbon cable connector socket: 10 pins MIL with strain relief; Conforming to MIL-C-83503	Terminal block (M3) 9 pins	Terminal block (M3) 18 pins	Flat ribbon cable connector socket: 20 pins MIL with strain relief; Conforming to MIL-C-83503
		Internal wiring		+COM (Type 45□), -COM (Type 45N□)		In common between +COM and -COM.		+ COM
Manifold base weight W (g) n: Stations (D-sub connector)		SX3000	2 to 10 stations: W = 26n + 172 11 to 20 stations: W = 26n + 199					
		SX5000	2 to 10 stations: W = 54n + 227 11 to 20 stations: W = 54n + 264					

Note) There is a limit to the number of stations available depending on the number of solenoids required. Please refer to the "How to Order". For more than 10 stations, supply pressure through the "P" ports at both ends of the manifold exhaust through both ends as well.

SV
SZ
SY
SYJ
SX

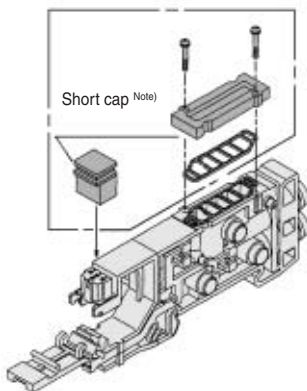
Flow Characteristics

Model	Port size		Flow characteristics					
			1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	C [dm ³ / (s-bar)]	b	Cv	C [dm ³ / (s-bar)]	b	Cv
SS5X3-45I	C8	C6	0.88	0.21	0.22	0.95	0.18	0.22
SS5X5-45I	C10	C8	2.2	0.24	0.53	2.5	0.18	0.58

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

Manifold Option

Blanking plate assembly



Series	Assembly part no.
SX3000	SX3000-75-2A
SX5000	SX5000-76-6A

Note) When mounting blanking plate, be sure to mount a short cap.

SUP block disk

By installing a SUP block disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold.



Series	Part no.
SX3000	SX3000-77-1A
SX5000	SX5000-77-1A

EXH block disk

By installing an EXH block disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two block disks are needed to divide both exhausts.)



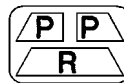
Series	Part no.
SX3000	SX3000-77-1A
SX5000	SX5000-77-1A

Label for block disk

The labels shown below are used on manifold stations containing SUP/EXH block disk(s) to show their location. (3 pcs. each)

VZ3000-123-1A (In common between SX3000 and 5000)

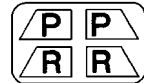
Label for SUP block disk



Label for EXH block disk



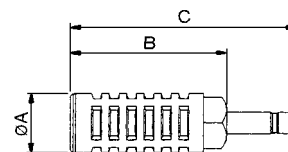
Label for SUP/EXH block disk



Note) 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

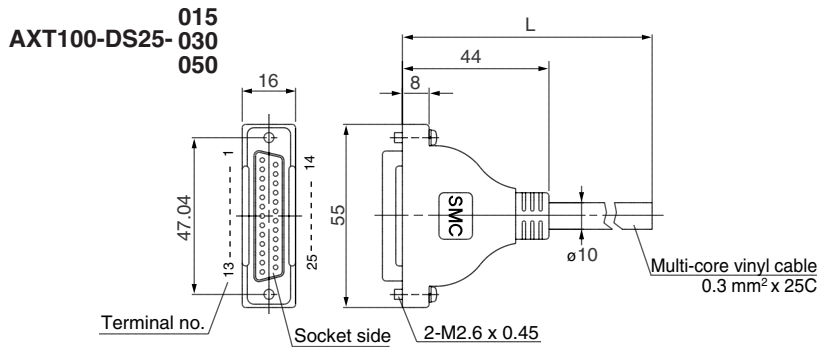
This silencer can be mounted on the manifold's port R (exhaust) with a single touch.



Series	Model	Effective area	A	B	C
SX3000 (ø8)	AN203-KM8	14 mm ²	16	26	51
	AN200-KM10	26 mm ²	22	53.8	80.8
SX5000 (ø10)	AN300-KM10	30 mm ²	25	70	97

Manifold Option

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



Connector manufacturers' example

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

D-sub Connector Cable Assembly

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-DS25-015	Cable 25 cores x 24AWG
3 m	AXT100-DS25-030	
5 m	AXT100-DS25-050	

* For other commercial connectors, use a 25 pins type with female connector conforming to MIL-C-24308.

Electric Characteristics

Item	Characteristics
Conductor resistance $\Omega/\text{km}, 20^\circ\text{C}$	65 or less
Voltage limit VAC, 1 min.	1000
Insulation resistance $M\Omega/\text{km}, 20^\circ\text{C}$	5 or less

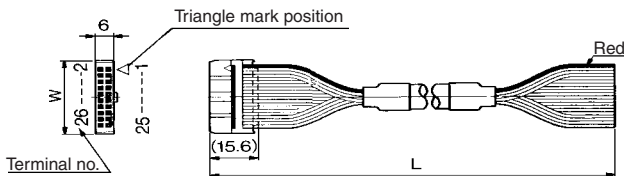
* The minimum bending radius of D-sub connector cable assembly is 20 mm.

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

■ Flat ribbon cable connector/Cable assembly

AXT100-FC□- $\frac{1}{3}$



Flat Ribbon Cable Assembly

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 that conform 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.

