5 Port Solenoid Valve

Connector Type Manifold

Metal Seal / Rubber Seal

IP67 enclosure compatible

CE [Option]

RoHS compliant

Power saving

Standard: 0.4 W

(Reduced by 60% compared to existing model)

High-pressure (1 MPa, Metal seal): 0.95 W

Series VQC1000/2000

SMC

CAT.ES11-101A

Connector Type Manifold

Series VQC1000/2000

Power saving

Standard: 0.4 W (Reduced by 60% compared to existing model)

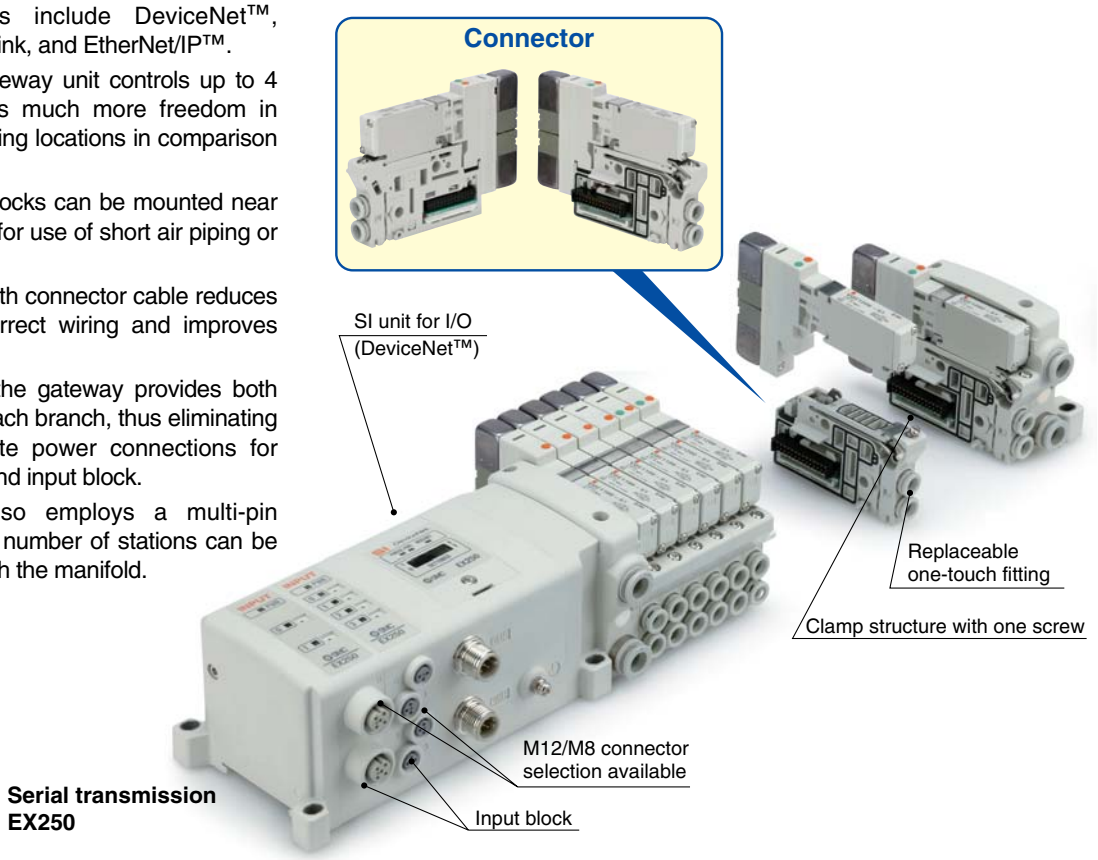
High-pressure (1 MPa, Metal seal): 0.95 W

IP67 enclosure compatible Dust-tight, Immersion-proof

(Based on IEC60529) (S/T/L/M kit)

Accommodates gateway-type serial wiring.

- Gateway unit types include DeviceNet™, PROFIBUS DP, CC-Link, and EtherNet/IP™.
- Because just one gateway unit controls up to 4 branch lines, it offers much more freedom in choosing valve mounting locations in comparison with other serial units.
- Manifolds and input blocks can be mounted near the actuator, allowing for use of short air piping or electric wiring.
- The package wiring with connector cable reduces the potential for incorrect wiring and improves wiring efficiency.
- A single cable from the gateway provides both signal and power to each branch, thus eliminating the need for separate power connections for each manifold valve and input block.
- The input block also employs a multi-pin connector so that the number of stations can be changed easily, as with the manifold.



Serial transmission
EX250

Applicable to EX600 (Input/Output) serial transmission system (Fieldbus system)

- Available for DeviceNet™, PROFIBUS DP and CC-Link fieldbus protocols
- **Max. 9 units** Note) **can be connected in any order.**
  The unit to connect input device such as an auto switch, pressure switch and flow switch, and the unit to connect output device such as a solenoid valve, relay and indicator light can be connected in any order.
  Note) Except SI unit
- **Analogue Input Unit can be connected with analogue input device.**
  As well as a Digital (switch) Input/Output Unit, a unit applicable to analogue signal is provided, and can be connected with various device for control.
- **Self-diagnosis function**
  It is possible to ascertain the maintenance period and identify the parts that require maintenance, by an input (sensor) open circuit detecting function and an input/output signal of ON/OFF counter function. Also, the monitoring of input/output signal and the setting of parameters can be performed with a Handheld Terminal.

Serial transmission
EX600

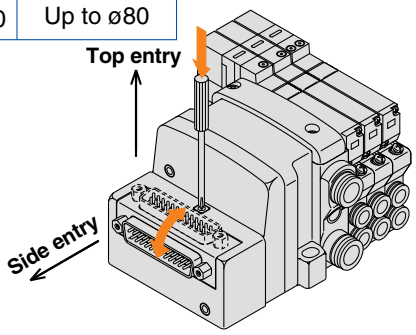
Compact and high flow

Series	Manifold pitch (mm)	Flow-rate characteristics Note)						Applicable cylinder bore size (mm)
		Metal seal			Rubber seal			
		C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv	
VQC1000	10.5	0.72	0.25	0.18	1.0	0.30	0.25	Up to ø50
VQC2000	16	2.6	0.15	0.60	3.2	0.30	0.80	Up to ø80

Note) Flow-rate characteristics: 2-position single, 4/2 → 5/3 (A/B → R1/R2)

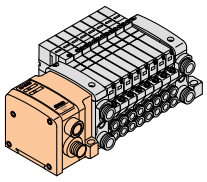
Connector entry direction can be changed with a single push. (F/P kit)

The connector entry direction can be changed from the top to the side by simply pressing the manual release button.
It is not necessary to use the manual release button when switching from the side to the top.



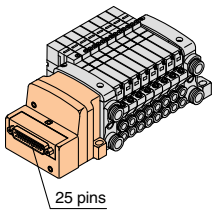
A wide variety of prepackaged wiring configurations

S kit (Serial transmission)

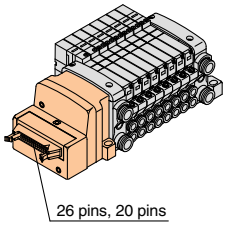


IP67 enclosure compatible

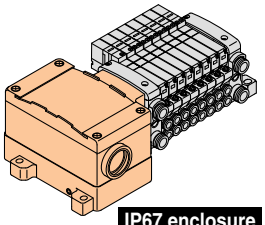
F kit (D-sub connector)



P kit (Flat ribbon cable)

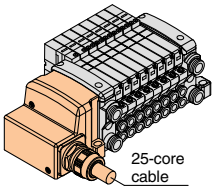


T kit (Terminal block box)



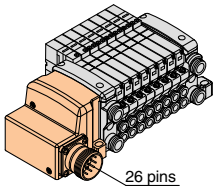
IP67 enclosure compatible

L kit (Lead wire)



IP67 enclosure compatible

M kit (Circular connector)



IP67 enclosure compatible

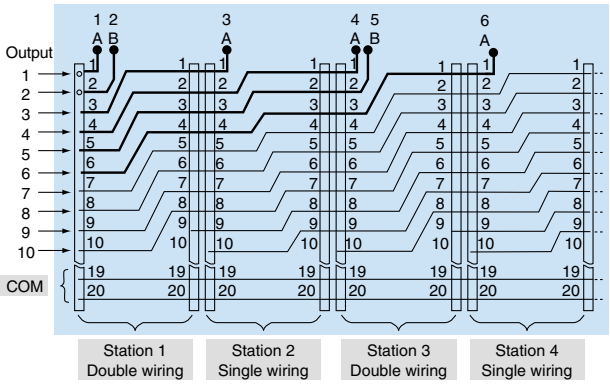
- Our six standard wiring packages bring a world of ease to wiring and maintenance work, while the protective enclosures of four of them conform to IP67 standards.
- The S kit is compatible with a combined I/O unit. (Not applicable to Gateway unit)

Connector type manifold

- The use of multi-pin connectors to replace wiring inside manifold blocks provides flexibility when adding stations or changing manifold configuration.
- All kits use multi-pin connectors, so switching from the F kit (D-sub connector) to the S kit (serial transmission) can be done simply by changing the kit section.

(Refer to the connector wiring diagram.)
Printed circuit board patterns between connectors are shifted at every station. This allows for viable connections to take place without necessarily specifying whether the manifold station is double, single, or mixed wiring.

Connector wiring diagram (Mixed wiring)

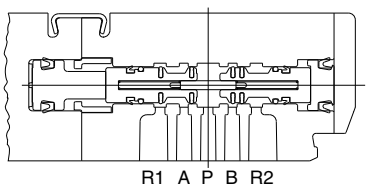


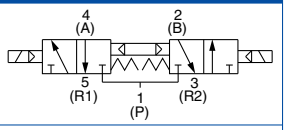
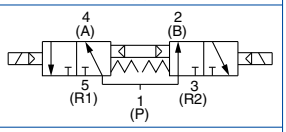
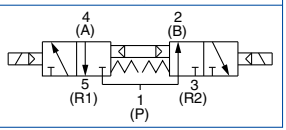
Dual 3-port valves, 4 positions

VQC1000/2000 (Rubber seal only)

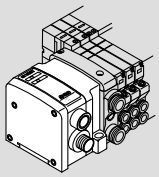
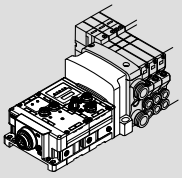
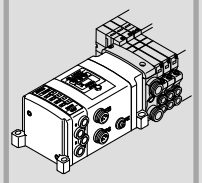
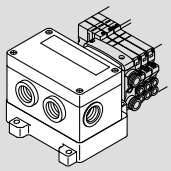
- Two 3-port valves built into one body
- The 3-port valves on the A and B sides can operate independently.
- When used as 3-port valves, only half the number of stations is required.
- Can also be used as a 4-position, 5-port type valve.

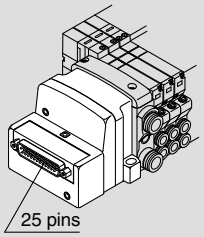
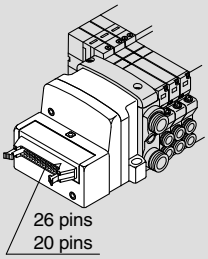
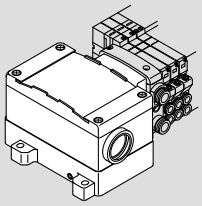
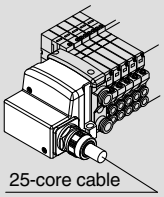
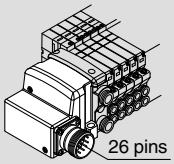
Exhaust center : **VQC1A01**
: **VQC2A01**
Pressure center : **VQC1B01**
: **VQC2B01**



Model	A side	B side	JIS symbol
VQC1A01 **VQC2A01**	N.C. valve	N.C. valve	
VQC1B01 **VQC2B01**	N.O. valve	N.O. valve	
VQC1C01 **VQC2C01**	N.C. valve	N.O. valve	

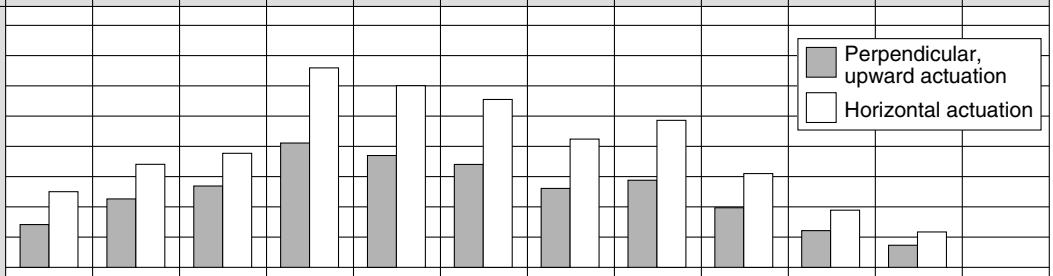
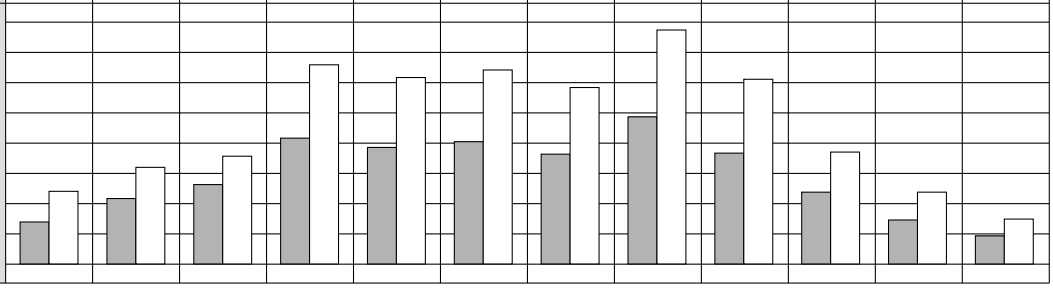
Series VQC/Base Mounted: Variations

			Sonic conductance C [dm³/(s·bar)] (CYL → EXH 4/2 → 5/3)		Applicable cylinder bore size	S kit — Serial transmission				
			Single/Double	3-position (Closed center)		Gateway application Compatible network • DeviceNet™ • PROFIBUS DP • CC-Link • EtherNet/IP™ Decentralized Serial Wiring Gateway application requires a gateway unit and communication cable separately. Please contact SMC for details.  Serial unit: **EX500** IP67 compliant	Compatible network • DeviceNet™ • PROFIBUS DP • CC-Link I/O  Serial unit (Fieldbus system): **EX600** IP67 compliant	Compatible network • DeviceNet™ • PROFIBUS DP • CC-Link • AS-Interface • CANopen • ControlNet™ • EtherNet/IP™ I/O  Serial unit: **EX250** IP67 compliant	Compatible network • CC-Link Output  Serial unit: **EX126** IP67 compliant
Series VQC1000 P. 5	Metal seal	VQC1□00	0.72	0.72	Up to ø50	●	●	●	●	
	Rubber seal	VQC1□01	1.0	0.65						
Series VQC2000 P. 9	Metal seal	VQC2□00	2.6	2.0	Up to ø80	●	●	●	●	
	Rubber seal	VQC2□01	3.2	2.2						

	F kit	**P kit**	**T kit**	**L kit**	**M kit**	**Port size**	
	D-sub connector	**Flat ribbon cable**	**Terminal block box**	**Electrical entry**	**Circular connector**		
	D-sub connector (Conforming to MIL D-sub connector)  25 pins	**Flat ribbon cable** (Conforming to MIL flat ribbon cable connector)  26 pins 20 pins	**Terminal block box** **(Terminal block)** (Terminal block is compactly arranged on one side.)  **IP67 compliant**	**Lead wire** (IP67 enclosure with use of multiple wire cable with sheath and waterproof connector)  25-core cable **IP67 compliant**	**Circular connector** (IP67 enclosure with use of waterproof circular connector)  26 pins **IP67 compliant**	**SUP EXH port** **1, 3 (P, R)**	**Cylinder port** **2, 4 (A, B)**
	●	●	●	●	●	**C8 (ø8)** **N9 (ø5/16")**	**C3 (ø3.2)** **C4 (ø4)** **C6 (ø6)** **M5** (M5 thread) **N1 (ø1/8")** **N3 (ø5/32")** **N7 (ø1/4")**
	●	●	●	●	●	**C10 (ø10)** **N11 (ø3/8")** **In case of branch type** **C12 (ø12)** **N13 (ø1/2")**	**C4 (ø4)** **C6 (ø6)** **C8 (ø8)** **N3 (ø5/32")** **N7 (ø1/4")** **N9 (ø5/16")**

Cylinder Speed Chart

This chart is provided as guidelines only.
For performance under various conditions, use SMC's Model Selection Program before making a judgment.

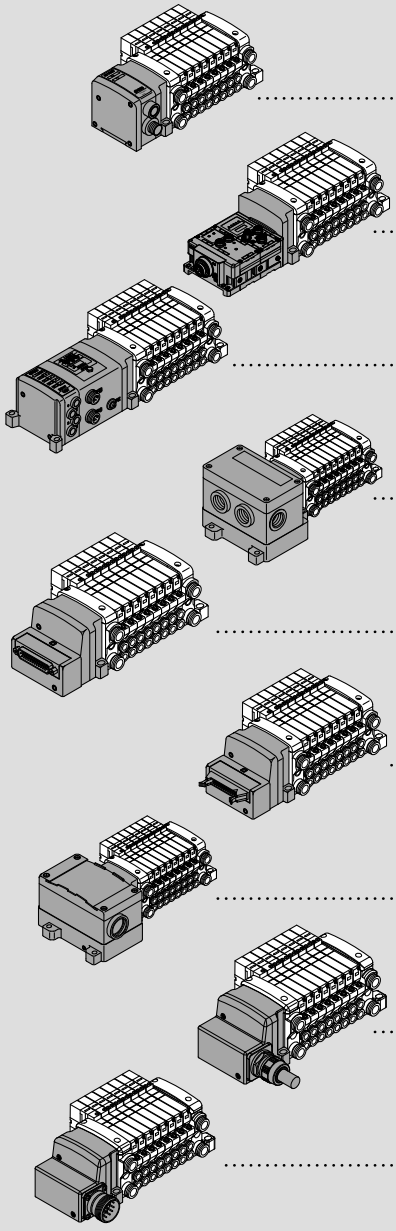
Series	Average speed (mm/s)	Bore size											
		Series CJ2 Pressure 0.5 MPa Load factor 50% Stroke 60 mm			Series CM2 Pressure 0.5 MPa Load factor 50% Stroke 300 mm				Series MB, CA2 Pressure 0.5 MPa Load factor 50% Stroke 500 mm				
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100
VQC1101	800 700 600 500 400 300 200 100 0												
VQC2101	800 700 600 500 400 300 200 100 0												

* It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
* The average velocity of the cylinder is what the stroke is divided by the total stroke time.
* Load factor: ((Load mass x 9.8)/Theoretical force) x 100%

Conditions

Series	Conditions	Series CJ2	Series CM2	Series MB, CA2
VQC1101	Tube x Length	T0604 (O.D. ø6/I.D. ø4) x 1 m		
	Speed controller	AS3001F-06		
	Silencer	AN200-KM8		
VQC2101	Tube x Length	T0806 (O.D. ø8/I.D. ø6) x 1 m		
	Speed controller	AS3001F-08		
	Silencer	AN200-KM10		

INDEX



Base Mounted

Plug-in Unit
Series VQC1000 CE

How to Order Manifold

VV5QC 1 1 – 08 C6 FD1 ——— [10] ······ F · L · M / P · T kit

VV5QC 1 1 – 08 C6 SDQ [4] [5] [6] [7] [8] [9] – [10] ······ S kit

Series VQC1000 • • Base mounted plug-in

Enter EX600-compliant S kit only. ······ ❹ ·········· ❻

❺ ❼···❽···❾····· Enter EX250-compliant S kit only.

❶ Stations

01	1 station
⋮	⋮

The maximum number of stations differs depending on the electrical entry. (Refer to ❸ Kit type/Electrical entry/Cable length.)

Note) In case of compatibility with the S kit/AS-Interface, the maximum number of solenoids is as shown below, so please be careful of the number of stations.
- 8 in/8 out: Maximum 8 solenoids
- 4 in/4 out: Maximum 4 solenoids

❷ Cylinder port size

C3	With ø3.2 one-touch fitting
C4	With ø4 one-touch fitting
C6	With ø6 one-touch fitting
M5	M5 thread
CM	Mixed sizes and with port plug
L3	Top ported elbow with ø3.2 one-touch fitting
L4	Top ported elbow with ø4 one-touch fitting
L6	Top ported elbow with ø6 one-touch fitting
L5	M5 thread
B3	Bottom ported elbow with ø3.2 one-touch fitting
B4	Bottom ported elbow with ø4 one-touch fitting
B6	Bottom ported elbow with ø6 one-touch fitting
B5	M5 thread
LM	Elbow port, mixed sizes
MM Note 2)	Mixed size for different types of piping, option installed

Note 1) Indicate the size by means of the manifold specification sheet in case of "CM", "LM", "NM".

Note 2) When selecting the mixed size for different types of piping or dual flow fitting assembly, enter "MM" and give instructions in the manifold specification sheet.

Note 3) Symbols for inch sizes are as follows:
- N1: ø1/8" • N3: ø5/32"
- N7: ø1/4" • NM: Mixed

The top ported elbow is LN□ and the bottom ported elbow is BN□.

❹ End plate type
(Enter EX600-compliant S kit only.)

Nil	Without 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.

❻ I/O unit stations
(Enter EX600-compliant S kit only.)

Nil	None
1	1 station
⋮	⋮
9	9 stations

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

❼ Number of input blocks
(Enter EX250-compliant S kit only.)

Nil	Without SI unit/input block (SD0)
0	Without input block
1	With 1 input block
⋮	⋮
8	With 8 input blocks

Note) For the S kit compatible with AS-Interface, the maximum number of stations is limited. Refer to page 6 for details.

❽ Input block type
(Enter EX250-compliant S kit only.)

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

❾ Input block specification
(Enter EX250-compliant S kit only.)

Nil	PNP sensor input (+ COM) or without input block
N	NPN sensor input (– COM)

❿ Option

Nil	None
B Note 2)	All stations with back pressure check valve
D	With DIN rail (Rail length: Standard)
D□ Note 3)	With DIN rail (Rail length: Special)
K Note 4)	Special wiring spec. (Except double wiring)
N	With name plate
R Note 5)	External pilot
S Note 6)	Direct EXH outlet with built-in silencer

Note 1) When two or more symbols are specified, indicate them alphabetically. Example: -BRS

Note 2) When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.

Note 3) For special DIN rail length, indicate "D□". (Enter the number of stations inside □.) Example: -D08
In this case, stations will be mounted on a DIN rail for 8 stations regardless of the actual number of manifold stations.
The specified number of stations must be larger than the number of stations on the manifold.
Indicate "-D0" for the option without DIN rail.

Note 4) When single wiring and double wiring are mixed, specify wiring type of each station by means of the manifold specification sheet.

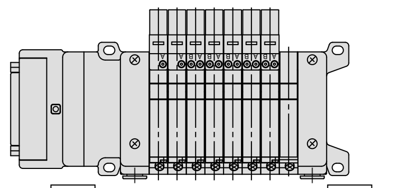
Note 5) For external pilot option, "-R", indicate the external pilot specification "R" for the applicable valves as well.

Note 6) Built-in silencer type does not satisfy IP67.

Note 7) When changing the specifications of the EX600 from no DIN rail to DIN rail mounting, please consult SMC.

Note 8) When the EX600 "Without SI unit (SD60)" is specified, "With DIN rail (D)" cannot be selected.

Note 9) DIN rail is not attached (but shipped together) on the manifold in case of the EX600 with DIN rail. Refer to back page 5 for mounting method.



∗ Stations are counted from station 1 on the D-side.

❺ SI unit COM

SI unit COM		EX250 integrated-type (I/O) serial transmission system						
		DeviceNet™	PROFIBUS DP	CC-Link	AS-Interface	CANopen	ControlNet™	EtherNet/IP™
Nil	+ COM	—	—	○	—	—	—	—
N	– COM	○	○	—	○	○	○	○

SI unit COM		EX500 gateway-type serial transmission system				EX126 integrated-type (Output) serial transmission system
		DeviceNet™	PROFIBUS DP	CC-Link	EtherNet/IP™	CC-Link
Nil	+ COM	○	○	○	○	○
N	– COM	○	○	○	○	—

SI unit COM		EX600 integrated-type (I/O) serial transmission system (Fieldbus system)		
		DeviceNet™	PROFIBUS DP	CC-Link
Nil	+ COM	○	○	○
N	– COM	○	○	○

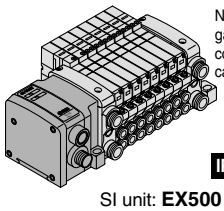
Note) Without SI unit (SD0□), the symbol is nil.

See the Bookmark on left to find the VQC portion of the EX600 Fieldbus catalog

❸ Kit type/Electrical entry/Cable length

* Numbers in parentheses represent the maximum number of solenoids in case of mixed single and double wiring. The maximum number of stations is determined by the total number of solenoids. When ordering mixed wiring, please add the option symbol "-K".

S kit (Serial transmission: EX500 gateway type)



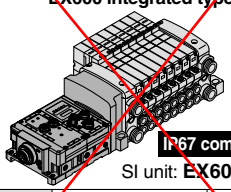
Note) A separate gateway unit and communication cable are required.

IP67 compliant

SI unit: **EX500**

SD0	Without SI unit	1 to 8 stations (16)
SDA2	DeviceNet™, PROFIBUS DP, CC-Link, EtherNet/IP™	

S kit (Serial transmission (Fieldbus system): EX600 integrated type (I/O))

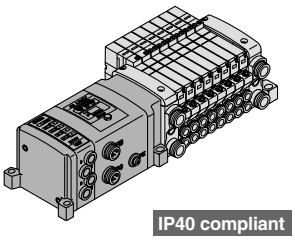


IP67 compliant

SI unit: **EX600**

SD60	Without SI unit	1 to 12 stations (24)
SD6Q	DeviceNet™	
SD6N	PROFIBUS DP	
SD6V	CC-Link	

S kit (Serial transmission: EX250 integrated type (I/O))



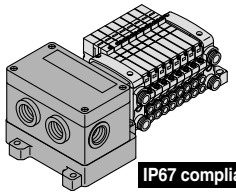
IP40 compliant

IP67 compliant

SI unit: **EX250**

SD0	Without SI unit	1 to 12 stations (24)
SDQ	DeviceNet™	
SDN	PROFIBUS-DP	
SDV	CC-LINK	
SDTA	AS-Interface, 8 in/8 out, 31 slave modes, 2 power supply systems	1 to 4 stations (8)
SDTB	AS-Interface, 4 in/4 out, 31 slave modes, 2 power supply systems	1 to 2 stations (4)
SDTC Note 1)	AS-Interface, 8 in/8 out, 31 slave modes, 1 power supply systems	1 to 4 stations (8)
SDTD Note 1)	AS-Interface, 4 in/4 out, 31 slave modes, 1 power supply systems	1 to 2 stations (4)
SDY	CANopen	1 to 12 stations (24)
SDZCN	ControlNet™ (IP40 compliant) Note 2)	
SDZEN	EtherNet/IP™	

S kit (Serial transmission: EX126 integrated type (Output))

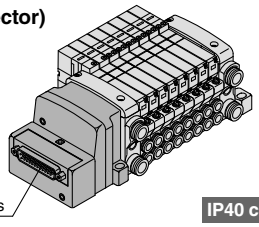


IP67 compliant

SI unit: **EX126**

SDVB	CC-LINK	1 to 8 stations (16)

F kit (D-sub connector)



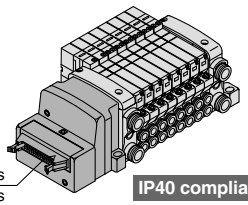
25 pins

IP40 compliant

FD0	D-sub connector (25P) without cable	1 to 12 stations (24)
FD1	D-sub connector (25P) with 1.5 m cable	
FD2	D-sub connector (25P) with 3.0 m cable	
FD3	D-sub connector (25P) with 5.0 m cable	

P kit (Flat ribbon cable)

Note) For a 20P flat ribbon cable, the cable assembly must be ordered separately.



