

Series SY3000/5000 Base Mounted Monifold Stacking Type/DIN Rail Mounted Plug-in

How to Order Manifold

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

SS5Y 3 - 45 F D - 05 U - C4

Series

3	SY3000
5	SY5000

Common specifications

Nil	Positive common
N	Negative common

Connector mounting position

Symbol	Mounting position
U	U side
D	D side

Valve stations

Symbol	Stations	Note
02	2 stations	Single wiring spec. (Applicable up to 20 solenoid valves.)
:	:	
20	20 stations	



- * This also includes the number of blanking plate assemblies.
- * Two stations are necessary for the double, 3 position (Dual body type).

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 on the manifold specification sheet.

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for $\phi 4$	SY3000
C6	One-touch fitting for $\phi 6$	
M	Mixed	
C4	One-touch fitting for $\phi 4$	SY5000
C6	One-touch fitting for $\phi 6$	
C8	One-touch fitting for $\phi 8$	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for $\phi 5/32$ "	SY3000
N7	One-touch fitting for $\phi 1/4$ "	
M	Mixed	
N3	One-touch fitting for $\phi 5/32$ "	SY5000
N7	One-touch fitting for $\phi 1/4$ "	
N9	One-touch fitting for $\phi 5/16$ "	
M	Mixed	

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

Voltage

Nil	24 VDC
12V	12 VDC

Option

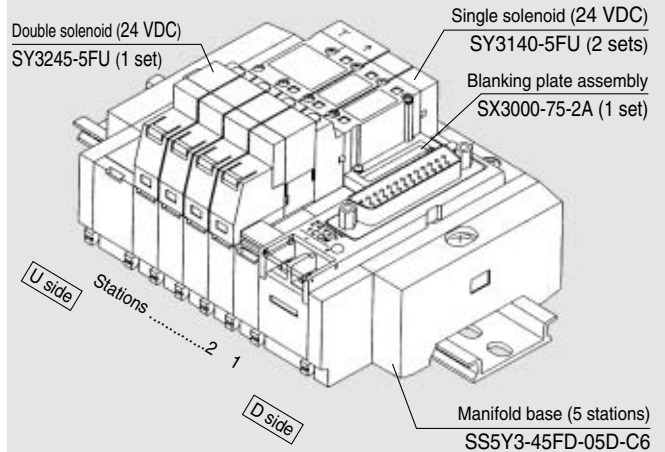
When a longer DIN rail is desired than the specified stations, specify the station number to be required.
(20 stations at maximum)



For external pilot and built-in silencer, refer to page 1-4-197.

How to Order Valve Manifold Assembly

Example (Type 45F/D-sub connector (25 pins))



SS5Y3-45FD-05U-C6 1 set
(Type 45F, D-sub connector 5 port manifold base part no.)
* SX3000-75-2A 1 set (Blanking plate assembly part no.)
* SY3140-5FU 2 sets (Single solenoid part no.)
* SY3245-5FU 1 set (Double solenoid part no.)

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

- The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of connector box.
- When ordering double solenoid valves/3 position (Dual body type), please keep in mind that they require two manifold stations.

How to Order Valves

(Type 45F, 45P□, 45T, 45T1)

2 position single SY 3 1 4 0 - 5 FU

Double, 3 position SY 3 2 4 5 - 5 FU

Series

3	SY3000
5	SY5000

Type of actuation

2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Dual body type (Double, 3 position)

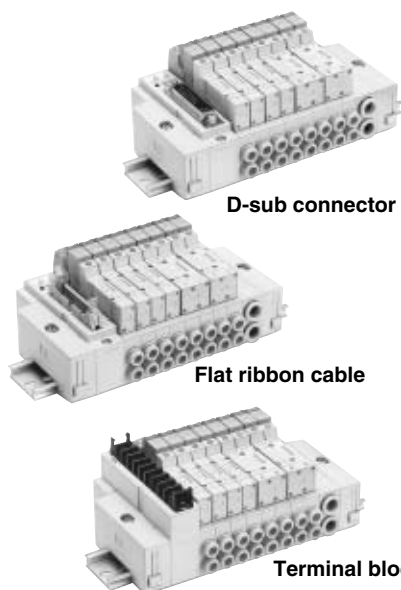
Rated voltage

5	24 VDC
6	12 VDC

Manual override

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

Manifold Specifications



D-sub connector

Flat ribbon cable

Terminal block

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							
P (SUP)/R (EXH)	Common SUP, Common EXH							
Valve stations ^{Note 1, 2)}	2 to 20 stations	2 to 16 stations	2 to 8 stations		2 to 17 stations	2 to 16 stations		
A, B port Porting specifications	Location	Base						
	Direction	Side						
Port size	P, R port	C8 (One-touch fitting for ø8)						
		C10 (One-touch fitting for ø10)						
	A, B port	C4 (One-touch fitting for ø4)/C6 (One-touch fitting for ø6)						
		C8 (One-touch fitting for ø8)						
Applicable connector	D-sub connector	Complies with MIL-C-24308 JIS-X-5101	Flat ribbon cable connector Socket: 26 pins MIL type with strain relief Conforming to MIL-C-83503	Flat ribbon cable connector Socket: 20 pins MIL type with strain relief Conforming to MIL-C-83503	Flat ribbon cable connector Socket: 10 pins MIL type 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 type 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)	SY3000	2 to 10 stations: W = 26n + 172 11 to 20 stations: W = 26n + 199					
	n: Stations (D-sub connector)	SY5000	2 to 10 stations: W = 54n + 227 11 to 20 stations: W = 52n + 264					

Note 1) For more than 11 stations, supply pressure to P port on both sides and exhaust from R port on both sides.
Note 2) There is a limit depending on the number of solenoids. Refer to "How to Order".