⚠ Caution

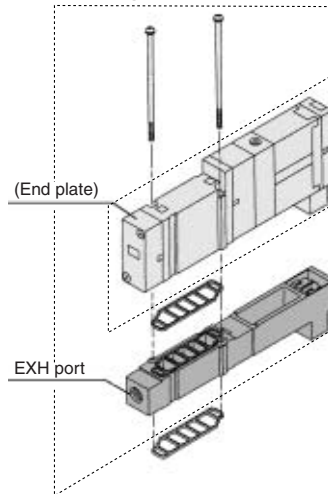
Mounting screw tightening torques

M2: 0.17 N·m
M3: 0.8 N·m
M4: 1.4 N·m

⚠ Warning

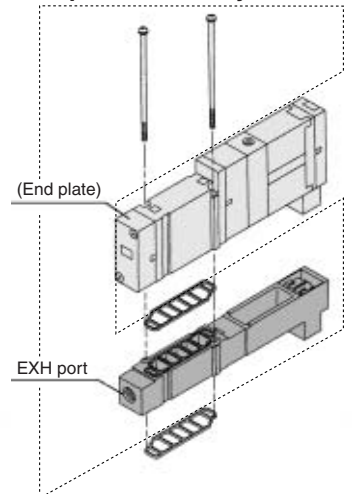
When mounting a valve or spacer on the manifold base or sub-plate, etc., those mounting directions are determined. If mounted in the wrong direction, the equipment to be connected may cause malfunction. Refer to external dimensions in pages 1-6-92 to 1-6-109, and then mount it.

■ Individual SUP spacer assembly



Series	Assembly part no.	Port size
SX3000	SX3000-38-3A	M5 x 0.8
SX5000	SX5000-38-17A	1/8

■ Individual EXH spacer assembly



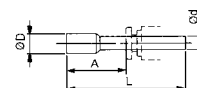
Series	Assembly part no.	Port size
SX3000	SX3000-39-3A	M5 x 0.8
SX5000	SX5000-39-17A	1/8

■ Plug

Inserted into an unused cylinder port and SUP/EXH ports. Purchasing order is available in units of 10 pieces.

* Thread type

Nil	Rc
F	G
N	NPT
T	NPTF



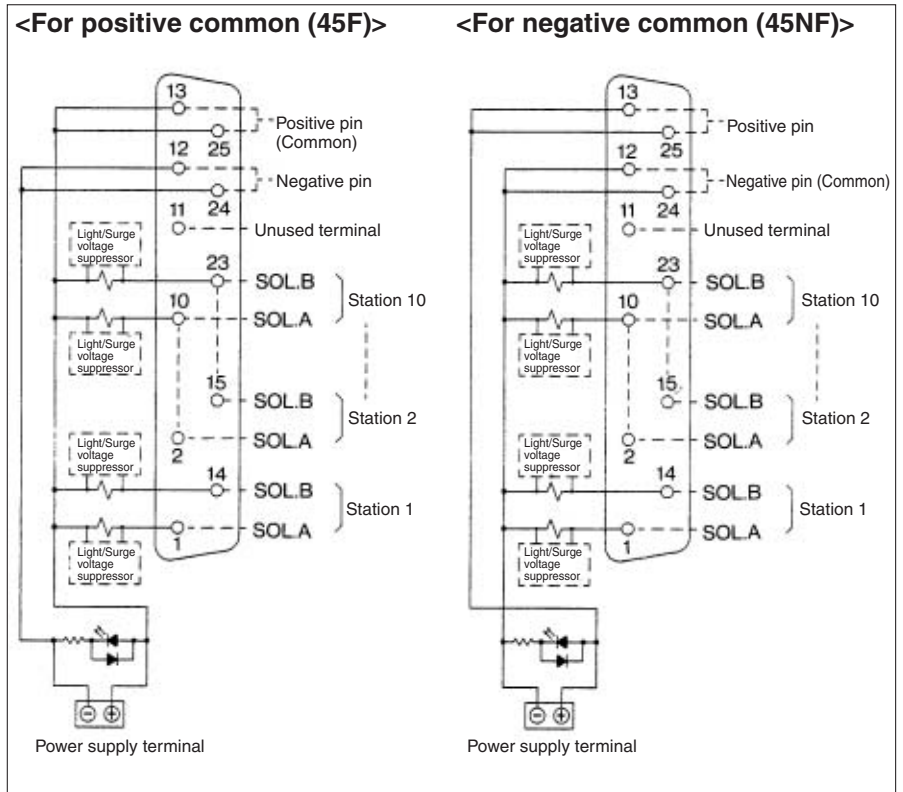
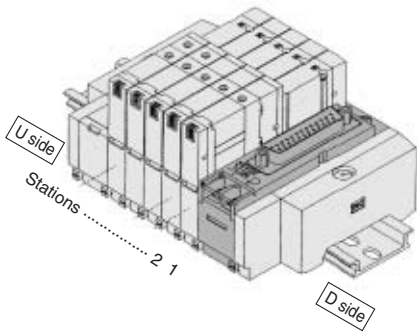
Dimensions

Applicable fittings size ϕd	Model	A	L	D
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10
10	KQ2P-10	22	43	12
5/32"	KQ2P-03	16	32	6
1/4"	KQ2P-07	18	35	8.5
5/16"	KQ2P-09	20.5	39	10
3/8"	KQ2P-11	22	43	11.5