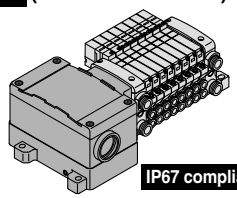
26 pins

20 pins

IP40 compliant

PD0	Flat ribbon cable (26P) without cable	1 to 12 stations (24)
PD1	Flat ribbon cable (26P) with 1.5 m cable	
PD2	Flat ribbon cable (26P) with 3.0 m cable	
PD3	Flat ribbon cable (26P) with 5.0 m cable	
PDC	Flat ribbon cable (20P) without cable	1 to 9 stations (18)

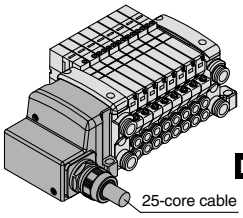
T kit (Terminal block box)



IP67 compliant

TD0	Terminal block box	1 to 10 stations (20)

L kit (Lead wire)

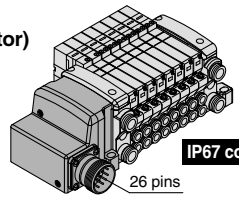


25-core cable

IP67 compliant

LD0	Lead wire (25 cores) 0.6 m lead wire	1 to 12 stations (24)
LD1	Lead wire (25 cores) 1.5 m lead wire	
LD2	Lead wire (25 cores) 3.0 m lead wire	

M kit (Circular connector)



26 pins

IP67 compliant

MD0	Circular connector (26P) without cable	1 to 12 stations (24)
MD1	Circular connector (26P) with 1.5 m cable	
MD2	Circular connector (26P) with 3.0 m cable	
MD3	Circular connector (26P) with 5.0 m cable	

* The maximum number of stations displayed in parentheses is applied to the special wiring specifications. (Option "-K")

Note 1) When selecting SI units with SDTC or SDTD specifications, there are limits to the supply current from the SI unit to the input block or valve. Refer to Best Pneumatics No. ① for details.

Note 2) When selecting SI units with SDZCN specifications only, IP40 is compatible. (All other SI units are IP67 compliant.)

EX500 SI Unit Part No.

Symbol	Protocol	SI unit part no.		Page
		NPN output (+ COM.)	PNP output (– COM.)	
SDA2	DeviceNet™	EX500-Q001	EX500-Q101	Best Pneumatics No.①
	PROFIBUS-DP			
	CC-LINK			
	EtherNet/IP™			

EX600 SI Unit Part No.

Symbol	Protocol	SI unit part no.		Page
		PNP output	NPN output	
SD6Q	DeviceNet™	EX600-SDN1	EX600-SDN2	Fieldbus system catalog (I/O)
SD6N	CC-Link	EX600-SMJ1	EX600-SMJ2	
SD6V	PROFIBUS DP	EX600-SPR1	EX600-SPR2	

Refer to catalog CAT.E02-24, Fieldbus System (I/O), for details on the EX600 integrated-type (I/O).
Refer to Best Pneumatics No. ① for details on the EX500 gateway-type serial transmission system, EX250 integrated-type (I/O) serial transmission system and EX126 integrated-type (Output) serial transmission system.

EX250 SI Unit Part No.

Symbol	Protocol	SI unit part no.	Page
SDQ	DeviceNet™	EX250-SDN1	Best Pneumatics No.①
SDN	PROFIBUS-DP	EX250-SPR1	
SDV	CC-LINK	EX250-SMJ2	
SDTA	AS-Interface, 8 in/8 out, 31 slave modes, 2 power supply systems	EX250-SAS3	
SDTB	AS-Interface, 4 in/4 out, 31 slave modes, 2 power supply systems	EX250-SAS5	
SDTC	AS-Interface, 8 in/8 out, 31 slave modes, 1 power supply systems	EX250-SAS7	
SDTD	AS-Interface, 4 in/4 out, 31 slave modes, 1 power supply systems	EX250-SAS9	
SDY	CANopen	EX250-SCA1A	
SDZCN	ControlNet™	EX250-SCN1	
SDZEN	EtherNet/IP™	EX250-SEN1	

EX126 SI Unit Part No.

Symbol	Protocol	SI unit part no.	Page
SDVB	CC-Link	EX126D-SMJ1	Best Pneumatics No.①

How to Order Valves

VQC 1 1 0 0 ☐ – 5 ☐ ☐ 1

Series VQC1000 • Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ

Ⓐ Type of actuation

1	2-position single (A) (B) 4 2 5 1 3 (R1)(P)(R2)	Note) **A**	4-position dual 3-port valve (A) (A) (B) 4 2 5 1 3 (R1) (P) (R2) N.C. N.C.
2	2-position double (Metal) (A) (B) 4 2 5 1 3 (R1)(P)(R2)	Note) **B**	4-position dual 3-port valve (B) (A) (B) 4 2 5 1 3 (R1) (P) (R2) N.O. N.O.
	2-position double (Rubber) (A) (B) 4 2 5 1 3 (R1)(P)(R2)	Note) **C**	4-position dual 3-port valve (C) (A) (B) 4 2 5 1 3 (R1) (P) (R2) N.C. N.O.
3	3-position closed center (A) (B) 4 2 5 1 3 (R1) (P) (R2)	Note) Rubber seal only	
4	3-position exhaust center (A) (B) 4 2 5 1 3 (R1) (P) (R2)		
5	3-position pressure center (A) (B) 4 2 5 1 3 (R1) (P) (R2)		

Ⓑ Seal

0	Metal seal
1	Rubber seal

Ⓒ Function

Nil	Standard (0.4 W)
B	High-speed response type (0.95 W)
K Note 2)	High-pressure type (1.0 MPa, 0.95 W)
N Note 3)	Negative common
R Note 4)	External pilot

Note 1) When two or more symbols are specified, indicate them alphabetically. However, combination of "B" and "K" is not possible.
Note 2) Metal seal only
Note 3) When "-COM." is specified for the SI unit, select and mount the valve of negative common.
Note 4) Dual 3-port is not applicable.

Ⓓ Coil voltage

5 Note)	24 VDC
6	12 VDC

Note) Only 24 VDC is available with the S kit.

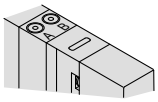
Ⓔ Light/surge voltage suppressor

Nil	Yes
E Note)	None

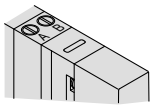
Note) Not applicable to the S kit.

Ⓕ Manual override

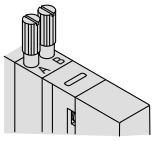
Nil: Non-locking push type (Tool required)



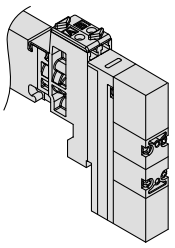
B: Locking type (Tool required)



C: Locking type (Manual)



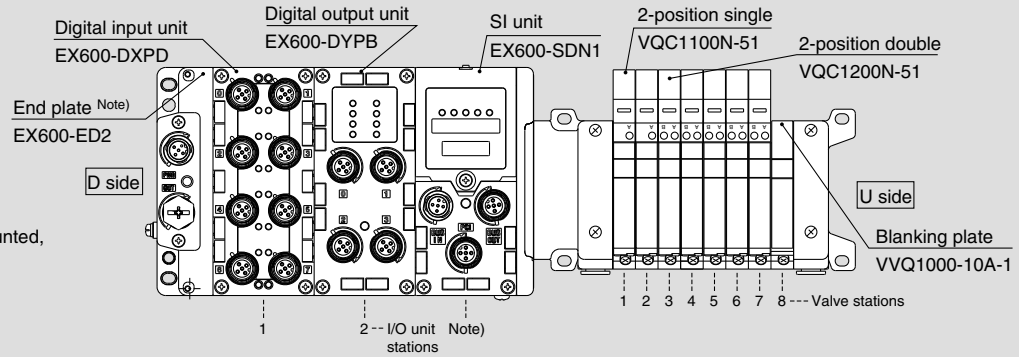
D: Slide locking type (Manual)



How to Order Manifold Assembly

Example

Manifold
Power supply with M12 connector



For the I/O unit part number mounted, refer to catalog CAT.E02-24.
- Digital input unit
- Digital output unit
- Analog input unit

Serial transmission kit

VV5QC11-08C6SD6Q2N2 ···· 1 set Manifold base part number
*** VQC1100N-51 ····· 2 sets Valve part number (Stations 1 to 2)**
*** VQC1200N-51 ····· 5 sets Valve part number (Stations 3 to 7)**
*** VVQ1000-10A-1 ····· 1 set Blanking plate number (Station 8)**

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.

*** EX600-DXPD ····· 1 set I/O unit part number (Station 1)**
*** EX600-DYPB ····· 1 set 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.

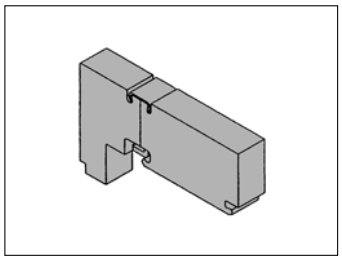
The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

Note) Do not enter the SI unit part number and the end plate part number together.

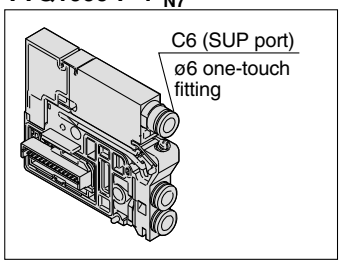
Manifold Options

Refer to pages 40 through to 43 for details.

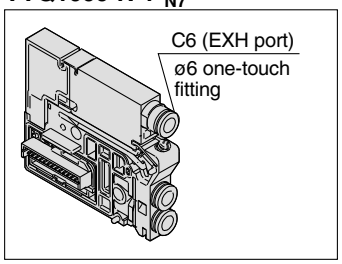
Blanking plate assembly
VVQ1000-10A-1



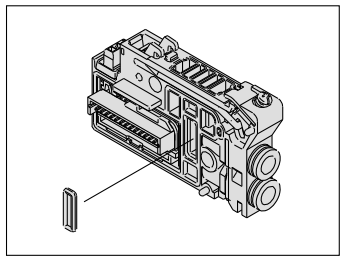
Individual SUP spacer
VVQ1000-P-1-$^{C6}_{N7}$



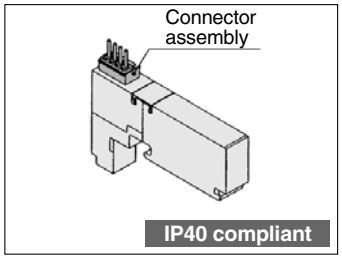
Individual EXH spacer
VVQ1000-R-1-$^{C6}_{N7}$



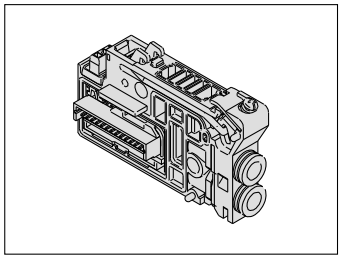
SUP block plate
VVQ1000-16A



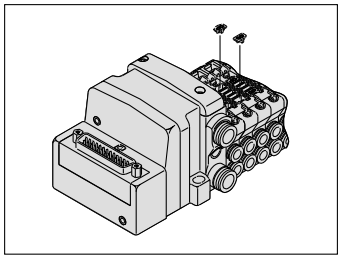
Blanking plate with connector
VVQ1000-1C□-□



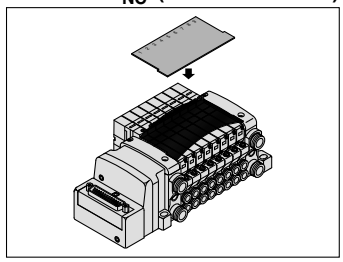
EXH block plate assembly
VVQC1000-19A-$^{S}_{D}$-$^{C3, C4, C6, M5, N1, N3, N7}$



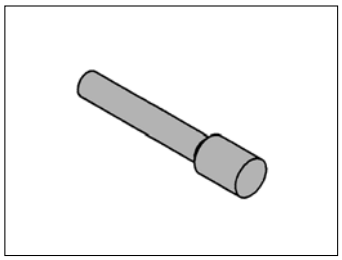
Back pressure check valve assembly [-B]
VVQ1000-18A



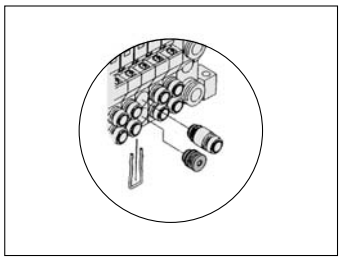
Name plate [-N]
VVQ1000-$^{N}_{NC}$-(1 to Max. stations)



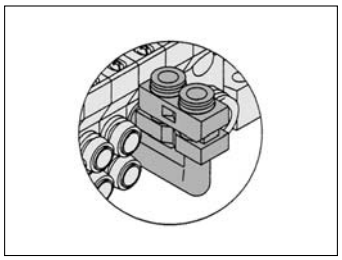
Blanking plug
KQ2P-□



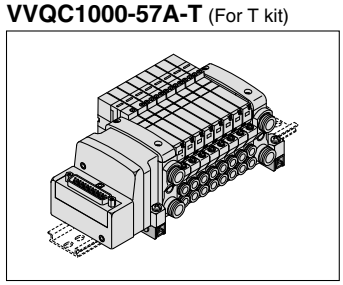
Port plug
VVQ0000-58A



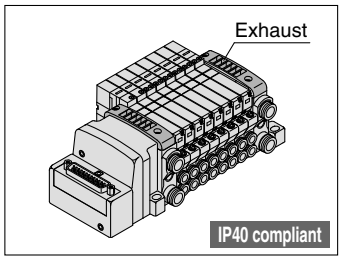
Elbow fitting assembly
VVQ1000-F-L□



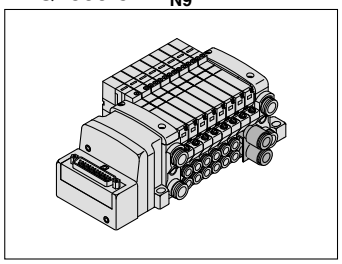
DIN rail mounting bracket [-D]
VVQ1000-57A
{For F/L/M/P/S (EX500) kit}
VVQC1000-57A-S
{For S (EX250) kit}
VVQC1000-57A-T (For T kit)



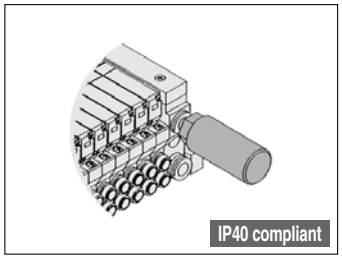
Direct EXH outlet with built-in silencer [-S]



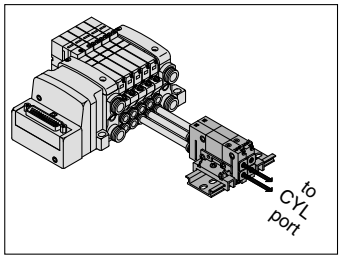
Dual flow fitting assembly
VVQ1000-52A-$^{C8}_{N9}$



Silencer (For EXH port)
AN200-KM8
AN203-KM8

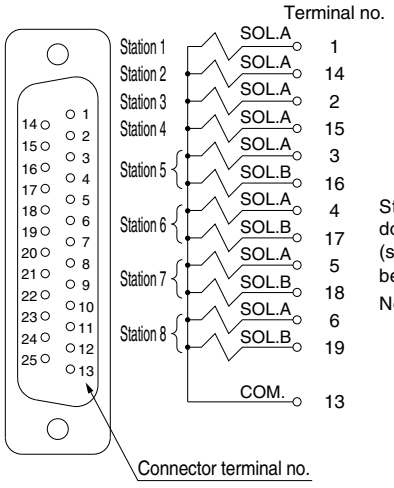


Double check block
VVQ1000-FPG-□□-□



Special electrical wiring specifications [-K]

Wiring example)
D-sub connector



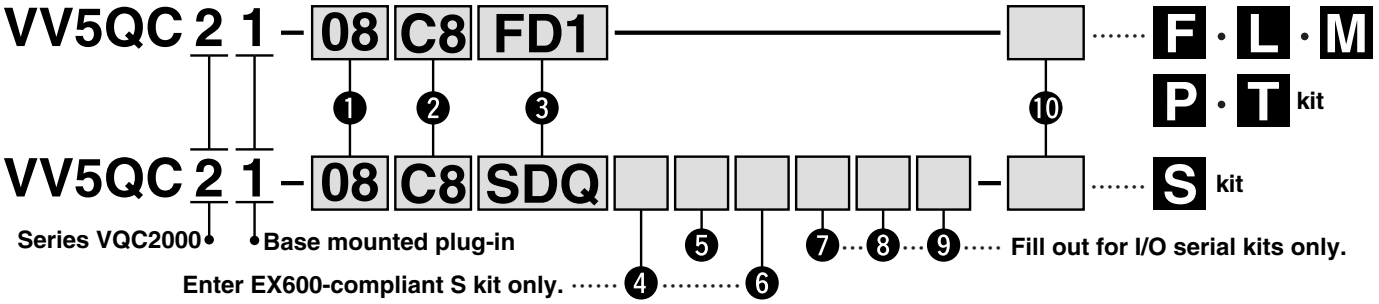
Standard manifolds are for double wiring, but mixed wiring (single and double wiring) can be specified as an option.

Note) Refer to the pages of each kit for details.

F kit ····· P. 25
P kit ····· P. 27
T kit ····· P. 29
L kit ····· P. 31
M kit ····· P. 33

Base Mounted
Plug-in Unit
Series VQC2000

How to Order Manifold



❶ Stations

01	1 station
⋮	⋮

The maximum number of stations differs depending on the electrical entry. (Refer to ❸ Kit type/Electrical entry/Cable length.)

Note) In case of compatibility with the S kit/AS-Interface, the maximum number of solenoids is as shown below, so please be careful of the number of stations.
- 8 in/8 out: Maximum 8 solenoids
- 4 in/4 out: Maximum 4 solenoids

❷ Cylinder port size

C4	With ø4 one-touch fitting
C6	With ø6 one-touch fitting
C8	With ø8 one-touch fitting
CM	Mixed sizes and with port plug
L4	Top ported elbow with ø4 one-touch fitting
L6	Top ported elbow with ø6 one-touch fitting
L8	Top ported elbow with ø8 one-touch fitting
B4	Bottom ported elbow with ø4 one-touch fitting
B6	Bottom ported elbow with ø6 one-touch fitting
B8	Bottom ported elbow with ø8 one-touch fitting
LM	Elbow port, mixed sizes
MM Note 2)	Mixed size for different types of piping, option installed

Note 1) Indicate the size by means of the manifold specification sheet in case of "CM", "LM", "NM".

Note 2) When selecting the mixed size for different types of piping or dual flow fitting assembly, enter "MM" and give instructions in the manifold specification sheet.

Note 3) Symbols for inch sizes are as follows:
- N3: ø5/32"
- N7: ø1/4"
- N9: ø5/16"
- NM: Mixed

The top ported elbow is LN□ and the bottom ported elbow is BN□.

❹ End plate type
(Enter EX600-compliant S kit only.)

Nil	Without 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.

❻ I/O unit sations
(Enter EX600-compliant S kit only.)

Nil	None
1	1 station
⋮	⋮
9	9 stations

Note 1) Without SI unit, the symbol is nil.

Note 2) SI unit is not included in I/O unit stations.

Note 3) When I/O unit is selected, it is shipped separately, and assembled by customer. Refer to the attached operation manual for mounting method.

❼ Number of input blocks
(Enter EX250-compliant S kit only.)

Nil	Without SI unit/input block (SD0)
0	Without input block
1	With 1 input block
⋮	⋮
8	With 8 input blocks

Note) For the S kit compatible with AS-Interface, the maximum number of stations is limited. Refer to page 10 for details.

❽ Input block type
(Enter EX250-compliant S kit only.)

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

❾ Input block specification
(Enter EX250-compliant S kit only.)

Nil	PNP sensor input (+ COM) or without input block
N	NPN sensor input (– COM)

❿ Option

Nil	None
B Note 2)	All stations with back pressure check valve
D	With DIN rail (Rail length: Standard)
D□ Note 3)	With DIN rail (Rail length: Special)
K Note 4)	Special wiring spec. (Except double wiring)
N	With name plate
R Note 5)	External pilot
S Note 6)	Direct EXH outlet with built-in silencer
T Note 7)	Branched P and R ports on U-side

Note 1) When two or more symbols are specified, indicate them alphabetically. Example: -BRS

Note 2) When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.

Note 3) When DIN rail mounting (with DIN rail) is selected with a power supply 7/8 inch connector for end plate of the VQC2000 series, and I/O unit station number is 9, and max. valve station number is 23. DIN rail mount cannot be specified for 24 stations. (Refer to the DIN rail full length on page 20.)

Note 4) For special DIN rail length, indicate "D□". (Enter the number of stations inside □.)
Example: -D08
In this case, stations will be mounted on a DIN rail for 8 stations regardless of the actual number of manifold stations.
The specified number of stations must be larger than the number of stations on the manifold.
Indicate "-D0" for the option without DIN rail.

Note 5) When single wiring and double wiring are mixed, specify wiring type of each station by means of the manifold specification sheet.

Note 6) For external pilot option, "-R", indicate the external pilot specification "R" for the applicable valves as well.

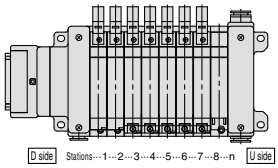
Note 7) Built-in silencer type does not satisfy IP67.

Note 8) SUP and EXH ports on the U-side (on cylinder port side and coil side is branched.) Port is equipped with one-touch fitting for ø12.

Note 9) When changing the specifications of the EX600 from no DIN rail to DIN rail mounting, please consult SMC.

Note 10) When the EX600 "Without SI unit (SD60)" is specified, "With DIN rail (D)" cannot be selected.

Note 11) DIN rail is not attached (but shipped together) on the manifold in case of the EX600 with DIN rail. Refer to back page 5 for mounting method.



* Stations are counted from station 1 on the D-side.

❺ SI unit COM

SI unit COM		EX250 integrated-type (I/O) serial transmission system						
		DeviceNet™	PROFIBUS DP	CC-Link	AS-Interface	CANopen	ControlNet™	EtherNet/IP™
Nil	+ COM	—	—	○	—	—	—	—
N	– COM	○	○	—	○	○	○	○

SI unit COM		EX500 gateway-type serial transmission system				EX126 integrated-type (Output) serial transmission system
		DeviceNet™	PROFIBUS DP	CC-Link	EtherNet/IP™	CC-Link
Nil	+ COM	○	○	○	○	○
N	– COM	○	○	○	○	—

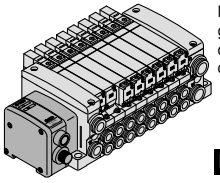
SI unit COM		EX600 integrated-type (I/O) serial transmission system (Fieldbus system)		
		DeviceNet™	PROFIBUS DP	CC-Link
Nil	+ COM	○	○	○
N	– COM	○	○	○

Note) Without SI unit (SD0□), the symbol is nil.

❸ Kit type/Electrical entry/Cable length

∗ Numbers in parentheses represent the maximum number of solenoids in case of mixed single and double wiring. The maximum number of stations is determined by the total number of solenoids. When ordering mixed wiring, please add the option symbol "-K".

S kit (Serial transmission: EX500 gateway type)



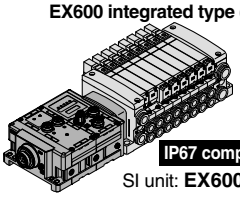
Note) A separate gateway unit and communication cable are required.

IP67 compliant

SI unit: **EX500**

SD0	Without SI unit	1 to 8 stations (16)
SDA2	DeviceNet™, PROFIBUS DP, CC-Link, EtherNet/IP™	

S kit (Serial transmission (Fieldbus system): EX600 integrated type (I/O))

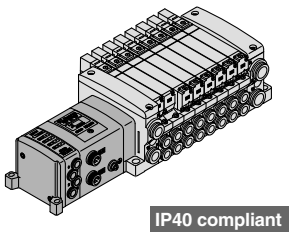


IP67 compliant

SI unit: **EX600**

SD60	Without SI unit	1 to 12 stations (24)
SD6Q	DeviceNet™	
SD6N	PROFIBUS DP	
SD6V	CC-Link	

S kit (Serial transmission: EX250 integrated type (I/O))



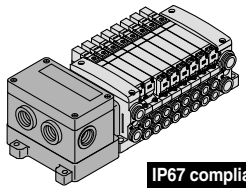
IP40 compliant

IP67 compliant

SI unit: **EX250**

SD0	Without SI unit	1 to 12 stations (24)
SDQ	DeviceNet™	
SDN	PROFIBUS-DP	
SDV	CC-LINK	
SDTA	AS-Interface, 8 in/8 out, 31 slave modes, 2 power supply systems	1 to 4 stations (8)
SDTB	AS-Interface, 4 in/4 out, 31 slave modes, 2 power supply systems	1 to 2 stations (4)
SDTC Note 1)	AS-Interface, 8 in/8 out, 31 slave modes, 1 power supply systems	1 to 4 stations (8)
SDTD Note 1)	AS-Interface, 4 in/4 out, 31 slave modes, 1 power supply systems	1 to 2 stations (4)
SDY	CANopen	1 to 12 stations (24)
SDZCN	ControlNet™ (IP40 compliant) Note 2)	
SDZEN	EtherNet/IP™	

S kit (Serial transmission: EX126 integrated type (Output))

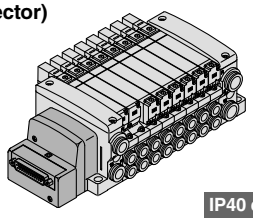


IP67 compliant

SI unit: **EX126**

SDVB	CC-LINK	1 to 8 stations (16)

F kit (D-sub connector)

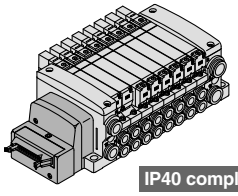


IP40 compliant

FD0	D-sub connector (25P) without cable	1 to 12 stations (24)
FD1	D-sub connector (25P) with 1.5 m cable	
FD2	D-sub connector (25P) with 3.0 m cable	
FD3	D-sub connector (25P) with 5.0 m cable	

P kit (Flat ribbon cable)

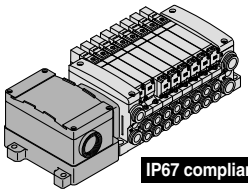
Note) For a 20P flat ribbon cable, the cable assembly must be ordered separately.



IP40 compliant

PD0	Flat ribbon cable (26P) without cable	1 to 12 stations (24)
PD1	Flat ribbon cable (26P) with 1.5 m cable	
PD2	Flat ribbon cable (26P) with 3.0 m cable	
PD3	Flat ribbon cable (26P) with 5.0 m cable	
PDC	Flat ribbon cable (20P) without cable	1 to 9 stations (18)

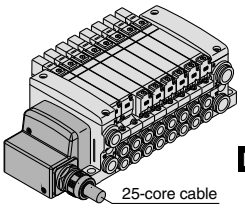
T kit (Terminal block box)



IP67 compliant

TD0	Terminal block box	1 to 10 stations (20)

L kit (Lead wire)

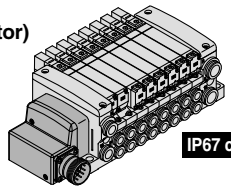


25-core cable

IP67 compliant

LD0	Lead wire (25 cores) 0.6 m lead wire	1 to 12 stations (24)
LD1	Lead wire (25 cores) 1.5 m lead wire	
LD2	Lead wire (25 cores) 3.0 m lead wire	

M kit (Circular connector)



IP67 compliant

MD0	Circular connector (26P) without cable	1 to 12 stations (24)
MD1	Circular connector (26P) with 1.5 m cable	
MD2	Circular connector (26P) with 3.0 m cable	
MD3	Circular connector (26P) with 5.0 m cable	

∗ The maximum number of stations displayed in parentheses is applied to the special wiring specifications. (Option "-K")

Note 1) When selecting SI units with SDTC or SDTD specifications, there are limits to the supply current from the SI unit to the input block or valve. Refer to Best Pneumatics No. ① for details.