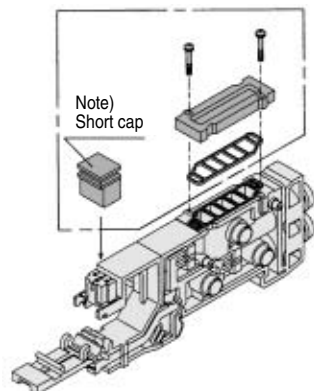
Flow Characteristics

Model	Port size		Flow characteristics					
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
			C (dm ³ /s-bar)	b	Cv	C (dm ³ /s-bar)	b	Cv
SS5Y3-45□	C8	C6	0.88	0.21	0.22	0.95	0.18	0.22
SS5Y5-45□	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



Note)
Short cap

Series	Assembly part no.
SY3000	SX3000-75-2A
SY5000	SX5000-76-6A

Note) • When mounting blanking plate, be sure to mount a short cap.
• Two stations are necessary for the double, 3 position (Dual body type).

■ 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.
SY3000	SX3000-77-1A
SY5000	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.)

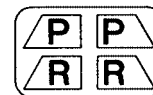
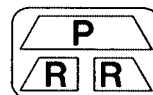
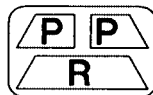


Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

■ 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 with SY3000/5000)

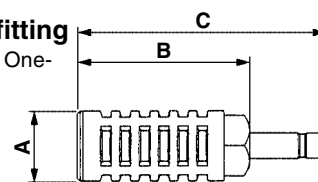
Label for SUP block disk Label for EXH block disk Label for SUP/EXH block disk



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

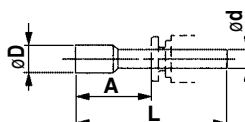
The silencer plugs directly into the One-touch fittings of the manifold.



Series	Model	Effective area	A	B	C
For SY3000 (ø8)	AN203-KM8	14 mm ²	ø16	26	51
	AN200-KM10	26 mm ²	ø22	53.8	80.8
For SY5000 (ø10)	AN300-KM10	30 mm ²	ø25	70	97

■ Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Purchasing order is available in units of 10 pieces.



Dimensions

Applicable fittings size ød	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
1/8"	KQ2P-01	16	31.5	5
5/32"	KQ2P-03	16	32	6
1/4"	KQ2P-07	18	35	8.5
5/16"	KQ2P-09	20.5	39	10

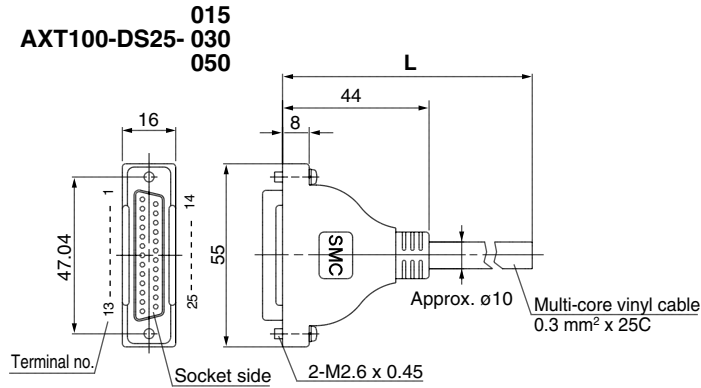
Caution

Mounting screw tightening torques

M2: 0.17 N·m
M3: 0.8 N·m
M4: 1.4 N·m

Manifold Option

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



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

D-sub Connector Cable

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

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

Electric Characteristics

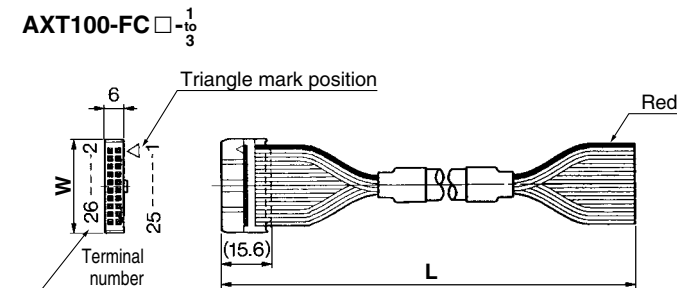
Item	Characteristics
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 min, AC	1000
Insulation resistance MΩkm, 20°C	5 or more

Note) The min. bending radius of D-sub cable assembly is 20 mm.

Connector manufacturers' example

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

■ Flat Ribbon Cable Connector/Cable assembly



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

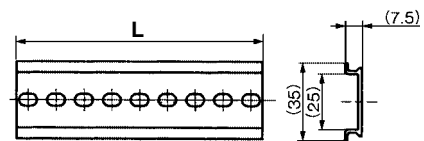
- Hirose Electric Co., Ltd.
- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.

■ Dimensions/DIN rail

VZ1000-11-1-□

Refer to L dimensions

* Fill in □ with an appropriate no. listed on the table of DIN rail dimensions shown below.