Internal Wiring of Manifold

Type 45(N)F: D-sub Connector

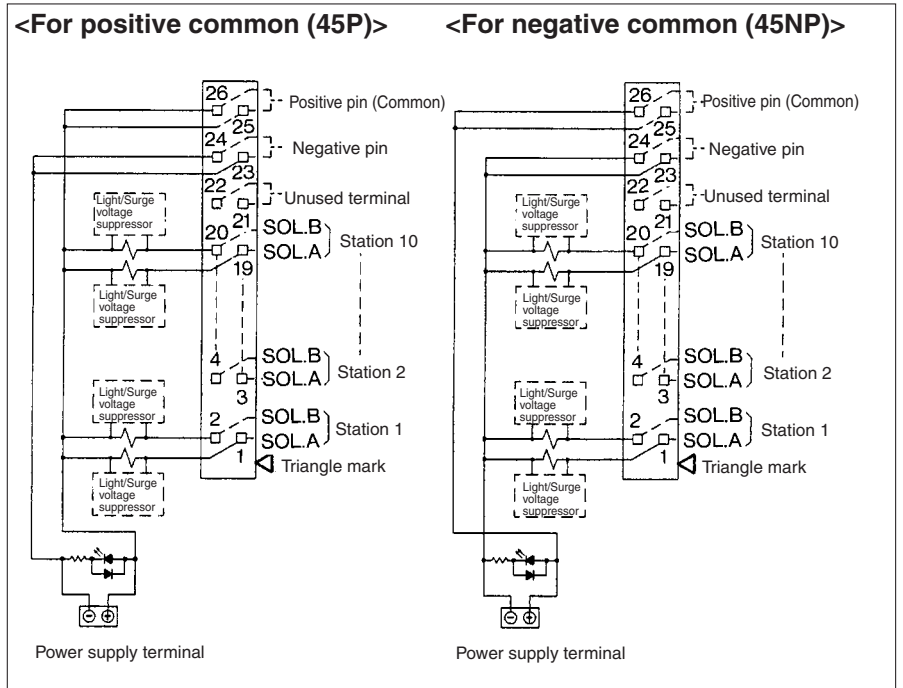
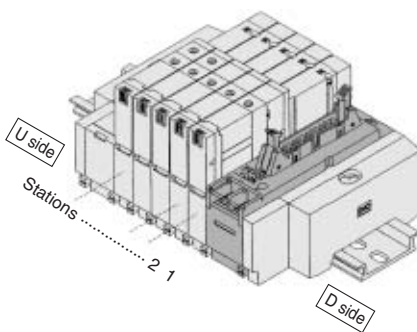
A D-sub connector used for electric wiring reduces labor during wiring operation. Connectors conforming to MIL are used for interchangeability.



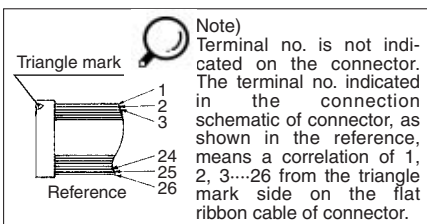
- The power source terminal is used for connecting to an external power source.
- The above diagram is the double wiring specifications for up to 10 stations. When the wiring specifications are specified on the manifold specification sheet, the valve assignment for the connector number will differ from the above diagram. For more information, please contact SMC.
- When using a single solenoid valve, connect wire to SOL.A.
- The maximum number of stations is 20 in terms of manifold bases, as well as solenoids. (Please consult with SMC for more stations.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

Type 45(N)P: Flat Ribbon Cable (26 pins)

A flat cable connector used for electric wiring reduces labor during wiring operation. Connectors conforming to MIL are used for interchangeability.



- The power source terminal is used for connecting to an external power source.
- The above diagram is the double wiring specifications for up to 10 stations. When the wiring specifications are specified on the manifold specification sheet, the valve assignment for the connector number will differ from the above diagram. For more information, please contact SMC.
- When using a single solenoid valve, connect wire to SOL.A.
- The maximum number of stations is 20 in terms of manifold bases, as well as solenoids. (Please consult with SMC for more stations.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