Note 2) When selecting SI units with SDZCN specifications only, IP40 is compatible. (All other SI units are IP67 compliant.)

EX500 SI Unit Part No.

Symbol	Protocol	SI unit part no.		Page
		NPN output (+ COM.)	PNP output (– COM.)	
SDA2	DeviceNet™	EX500-Q001	EX500-Q101	Best Pneumatics No.①
	PROFIBUS-DP			
	CC-LINK			
	EtherNet/IP™			

EX600 SI Unit Part No.

Symbol	Protocol	SI unit part no.		Page
		PNP output	NPN output	
SD6Q	DeviceNet™	EX600-SDN1	EX600-SDN2	Fieldbus system catalog (I/O)
SD6N	CC-Link	EX600-SMJ1	EX600-SMJ2	
SD6V	PROFIBUS DP	EX600-SPR1	EX600-SPR2	

Refer to catalog CAT.E02-24, Fieldbus System (I/O), for details on the EX600 integrated-type (I/O).
Refer to Best Pneumatics No. ① for details on the EX500 gateway-type serial transmission system, EX250 integrated-type (I/O) serial transmission system and EX126 integrated-type (Output) serial transmission system.

EX250 SI Unit Part No.

Symbol	Protocol	SI unit part no.	Page
SDQ	DeviceNet™	EX250-SDN1	Best Pneumatics No.①
SDN	PROFIBUS-DP	EX250-SPR1	
SDV	CC-LINK	EX250-SMJ2	
SDTA	AS-Interface, 8 in/8 out, 31 slave modes, 2 power supply systems	EX250-SAS3	
SDTB	AS-Interface, 4 in/4 out, 31 slave modes, 2 power supply systems	EX250-SAS5	
SDTC	AS-Interface, 8 in/8 out, 31 slave modes, 1 power supply systems	EX250-SAS7	
SDTD	AS-Interface, 4 in/4 out, 31 slave modes, 1 power supply systems	EX250-SAS9	
SDY	CANopen	EX250-SCA1A	
SDZCN	ControlNet™	EX250-SCN1	
SDZEN	EtherNet/IP™	EX250-SEN1	

EX126 SI Unit Part No.

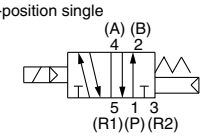
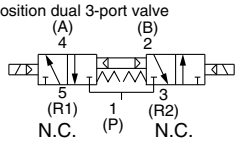
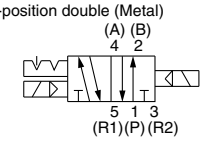
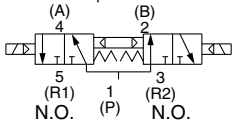
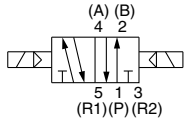
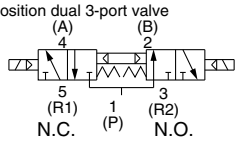
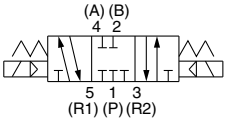
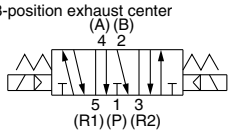
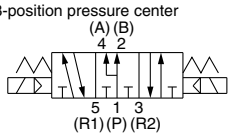
Symbol	Protocol	SI unit part no.	Page
SDVB	CC-Link	EX126D-SMJ1	Best Pneumatics No.①

How to Order Valves

VQC 2 1 0 0 □ – 5 □ □ 1

Series VQC2000 — Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ

Ⓐ Type of actuation

1	2-position single 	Note) **A**	4-position dual 3-port valve 
2	2-position double (Metal) 	Note) **B**	4-position dual 3-port valve 
	2-position double (Rubber) 	Note) **C**	4-position dual 3-port valve 
3	3-position closed center 		
4	3-position exhaust center 		
5	3-position pressure center 		

Note) Rubber seal only

Ⓑ Seal

0	Metal seal
1	Rubber seal

Ⓒ Function

Nil	Standard (0.4 W)
B	High-speed response type (0.95 W)
K Note 2)	High-pressure type (1.0 MPa, 0.95 W)
N Note 3)	Negative common
R Note 4)	External pilot

Note 1) When two or more symbols are specified, indicate them alphabetically. However, combination of "B" and "K" is not possible.
Note 2) Metal seal only
Note 3) When "-COM." is specified for the SI unit, select and mount the valve of negative common.
Note 4) Dual 3-port type is not applicable.

Ⓓ Coil voltage

5 Note)	24 VDC
6	12 VDC

Note) Only 24 VDC is available with the S kit.

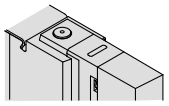
Ⓔ Light/surge voltage suppressor

Nil	Yes
E Note)	None

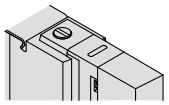
Note) Not applicable to the S kit.

Ⓕ Manual override

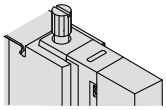
Nil: Non-locking push type (Tool required)



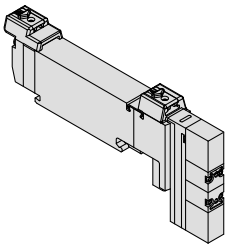
B: Locking type (Tool required)



C: Locking type (Manual)

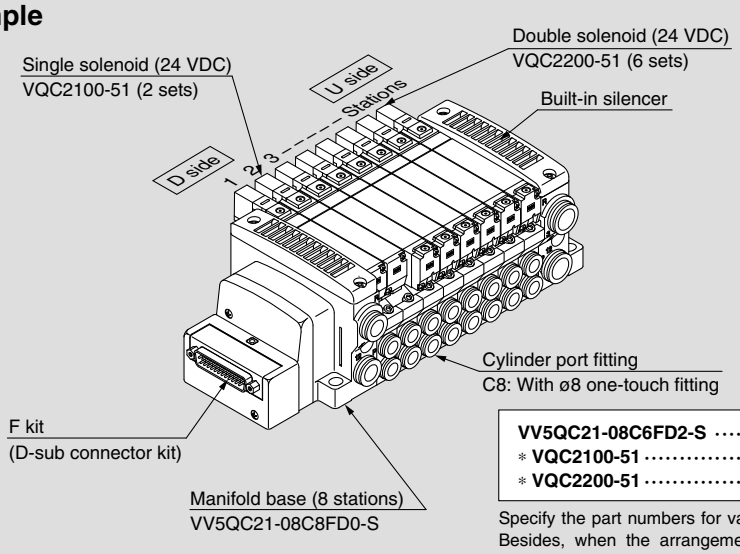


D: Slide locking type (Manual)



How to Order Manifold Assembly

Example



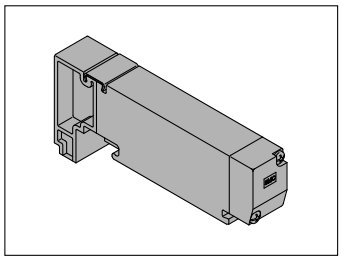
VV5QC21-08C6FD2-S ····· 1 set (F kit, built-in silencer 8-station manifold base part no.)
∗ VQC2100-51 ····· 2 sets (Single solenoid part no.)
∗ VQC2200-51 ····· 6 sets (Double solenoid part no.)

Specify the part numbers for valves and options together beneath the manifold base part number. Besides, when the arrangement will be complicated, specify them by means of the manifold specification sheet.

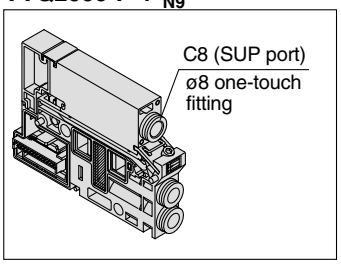
Manifold Options

Refer to pages 44 through to 46 for details.

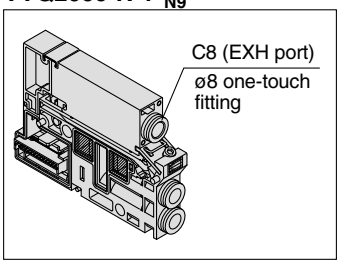
Blanking plate assembly
VVQ2000-10A-1



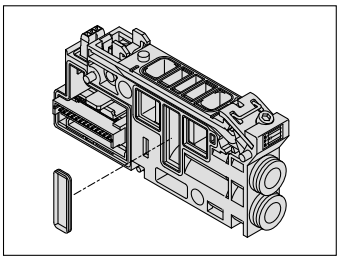
Individual SUP spacer
VVQ2000-P-1-$^{C8}_{N9}$



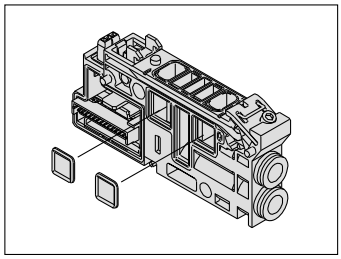
Individual EXH spacer
VVQ2000-R-1-$^{C8}_{N9}$



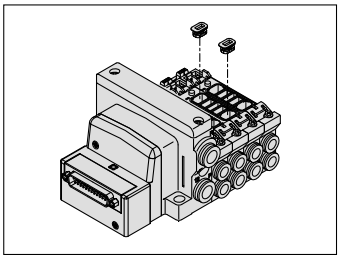
SUP block plate
VVQ2000-16A



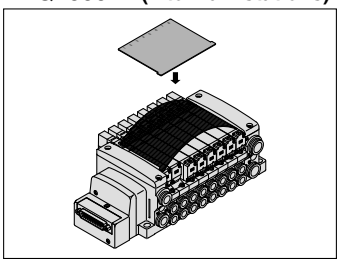
EXH block plate
VVQ2000-19A



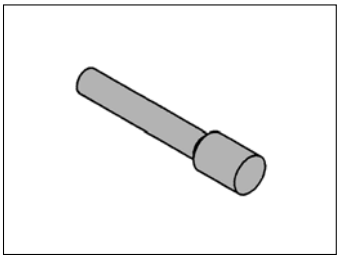
Back pressure check valve assembly [-B]
VVQ2000-18A



Name plate [-N]
VVQ2000-N-(1 to Max. stations)

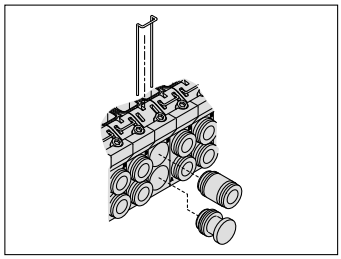


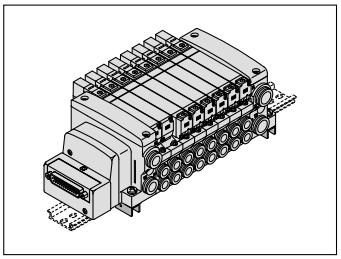
Blanking plug
KQ2P-□



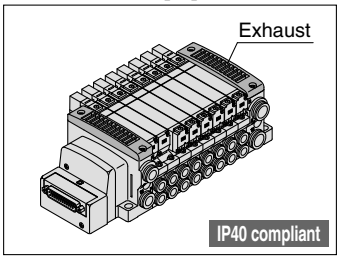
DIN rail mounting bracket [-D]
VVQ2000-57A
{For F/L/M/P/S (EX500) kit}
VVQC2000-57A-S
{For S (EX250) kit}
VVQC2000-57A-T (For T kit)

Port plug
VVQ1000-58A

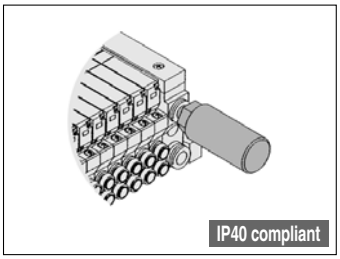




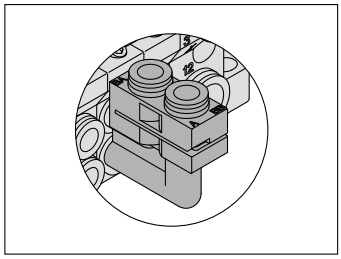
Direct EXH outlet with built-in silencer [-S]



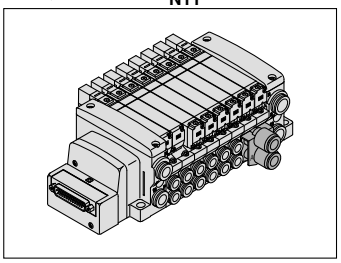
Silencer (For EXH port)
AN200-KM10



Elbow fitting assembly
VVQ2000-F-L□

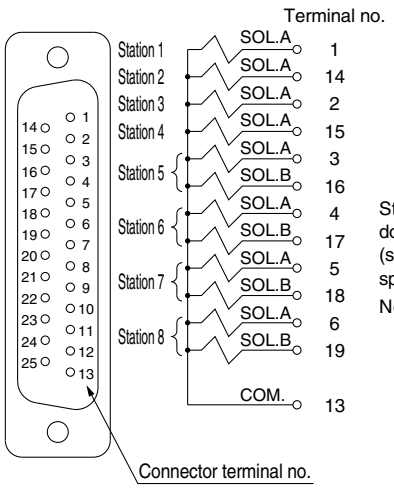


Dual flow fitting assembly
VVQ2000-52A-$^{C10}_{N11}$



Special electrical wiring specifications [-K]

Wiring example)
D-sub connector

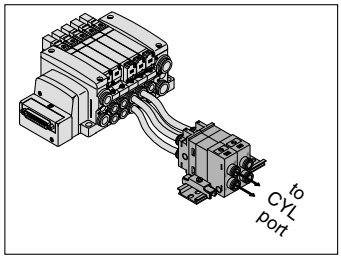


Standard manifolds are for double wiring, but mixed wiring (single and double wiring) can be specified as an option.

Note) Refer to the pages of each kit for details.

F kit ····· P. 25
P kit ····· P. 27
T kit ····· P. 29
L kit ····· P. 31
M kit ····· P. 33

Double check block
VVQ2000-FPG-□□-□

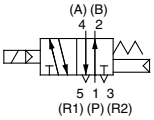


Plug-in Unit

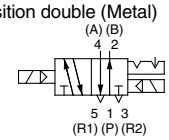
Model

Symbol

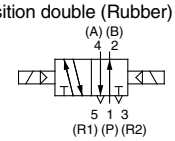
2-position single



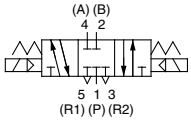
2-position double (Metal)



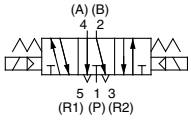
2-position double (Rubber)



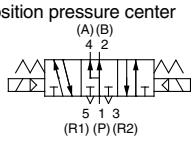
3-position closed center



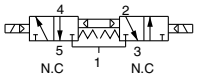
3-position exhaust center



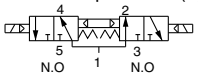
3-position pressure center



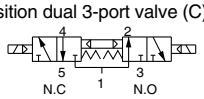
4-position dual 3-port valve (A)



4-position dual 3-port valve (B)



4-position dual 3-port valve (C)



Series	Type of actuation		Model		Flow-rate characteristics						Response time Note 2) (ms)		Mass (g)
					1 → 4, 2 (P → A, B)			4, 2 → 5, 3 (A, B → R1, R2)			Standard: 0.4 W	High-speed response: 0.95 W	
					C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv			
VQC1000	2-position	Single	Metal seal	VQC1100	0.70	0.15	0.16	0.72	0.25	0.18	15 or less	12 or less	67
			Rubber seal	VQC1101	0.85	0.20	0.21	1.0	0.30	0.25	20 or less	15 or less	
		Double	Metal seal	VQC1200	0.70	0.15	0.16	0.72	0.25	0.18	13 or less	10 or less	77
			Rubber seal	VQC1201	0.85	0.20	0.21	1.0	0.30	0.25	20 or less	15 or less	
	3-position	Closed center	Metal seal	VQC1300	0.68	0.15	0.16	0.72	0.25	0.18	26 or less	20 or less	
			Rubber seal	VQC1301	0.70	0.20	0.16	0.65	0.42	0.18	33 or less	25 or less	
		Exhaust center	Metal seal	VQC1400	0.68	0.15	0.16	0.72	0.25	0.18	26 or less	20 or less	
			Rubber seal	VQC1401	0.70	0.20	0.16	1.0	0.30	0.25	33 or less	25 or less	
		Pressure center	Metal seal	VQC1500	0.70	0.15	0.16	0.72	0.25	0.18	26 or less	20 or less	
			Rubber seal	VQC1501	0.85	0.20	0.21	0.65	0.42	0.18	33 or less	25 or less	
	4-position	Dual 3-port valve	Rubber seal	VQC1A/B/C01	0.70	0.20	0.16	0.70	0.20	0.16	33 or less	25 or less	
VQC2000	2-position	Single	Metal seal	VQC2100	2.0	0.15	0.46	2.6	0.15	0.60	29 or less	22 or less	95
			Rubber seal	VQC2101	2.2	0.28	0.55	3.2	0.30	0.80	31 or less	24 or less	
		Double	Metal seal	VQC2200	2.0	0.15	0.46	2.6	0.15	0.60	20 or less	15 or less	105
			Rubber seal	VQC2201	2.2	0.28	0.55	3.2	0.30	0.80	26 or less	20 or less	
	3-position	Closed center	Metal seal	VQC2300	2.0	0.15	0.46	2.0	0.18	0.46	38 or less	29 or less	
			Rubber seal	VQC2301	2.0	0.28	0.49	2.2	0.31	0.60	44 or less	34 or less	
		Exhaust center	Metal seal	VQC2400	2.0	0.15	0.46	2.6	0.15	0.60	38 or less	29 or less	
			Rubber seal	VQC2401	2.0	0.28	0.49	3.2	0.30	0.80	44 or less	34 or less	
		Pressure center	Metal seal	VQC2500	2.4	0.17	0.57	2.0	0.18	0.46	38 or less	29 or less	
			Rubber seal	VQC2501	3.2	0.28	0.80	2.2	0.31	0.60	44 or less	34 or less	
	4-position	Dual 3-port valve	Rubber seal	VQC2A/B/C01	1.8	0.28	0.46	1.8	0.28	0.46	44 or less	34 or less	

Note 1) Values represented in this column are in the following conditions:
VQC1000: Cylinder port size C6 without a back pressure check valve
VQC2000: Cylinder port size C8 without a back pressure check valve

Note 2) Values represented in this column are based on JIS B 8375-1981 (operating with clean air and a supply pressure of 0.5 MPa. Equipped with light/surge voltage suppressor. Values vary depending on the pressure as well as the air quality.) Values for double type are when the switch is turned ON.

Standard Specifications

Valve specifications	Valve type		Metal seal	Rubber seal
	Fluid		Air, Inert gas	
	Maximum operating pressure		0.7 MPa (High-pressure type: 1.0 MPa)	0.7 MPa
	Minimum operating pressure	Single	0.1 MPa	0.15 MPa
		Double	0.1 MPa	
		3-position	0.1 MPa	0.2 MPa
		4-position	——	0.15 MPa
	Ambient and fluid temperature		–10 to 50°C Note 1)	
	Lubrication		Not required	
	Manual override		Push type, Locking type (Tool required) semi-standard	
	Impact/Vibration resistance		150/30 m/s² Note 2)	
	Enclosure		Dustproof (IP67 compatible) Note 3)	
Electrical specifications	Rated coil voltage		24 VDC	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Equivalent to Class B	
	Power consumption (Current)	24 VDC	0.4 W DC (17 mA), 0.95 W DC (40 mA) Note 4)	
		12 VDC	0.4 W DC (34 mA), 0.95 W DC (80 mA) Note 4)	

Note 1) Use dry air to prevent condensation when operating at low temperatures.
Note 2) Impact resistance ····· No malfunction resulted from the impact test using a drop impact tester. Test was performed one time each in the axial and right angle directions of the main valve and armature for both energized and de-energized states.
Vibration resistance ··· No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed in the axial and right angle directions of the main valve and armature for both energized and de-energized states.
Note 3) Refer to page 1 and 2 for applicable variations.
Note 4) Value for high-speed response, high-pressure type (0.95 W)

Manifold Specifications

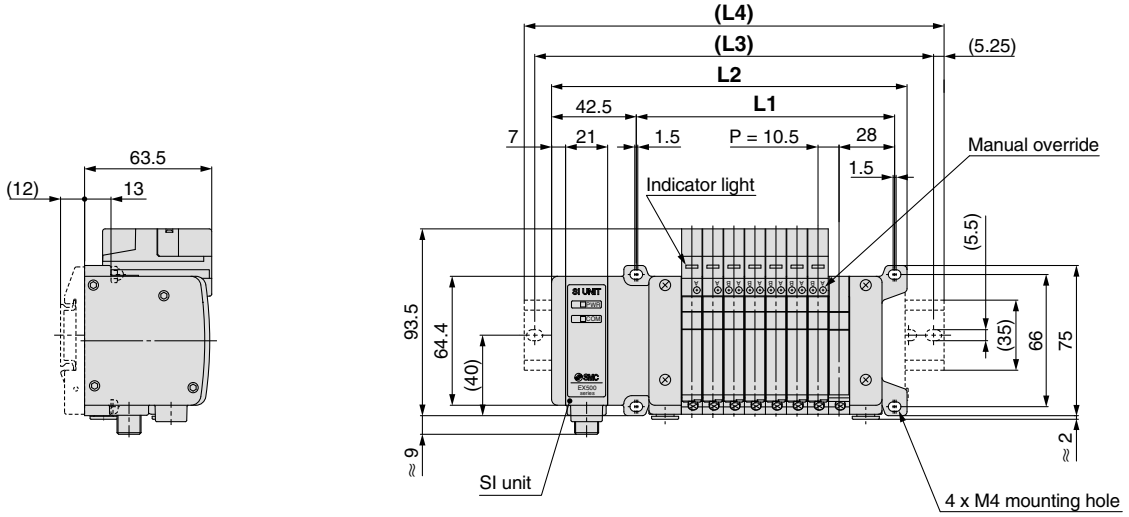
Series	Base model	Connection type	Piping specifications: Port direction	Piping specifications: Port size Note 1) 1, 3 (P, R)	Piping specifications: Port size Note 1) 2, 4 (A, B)	Applicable stations Note 2)	Applicable solenoid valves	5-station mass (g)
VQC1000	VV5QC11-□□□	**F kit: D-sub connector** **P kit: Flat ribbon cable** **T kit: Terminal block box** **S kit: Serial transmission** **L kit: Lead wire** **M kit: Circular connector**	Side	C8 (ø8) [Option: Direct EXH outlet with built-in silencer]	C3 (ø3.2) C4 (ø4) C6 (ø6) M5 (M5 thread)	(F/L/M/P kit 1 to 12 stations) (T kit 1 to 10 stations)	VQC1□00-5 VQC1□01-5	643 (Single) 754 (Double, 3-position)
VQC2000	VV5QC21-□□□		Side	C10 (ø10) [Option: Direct EXH outlet with built-in silencer] Branch type C12 (ø12)	C4 (ø4) C6 (ø6) C8 (ø8)	(S kit 1 to 8 stations: EX500 1 to 12 stations: EX250)	VQC2□00-5 VQC2□01-5	1076 (Single) 1119 (Double, 3-position)

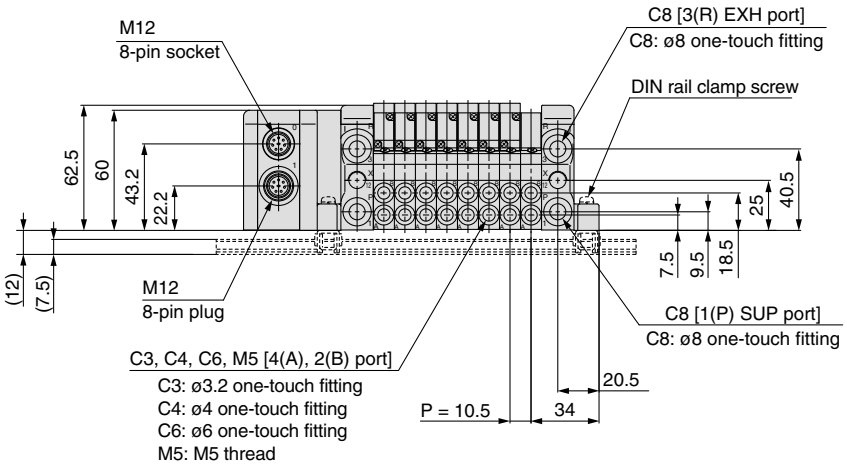
Note 1) Inch-size one-touch fittings are also available.
Note 2) Special wiring specifications are available as semi-standard to increase the maximum number of stations.