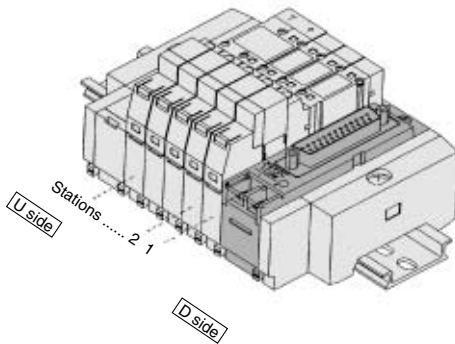
No.	0	1	2	3	4	5	6	7	8	9	10
L Dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223
No.	11	12	13	14	15	16	17	18	19	20	21
L Dimension	235.5	248	260.5	273	285.5	298	310.5	323	335.5	348	360.5
No.	22	23	24	25	26	27	28	29	30	31	32
L Dimension	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498
No.	33	34	35	36	37	38	39	40	41	42	43
L Dimension	510.5	523	535.5	548	560.5	573	585.5	598	610.5	623	635.5
No.	44	45	46	47	48	49	50	51	52	53	54
L Dimension	648	660.5	673	685.5	698	710.5	723	735.5	748	760.5	773
No.	55	56	57	58	59	60	61	62	63	64	65
L Dimension	785.5	798	810.5	823	835.5	848	860.5	873	885.5	898	910.5
No.	66	67	68	69	70	71					
L Dimension	923	935.5	948	960.5	973	985.5					

* Refer to L1 dimension on pages starting with page 1-4-150 for lengths that correspond to the number of manifold stations.

Manifold Internal Wiring

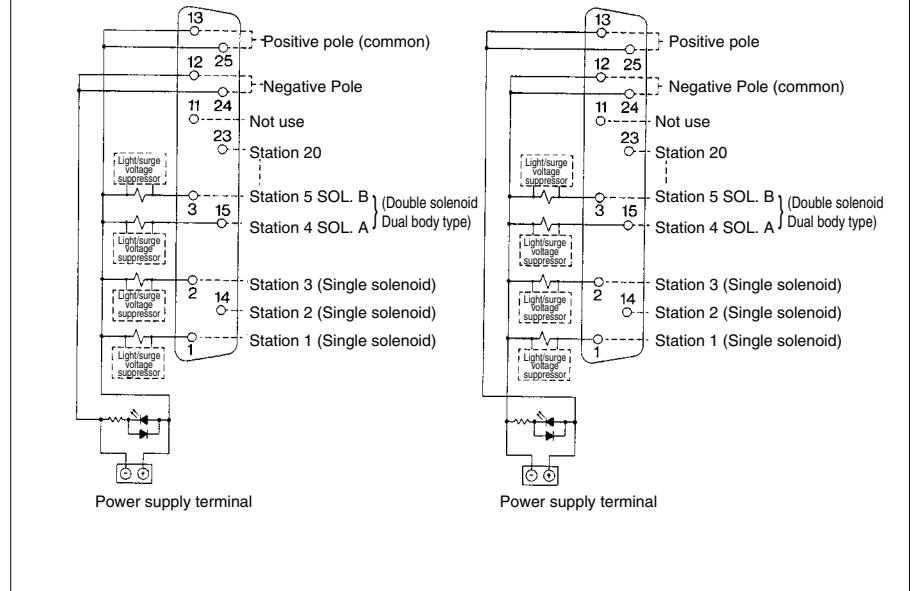
Type 45(N)F: D-sub Connector

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



<For positive common (45F)>

<For negative common (45NF)>

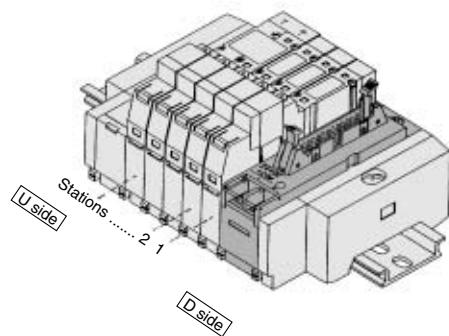


- The power source terminal is used for connecting to an external power source.
- The maximum number of stations that can be accommodated is 20 manifold stations, with up to 22 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

SV
 SZ
 SY
 SYJ
 SX

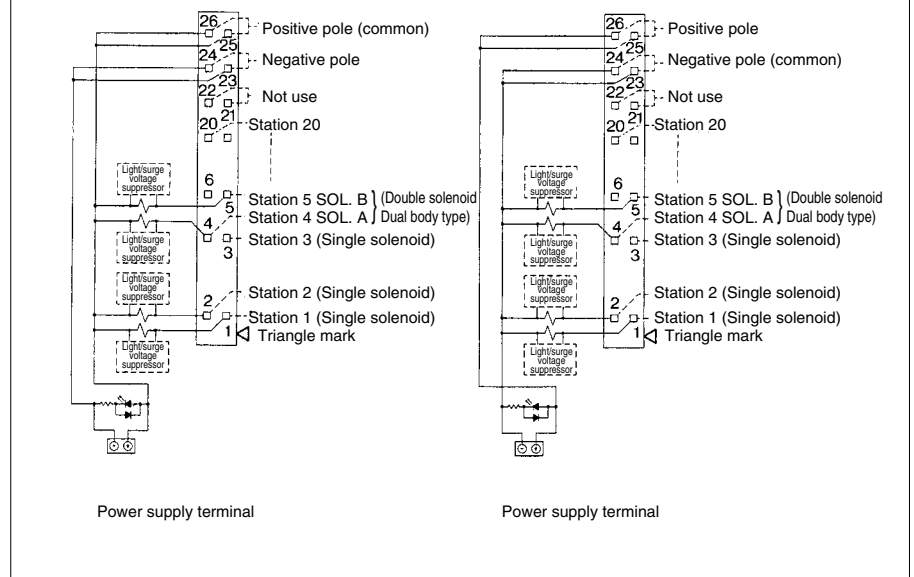
Type 45(N)P: Flat Ribbon Cable (26 pins)