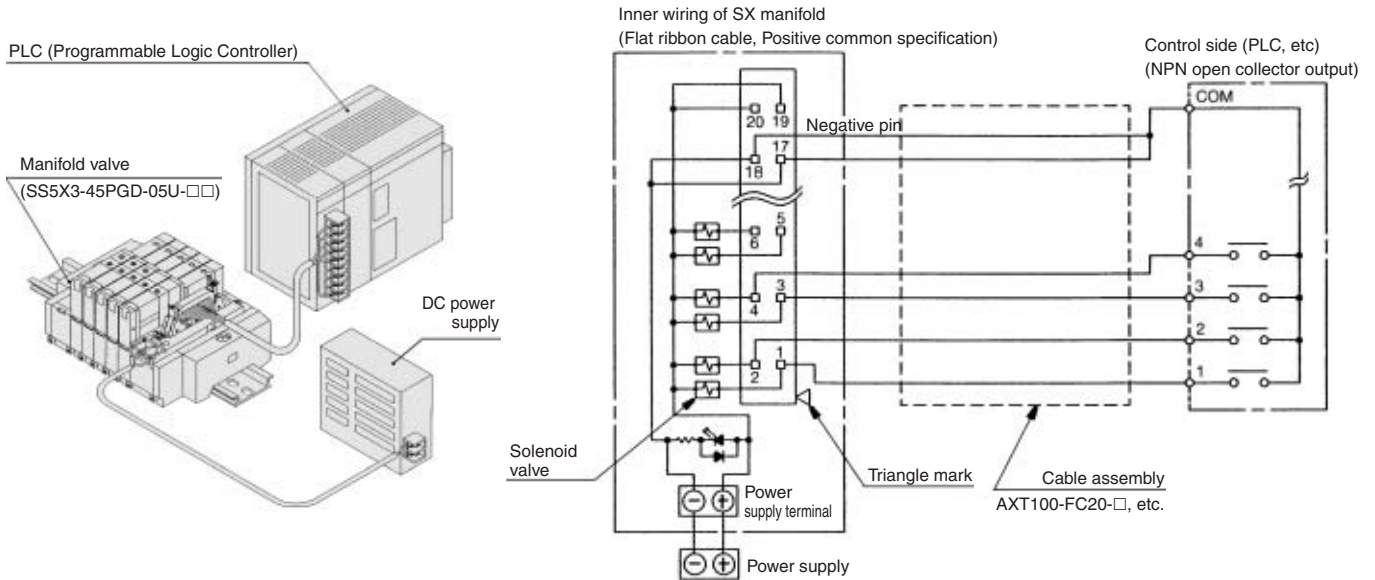


SV
 SZ
 SY
 SYJ
 SX

SS5X□-45□ Wiring of Plug-in Type

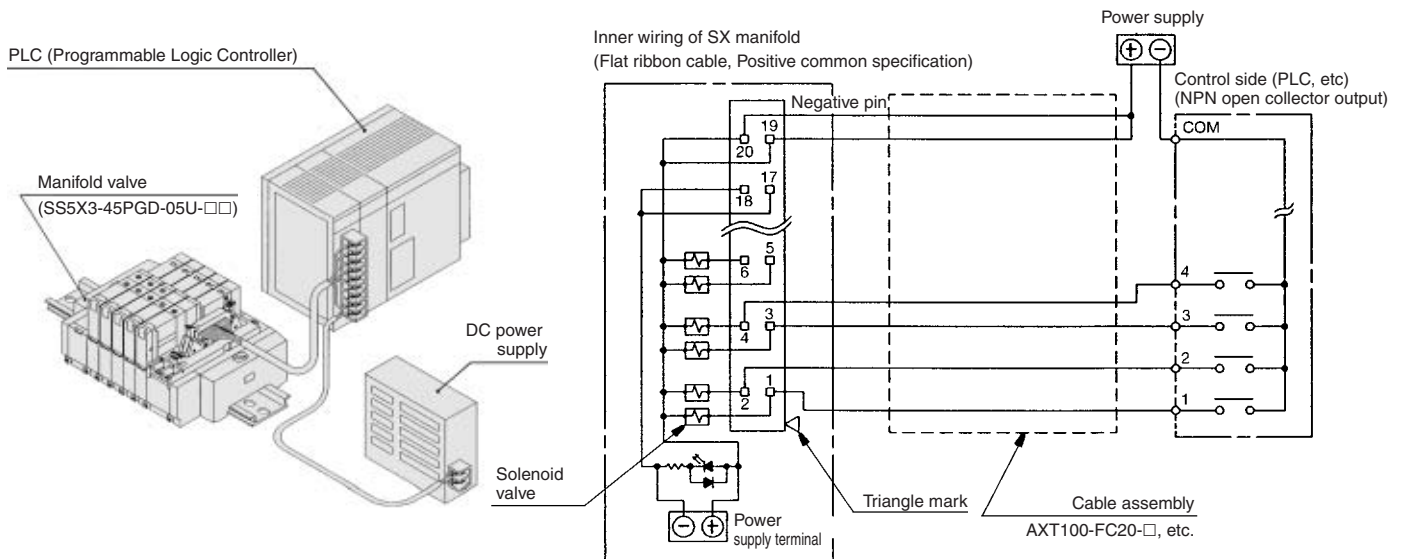
Power terminal is equipped with plug-in manifold of Series SX as standard.
 Power terminal enables the power supply to valve from either of manifold or controller side.

1. Wiring example when using manifold power supply terminals



SV
 SZ
 SY
 SYJ
 SX

2. Wiring example when the power terminal of the manifold is not used (Power supplied at controller or in wiring)



⚠ Caution

- Single wire, COM position, etc. of PLC are different from each manufacturer. When connecting with PLC, read the specifications carefully and understand the electrical circuit. Poor wiring could cause damage to PLC, power source, etc. as well as manifold and valve.

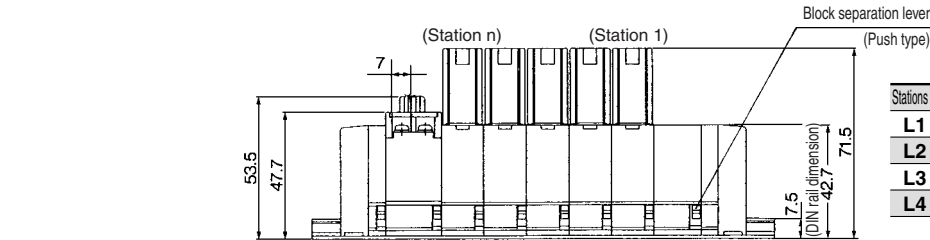
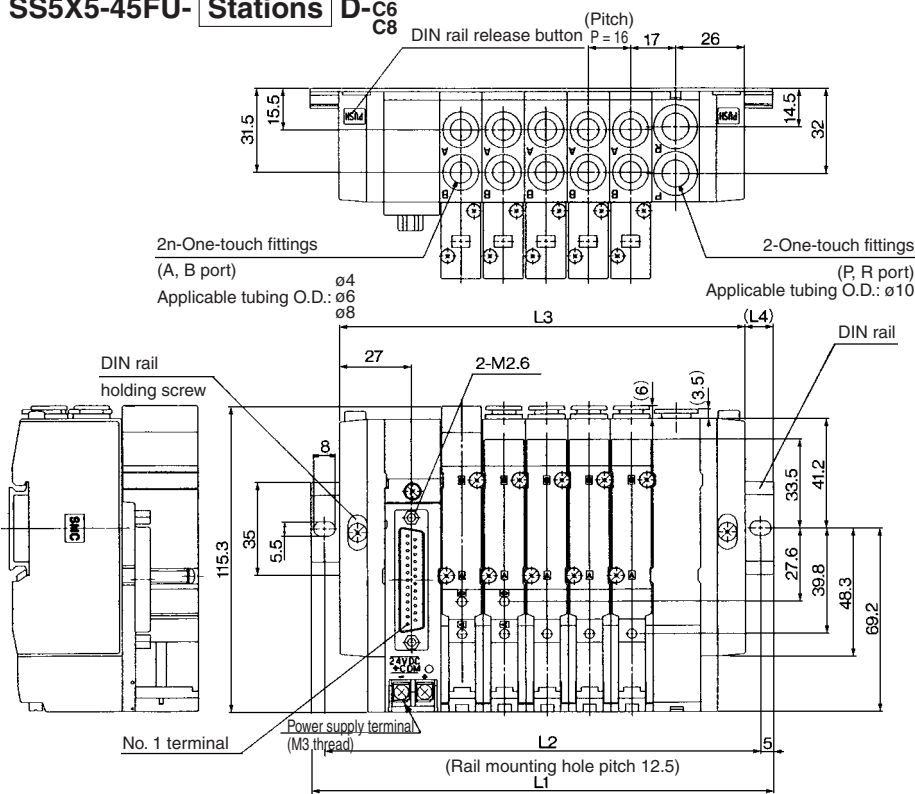
SX5000: D-sub Connector/Plug-in