S *Series VQC1000/2000*

kit (Serial transmission) For EX500 Gateway-type serial transmission system **IP67 compliant**

VV5QC11
S kit (Serial transmission kit: EX500)





The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

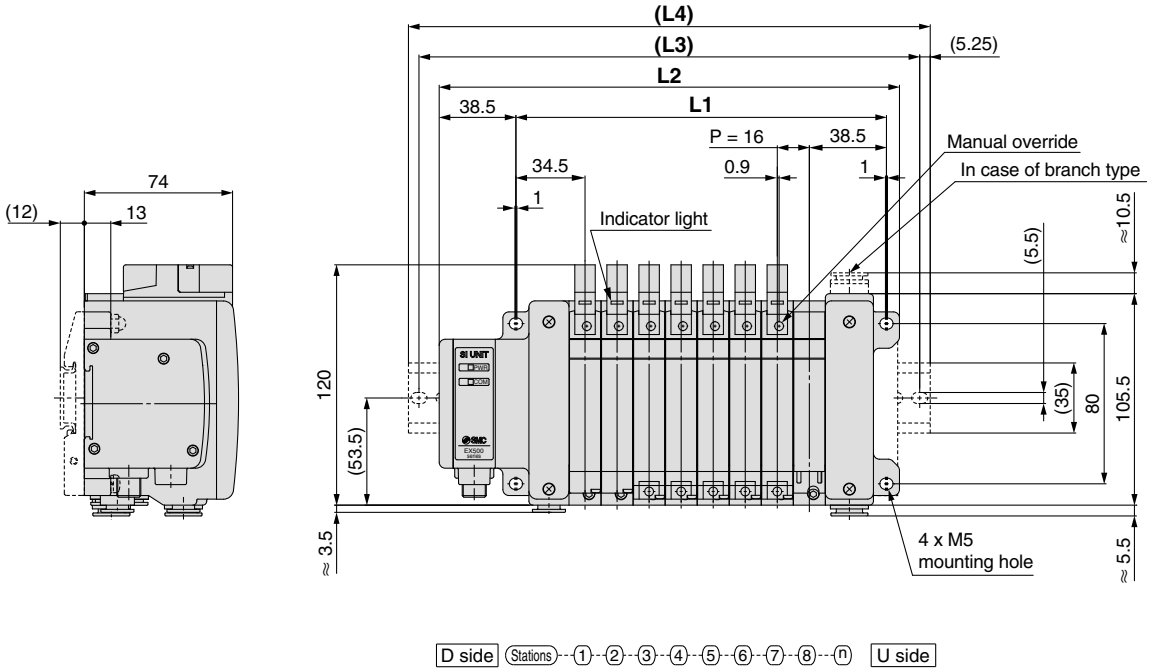
Formula: L1 = 10.5n + 45, L2 = 10.5n + 93.5 n: Stations (Maximum 16 stations)

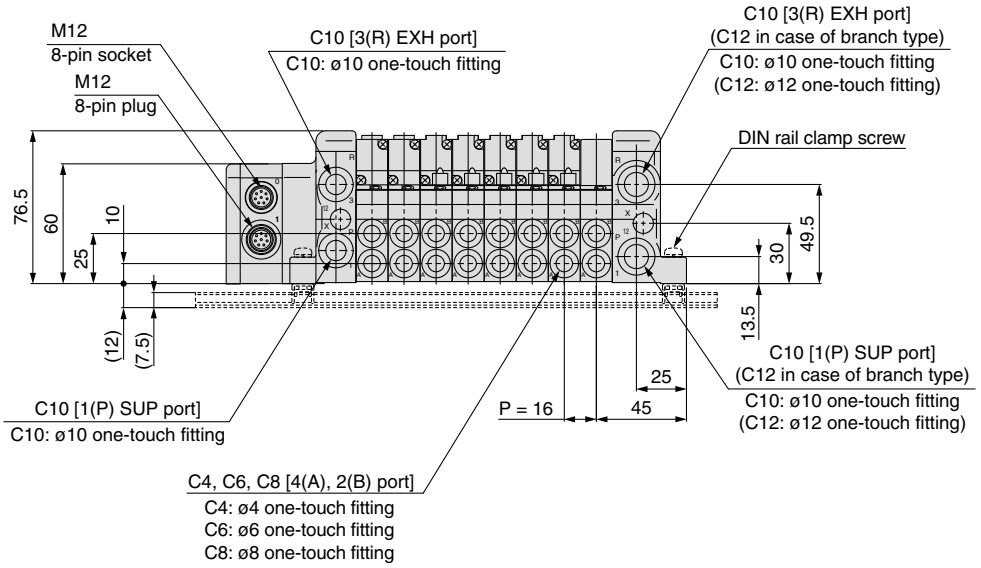
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213
L2	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5	230	240.5	251	261.5
L3	125	137.5	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5	275	287.5
L4	135.5	148	160.5	173	185.5	198	198	210.5	223	235.5	248	260.5	260.5	273	285.5	298

S Series VQC1000/2000

kit (Serial transmission) For EX500 Gateway-type serial transmission system IP67 compliant

VV5QC21
S kit (Serial transmission kit: EX500)





The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

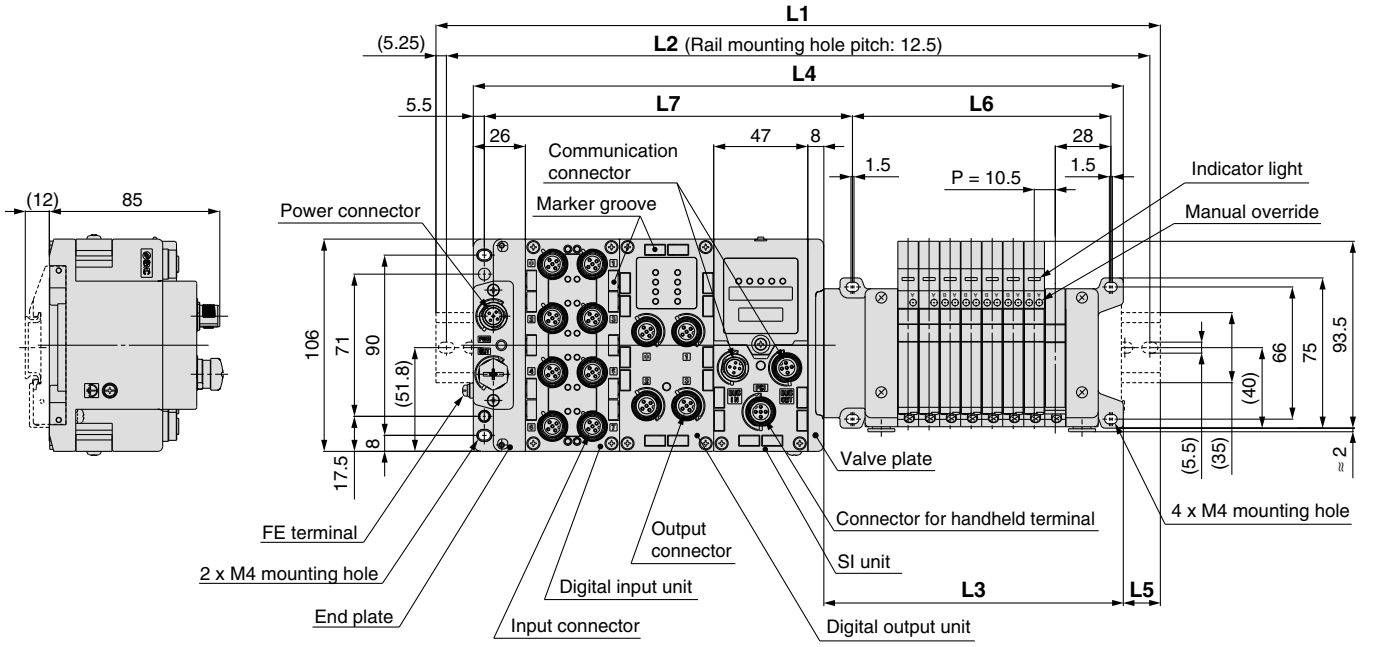
Formula: L1 = 16n + 57, L2 = 16n + 102 n: Stations (Maximum 16 stations)

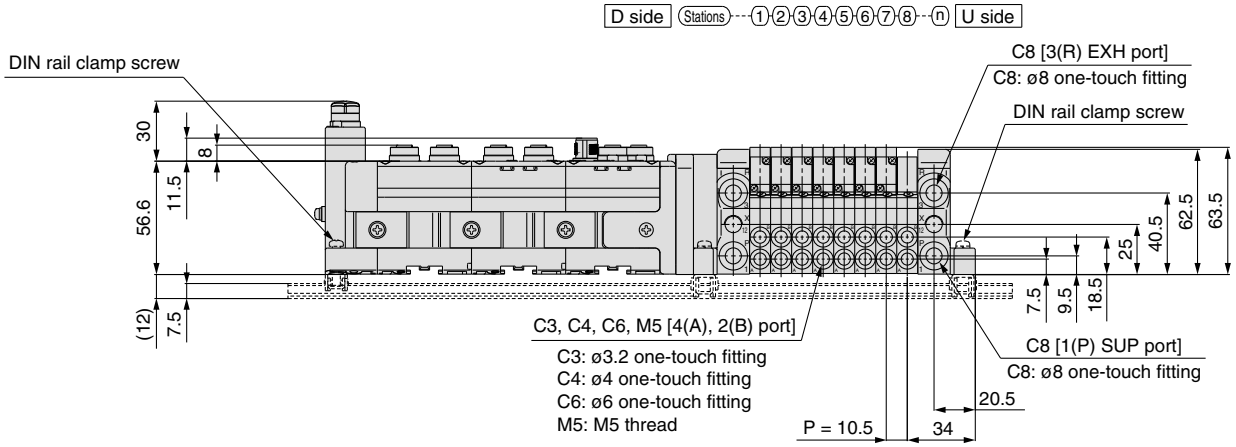
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313
L2	118	134	150	166	182	198	214	230	246	262	278	294	310	326	342	358
L3	137.5	150	175	187.5	200	212.5	237.5	250	262.5	287.5	300	312.5	337.5	350	362.5	375
L4	148	160.5	185.5	198	210.5	223	248	260.5	273	298	310.5	323	348	360.5	373	385.5

S *Series VQC1000*

kit (Serial transmission) For EX600 Integrated-type (I/O) serial transmission system **IP67 compliant**

VV5QC11
S kit (Serial transmission kit: EX600)
Power supply with M12 connector





L2 = L1 – 10.5
L3 = 10.5 x n1 + 65.5
L4 = L3 + 81 + 47 x n2
L5 = (L1 – L4)/2
L6 = 10.5 x n1 + 45
L7 = 47 x n2 + 89.8

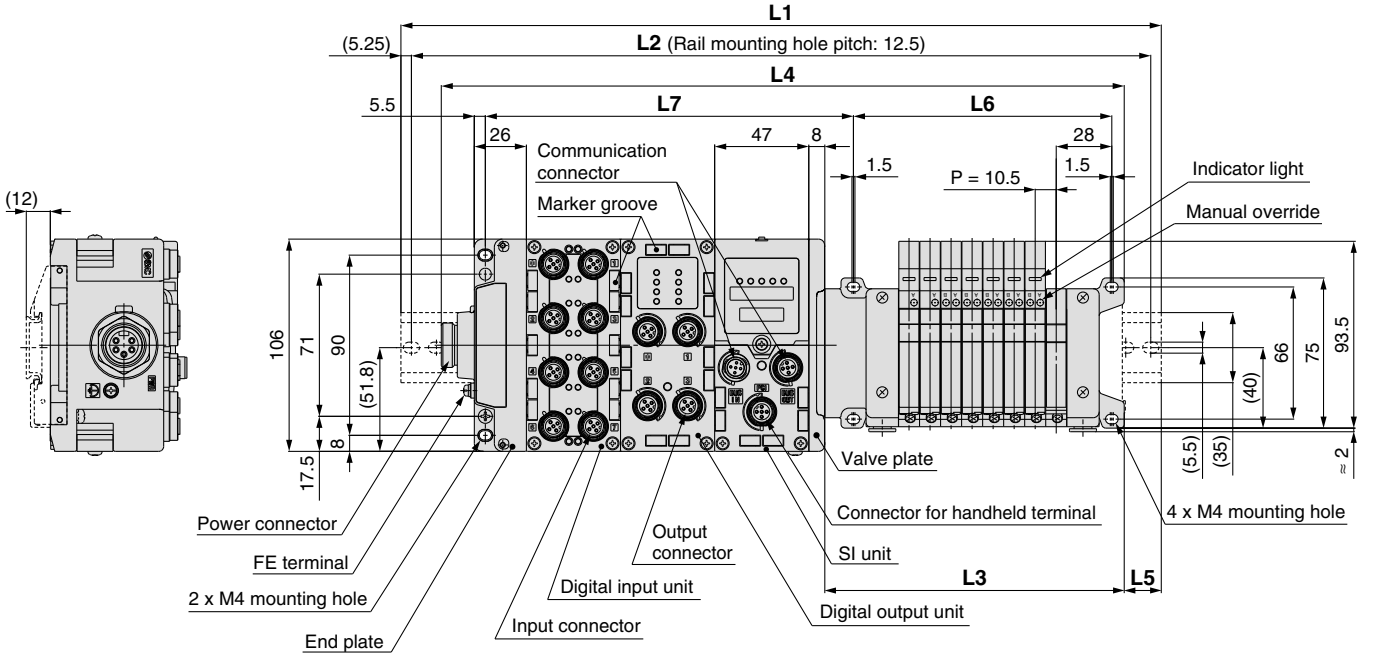
L1: DIN Rail Full Length

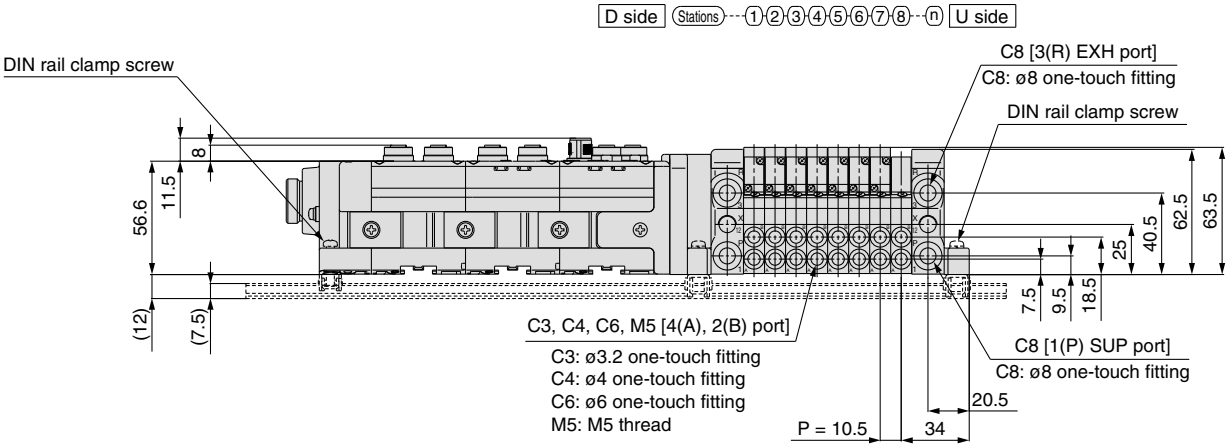
I/O unit stations (n2) \ Valve stations (n1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	198	198	210.5	223	235.5	248	260.5	260.5	273	285.5	298	310.5	323	335.5	335.5	348	360.5	373	385.5	398	398	410.5	423	435.5
1	235.5	248	260.5	273	285.5	298	298	310.5	323	335.5	348	360.5	360.5	373	385.5	398	410.5	423	423	435.5	448	460.5	473	485.5
2	285.5	298	310.5	323	323	335.5	348	360.5	373	385.5	398	398	410.5	423	435.5	448	460.5	460.5	473	485.5	498	510.5	523	523
3	335.5	348	360.5	360.5	373	385.5	398	410.5	423	423	435.5	448	460.5	473	485.5	485.5	498	510.5	523	535.5	548	560.5	560.5	573
4	385.5	385.5	398	410.5	423	435.5	448	460.5	460.5	473	485.5	498	510.5	523	523	535.5	548	560.5	573	585.5	585.5	598	610.5	623
5	423	435.5	448	460.5	473	485.5	485.5	498	510.5	523	535.5	548	548	560.5	573	585.5	598	610.5	623	623	635.5	648	660.5	673
6	473	485.5	498	510.5	523	523	535.5	548	560.5	573	585.5	585.5	598	610.5	623	635.5	648	648	660.5	673	685.5	698	710.5	710.5
7	523	535.5	548	548	560.5	573	585.5	598	610.5	610.5	623	635.5	648	660.5	673	685.5	685.5	698	710.5	723	735.5	748	748	760.5
8	573	585.5	585.5	598	610.5	623	635.5	648	648	660.5	673	685.5	698	710.5	710.5	723	735.5	748	760.5	773	773	785.5	798	810.5
9	610.5	623	635.5	648	660.5	673	673	685.5	698	710.5	723	735.5	748	748	760.5	773	785.5	798	810.5	810.5	823	835.5	848	860.5

S Series VQC1000

kit (Serial transmission) For EX600 Integrated-type (I/O) serial transmission system IP67 compliant

VV5QC11
S kit (Serial transmission kit: EX600)
Power supply with 7/8 inch connector





L2 = L1 – 10.5
L3 = 10.5 x n1 + 65.5
L4 = L3 + 81 + 47 x n2
L5 = (L1 – L4)/2
L6 = 10.5 x n1 + 45
L7 = 47 x n2 + 89.8

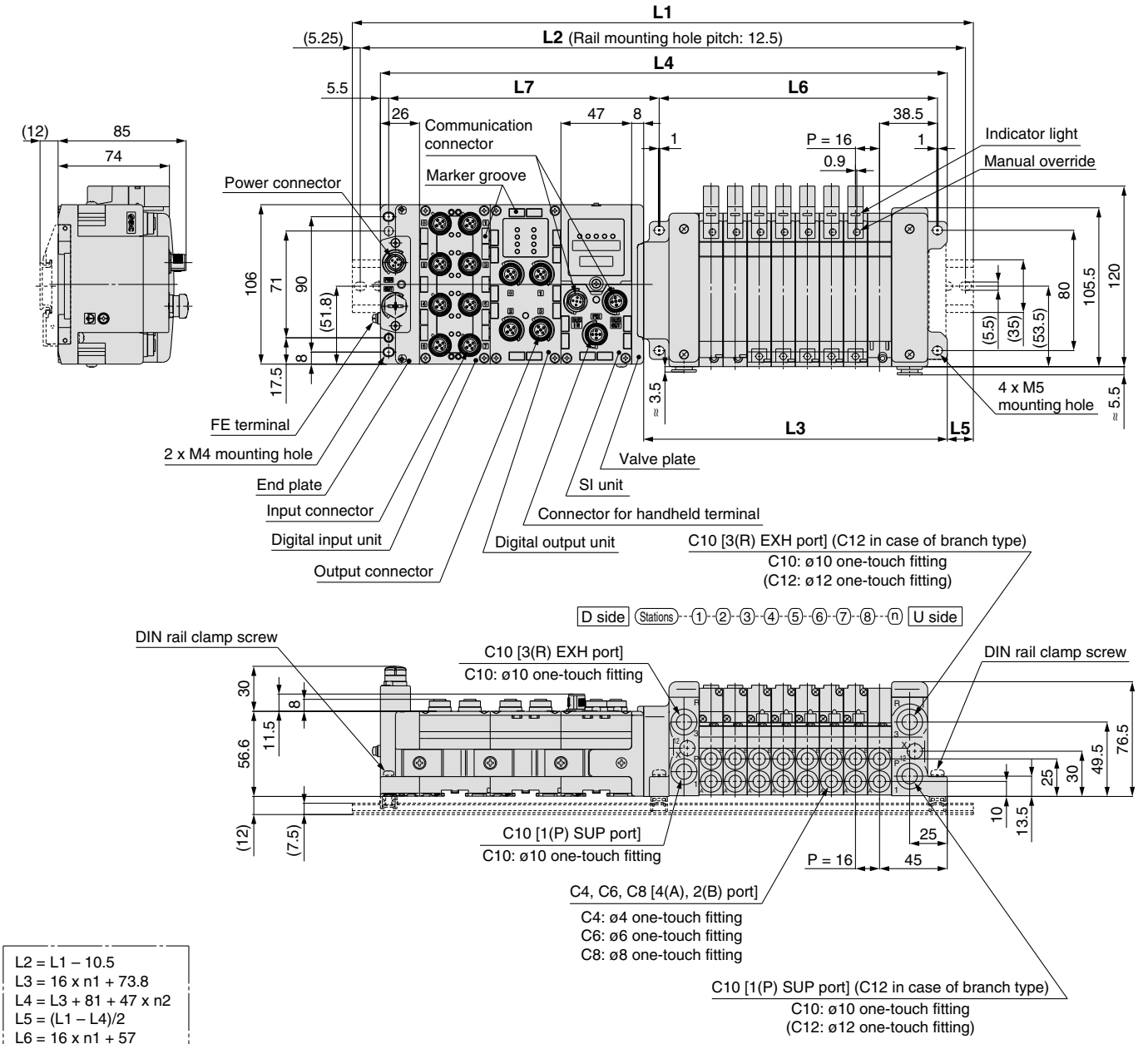
L1: DIN Rail Full Length

I/O unit stations (n2) \ Valve stations (n1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	210.5	223	235.5	235.5	248	260.5	273	285.5	298	298	310.5	323	335.5	348	360.5	373	373	385.5	398	410.5	423	435.5	435.5	448
1	260.5	273	273	285.5	298	310.5	323	335.5	335.5	348	360.5	373	385.5	398	398	410.5	423	435.5	448	460.5	460.5	473	485.5	498
2	298	310.5	323	335.5	348	360.5	360.5	373	385.5	398	410.5	423	435.5	435.5	448	460.5	473	485.5	498	498	510.5	523	535.5	548
3	348	360.5	373	385.5	398	398	410.5	423	435.5	448	460.5	460.5	473	485.5	498	510.5	523	523	535.5	548	560.5	573	585.5	598
4	398	410.5	423	423	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	623	623	635.5
5	448	460.5	460.5	473	485.5	498	510.5	523	523	535.5	548	560.5	573	585.5	585.5	598	610.5	623	635.5	648	660.5	660.5	673	685.5
6	485.5	498	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	685.5	698	710.5	723	735.5
7	535.5	548	560.5	573	585.5	585.5	598	610.5	623	635.5	648	648	660.5	673	685.5	698	710.5	723	723	735.5	748	760.5	773	785.5
8	585.5	598	610.5	623	623	635.5	648	660.5	673	685.5	685.5	698	710.5	723	735.5	748	748	760.5	773	785.5	798	810.5	810.5	823
9	635.5	648	648	660.5	673	685.5	698	710.5	710.5	723	735.5	748	760.5	773	785.5	785.5	798	810.5	823	835.5	848	848	860.5	873

S *Series VQC2000*

kit (Serial transmission) For EX600 Integrated-type (I/O) serial transmission system **IP67 compliant**

VV5QC21
S kit (Serial transmission kit: EX600)
Power supply with M12 connector



L2 = L1 – 10.5
L3 = 16 x n1 + 73.8
L4 = L3 + 81 + 47 x n2
L5 = (L1 – L4)/2
L6 = 16 x n1 + 57
L7 = 47 x n2 + 85.8

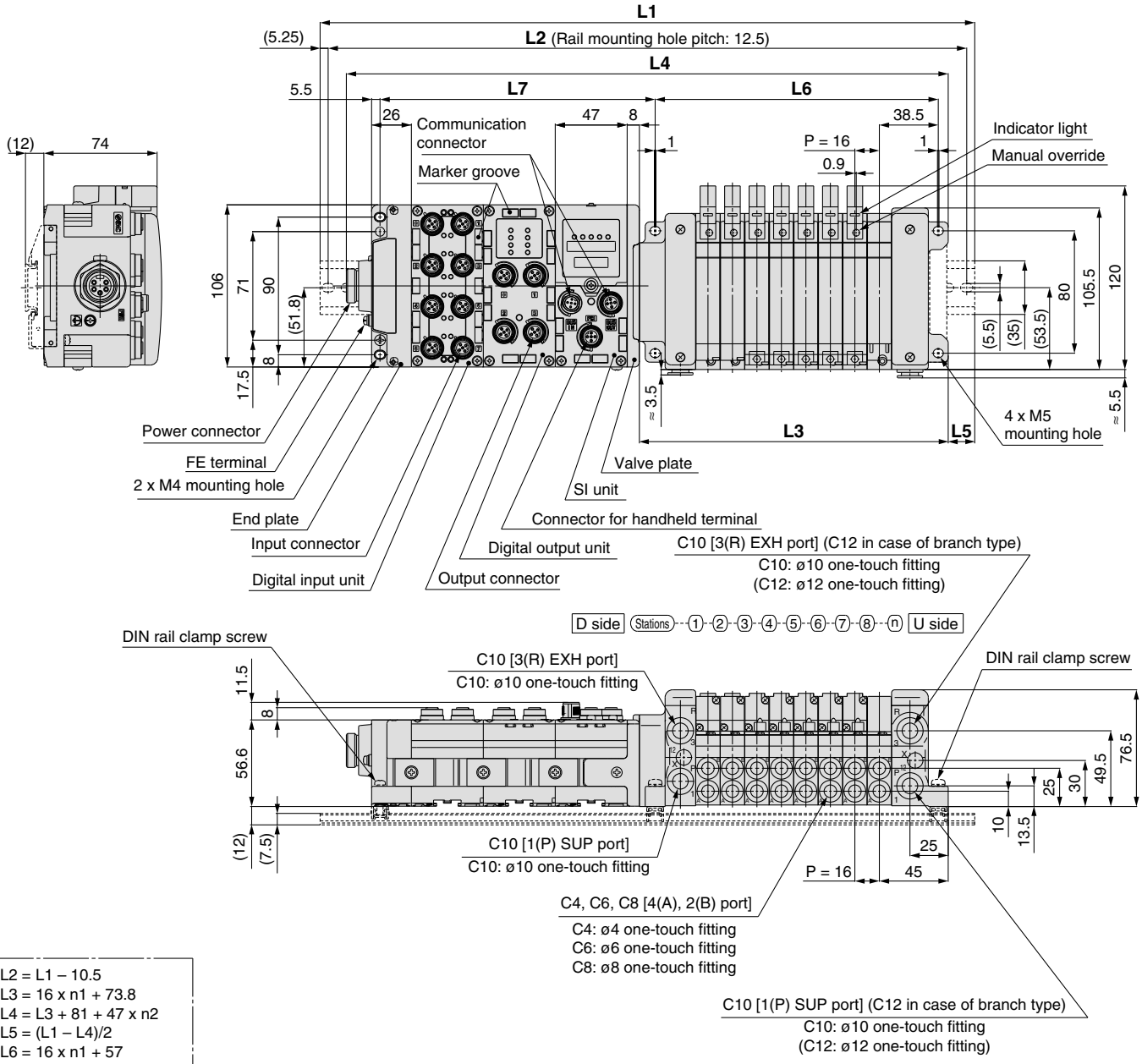
L1: DIN Rail Full Length

I/O unit stations (n2) \ Valve stations (n1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	210.5	223	235.5	260.5	273	285.5	298	323	335.5	348	373	385.5	398	410.5	435.5	448	460.5	473	498	510.5	523	548	560.5	573
1	248	273	285.5	298	323	335.5	348	360.5	385.5	398	410.5	435.5	448	460.5	473	498	510.5	523	548	560.5	573	585.5	610.5	623
2	298	323	335.5	348	360.5	385.5	398	410.5	423	448	460.5	473	498	510.5	523	535.5	560.5	573	585.5	610.5	623	635.5	648	673
3	348	360.5	385.5	398	410.5	423	448	460.5	473	498	510.5	523	535.5	560.5	573	585.5	598	623	635.5	648	673	685.5	698	710.5
4	398	410.5	423	448	460.5	473	485.5	510.5	523	535.5	560.5	573	585.5	598	623	635.5	648	673	685.5	698	710.5	735.5	748	760.5
5	448	460.5	473	485.5	510.5	523	535.5	548	573	585.5	598	623	635.5	648	660.5	685.5	698	710.5	735.5	748	760.5	773	798	810.5
6	485.5	510.5	523	535.5	548	573	585.5	598	623	635.5	648	660.5	685.5	698	710.5	723	748	760.5	773	798	810.5	823	835.5	860.5
7	535.5	548	573	585.5	598	610.5	635.5	648	660.5	685.5	698	710.5	723	748	760.5	773	798	810.5	823	835.5	860.5	873	885.5	898
8	585.5	598	610.5	635.5	648	660.5	673	698	710.5	723	748	760.5	773	785.5	810.5	823	835.5	860.5	873	885.5	898	923	935.5	948
9	635.5	648	660.5	673	698	710.5	723	748	760.5	773	785.5	810.5	823	835.5	848	873	885.5	898	923	935.5	948	960.5	985.5	985.5

S *Series VQC2000*

kit (Serial transmission) For EX600 Integrated-type (I/O) serial transmission system IP67 compliant

VV5QC21
S kit (Serial transmission kit: EX600)
Power supply with 7/8 inch connector



L2 = L1 – 10.5
L3 = 16 x n1 + 73.8
L4 = L3 + 81 + 47 x n2
L5 = (L1 – L4)/2
L6 = 16 x n1 + 57
L7 = 47 x n2 + 85.8

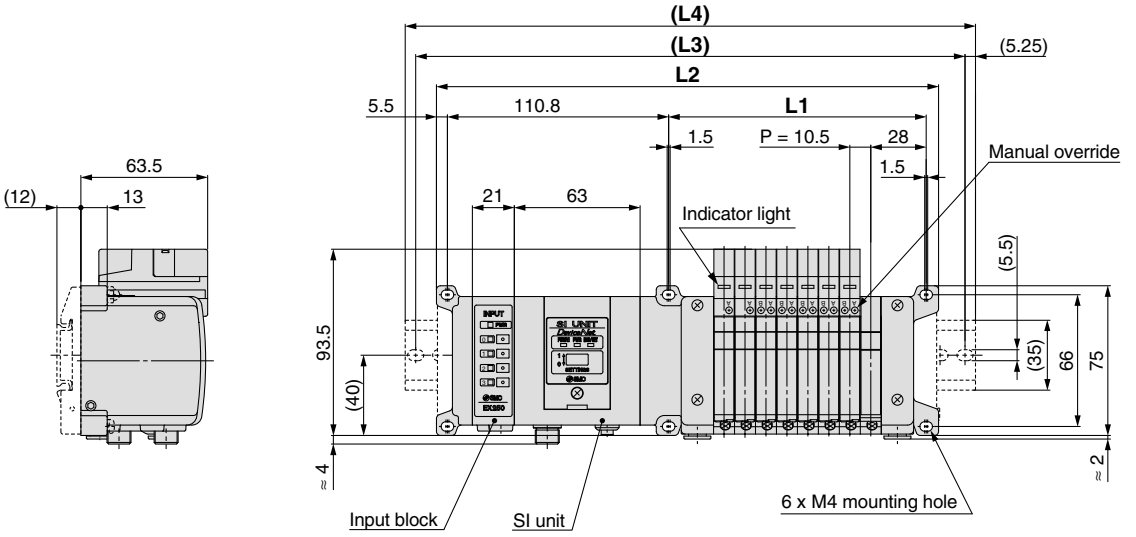
L1: DIN Rail Full Length

I/O unit stations (n2) \ Valve stations (n1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	223	235.5	260.5	273	285.5	298	323	335.5	348	373	385.5	398	410.5	435.5	448	460.5	485.5	498	510.5	523	548	560.5	573	585.5
1	273	285.5	298	323	335.5	348	360.5	385.5	398	410.5	435.5	448	460.5	473	498	510.5	523	548	560.5	573	585.5	610.5	623	635.5
2	323	335.5	348	360.5	385.5	398	410.5	435.5	448	460.5	473	498	510.5	523	535.5	560.5	573	585.5	610.5	623	635.5	648	673	685.5
3	360.5	385.5	398	410.5	423	448	460.5	473	498	510.5	523	535.5	560.5	573	585.5	610.5	623	635.5	648	673	685.5	698	710.5	735.5
4	410.5	423	448	460.5	473	485.5	510.5	523	535.5	560.5	573	585.5	598	623	635.5	648	673	685.5	698	710.5	735.5	748	760.5	785.5
5	460.5	473	485.5	510.5	523	535.5	560.5	573	585.5	598	623	635.5	648	660.5	685.5	698	710.5	735.5	748	760.5	773	798	810.5	823
6	510.5	523	535.5	548	573	585.5	598	623	635.5	648	660.5	685.5	698	710.5	735.5	748	760.5	773	798	810.5	823	835.5	860.5	873
7	548	573	585.5	598	610.5	635.5	648	660.5	685.5	698	710.5	723	748	760.5	773	798	810.5	823	835.5	860.5	873	885.5	910.5	923
8	598	610.5	635.5	648	660.5	685.5	698	710.5	723	748	760.5	773	785.5	810.5	823	835.5	860.5	873	885.5	898	923	935.5	948	973
9	648	660.5	673	698	710.5	723	748	760.5	773	785.5	810.5	823	835.5	860.5	873	885.5	898	923	935.5	948	960.5	985.5	985.5	–