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

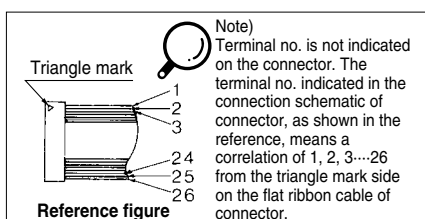


<For positive common (45P)>

<For negative common (45NP)>



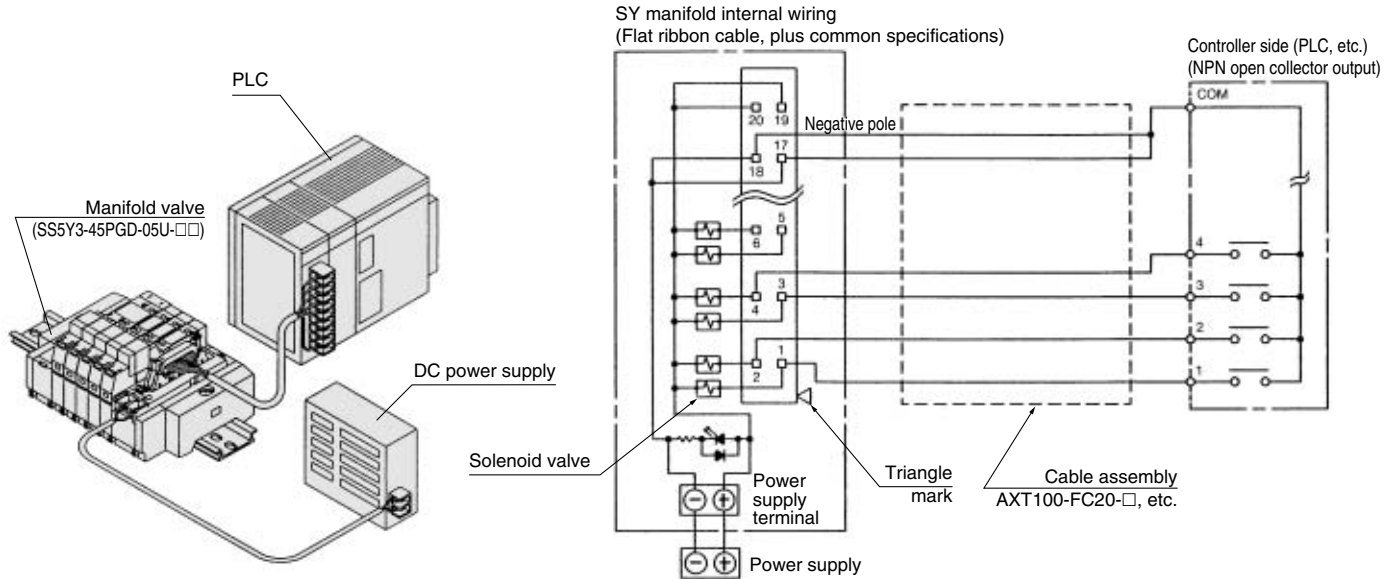
- The power source terminal is used for connecting to an external power source.
- The maximum number of stations that can be accommodated is 20 manifold stations, with up to 20 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.



How to Connect SS5Y□-45□ (Plug-in)

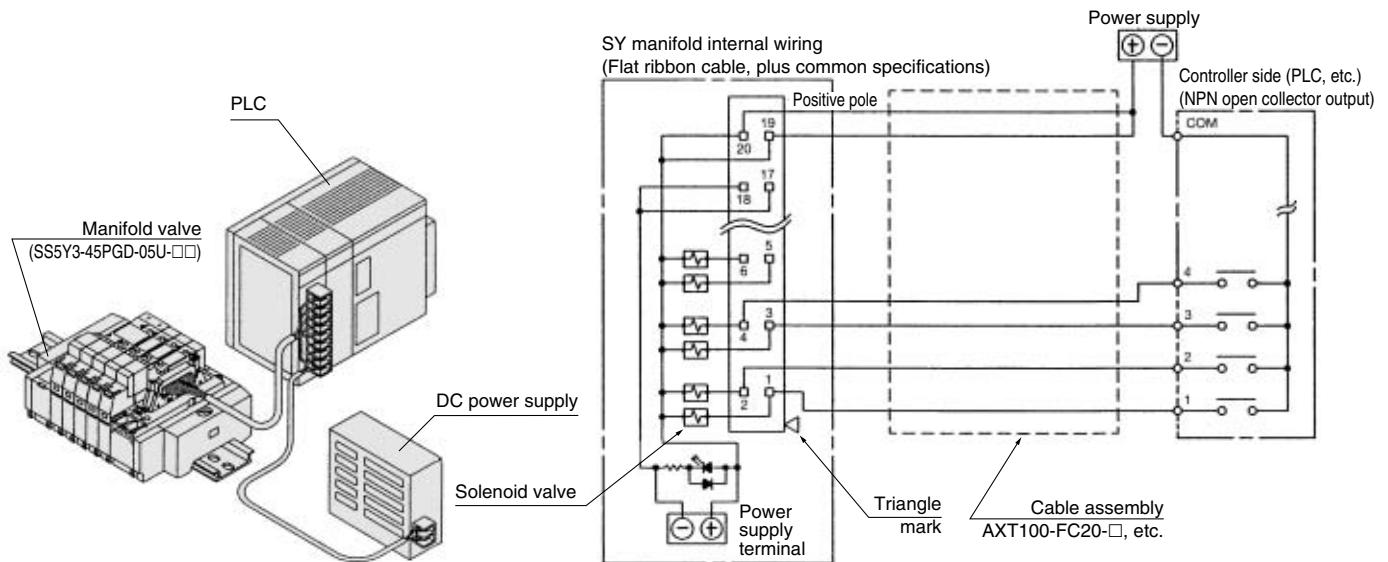
Power terminal is equipped with plug-in manifold of Series SY as standard.
 Power terminal enables the power supply to valve from either of manifold or controller side.