SS5X5-45FU- Stations D

C4
C6
C8
(Pitch)
P = 16 17 26



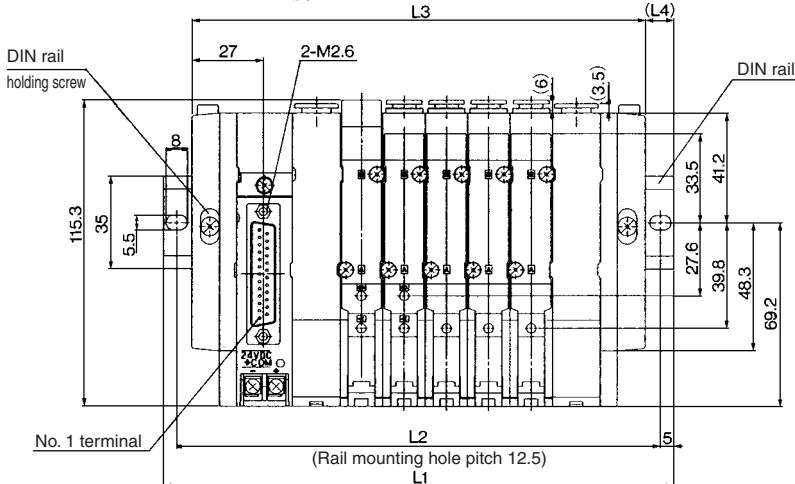
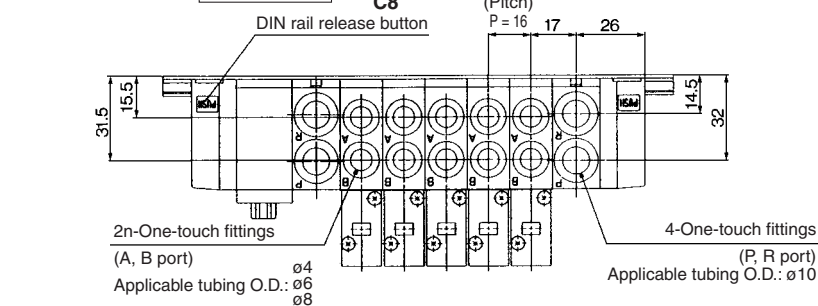
Note) The L1 to L4 dimensions of SS5X5-45FU- Stations U-□ are identical to those of SS5X5-45FU- Stations D-□.



Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	185.5	198	210.5	235.5	248	260.5
L2	125	137.5	150	175	187.5	200	225	237.5	250
L3	105	121	137	153	169	185	201	217	233
L4	15	13.5	11.5	16	14.5	12.5	17	15.5	13.5

SS5X5-45FU- Stations B

C4
C6
C8
(Pitch)
P = 16 17 26



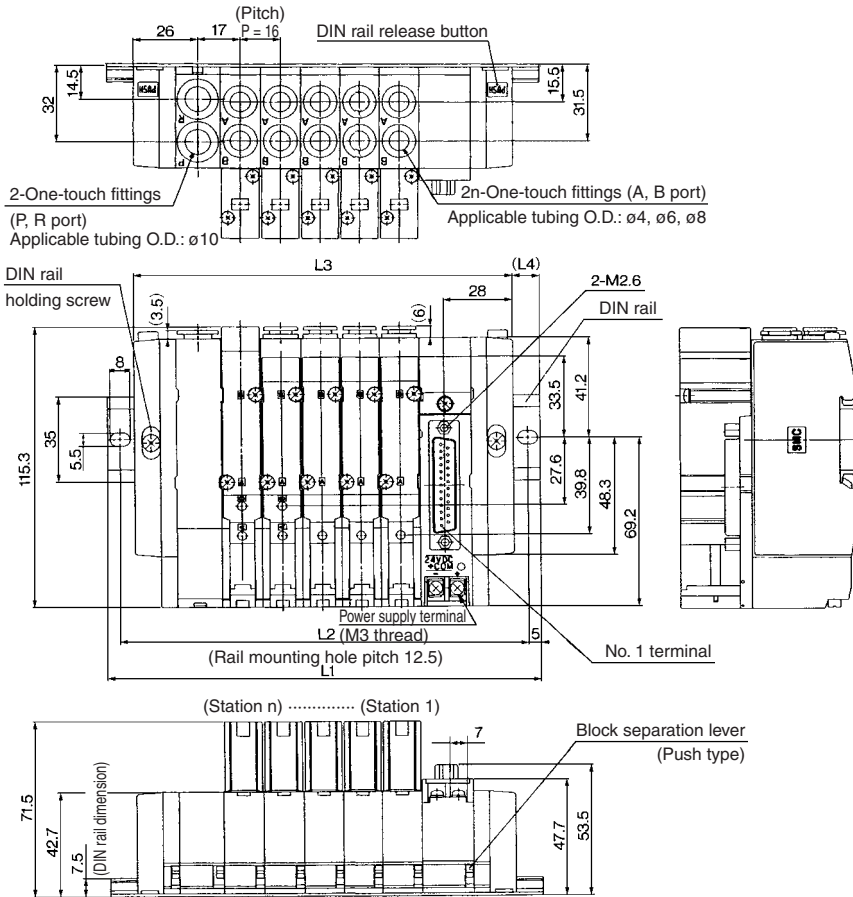
Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	173	185.5	198	210.5	235.5	248	260.5	285.5
L2	137.5	162.5	175	187.5	200	225	237.5	250	275
L3	123	139	155	171	187	203	219	235	251
L4	12.5	17	15	13.5	11.5	16	14.5	12.5	17

Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	298	310.5	323	348	360.5	373	398	410.5	423	435.5
L2	287.5	300	312.5	337.5	350	362.5	387.5	400	412.5	425
L3	267	288	299	315	331	347	363	379	395	411
L4	15.5	13.5	12	16.5	14.5	13	17.5	15.5	14	12

SS5X5-45FD- Stations U C4
C6
C8



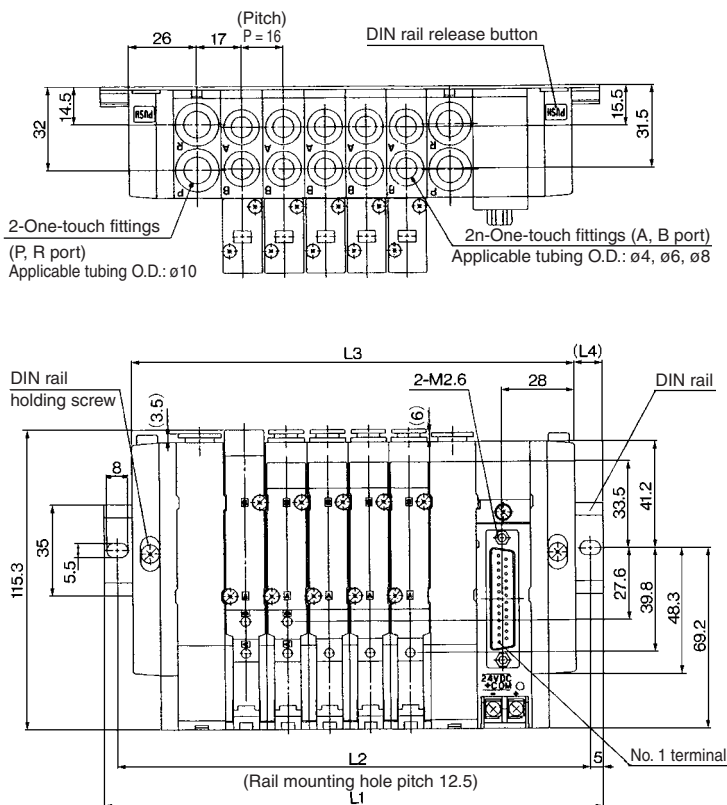
Note) The L1 to L4 dimensions of SS5X5-45FD-
Stations D-□ are identical to those of SS5X5-
45FD-StationsU-□.



- SV
- SZ
- SY
- SYJ
- SX

Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	185.5	198	210.5	235.5	248	260.5
L2	125	137.5	150	175	187.5	200	225	237.5	250
L3	105	121	137	153	169	185	201	217	233
L4	15	13.5	11.5	16	14.5	12.5	17	15.5	13.5