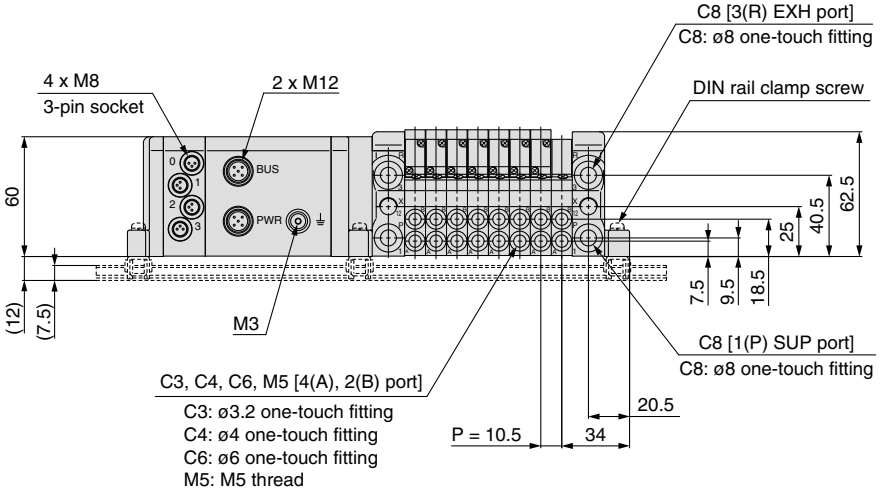
S *Series VQC1000/2000*

kit (Serial transmission) For EX250 Integrated-type (I/O) serial transmission system **IP67 compliant**

VV5QC11
S kit (Serial transmission kit: EX250)



D side (Stations) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⓝ U side



The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

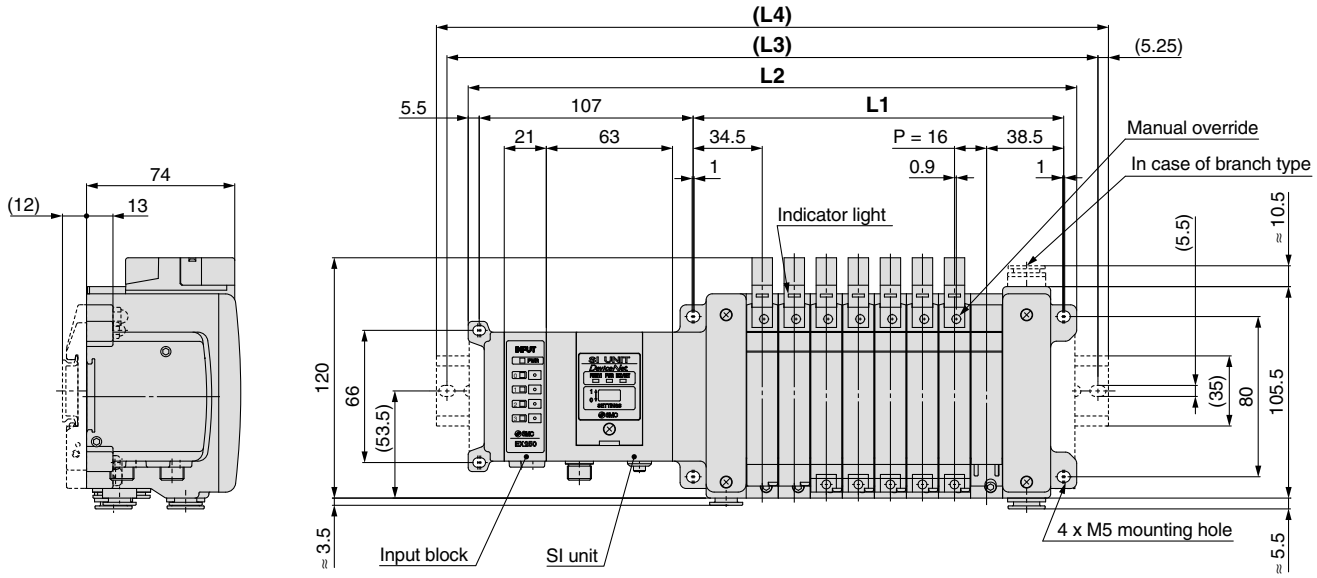
Formula: L1 = 10.5n + 45, L2 = 10.5n + 167.5 (For one input block. Add 21 mm for each additional input block.) n: Stations (Maximum 24 stations)

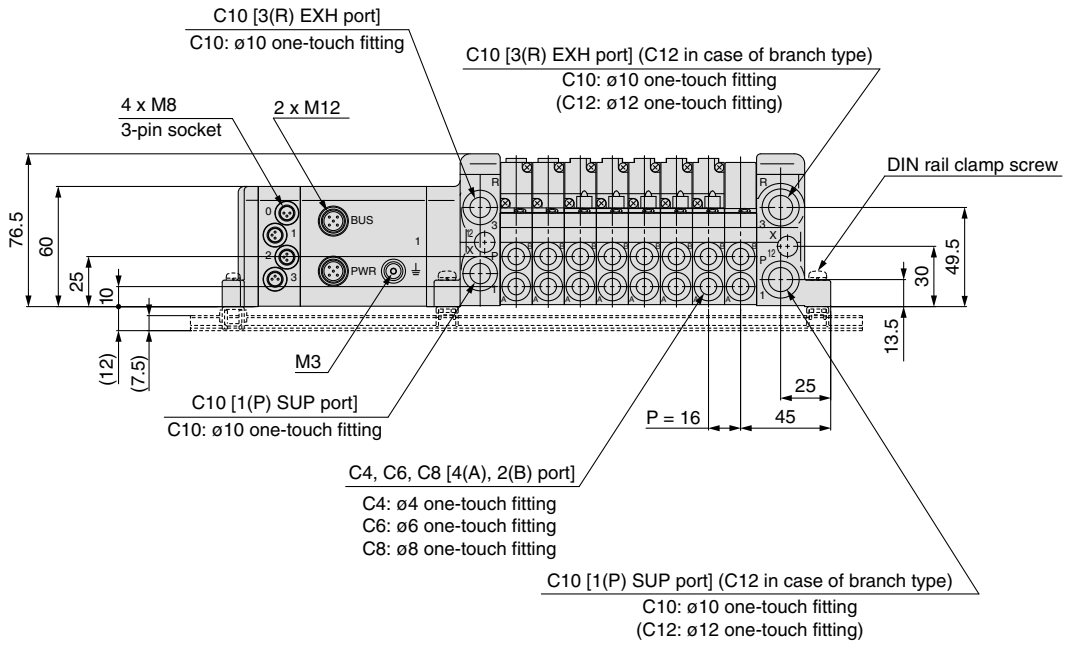
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5	234	244.5	255	265.5	276	286.5	297
L2	178	188.5	199	209.5	220	230.5	241	251.5	262	272.5	283	293.5	304	314.5	325	335.5	346	356.5	367	377.5	388	398.5	409	419.5
L3	200	212.5	225	237.5	250	250	262.5	275	287.5	300	312.5	325	325	337.5	350	362.5	375	387.5	387.5	400	412.5	425	437.5	450
L4	210.5	223	235.5	248	260.5	260.5	273	285.5	298	310.2	323	335.5	335.5	348	360.5	373	385.5	398	398	410.5	423	435.5	448	448

S *Series VQC1000/2000*

kit (Serial transmission) For EX250 Integrated-type (I/O) serial transmission system IP67 compliant

VV5QC21
S kit (Serial transmission kit: EX250)





The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

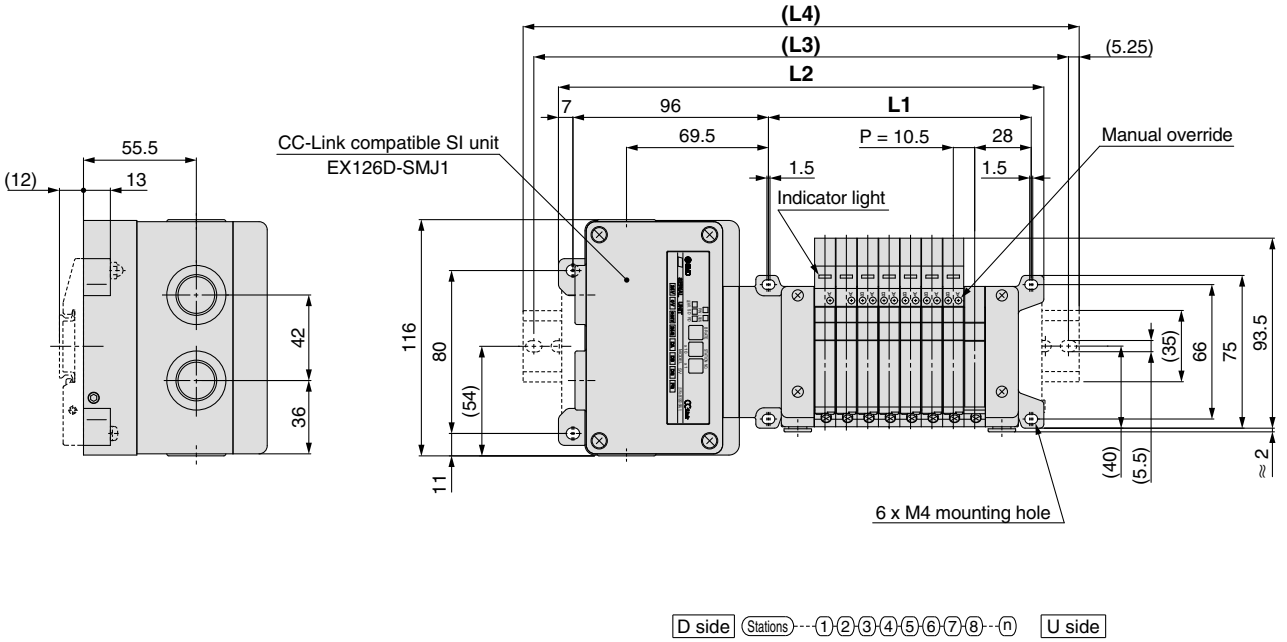
Formula: L1 = 16n + 57, L2 = 16n + 176 (For one input block. Add 21 mm for each additional input block.) n: Stations (Maximum 24 stations)

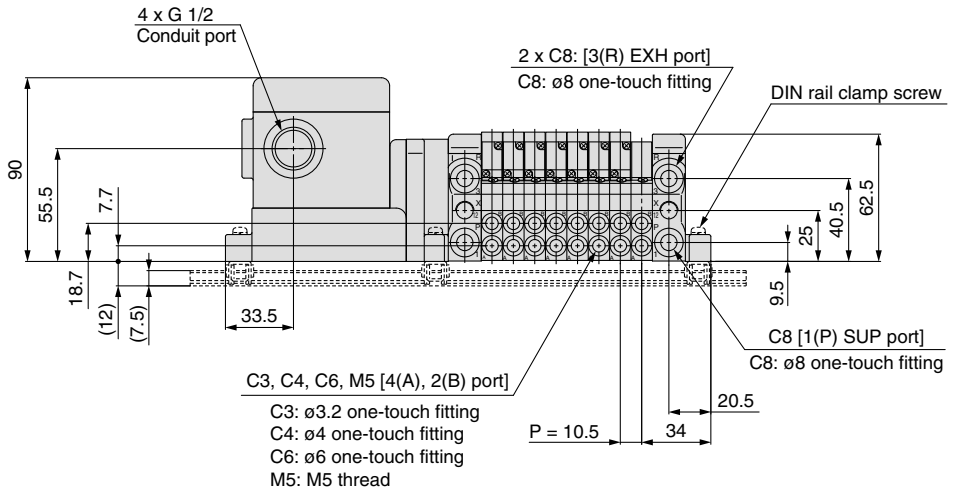
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329	345	361	377	393	409	425	441
L2	192	208	224	240	256	272	288	304	320	336	352	368	384	400	416	432	448	464	480	496	512	528	544	560
L3	212.5	237.5	250	262.5	275	287.5	312.5	325	337.5	362.5	375	387.5	400	425	437.5	450	462.5	487.5	500	512.5	537.5	550	562.5	587.5
L4	223	248	260.5	273	285.5	298	323	335.5	348	373	385.5	398	410.5	435.5	448	460.5	473	498	510.5	523	548	560.5	573	598

S *Series VQC1000/2000*

kit (Serial transmission) For EX126 Integrated-type (Output) serial transmission system **IP67 compliant**

VV5QC11
S kit (Serial transmission kit: EX126)





The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

Formula: L1 = 10.5n + 45, L2 = 10.5n + 154.5 n: Stations (Maximum 16 stations)

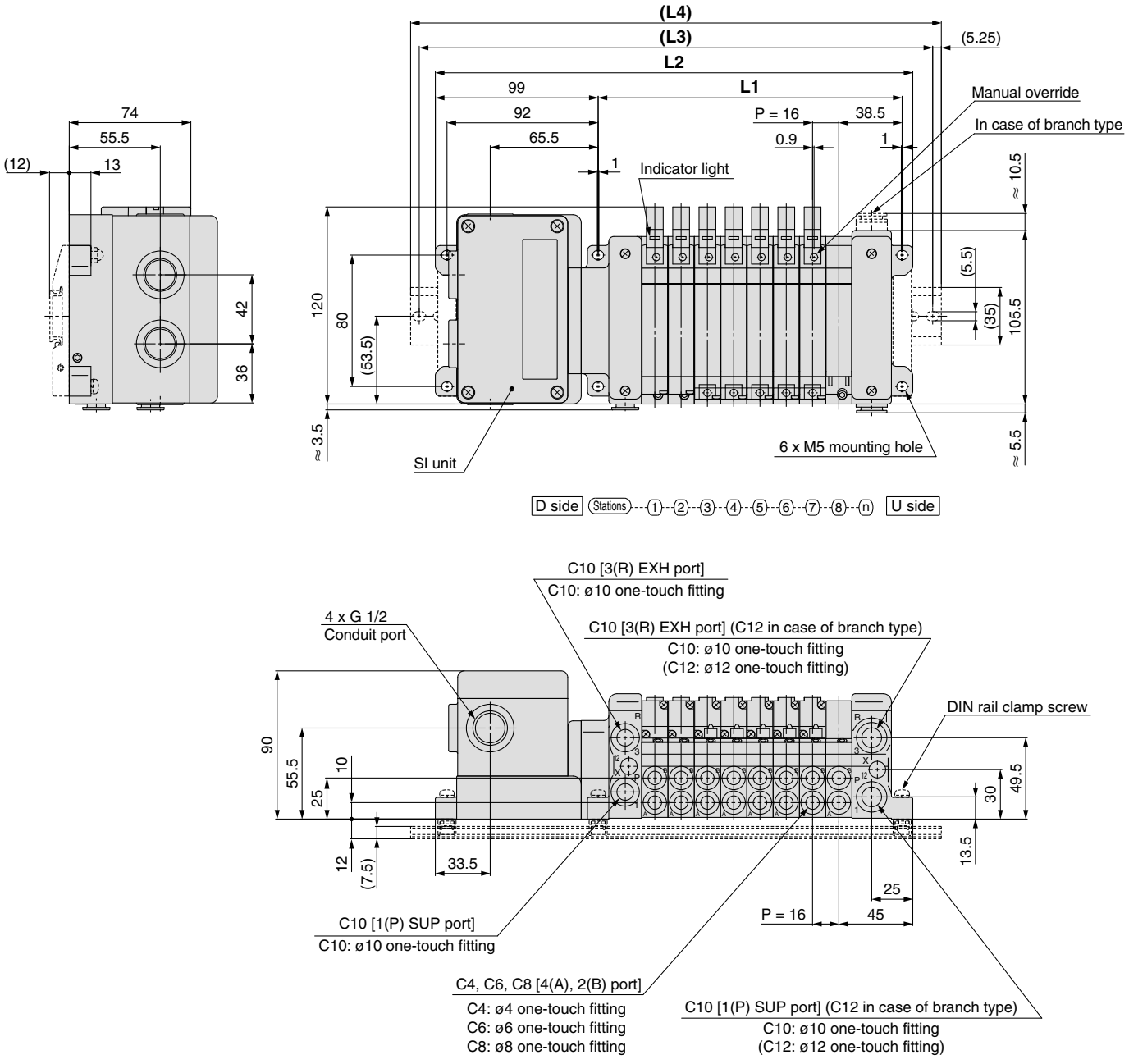
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213
L2	165	175.5	186	196.5	207	217.5	228	238.5	249	259.5	270	280.5	291	301.5	312	322.5
L3	187.5	200	212.5	212.5	225	237.5	250	262.5	275	275	287.5	300	312.5	325	337.5	337.5
L4	198	210.5	223	223	235.5	248	260.5	273	285.5	285.5	298	310.5	323	335.5	348	348

∗ With signal cut block, L4 is L2 plus about 30 mm.

S Series VQC1000/2000

kit (Serial transmission) For EX126 Integrated-type (Output) serial transmission system IP67 compliant

VV5QC21
S kit (Serial transmission kit: EX126)



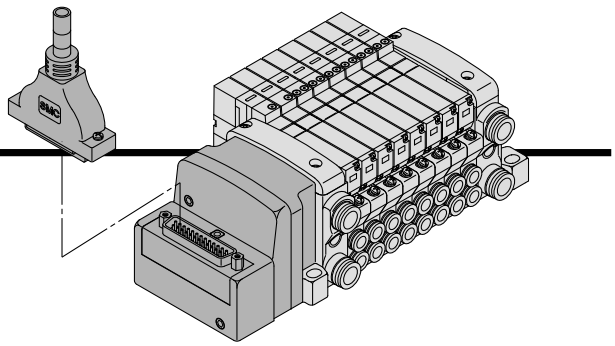
The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

Formula: L1 = 16n + 57, L2 = 16n + 163 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313
L2	179	195	211	227	243	259	275	291	307	323	339	355	371	387	403	419
L3	200	212.5	237.5	237.5	262.5	262.5	287.5	312.5	325	371	362.5	375	408.5	412.5	425	437.5
L4	210.5	223	248	248	273	273	298	323	335.5	360.5	373	385.5	398	423	435.5	448

∗ With signal cut block, L4 is L2 plus about 30 mm.

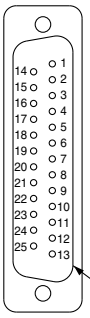
F Series VQC1000/2000
kit (D-sub connector) IP40 compliant



- **Using our D-sub connector for electrical connections greatly reduces labor, while it also minimizes wiring and saves space.**
- **We use a D-sub connector (25P) that conforms to MIL standards and is therefore widely compatible with many standard commercial models.**
- **Top or side entry for the connector can be changed freely, allowing for changes even after mounting, to meet any changing needs for space.**

Electrical Wiring Specifications

D-sub connector



As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 12 stations or less, regardless of valve and option types.
Mixed single and double wiring are available as an option. Refer to the below special wiring specifications (option).

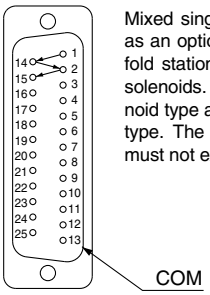
Lead wire colors for D-sub connector assembly (AXT100-DS25-$^{015}_{030}_{050}$)

		Terminal no.	Polarity		Lead wire color	Dot marking
Station 1	SOL.A	1	(–)	(+)	Black	None
	SOL.B	14	(–)	(+)	Yellow	Black
Station 2	SOL.A	2	(–)	(+)	Brown	None
	SOL.B	15	(–)	(+)	Pink	Black
Station 3	SOL.A	3	(–)	(+)	Red	None
	SOL.B	16	(–)	(+)	Blue	White
Station 4	SOL.A	4	(–)	(+)	Orange	None
	SOL.B	17	(–)	(+)	Purple	None
Station 5	SOL.A	5	(–)	(+)	Yellow	None
	SOL.B	18	(–)	(+)	Gray	None
Station 6	SOL.A	6	(–)	(+)	Pink	None
	SOL.B	19	(–)	(+)	Orange	Black
Station 7	SOL.A	7	(–)	(+)	Blue	None
	SOL.B	20	(–)	(+)	Red	White
Station 8	SOL.A	8	(–)	(+)	Purple	White
	SOL.B	21	(–)	(+)	Brown	White
Station 9	SOL.A	9	(–)	(+)	Gray	Black
	SOL.B	22	(–)	(+)	Pink	Red
Station 10	SOL.A	10	(–)	(+)	White	Black
	SOL.B	23	(–)	(+)	Gray	Red
Station 11	SOL.A	11	(–)	(+)	White	Red
	SOL.B	24	(–)	(+)	Black	White
Station 12	SOL.A	12	(–)	(+)	Yellow	Red
	SOL.B	25	(–)	(+)	White	None
	COM.	13	(+)	(–)	Orange	Red
			Positive COM spec.	**Negative COM spec.** Note)		

Note) When using the negative COM specification, use valves for negative COM.

Special Wiring Specifications (Option)

(25P)

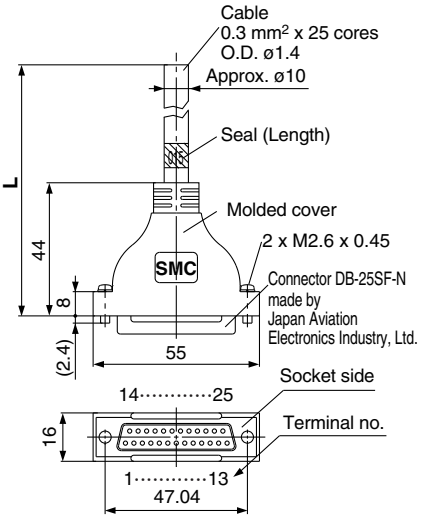


Mixed single and double wiring are available as an option. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

Cable Assembly

AXT100-DS25-$^{015}_{030}_{050}$

(D-sub connector cable assembly can be ordered with manifolds. Refer to "How to Order Manifold.")



Lead wire colors for D-sub connector cable assembly terminal numbers

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 assembly

Cable length (**L**)	Assembly part no.	Note
1.5 m	AXT100-DS25-015	Cable 0.3 mm² x 25 cores
3 m	AXT100-DS25-030	
5 m	AXT100-DS25-050	

∗ When using a standard commercial connector, use a type 25P female connector conforming to MIL-C-24308.
∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

Electrical characteristics

Item	Property
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

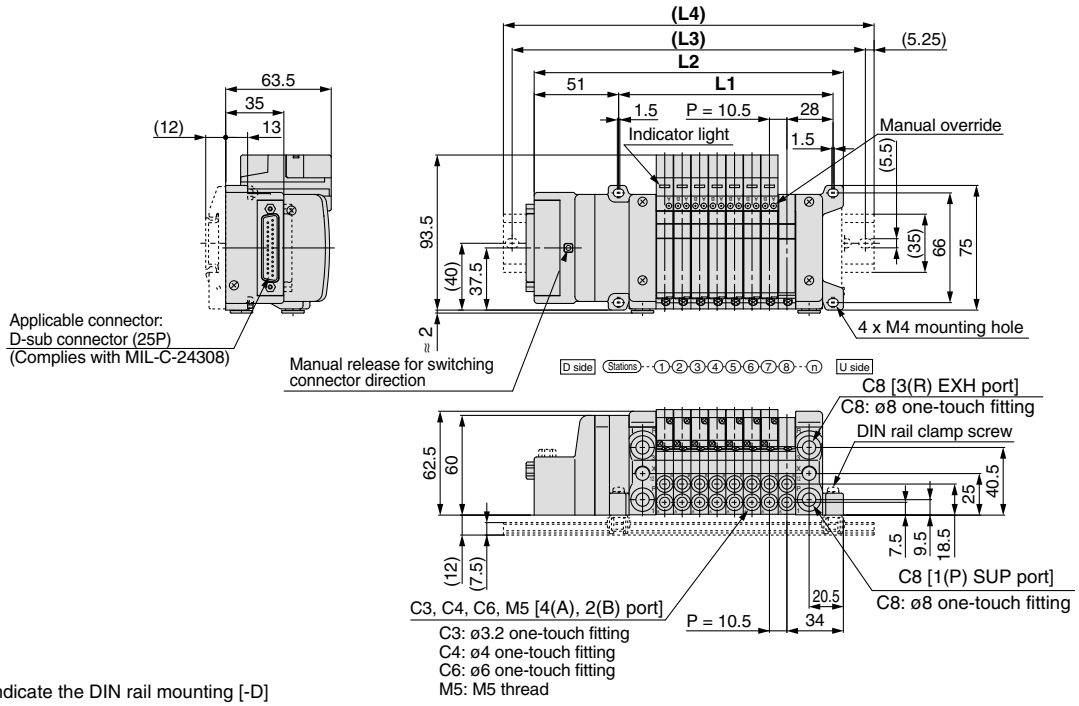
Note) The minimum bending radius of the D-sub connector cable is 20 mm.