1. Wiring example when using manifold power supply terminals



SV
 SZ
SY
 SYJ
 SX

2. Wiring example when not using manifold power supply terminals (Power is supplied to the controller side or along the wiring, etc.)

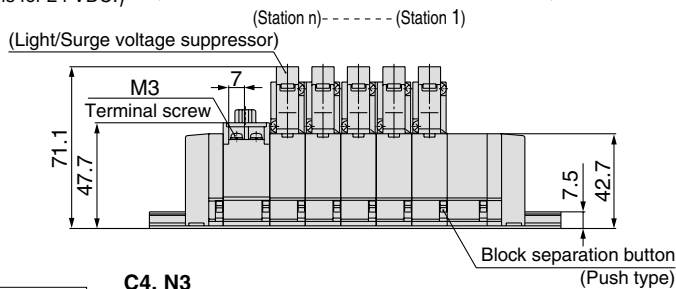
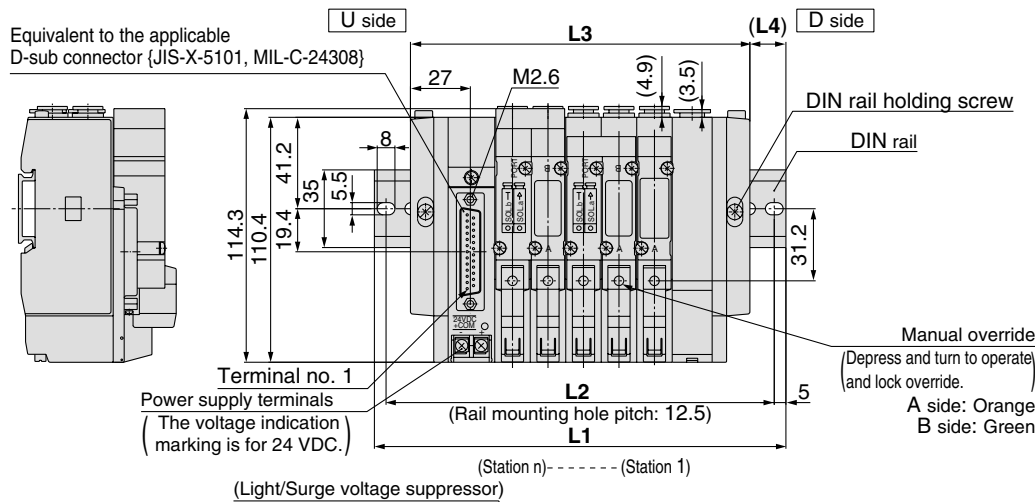
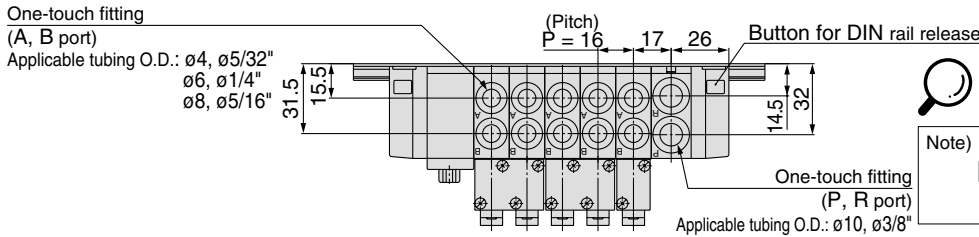


⚠ Caution

- 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.

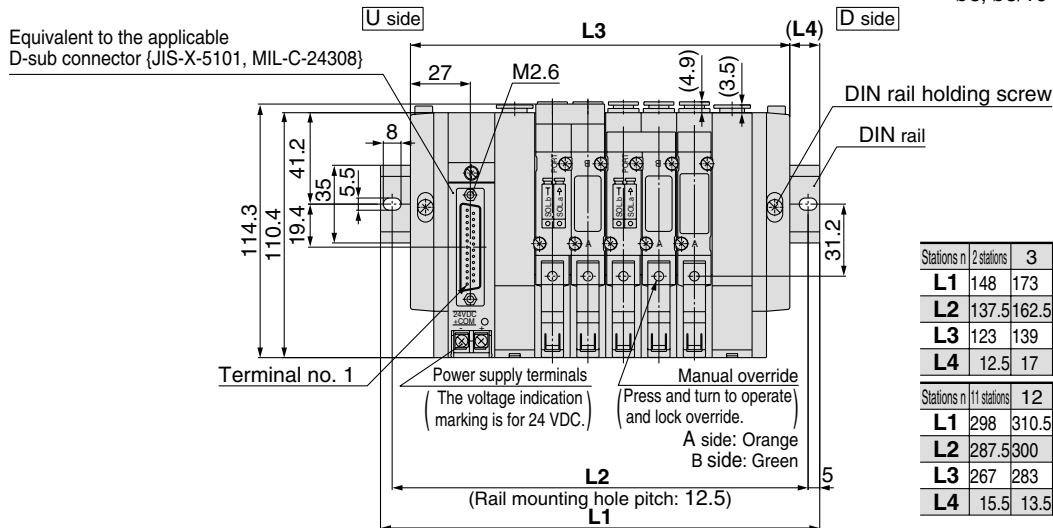
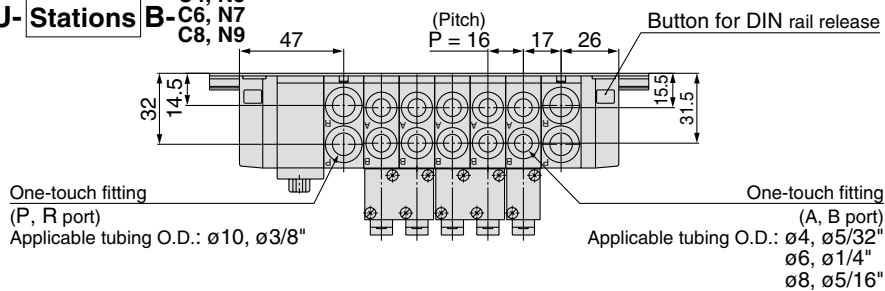
SY5000: D-sub Connector/Plug-in