SS5X5-45FD- Stations B C4
C6
C8

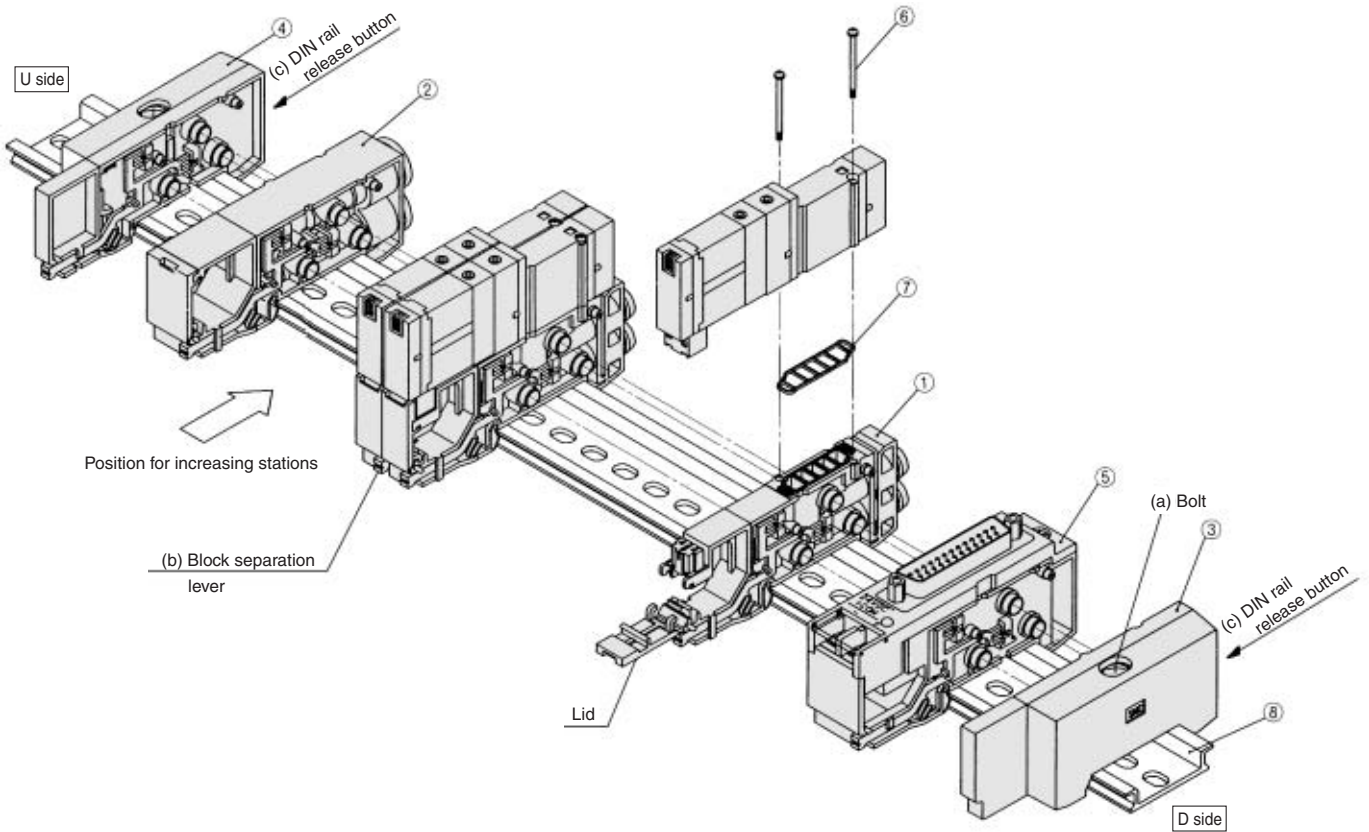


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	173	185.5	198	210.5	235.5	248	260.5	285.5
L2	137.5	162.5	175	187.5	200	225	237.5	250	275
L3	123	139	155	171	187	203	219	235	251
L4	12.5	17	15	13.5	11.5	16	14.5	12.5	17

Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	298	310.5	323	348	360.5	373	398	410.5	423	435.5
L2	287.5	300	312.5	337.5	350	362.5	387.5	400	412.5	425
L3	267	288	299	315	331	347	363	379	395	411
L4	15.5	13.5	12	16.5	14.5	13	17.5	15.5	14	12

Exploded View: DIN Rail Manifold

Type 45F (D-sub connector type) Manifold



Replacement Parts

No.	Description	Part no.		Note	
		SX3000	SX5000		
①	Manifold block assembly	Manifold block assembly number differs according to an attached lead wire assembly based on the connector specification (Single, Double). Select an appropriate part number from among the manifold block assembly numbers shown below.			
②	SUP/EXH block assembly	(Metric size) SX3000-51-2A (Inch size) SX3000-51-16A	(Metric size) SX5000-51-2A (Inch size) SX5000-51-16A	R, P port SX3000 (Metric size): With One-touch fittings for ø8 (Inch size): With One-touch fittings for ø5/16" R, P port SX5000 (Metric size): With One-touch fittings for ø10 (Inch size): With One-touch fittings for ø3/16"	
③	End block assembly	SX3000-52-2A	SX5000-52-2A	For D side	
④	End block assembly	SX3000-53-2A	SX5000-53-2A	For U side	
⑤-1	Connector block assembly (For D-sub connector)	SX3000-64-1A _{1NA}	SX5000-64-1A _{1NA}	-1A: +COM -1NA: -COM	Note) 24 VDC
⑤-2	Connector block assembly (For 26 pins flat cable)	SX3000-64-2A _{2NA} -26	SX5000-64-2A _{2NA} -26	-2A: +COM. -2NA: -COM.	
⑤-3	Connector block assembly (For 20 pins flat cable)	SX3000-64-2A _{2NA} -20	SX5000-64-2A _{2NA} -20		
⑤-4	Connector block assembly (For 10 pins flat cable)	SX3000-64-2A _{2NA} -10	SX5000-64-2A _{2NA} -10		
⑤-5	Connector block assembly (For 2 to 8 stations (T, T1) terminal block)	SX3000-64-3A	SX5000-64-3A	In common between +COM and -COM.	
⑤-6	Connector block assembly (For 9 to 17 stations (T1) terminal block)	SX3000-64-8A	SX5000-64-8A		
⑥	Round head combination screw	SX3000-22-2 (M2 x 24)	M3 x 30 (Matt nickel plated)		
⑦	Gasket	SX3000-57-4	SX5000-57-6		
⑧	DIN rail	VZ1000-11-1-□		Refer to page 1-6-77.	



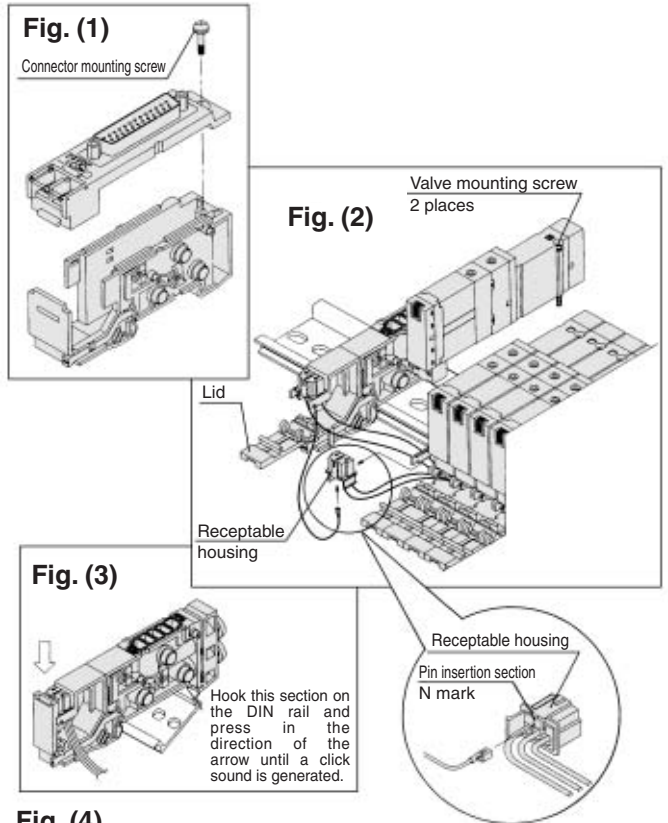
Note) The numbers ⑤-1 to 4 are for 24 VDC. For 12 VDC, suffix -12V to the parts no.
(Example) SX3000-64-1A-12V

Manifold Block Assembly Part No.