Connector Manufacturers' Example

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

F Series VQC1000/2000
kit (D-sub connector) IP40 compliant

VV5QC11

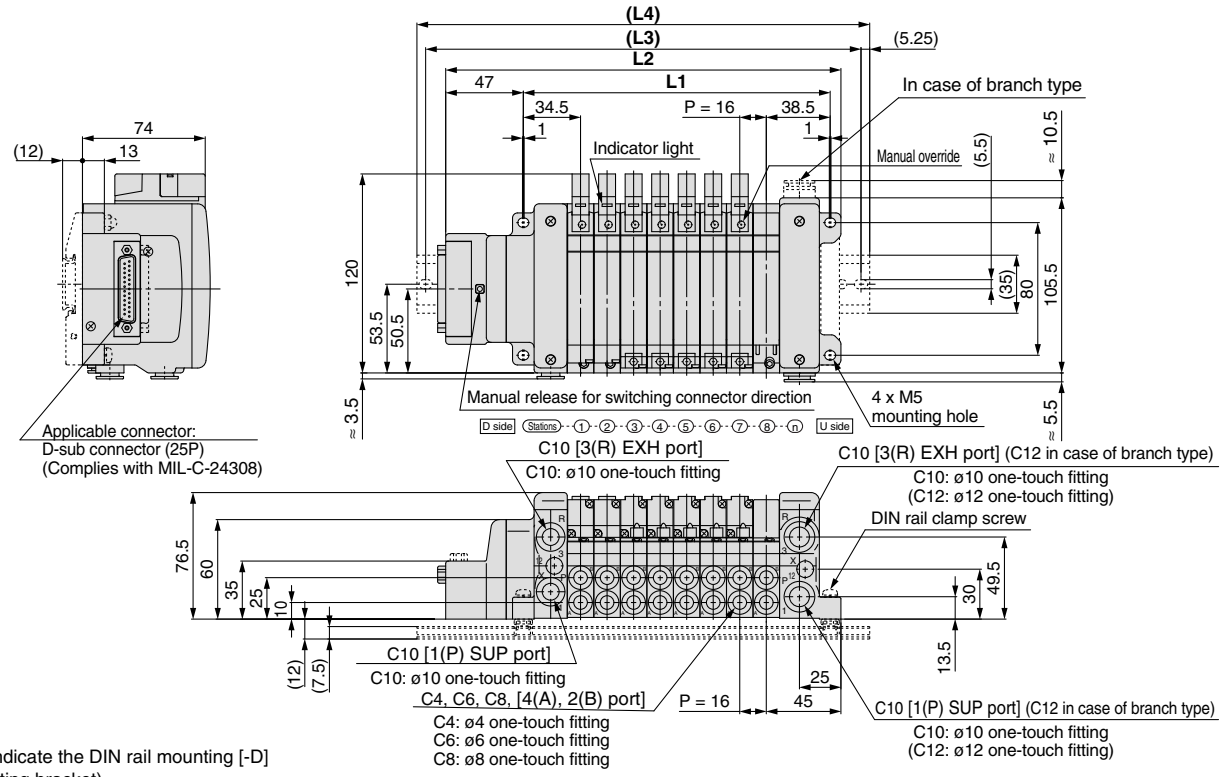


The dashed lines indicate the DIN rail mounting [-D] (with DIN rail mounting bracket).

Formula: L1 = 10.5n + 45, L2 = 10.5n + 102 n: Stations (Maximum 24 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5	234	244.5	255	265.5	276	286.5	297
L2	112.5	123	133.5	144	154.5	165	175.5	186	196.5	207	217.5	228	238.5	249	259.5	270	280.5	291	301.5	312	322.5	333	343.5	354
L3	137.5	150	162.5	175	175	187.5	200	212.5	225	237.5	237.5	250	262.5	275	287.5	300	300	312.5	325	337.5	350	362.5	375	375
L4	148	160.5	173	185.5	185.5	198	210.5	223	235.5	248	248	260.5	273	285.5	298	310.5	310.5	323	335.5	348	360.5	373	385.5	385.5

VV5QC21

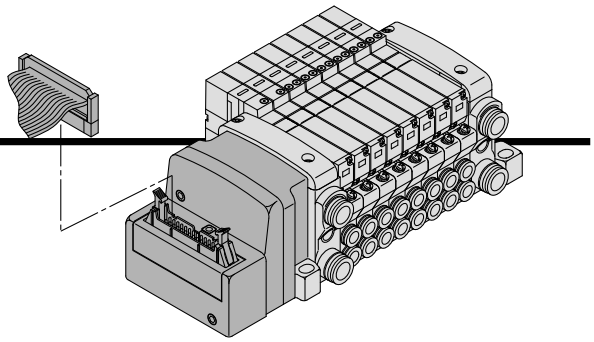


The dashed lines indicate the DIN rail mounting [-D] (with DIN rail mounting bracket).

Formula: L1 = 16n + 57, L2 = 16n + 110.5 n: Stations (Maximum 24 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329	345	361	377	393	409	425	441
L2	126.5	142.5	158.5	174.5	190.5	206.5	222.5	238.5	254.5	270.5	286.5	302.5	318.5	334.5	350.5	366.5	382.5	398.5	414.5	430.5	446.5	462.5	478.5	494.5
L3	150	162.5	187.5	200	212.5	237.5	250	262.5	275	300	312.5	325	350	362.5	375	387.5	412.5	425	437.5	450	475	487.5	500	525
L4	160.5	173	198	210.5	223	248	260.5	273	285.5	310.5	323	335.5	360.5	373	385.5	398	423	435.5	448	460.5	485.5	498	510.5	535.5

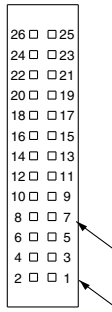
P Series VQC1000/2000
kit (Flat ribbon cable) IP40 compliant



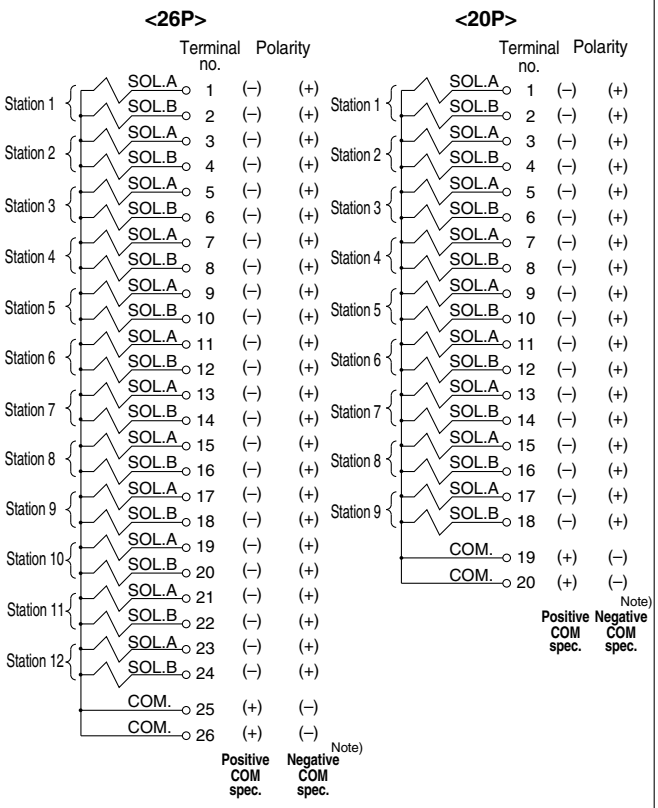
- **Using our flat ribbon cable for electrical connections greatly reduces labor, while it also minimizes wiring and saves space.**
- **We use flat ribbon cables whose connectors (26P and 20P) conform to MIL standards, and are therefore widely compatible with many standard commercial models.**
- **Top or side entry for the connector can be changed freely, allowing for changes even after mounting, to meet any changing needs for space.**

Electrical Wiring Specifications

Flat ribbon cable connector



Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types.
Mixed single and double wiring are available as an option.
Refer to the below special wiring specifications (option).

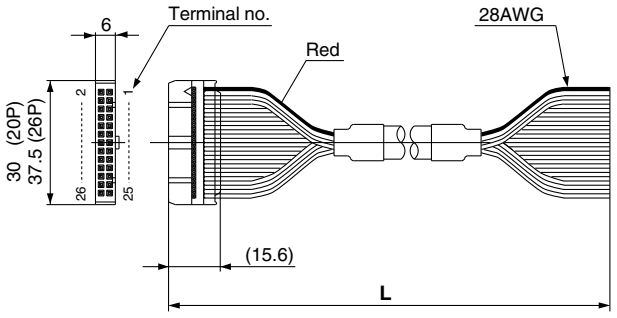


Note) When using the negative COM specification, use valves for negative COM.

Cable Assembly

AXT100-FC $\begin{matrix}20\\26\end{matrix}$ **-** $\begin{matrix}1\\2\\3\end{matrix}$

Type 26P flat ribbon cable connector assembly can be ordered with manifolds. Refer to "How to Order Manifold."



Flat ribbon cable connector assembly

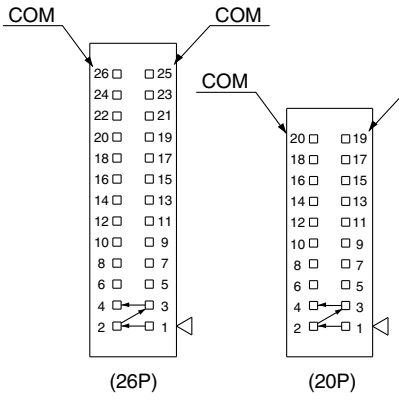
Cable length (**L**)	Assembly part no.	
	26P	20P
1.5 m	AXT100-FC26-1	AXT100-FC20-1
3 m	AXT100-FC26-2	AXT100-FC20-2
5 m	AXT100-FC26-3	AXT100-FC20-3

∗ When using a standard commercial connector, use a type 26P connector conforming to MIL-C-83503 or a type 20P with strain relief.
∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

Connector Manufacturers' Example

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

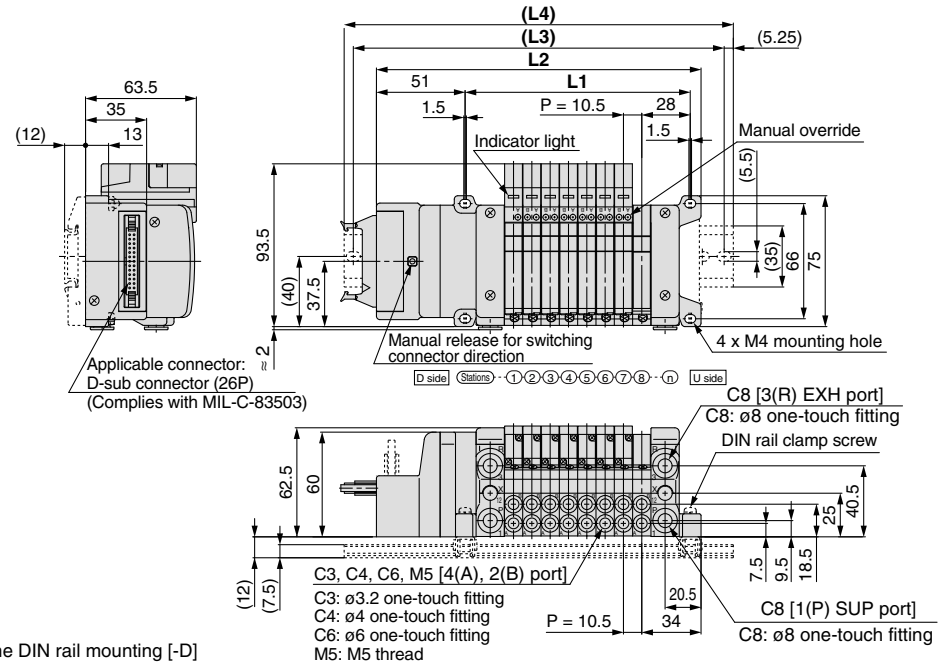
Special Wiring Specifications (Option)



Mixed single and double wiring are available as an option. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

P *Series VQC1000/2000*
kit (Flat ribbon cable) IP40 compliant

VV5QC11

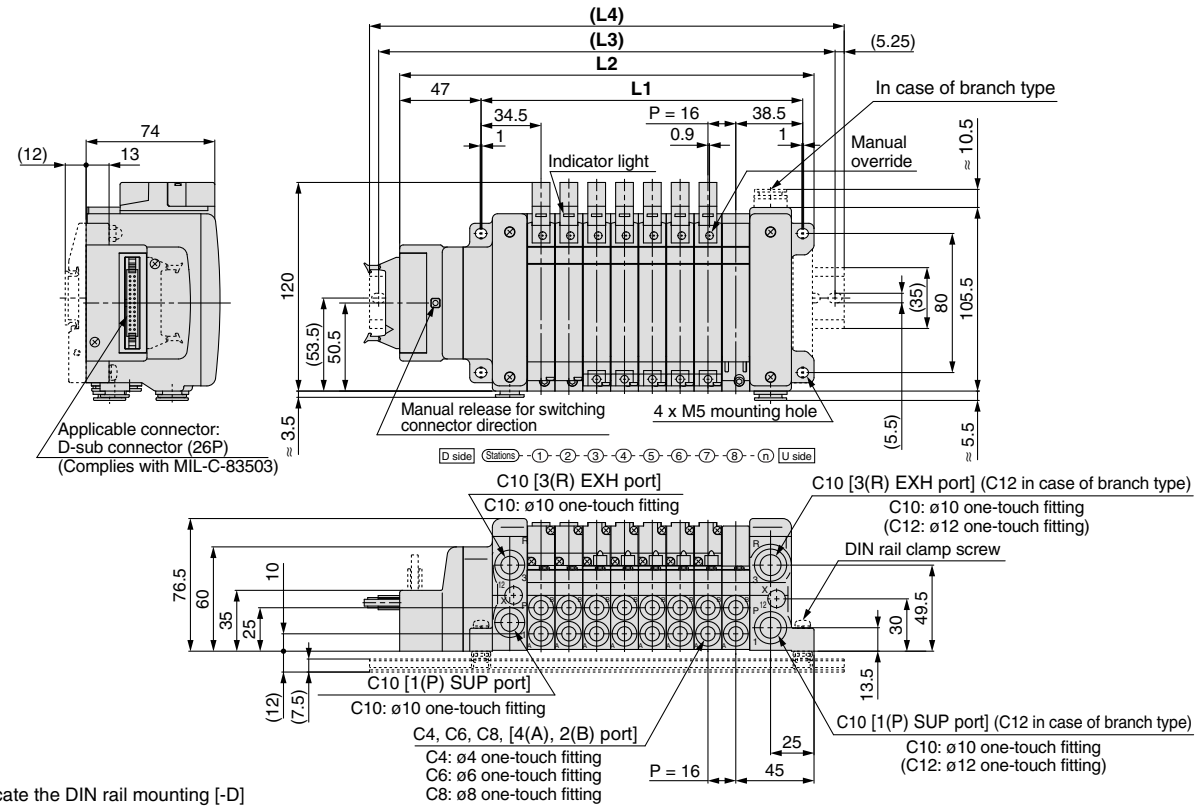


The dashed lines indicate the DIN rail mounting [-D] (with DIN rail mounting bracket).

Formula: L1 = 10.5n + 45, L2 = 10.5n + 102 n: Stations (Maximum 24 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5	234	244.5	255	265.5	276	286.5	297
L2	112.5	123	133.5	144	154.5	165	175.5	186	196.5	207	217.5	228	238.5	249	259.5	270	280.5	291	301.5	312	322.5	333	343.5	354
L3	137.5	150	162.5	175	175	187.5	200	212.5	225	237.5	237.5	250	262.5	275	287.5	300	300	312.5	325	337.5	350	362.5	375	375
L4	148	160.5	173	185.5	185.5	198	210.5	223	235.5	248	248	260.5	273	285.5	298	310.5	310.5	323	335.5	348	360.5	373	385.5	385.5

VV5QC21

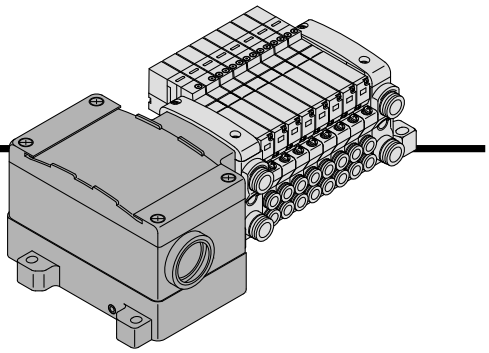


The dashed lines indicate the DIN rail mounting [-D] (with DIN rail mounting bracket).

Formula: L1 = 16n + 57, L2 = 16n + 110.5 n: Stations (Maximum 24 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329	345	361	377	393	409	425	441
L2	126.5	142.5	158.5	174.5	190.5	206.5	222.5	238.5	254.5	270.5	286.5	302.5	318.5	334.5	350.5	366.5	382.5	398.5	414.5	430.5	446.5	462.5	478.5	494.5
L3	150	162.5	187.5	200	212.5	237.5	250	262.5	275	300	312.5	325	350	362.5	375	387.5	412.5	425	437.5	450	475	487.5	500	525
L4	160.5	173	198	210.5	223	248	260.5	273	285.5	310.5	323	335.5	360.5	373	385.5	398	423	435.5	448	460.5	485.5	498	510.5	535.5

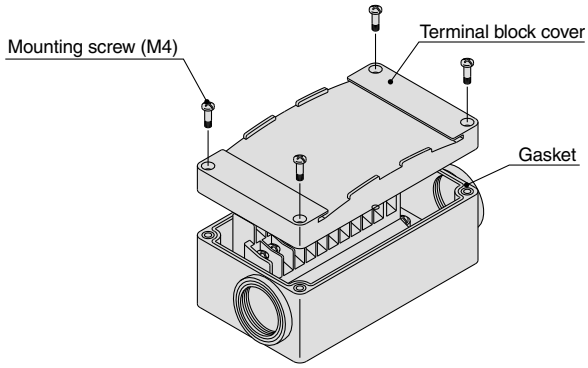
T *Series VQC1000/2000*
kit (Terminal block box) IP67 compliant



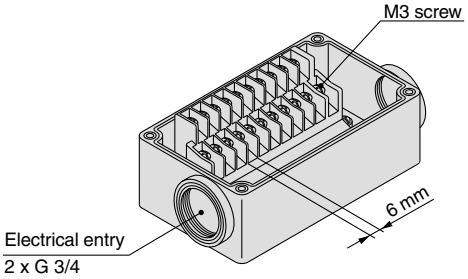
- **This kit has a small terminal block inside a junction box. The electrical entry port of a G 3/4 permits connection of conduit fittings.**

Terminal Block Connection

Step 1. Removing the terminal block cover
Loosen the 4 mounting screws (M4) and remove the terminal block cover.



Step 2. The diagram below shows the terminal block wiring. All stations are provided with double wiring regardless of the valves which are mounted.
Connect each wire to the power supply side, according to the markings provided inside the terminal block.

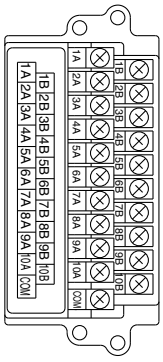


Step 3. Mounting the terminal block cover
Securely tighten the screws to the torque shown in the table below, after confirming that the gasket is installed correctly.

Proper tightening torque (N·m)
0.7 to 1.2

- Applicable crimped terminal: 1.25-3S,1.25Y-3,1.25Y-3N,1.25Y-3.5
- Name plate: VVQ5000-N-T
- Drip-proof plug assembly (for G 3/4): AXT100-B06A

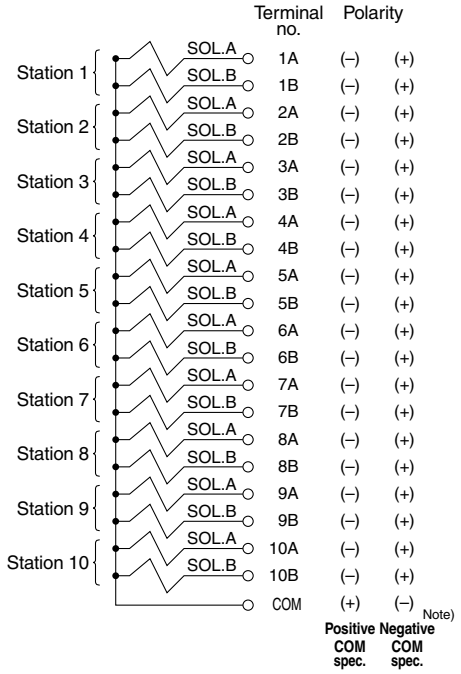
Electrical Wiring Specifications (IP67 compatible)



Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types.
Mixed single and double wiring are available as an option.

Note) When using the negative COM specification, use valves for negative COM.

Standard wiring

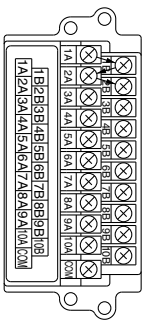


Special Wiring Specifications (Option)

Mixed single and double wiring are available as an option. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 20.

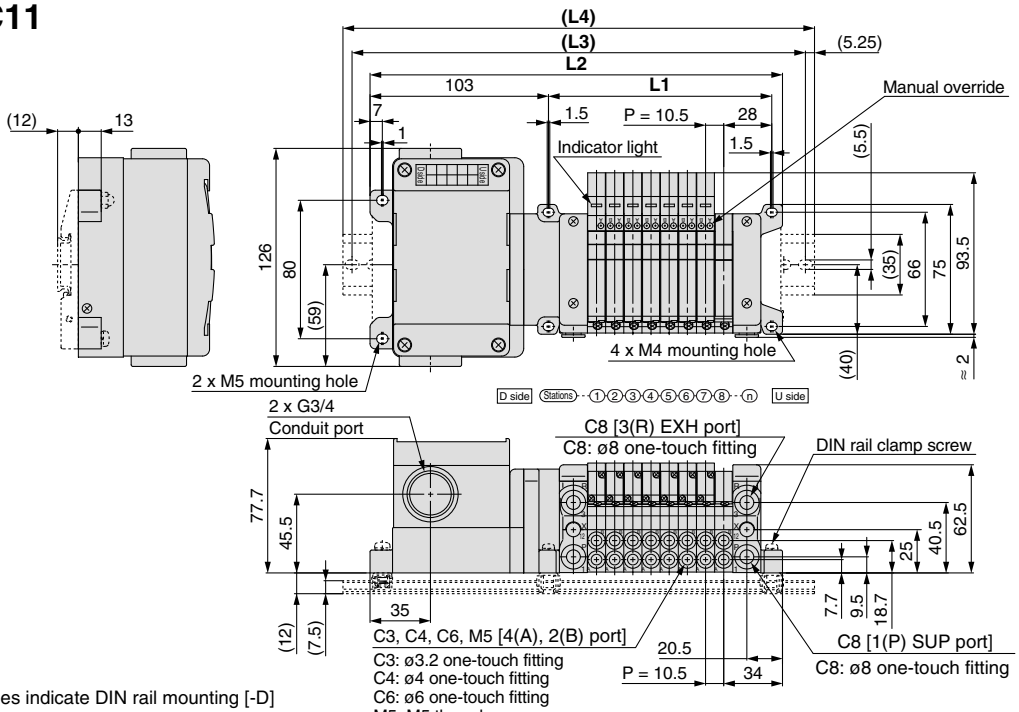
1. How to Order
Indicate option symbol "-K" in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet.

2. Wiring specifications
Connector terminal numbers are connected from solenoid station 1 on the A side in the order indicated by the arrows without skipping any terminal numbers.



T Series VQC1000/2000
kit (Terminal block box) IP67 compliant

VV5QC11

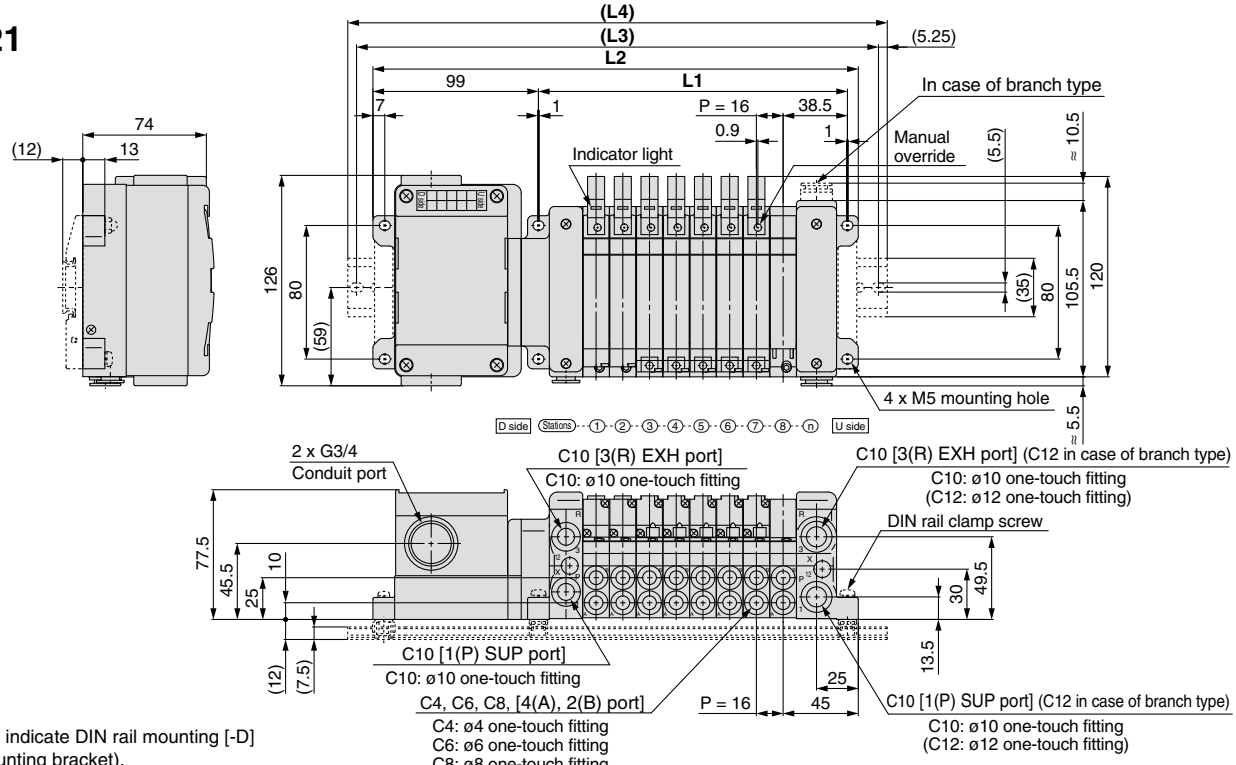


The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

Formula: L1 = 10.5n + 45, L2 = 10.5n + 154.5 n: Stations (Maximum 20 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5	234	244.5	255
L2	165	175.5	186	196.5	207	217.5	228	238.5	249	259.5	270	280.5	291	301.5	312	322.5	333	343.5	354	364.5
L3	187.5	200	212.5	212.5	225	237.5	250	262.5	275	275	287.5	300	312.5	325	337.5	337.5	350	362.5	375	387.5
L4	198	210.5	223	223	235.5	248	260.5	273	285.5	285.5	298	310.5	323	335.5	348	348	360.5	373	385.5	398

VV5QC21



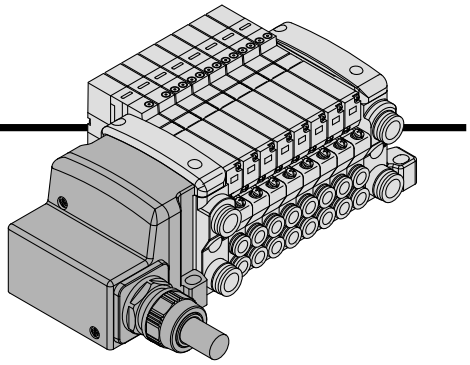
The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

Formula: L1 = 16n + 57, L2 = 16n + 163 n: Stations (Maximum 20 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329	345	361	377
L2	179	195	211	227	243	259	275	291	307	323	339	355	371	387	403	419	435	451	467	483
L3	200	212.5	237.5	237.5	262.5	262.5	287.5	312.5	325	371	362.5	375	408.5	412.5	425	437.5	462.5	496	487.5	500
L4	210.5	223	248	248	273	273	298	323	335.5	360.5	373	385.5	398	423	435.5	448	473	485.5	498	510.5

L Series VQC1000/2000

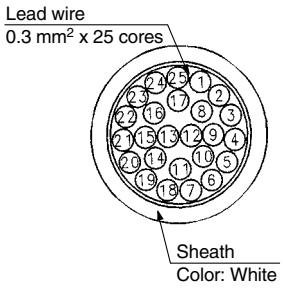
kit (Lead wire) IP67 compliant



- **Direct electrical entry type**
- **IP67 enclosure is available with use of cables with sheath and waterproof connectors.**

Electrical Wiring Specifications

Lead wire specifications



As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 12 stations or less, regardless of valve and option types.
Mixed single and double wiring are available as an option. Refer to the below special wiring specifications (option).