SS5Y5-45FU- Stations D-C6, N7
C4, N3
C8, N9



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

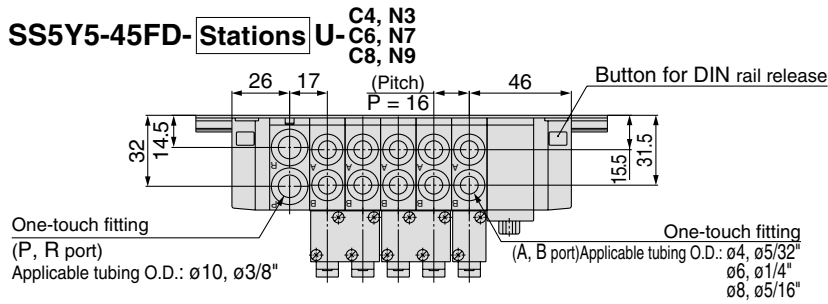
SS5Y5-45FU- Stations B-C6, N7
C4, N3
C8, N9



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	283	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

SY5000: D-sub Connector/Plug-in



Note) The L1 to L4 dimensions of SS5Y5-45FD- Stations D- C4, N3
C6, N7
C8, N9 are identical to those of SS5Y5-45FD- Stations U- C4, N3
C6, N7
C8, N9

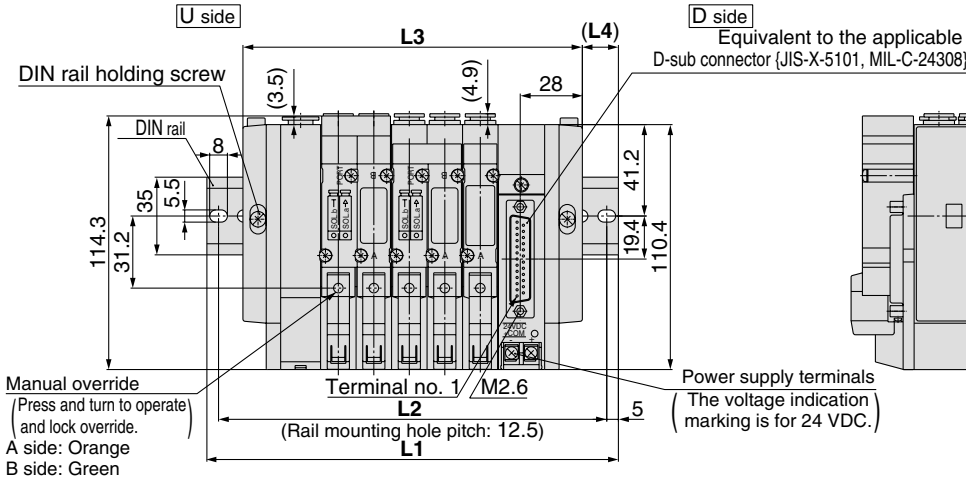
SV

SZ

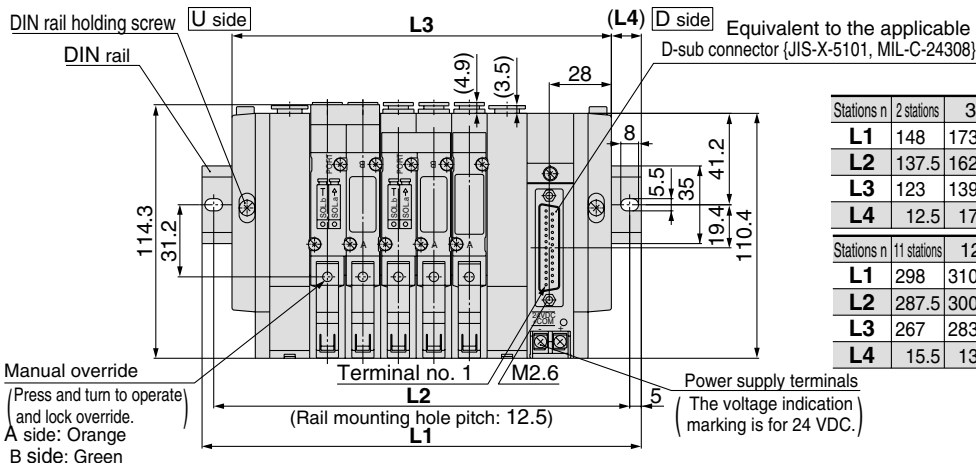
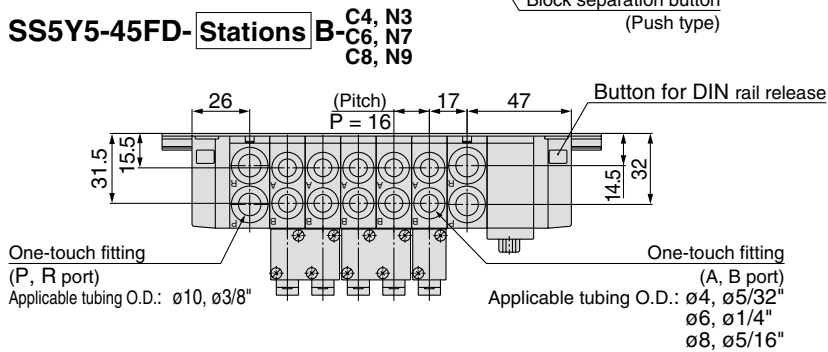
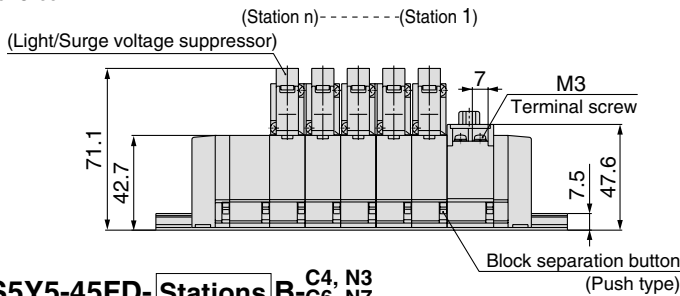
SY