Style of manifold	Wiring specifications	Manifold block assembly part no.	Note
For 45(N)F (D-sub connector)	Double	SX $\frac{3}{5}$ 000-50-2A-□□	□□: • SX3000 (Metric size) (Inch size) C4: With One-touch fitting for ø4 N3: With One-touch fitting for ø5/32" C6: With One-touch fitting for ø6 N7: With One-touch fitting for ø1/4" X5000 (Metric size) (Inch size) C4: With One-touch fitting for ø4 N3: With One-touch fitting for ø5/32" C6: With One-touch fitting for ø6 N7: With One-touch fitting for ø1/4" C8: With One-touch fitting for ø8 N9: With One-touch fitting for ø5/16" (Gasket ⑦ supplied as an accessory.)
	Single	SX $\frac{3}{5}$ 000-50-3A-□□	
For 45(N) _{PH} (Flat ribbon cable)	Double	SX $\frac{3}{5}$ 000-50-4A-□□	
	Single	SX $\frac{3}{5}$ 000-50-5A-□□	
For 45 _{T1} (Terminal block)	Double	SX $\frac{3}{5}$ 000-50-6A-□□	
	Single	SX $\frac{3}{5}$ 000-50-7A-□□	

How to Increase Manifold Bases

- (1) Loosen bolt (a) fixing the manifold base until it begins to turn idly. (While pressing DIN rail release button (c), separate the manifold base from the DIN rail.)
- (2) Additional bases are to be added to the U side. Press splitting button (b) of the manifold block assembly on the U side until button (b) locks, and then separate the block assemblies.
- (3) Separate the connector block assembly in the same manner as 2, and remove the connector mounting screw shown in Fig. (1).
- (4) Loosen the valve mounting screw on the U side, remove the valve, and take out the receptacle housing. (Refer to Fig. (2).)
- (5) Insert the common wire (red) of the manifold block assembly to be added into the pin insertion section (N mark) of the receptacle housing that was taken out in 4, mount it on the manifold block, and mount the removed valve.
- (6) As shown in Fig. (3), mount the additional manifold block assembly on the DIN rail on the U side. Refer to the circuit diagram, and insert the lead wire (SOL.A: Black, SOL.B: White) as shown in Fig. (4).
- (7) Press the blocks against each other until a click sound is produced, place the lead wire in the manifold block, and close the lid without pinching the lead wire.
- (8) While lightly holding the blocks together so that there are no gaps between them, secure them to the DIN rail by tightening the screws A. (Tightening torque: 1.4 N·m)

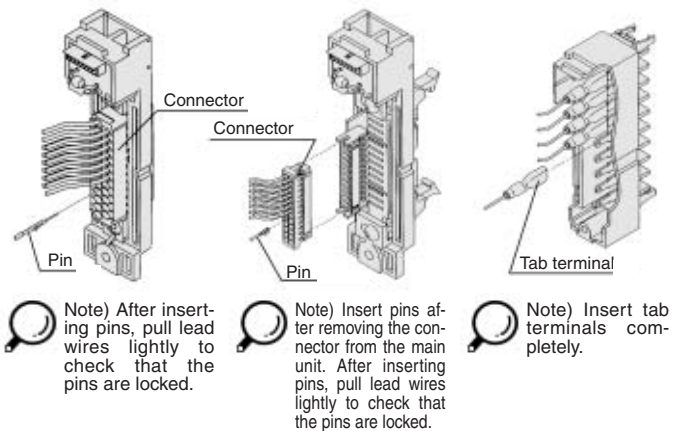


SV
SZ
SY
SYJ
SX

⚠ Caution

1. Depending on the connector, there is a limit to the number of solenoids. When all manifold stations are wired for double solenoid valves, expansion of the manifold may not be possible. Please consult with SMC for more information.
2. The manifold block assembly mounting position for additional manifold bases is always on the U side, because wires are connected to respective connectors sequentially from the D side.
3. When bolt (a) for the end block is not sufficiently tightened during reassembly, air leakage may result. Before supplying air, check that there is no gap between blocks and that the manifold block is firmly fixed to the DIN rail in order to ensure air supply without leakage.

Fig. (4)
D-sub connector (45F) Flat ribbon cable (45P□) Terminal block (45T)



How to Change Fitting Assembly

Type 45 manifold permits change in the A and B port sizes by changing the manifold block fitting assembly. After removing the valve, remove the clip with a screwdriver. To mount a new fitting assembly insert it and then insert a clip so it does not come out of the manifold block.

Fitting Assembly Part No.

Metric size

SX3000	One-touch fitting for $\phi 4$	VVQ1000-50A-C4
	One-touch fitting for $\phi 6$	VVQ1000-50A-C6
SX5000	One-touch fitting for $\phi 4$	VVQ1000-51A-C4
	One-touch fitting for $\phi 6$	VVQ1000-51A-C6
	One-touch fitting for $\phi 8$	VVQ1000-51A-C8

Inch size

SX3000	One-touch fitting for $\phi 5/32$ "	VVQ1000-50A-N3
	One-touch fitting for $\phi 1/4$ "	VVQ1000-50A-N7
SX5000	One-touch fitting for $\phi 5/32$ "	VVQ1000-51A-N3
	One-touch fitting for $\phi 1/4$ "	VVQ1000-51A-N7
	One-touch fitting for $\phi 5/16$ "	VVQ1000-51A-N9

- Note 1) P and R ports cannot be changed.
Note 2) Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.