		Terminal no.	Polarity		Lead wire color	Dot marking
Station 1	SOL.A	1	(–)	(+)	Black	None
	SOL.B	14	(–)	(+)	Yellow	Black
Station 2	SOL.A	2	(–)	(+)	Brown	None
	SOL.B	15	(–)	(+)	Pink	Black
Station 3	SOL.A	3	(–)	(+)	Red	None
	SOL.B	16	(–)	(+)	Blue	White
Station 4	SOL.A	4	(–)	(+)	Orange	None
	SOL.B	17	(–)	(+)	Purple	None
Station 5	SOL.A	5	(–)	(+)	Yellow	None
	SOL.B	18	(–)	(+)	Gray	None
Station 6	SOL.A	6	(–)	(+)	Pink	None
	SOL.B	19	(–)	(+)	Orange	Black
Station 7	SOL.A	7	(–)	(+)	Blue	None
	SOL.B	20	(–)	(+)	Red	White
Station 8	SOL.A	8	(–)	(+)	Purple	White
	SOL.B	21	(–)	(+)	Brown	White
Station 9	SOL.A	9	(–)	(+)	Gray	Black
	SOL.B	22	(–)	(+)	Pink	Red
Station 10	SOL.A	10	(–)	(+)	White	Black
	SOL.B	23	(–)	(+)	Gray	Red
Station 11	SOL.A	11	(–)	(+)	White	Red
	SOL.B	24	(–)	(+)	Black	White
Station 12	SOL.A	12	(–)	(+)	Yellow	Red
	SOL.B	25	(–)	(+)	White	None
	COM.	13	(+)	(–) Note)	Orange	Red
			Positive COM spec.	Negative COM spec.		

Note) When using the negative COM specification, use valves for negative COM.

Lead wire length

VV5QC11−08 C6 LD 0

Lead wire length

0	0.6 m
1	1.5 m
2	3.0 m

Electrical characteristics

Item	Property
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

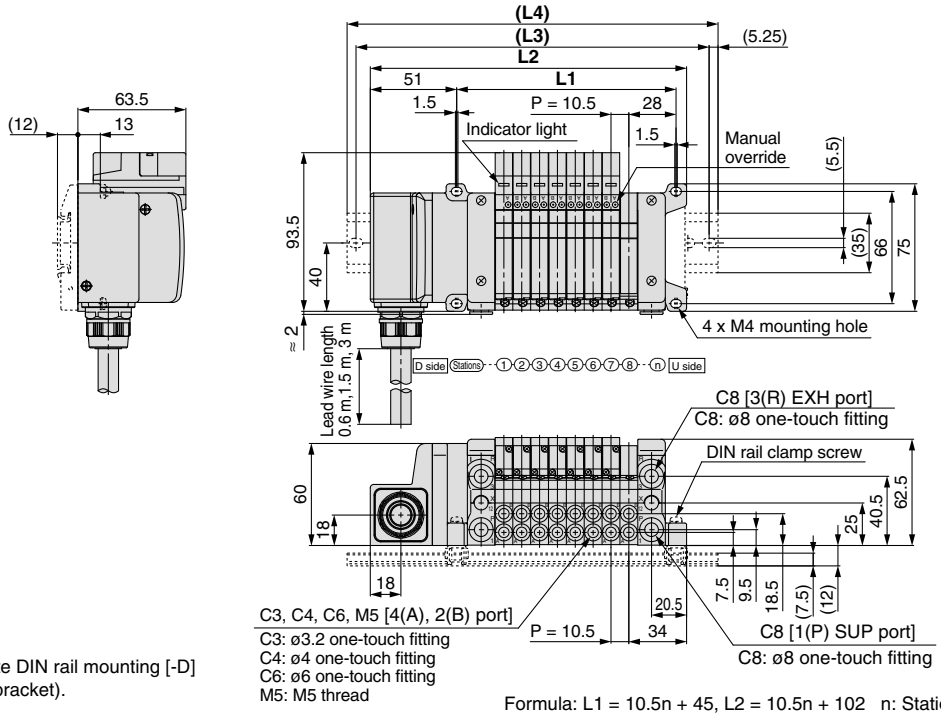
Note) Cannot be used for transfer wiring.
The minimum bending radius of the cable is 20 mm.

Special Wiring Specifications (Option)

Mixed single and double wiring are available as an option. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

L Series VQC1000/2000
kit (Lead wire) IP67 compliant

VV5QC11

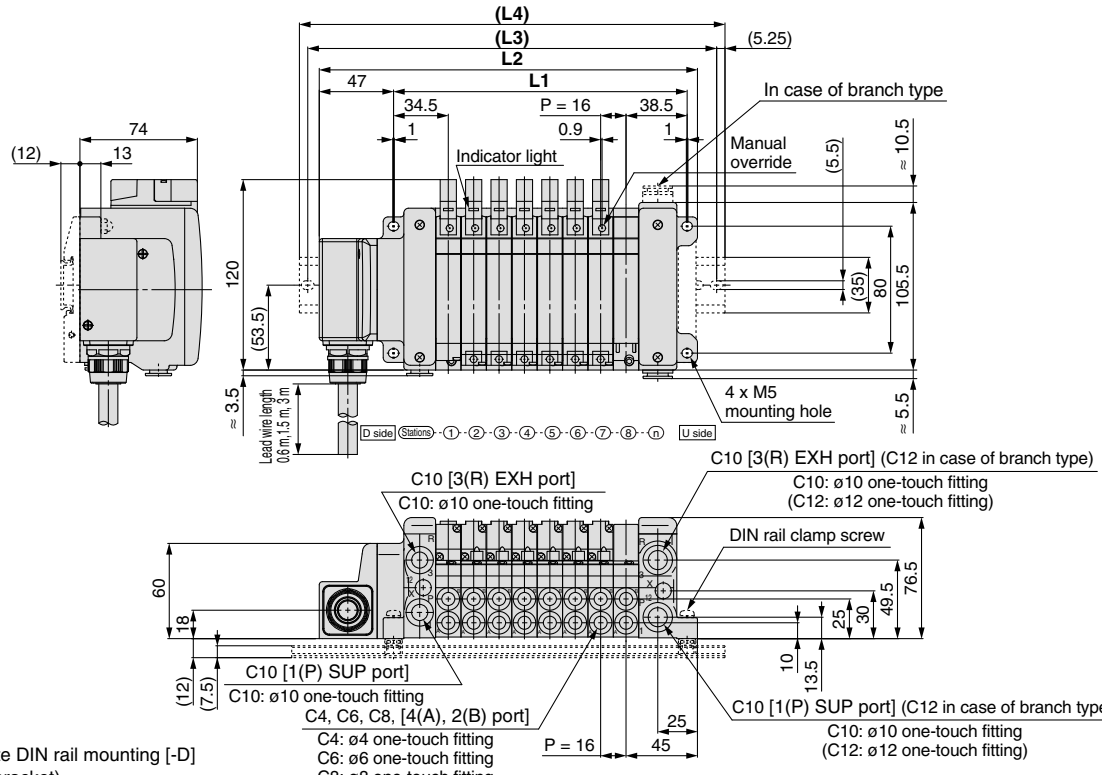


The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

Formula: L1 = 10.5n + 45, L2 = 10.5n + 102 n: Stations (Maximum 24 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5	234	244.5	255	265.5	276	286.5	297
L2	112.5	123	133.5	144	154.5	165	175.5	186	196.5	207	217.5	228	238.5	249	259.5	270	280.5	291	301.5	312	322.5	333	343.5	354
L3	137.5	150	162.5	175	175	187.5	200	212.5	225	237.5	237.5	250	262.5	275	287.5	300	300	312.5	325	337.5	350	362.5	375	375
L4	148	160.5	173	185.5	185.5	198	210.5	223	235.5	248	248	260.5	273	285.5	298	310.5	310.5	323	335.5	348	360.5	373	385.5	385.5

VV5QC21

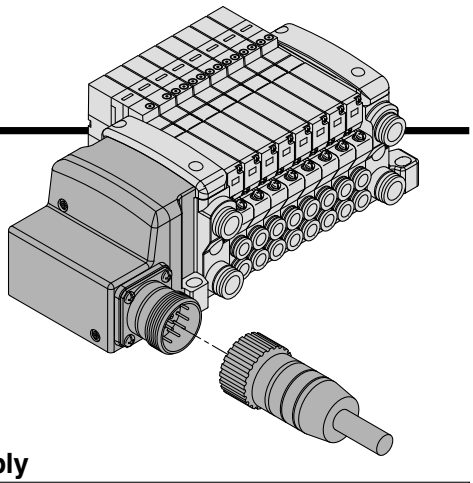


The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

Formula: L1 = 16n + 57, L2 = 16n + 110.5 n: Stations (Maximum 24 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329	345	361	377	393	409	425	441
L2	126.5	142.5	158.5	174.5	190.5	206.5	222.5	238.5	254.5	270.5	286.5	302.5	318.5	334.5	350.5	366.5	382.5	398.5	414.5	430.5	446.5	462.5	478.5	494.5
L3	150	162.5	187.5	200	212.5	237.5	250	262.5	275	300	312.5	325	350	362.5	375	387.5	412.5	425	437.5	450	475	487.5	500	525
L4	160.5	173	198	210.5	223	248	260.5	273	285.5	310.5	323	335.5	360.5	373	385.5	398	423	435.5	448	460.5	485.5	498	510.5	535.5

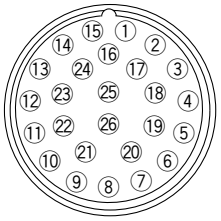
M Series VQC1000/2000
kit (Circular connector) IP67 compliant



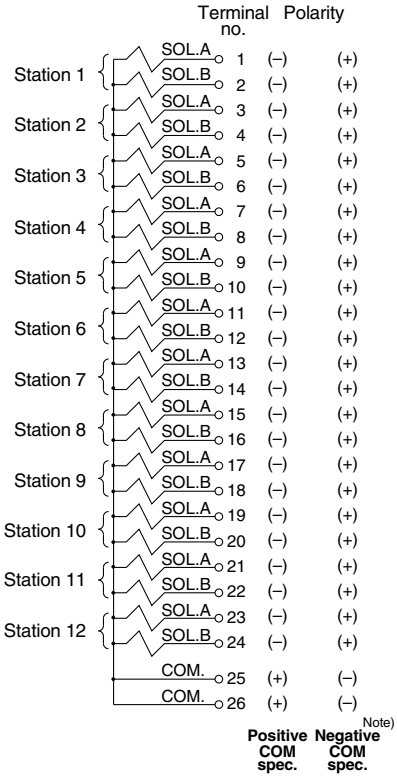
- **Use of circular connectors helps streamline wiring procedure to save labor.**
- **IP67 enclosure is available with use of waterproof circular connectors.**

Electrical Wiring Specifications

Circular connector



Double wiring (connected to SOL.A and SOL.B) is used for the internal wiring of each station, regardless of valve and option types. Mixed single and double wiring are available as an option. Refer to the below special wiring specifications (option).



Note) When using the negative COM specification, use valves for negative COM.

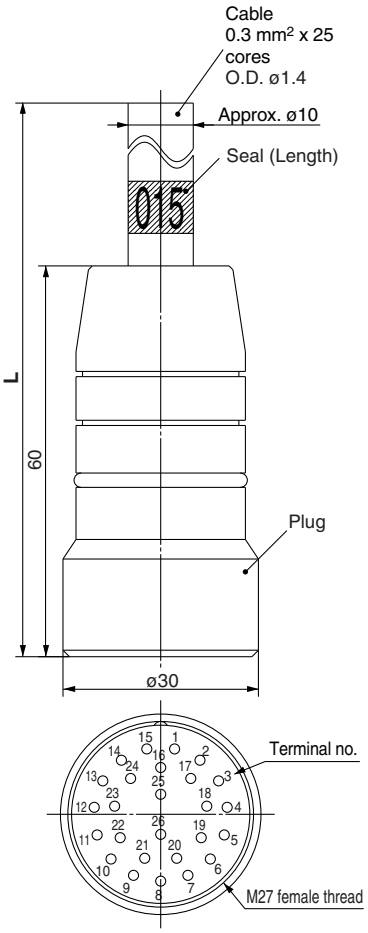
Special Wiring Specifications (Option)

Mixed single and double wiring are available as an option. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

Cable Assembly

AXT100-MC26- 015 / 030 / 050

(Type 26P circular connector cable assembly can be ordered with manifolds. Refer to "How to Order Manifold.")



Lead wire colors for circular connector cable assembly terminal numbers

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
26	White	None

Circular connector cable assembly

Cable length (**L**)	Assembly part no.
	26P
1.5 m	AXT100-MC26-015
3 m	AXT100-MC26-030
5 m	AXT100-MC26-050

∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

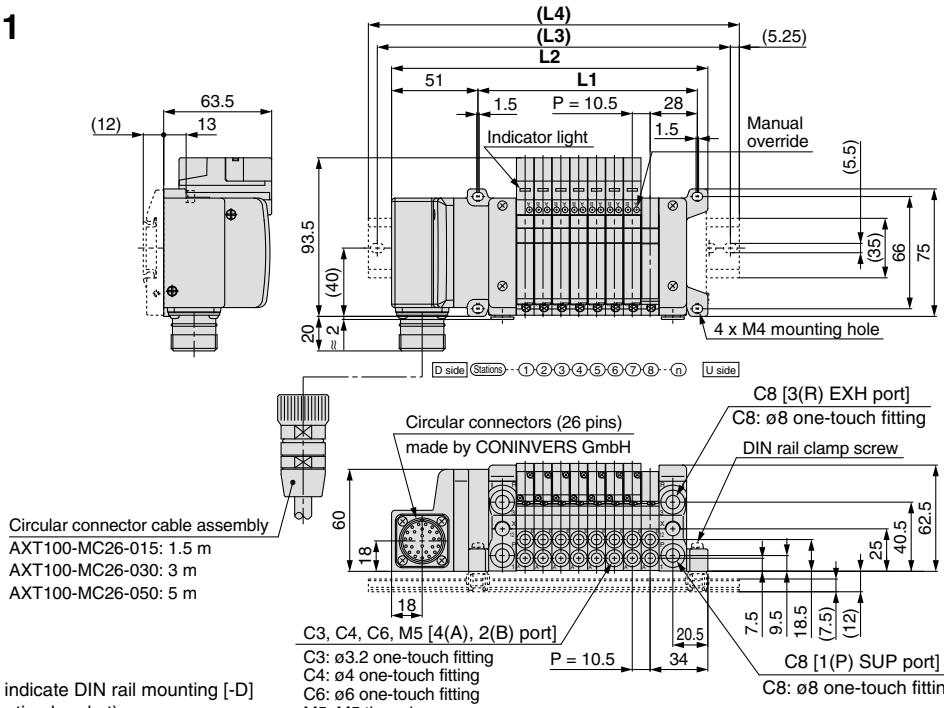
Electrical characteristics

Item	Property
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

Note) The minimum bending radius of the circular connector cable is 20 mm.

M Series VQC1000/2000
kit (Circular connector) IP67 compliant

VV5QC11

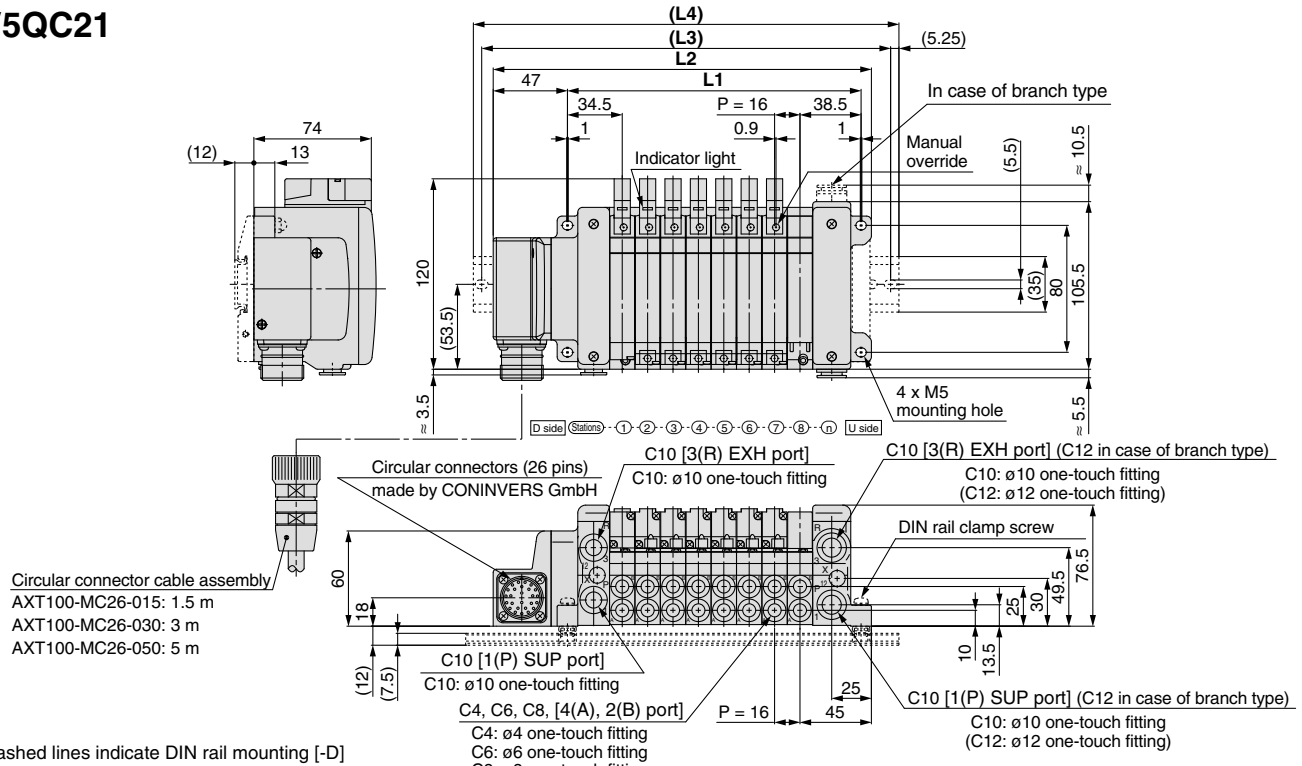


The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

Formula: L1 = 10.5n + 45, L2 = 10.5n + 102 n: Stations (Maximum 24 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5	234	244.5	255	265.5	276	286.5	297
L2	112.5	123	133.5	144	154.5	165	175.5	186	196.5	207	217.5	228	238.5	249	259.5	270	280.5	291	301.5	312	322.5	333	343.5	354
L3	137.5	150	162.5	175	175	187.5	200	212.5	225	237.5	237.5	250	262.5	275	287.5	300	300	312.5	325	337.5	350	362.5	375	375
L4	148	160.5	173	185.5	185.5	198	210.5	223	235.5	248	248	260.5	273	285.5	298	310.5	310.5	323	335.5	348	360.5	373	385.5	385.5

VV5QC21



The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).

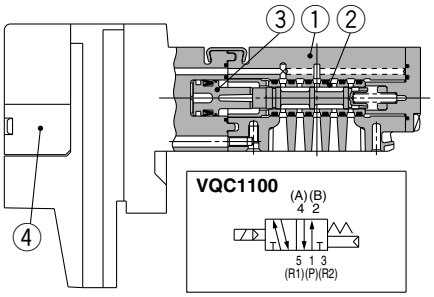
Formula: L1 = 16n + 57, L2 = 16n + 110.5 n: Stations (Maximum 24 stations)

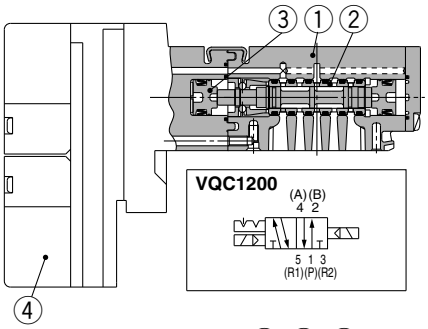
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329	345	361	377	393	409	425	441
L2	126.5	142.5	158.5	174.5	190.5	206.5	222.5	238.5	254.5	270.5	286.5	302.5	318.5	334.5	350.5	366.5	382.5	398.5	414.5	430.5	446.5	462.5	478.5	494.5
L3	150	162.5	187.5	200	212.5	237.5	250	262.5	275	300	312.5	325	350	362.5	375	387.5	412.5	425	437.5	450	475	487.5	500	525
L4	160.5	173	198	210.5	223	248	260.5	273	285.5	310.5	323	335.5	360.5	373	385.5	398	423	435.5	448	460.5	485.5	498	510.5	535.5

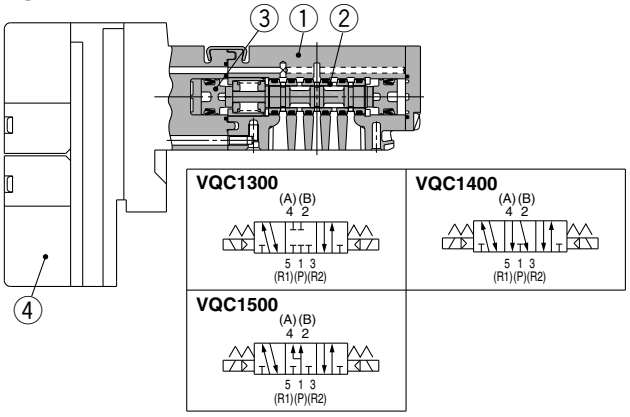
Construction

VQC1000 Plug-in Unit: Main Parts/Replacement Parts

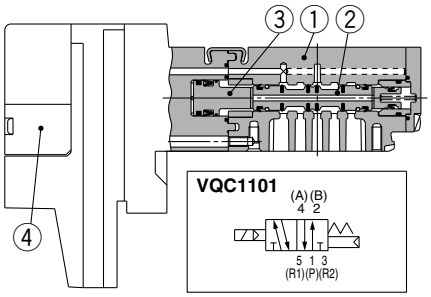
Metal seal

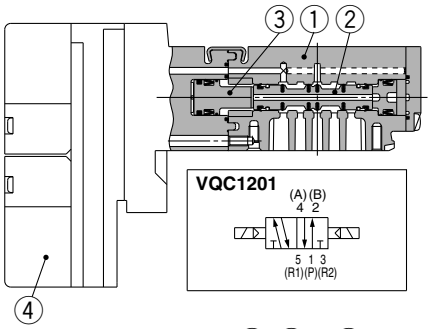


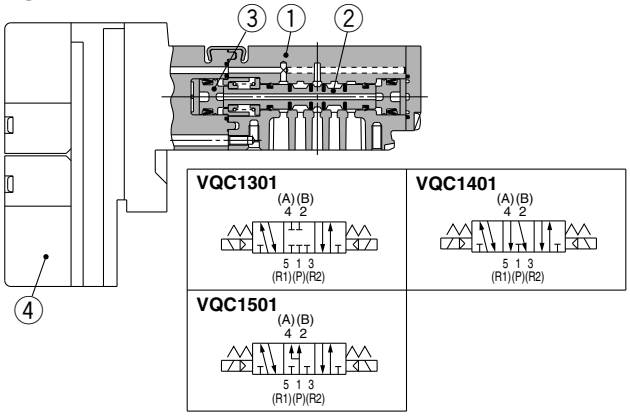


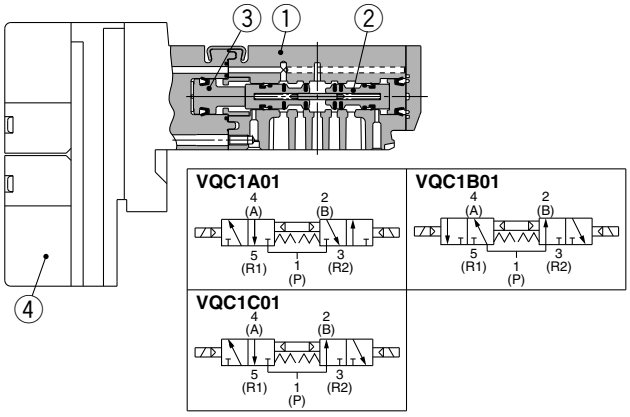


Rubber seal









Component Parts

No.	Description	Material	Note
1	**Body**	Zinc die-casted	
2	**Spool/Sleeve**	Stainless steel	
3	**Piston**	Resin	
4	**Pilot valve assembly**	—	

Note) Refer to page 39 for “How to Order Pilot Valve Assembly.”

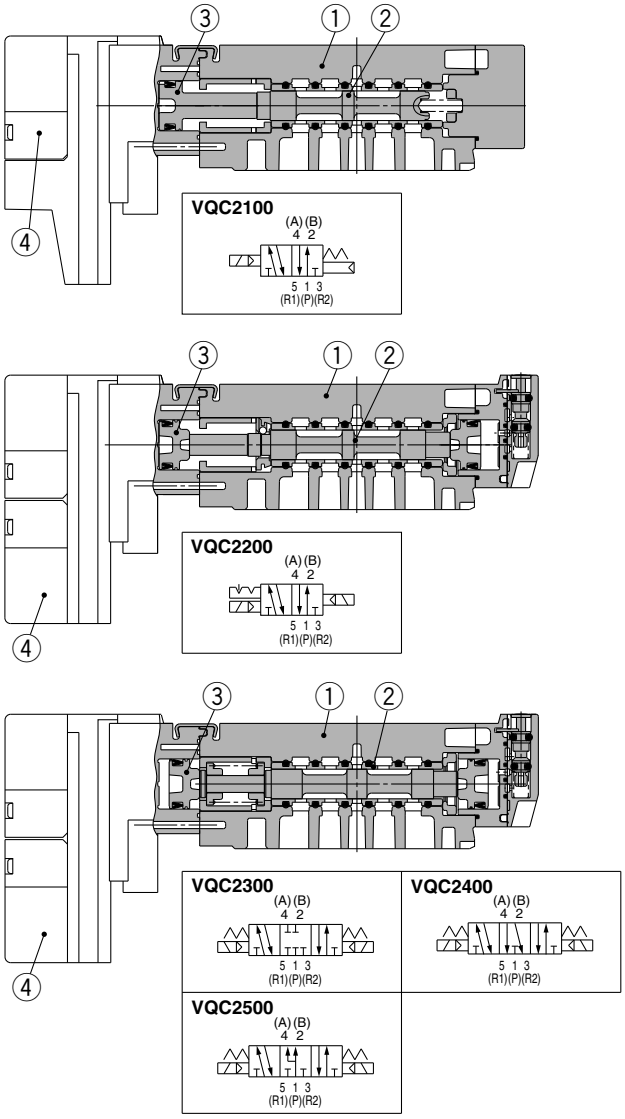
Component Parts

No.	Description	Material	Note
1	**Body**	Zinc die-casted	
2	**Spool valve**	Aluminum, HNBR	
3	**Piston**	Resin	
4	**Pilot valve assembly**	—	

Note) Refer to page 39 for “How to Order Pilot Valve Assembly.”