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

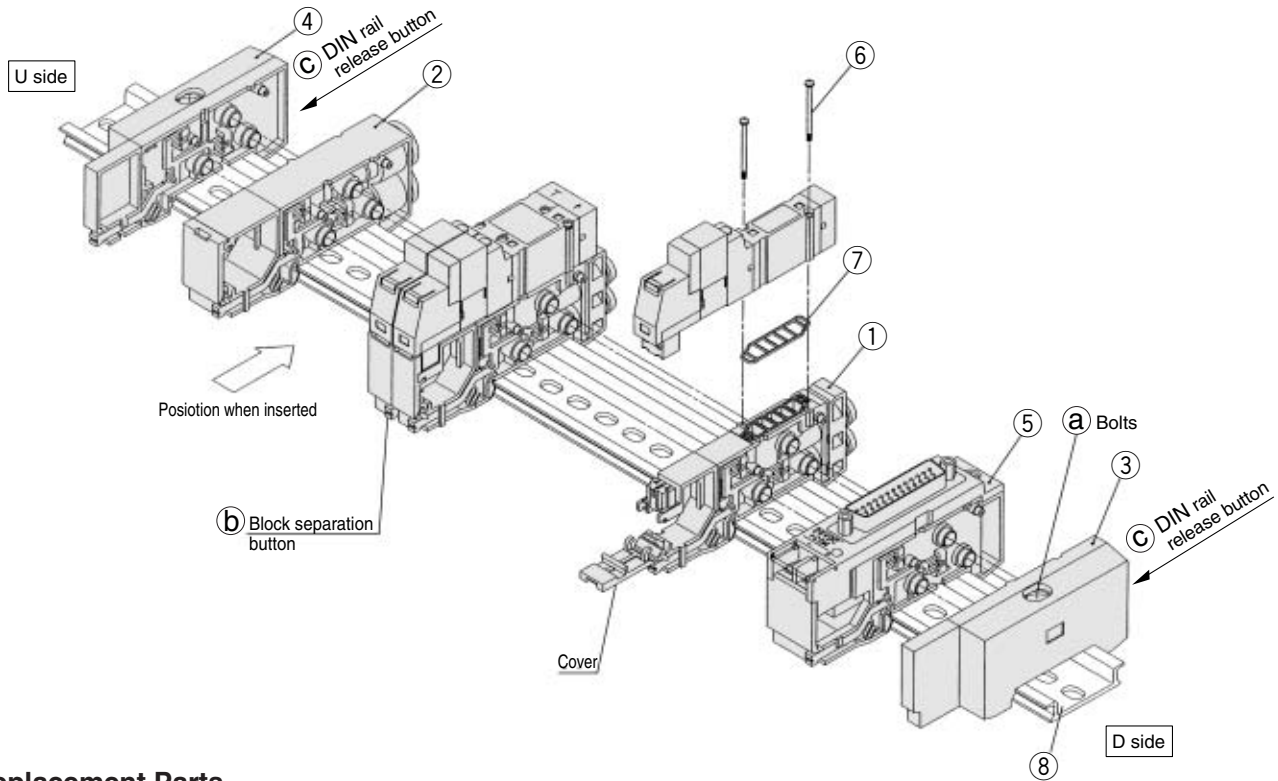


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L2	137.5	162.5	175	187.5	200	225	237.5	250	275
L3	123	139	155	171	187	203	219	235	251
L4	12.5	17	15	13.5	11.5	16	14.5	12.5	17

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	283	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

DIN Rail Manifold Exploded View

Type 45F (D-sub Connector) Manifold



Replacement Parts

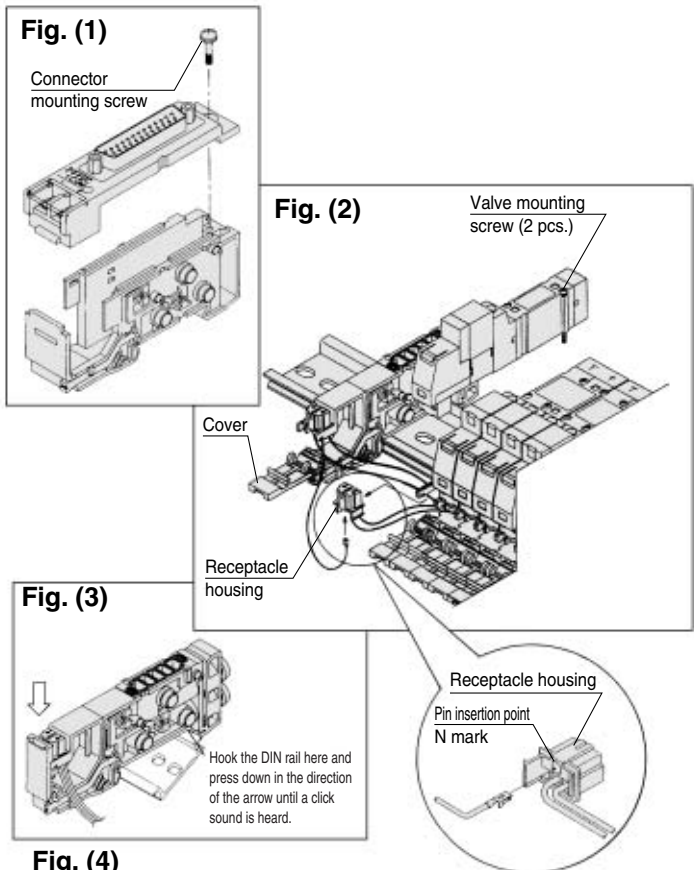
No.	Description	Part no.		Note
		SY3000	SY5000	
①	Manifold block assembly	Manifold block assembly part number differs according to an attached lead wire assembly based on the connector spec. Select an appropriate part number from the table of manifold block assembly part number shown below. (Gasket 7 is supplied as an accessory.)		
②	SUP/EXH block assembly	(Metric size) SX3000-51-2A (Inch size) SX3000-51-16A	(Metric size) SX3000-51-2A (Inch size) SX5000-51-16A	Metric size SY3000: P, R port with One-touch fitting for $\phi 8$ SY5000: P, R port with One-touch fitting for $\phi 10$ Inch size With One-touch fitting for $\phi 5/16$ " With One-touch fitting for $\phi 3/8$ "
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
⑤-2	Connector block assembly (for 26 pins flat cable)	SX3000-64- ^{2A} _{2NA} -26	SX5000-64- ^{2A} _{2NA} -26	Note) For 24 VDC
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	SY3000-23-4	M3 x 26, Matt nickel plated	
⑦	Gasket	SX3000-57-4	SX5000-57-6	
⑧	DIN rail	VZ1000-11-1-I□		Refer to page 1-4-123.

Note 1) The numbers 5-1 to 4 are for 24 VDC. For 12 VDC, suffix "-12V" to the end of parts number. (Example) SX3000-64-1A-12 V
 Note 2) Two manifold block assemblies are necessary for the double, 3 position (Dual body type).

Style of manifold	Manifold block assembly part no.	Note
For 45(N)F (D-sub connector)	SX ³ 000-50-3A-□□	□□: AB port SY3000 (metric size) (inch size) C4: With One-touch fitting for $\phi 4$ C6: With One-touch fitting for $\phi 6$ N3: With One-touch fitting for $\phi 5/32$ " N7: With One-touch fitting for $\phi 1/4$ "
For 45(N) _{FF} (Flat ribbon cable)	SX ³ 000-50-5A-□□	A, B port SY5000 (metric size) (inch size) C4: With One-touch fitting for $\phi 4$ C6: With One-touch fitting for $\phi 6$ C8: With One-touch fitting for $\phi 8$ N3: With One-touch fitting for $\phi 5/32$ " N7: With One-touch fitting for $\phi 1/4$ " N9: With One-touch fitting for $\phi 5/16$ "
For 45G PC Wiring System compatible		
For 45 ^T ₁ (Terminal block)	SX ³ 000-50-7A-□□	

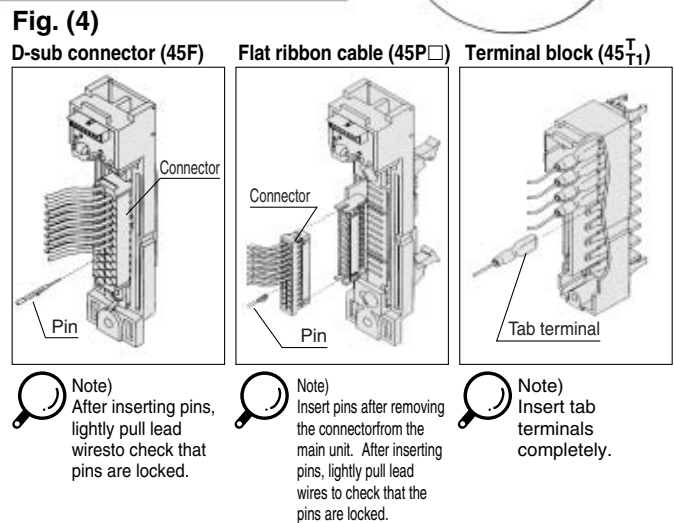
How to Increase Manifold Base

- 1** Loosen bolt (a) fixing the manifold base until it begins to turn idly. (While pressing DIN rail releasing buttons (c), at two locations, 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 (black) 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). Δ (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 that can be used. Manifold bases that can be added cannot exceed the number of usable solenoids.
 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.



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, etc. For mounting a new fitting assembly, insert it and then insert a clip until it will not come out of the manifold block.

Fitting Assembly Part No.

Metric size		Inch size	
SY3000	One-touch fitting for ø4	VVQ1000-50A-C4	VVQ1000-50A-N3
	One-touch fitting for ø6	VVQ1000-50A-C6	VVQ1000-50A-N7
	One-touch fitting for ø4	VVQ1000-51A-C4	VVQ1000-51A-N3
SY5000	One-touch fitting for ø6	VVQ1000-51A-C6	VVQ1000-51A-N7
	One-touch fitting for ø8	VVQ1000-51A-C8	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.