VQC2000 Plug-in Unit: Main Parts/Replacement Parts

Metal seal

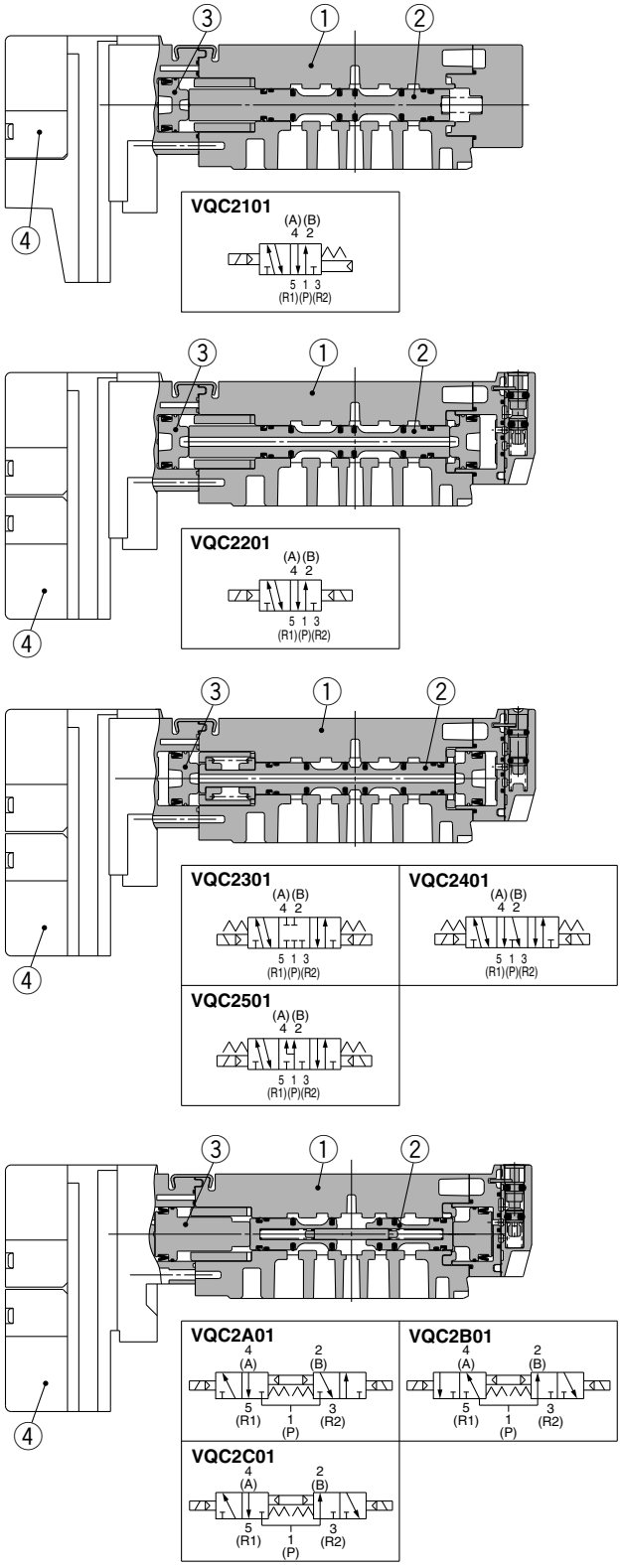


Component Parts

No.	Description	Material	Note
1	**Body**	Zinc die-casted	
2	**Spool/Sleeve**	Stainless steel	
3	**Piston**	Resin	
4	**Pilot valve assembly**	—	

Note) Refer to page 39 for “How to Order Pilot Valve Assembly.”

Rubber seal

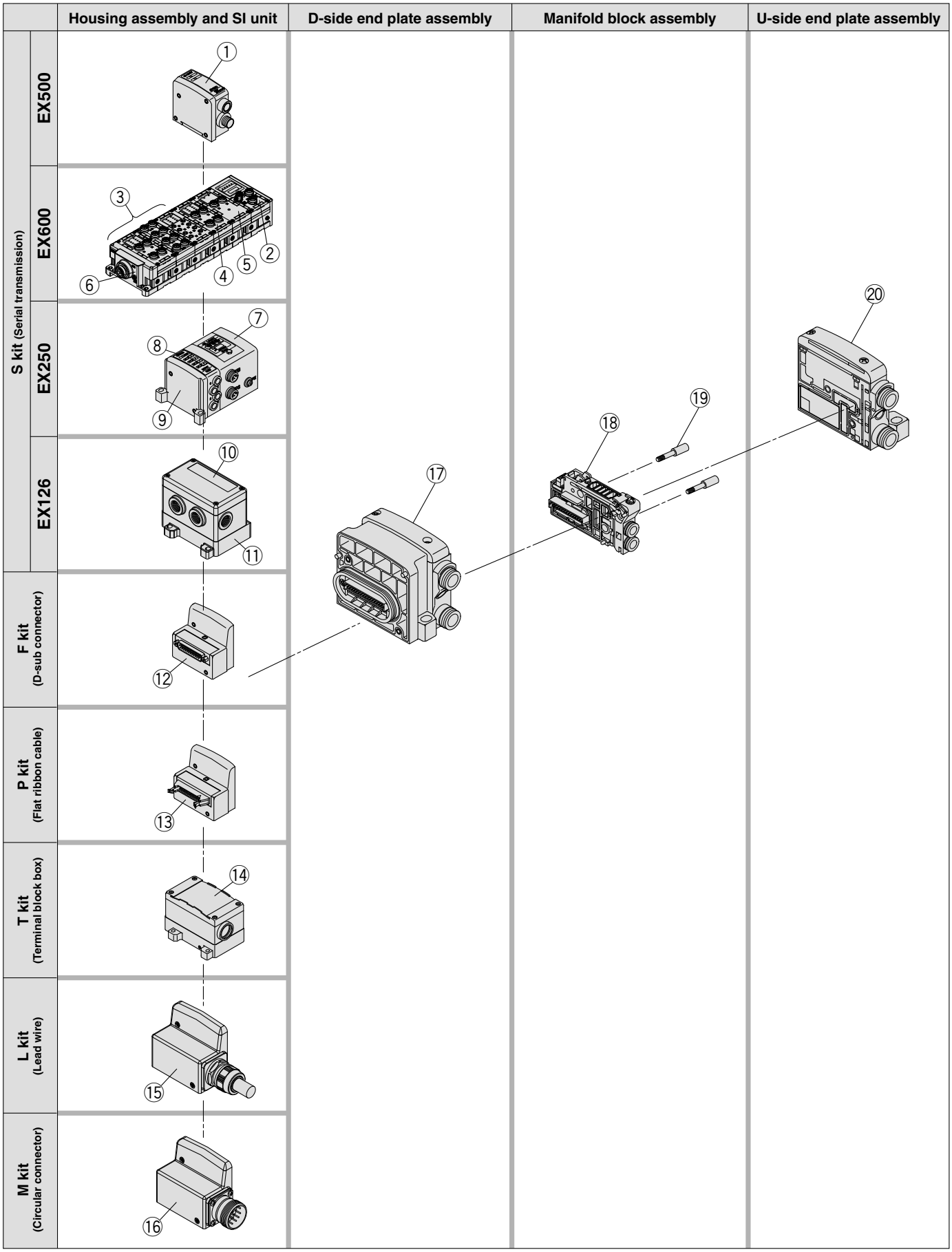


Component Parts

No.	Description	Material	Note
1	**Body**	Zinc die-casted	
2	**Spool valve**	Aluminum, HNBR	
3	**Piston**	Resin	
4	**Pilot valve assembly**	—	

Note) Refer to page 39 for “How to Order Pilot Valve Assembly.”

Exploded View of Manifold



Manifold Assembly Part No.

Housing Assembly and SI Unit/Input Block

No.	Description	Part no.	Note
①	**SI unit**	**EX500-Q001**	DeviceNet™, PROFIBUS DP, CC-Link, EtherNet/IP™ (+COM.)
		EX500-Q101	DeviceNet™, PROFIBUS DP, CC-Link, EtherNet/IP™ (–COM.)
②	**SI unit**	**EX600-SDN1**	DeviceNet™ PNP (–COM.)
		EX600-SDN2	DeviceNet™ NPN (+COM.)
		EX600-SMJ1	CC-Link PNP (–COM.)
		EX600-SMJ2	CC-Link NPN (+COM.)
		EX600-SPR1	PROFIBUS DP PNP (–COM.)
		EX600-SPR2	PROFIBUS DP NPN (+COM.)
③	**Digital input unit**	**EX600-DXNB**	NPN input, M12 connector, 5 pins (4 pcs.), 8 inputs
		EX600-DXPB	PNP input, M12 connector, 5 pins (4 pcs.), 8 inputs
		EX600-DXNC	NPN input, M8 connector, 3 pins (8 pcs.), 8 inputs
		EX600-DXNC1	NPN input, M8 connector, 3-pins (8 pcs.), 8 inputs, with broken wire detection function
		EX600-DXPC	PNP input, M8 connector, 3 pins (8 pcs.), 8 inputs
		EX600-DXPC1	PNP input, M8 connector, 3-pins (8 pcs.), 8 inputs, with broken wire detection function
		EX600-DXND	NPN input, M12 connector, 5 pins (8 pcs.), 16 inputs
		EX600-DXPD	PNP input, M12 connector, 5 pins (8 pcs.), 16 inputs
④	**Digital output unit**	**EX600-DYNB**	NPN input, M12 connector, 5 pins (4 pcs.), 8 inputs
		EX600-DYPB	PNP input, M12 connector, 5 pins (4 pcs.), 8 inputs
⑤	**Analog input unit**	**EX600-AXA**	M12 connector, 5 pins (2 pcs.), 2-channel input
⑥	**End plate**	**EX600-ED2**	M12 connector, 5 pins, Max. supply current 2 A
		EX600-ED2-2	M12 connector, 5 pins, Max. supply current 2 A, with DIN rail mounting bracket
		EX600-ED3	7/8 inch connector, 5 pins, Max. supply current 8 A
		EX600-ED3-2	7/8 inch connector, 5 pins, Max. supply current 8 A, with DIN rail mounting bracket
⑦	**SI unit**	**EX250-SPR1**	PROFIBUS DP (–COM.)
		EX250-SMJ2	CC-Link (+COM.)
		EX250-SAS3	AS-Interface, 8 in/8 out, 31 slave modes, 2 power supply systems (–COM.)
		EX250-SAS5	AS-Interface, 4 in/4 out, 31 slave modes, 2 power supply systems (–COM.)
		EX250-SAS7	AS-Interface, 8 in/8 out, 31 slave modes, 1 power supply systems (–COM.)
		EX250-SAS9	AS-Interface, 4 in/4 out, 31 slave modes, 1 power supply systems (–COM.)
		EX250-SCA1A	CANopen (–COM.)
		EX250-SCN1	ControlNet™ (–COM.)
		EX250-SDN1	DeviceNet™ (–COM.)
		EX250-SEN1	EtherNet/IP™ (–COM.)
⑧	**Input block**	**EX250-IE1**	M12, 2 inputs
		EX250-IE2	M12, 4 inputs
		EX250-IE3	M8, 4 inputs
⑨	**End plate assembly**	**EX250-EA1**	Standard
		EX250-EA2	For DIN rail mounting
⑩	**SI unit**	**EX126D-SMJ1**	CC-Link (+COM.)
⑪	**Terminal block plate**	**VVQC1000-74A-2**	For EX126 SI unit mounting
⑫	**D-sub connector housing assembly**	**VVQC1000-F25-1**	F kit, 25 pins
⑬	**Flat ribbon cable housing assembly**	**VVQC1000-P26-1**	P kit, 26 pins
		VVQC1000-P20-1	P kit, 20 pins
⑭	**Terminal block box housing assembly**	**VVQC1000-T0-1**	T kit
⑮	**Lead wire housing assembly**	**VVQC1000-L25-0-1**	L kit with 0.6 m lead wire
		VVQC1000-L25-1-1	L kit with 1.5 m lead wire
		VVQC1000-L25-2-1	L kit with 3.0 m lead wire
⑯	**Circular connector housing assembly**	**VVQC1000-M26-1**	M kit, 26 pins

Manifold Assembly Part No.

<D-Side End Plate Assembly>

⑰ **D-side end plate assembly part no.**

VVQC 1 000-3A-1- □ - □

Series

1	VQC1000
2	VQC2000

Port size

Symbol	VQC1000	VQC2000
C8	●	
C10		●
N9	●	
N11		●

Option

Nil	Common EXH
R	External pilot
S	Direct EXH outlet with built-in silencer

<U-Side End Plate Assembly>

⑳ **U-side end plate assembly part no.**

VVQC 1 000-2A- 1 - C8 - □

Series

1	VQC1000
2	VQC2000

Supply/Exhaust port entry direction

1	Cylinder port side
2 Note)	Branch type

Note) VQC2000 only

Port size

Symbol	VQC1000	VQC2000
C8	●	
C10		●
C12		●
N9	●	
N11		●
N13		●

Option

Nil	Common EXH
R	External pilot
S	Direct EXH outlet with built-in silencer

<Manifold Block Assembly>

⑱ **Manifold block assembly part no.**

VVQC 1 000-1A- D - C6 - □

Series

1	VQC1000
2	VQC2000

Note) Tie-rods (2 pcs.) for additional stations included.

Wiring specifications

D	Double wiring
S	Single wiring

Port size

Symbol	Port size	VQC1000	VQC2000
C3	For ø3.2 one-touch fitting	●	
C4	For ø4 one-touch fitting	●	●
C6	For ø6	●	●
C8	For ø8		●
N1	For ø1/8"	●	
N3	For ø5/32"	●	●
N7	For ø1/4"	●	●
N9	For ø5/16"		●
M5	For M5 thread	●	

Option

Nil	None
B	With back pressure check valve

<Replacement Parts>

Pilot valve assembly

V112 □ - 5 A

Coil voltage

5	24 VDC
6	12 VDC

Function

Nil	Standard (0.4 W)
B	High-speed response type (0.95 W)
K	High-pressure type (1.0 MPa, 0.95 W)

Note) Common to single solenoid and double solenoid

⑲ **Tie-rod assembly part no. (2 pcs.)**

VQC1000	VVQC1000-TR-□
VQC2000	VVQC2000-TR-□

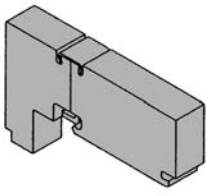
Note 1) Please order when reducing the number of manifold stations. When increasing the number of stations, additional orders are not required since they are included in the manifold block assembly.
Note 2) □: Stations 02 to 24

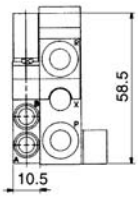
VQC1000: Manifold Optional Parts

Blanking plate assembly
VVQ1000-10A-1

JIS symbol

It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

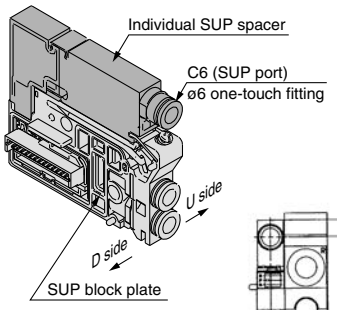


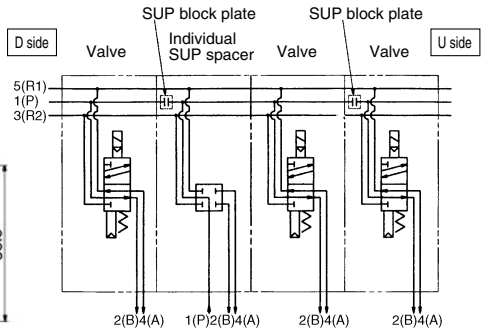


Individual SUP spacer
VVQ1000-P-1-$^{C6}_{N7}$

When the same manifold is to be used for different pressures, individual SUP spacers are used as SUP ports for different pressures. (One station space is occupied.)
Block both sides of the station, for which the supply pressure from the individual SUP spacer is used, with SUP block plates. (Refer to the application example.)

* Specify the spacer mounting position and SUP block plate position by means of the manifold specification sheet. The block plate is used in one or two places for one set. (Two SUP block plates for blocking SUP passage are attached to the individual SUP spacer.)
* As a standard, electric wiring is connected to the position of the manifold station where the individual SUP spacer is mounted.
* If wiring is not required for stations equipped with spacers, enter "X" in the special wiring specifications column in the manifold specification sheet.

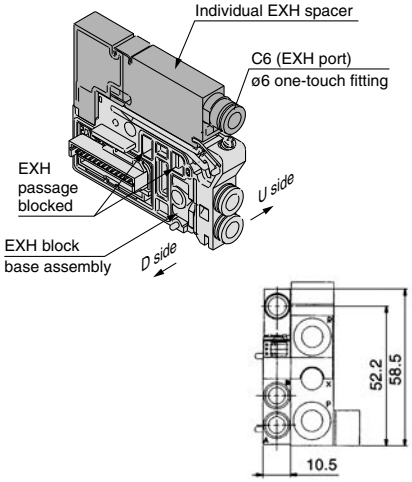




Individual EXH spacer
VVQ1000-R-1-$^{C6}_{N7}$

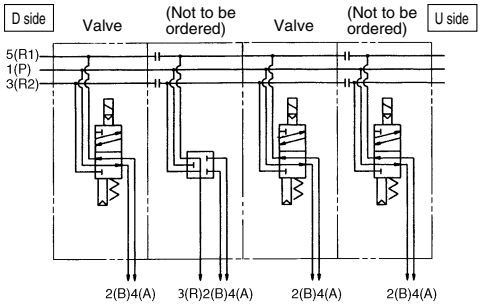
When valve exhaust affects other stations due to the circuit configuration, this spacer is used for individual valve exhaust. (One station space is occupied.)
Block both sides of the individual valve EXH station. (Refer to the application example.)

* Specify the spacer mounting position, as well as the EXH passage blocking position by means of the manifold specification sheet. The block plate is used in one or two places for one set.
* An EXH block base assembly is used in the blocking position when ordering an EXH spacer incorporated with a manifold. However, do not order an EXH block base assembly because it is attached to the spacer.
  When separately ordering an individual EXH spacer, separately order an EXH block base assembly because it is not attached to the spacer.
* As a standard, electric wiring is connected to the position of the manifold station where the individual EXH spacer is mounted.
* If wiring is not required for stations equipped with spacers, enter "X" in the special wiring specifications column in the manifold specification sheet.



Description/Model		Stations 1	2	3	4	5	6	7
Valve	Single	●		●	●			
	⋮							
Option	Individual EXH spacer VVQ1000-R-1-C6		●					
	EXH blocking position: Specify 2 places.	●		●				

Individual EXH spacer + EXH block base assembly | **Valve + EXH block base assembly**



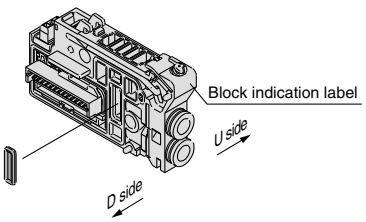
SUP block plate
VVQ1000-16A

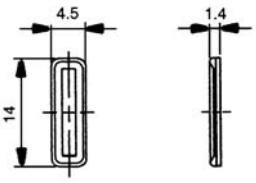
When different pressures are supplied to a manifold, a SUP block plate is used to block the stations under different pressures.

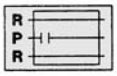
* Specify the mounting position by means of the manifold specification sheet.

<Block indication label>
Indication labels to confirm the blocking position are attached (Each for SUP passage and SUP/EXH passage blocking positions).

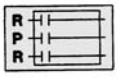
* When ordering a block plate incorporated with a manifold, a block indication label is attached to the manifold.







SUP passage blocked



SUP/EXH passage blocked

VQC1000: Manifold Optional Parts

Blanking plate with connector

VVQ1000-1C□-□

Connector

Nil	Without connector
1	With connector/2-wire
2	With connector/4-wire

Connector lead wire length (mm)

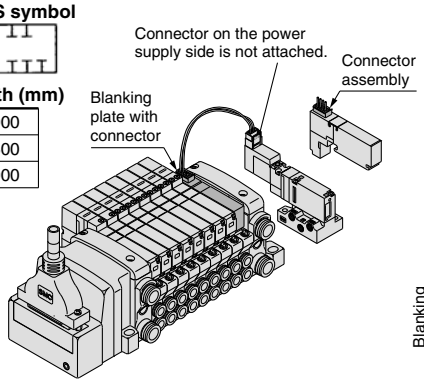
Nil	300	**20**	2000
6	600	**25**	2500
10	1000	**30**	3000
15	1500		

Blanking plate with a connector for individually outputting electricity to drive a single valve or equipment that are not on the manifold base.

∗ When "N" is suffixed to the end of the name plate, the plate will be different from a standard shape.

Note) Electric current should be 1A or less (including the mounted valves).

JIS symbol



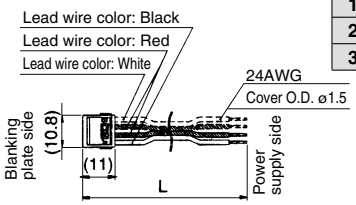
Connector assembly part no.

AXT661-43A-6

Lead wire length (mm)

43	4-wire
44	2-wire

Nil	300
6	600
10	1000
20	2000
30	3000



EXH block base assembly

VVQC1000-19A-□-(C3/C4/C6/M5/N1/N3/N7)

Wiring specifications

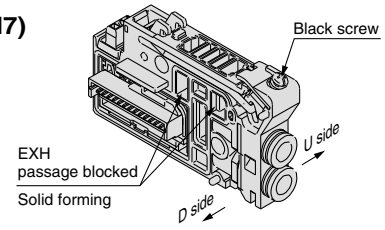
S	Single wiring
D	Double wiring

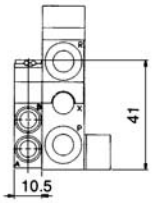
The manifold block assembly is used between stations for which exhaust is desired to be divided when valve exhaust affects other stations due to the circuit configuration. The EXH passage on the D-side is blocked in the EXH block base assembly. It is also used in combination with an individual EXH spacer for individual exhaust.

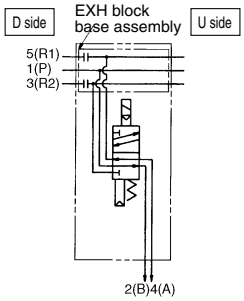
<Block indication label>

Indication labels to confirm the blocking position are attached (Each for EXH passage and SUP/EXH passage blocking positions).

∗ When ordering this option incorporated with a manifold, a block indication label is attached to the manifold.

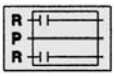




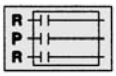


∗ Specify the mounting position by means of the manifold specification sheet.

∗ When ordering this option incorporated with a manifold, specify the EXH block base assembly part number with "∗" in front of it beneath the manifold part number.



EXH passage blocked



SUP/EXH passage blocked

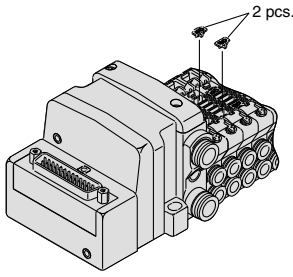
Back pressure check valve assembly [-B]

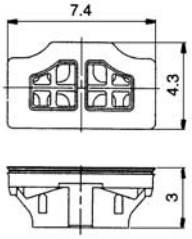
VVQ1000-18A

It prevents cylinder from malfunctioning by other valve's exhaust entry. Insert it into R (EXH) port on the manifold side of a valve which is affected. It is effective when a single-acting cylinder is used or an exhaust center type solenoid valve is used.

∗ When ordering it being mounted on all manifold stations, suffix "-B" to the end of the manifold part number.

Note) When a back pressure check valve is desired, and is to be installed only in certain manifold stations, clearly indicate the part number and specify the mounting station by means of the manifold specification sheet.





(Precautions)

1. The back pressure check valve assembly is the parts with a check valve structure. However, since the valve has slight air leakage, take precautions for the exhaust air not to be restricted at the exhaust port.
2. When a back pressure check valve is mounted, the effective area of the valve will decrease by about 20%.

Name plate [-N]

VVQ1000-$\frac{N}{NC}$-Station (1 to Max. stations)

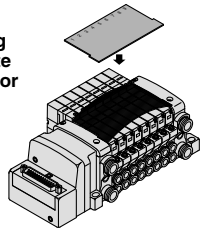
N: Standard
NC: For mounting blanking plate with connector

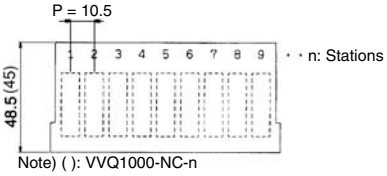
It is a transparent resin plate for placing a label that indicates solenoid valve function, etc.

Insert it into the groove on the side of the end plate and bend it as shown in the figure.

∗ When the blanking plate with connector is mounted, it automatically will be "VVQ1000-NC-n"

∗ When ordering this option incorporated with a manifold, suffix "-N" to the end of the manifold part number.



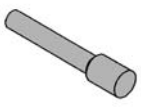


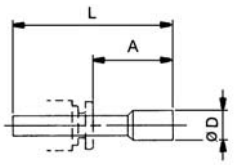
Note) ( ): VVQ1000-NC-n

Blanking plug (For one-touch fittings)

KQ2P-□

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



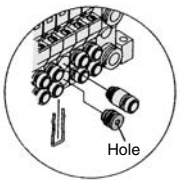


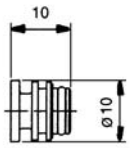
Dimensions

Applicable fitting size ød	Model	A	L	D	Applicable fitting size ød	Model	A	L	D
3.2	**KQ2P-23**	16	31.5	3.2	1/8"	**KQ2P-01**	16	31.5	5
4	**KQ2P-04**	16	32	6	5/32"	**KQ2P-03**	16	32	6
6	**KQ2P-06**	18	35	8	1/4"	**KQ2P-07**	18	35	8.5
8	**KQ2P-08**	20.5	39	10	5/16"	**KQ2P-09**	20.5	39	10

Port plug
VVQ0000-58A

The plug is used to block the cylinder port.
* When ordering this option incorporated with a manifold, indicate "CM" for the port size of the manifold part number, as well as, the mounting position and number of stations and cylinder port mounting positions, 4(A) and 2(B) by means of the manifold specification sheet.
* Gently screw an M3 screw in the port plug hole and pull it for removal.

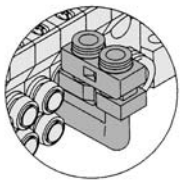


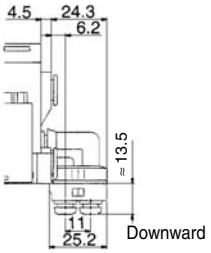


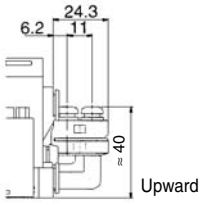
Elbow fitting assembly
VVQ1000-F-L(C3/C4/C6/M5/N1/N3/N7)

It is used for piping that extends upward or downward from the manifold.
* When ordering this option incorporated with a manifold, indicate "L□" or "B□" for the manifold port size (when installed in all stations.)

When installing it in part of the manifold stations, specify the elbow fitting assembly part number and the mounting position and number of stations by means of the manifold specification sheet.
* When mounting elbow fitting assembly on the edge of manifold station and a silencer on EXH port, select a silencer, AN203-KM8.
  A silencer (AN200-KM8) is interfered with fittings.



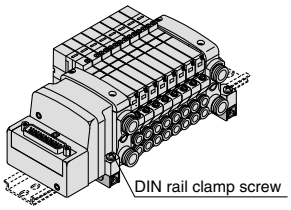


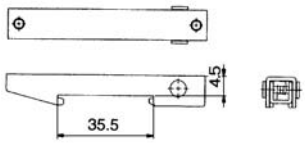


DIN rail mounting bracket [-D]
VVQ1000-57A
{For F/L/M/P/S (EX500) kit}
VVQC1000-57A-S
{For S (EX250) kit}
VVQC1000-57A-T (For T kit)

It is used for mounting a manifold on a DIN rail.
* When ordering this option incorporated with a manifold, suffix "-D" to the end of the manifold part number.

1 set of DIN rail mounting bracket is used for 1 manifold (2 DIN rail mounting brackets).



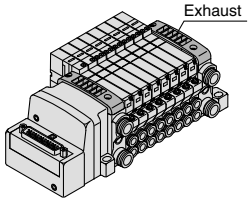


Mounting screws are attached.

Direct EXH outlet with built-in silencer [-S]

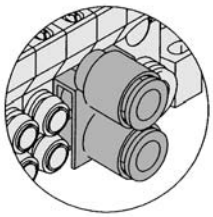
This is a type with an exhaust outlet atop the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect. (Noise reduction: 30 dB)
* When ordering this option incorporated with a manifold, suffix "-S" to the end of the manifold part number.

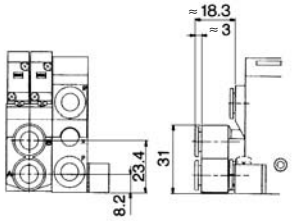
Note) A large quantity of drainage generated in the air source results in exhaust of air together with drainage.
● Refer to back page 5 for maintenance.



Dual flow fitting assembly
VVQ1000-52A-$^{C8}_{N9}$

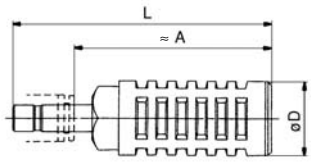
This is a fitting to multiply the flow rate by combining the outputs of 2-valve stations. It is used for driving a large bore cylinder. This is a one-touch fitting for a port size of ø8 or ø5/16".
* The port size of the manifold part number is "CM".
  Clearly indicate the dual flow fitting assembly part number and specify the mounting positions by means of the manifold specification sheet.
* In dual flow fitting assembly, a special clip which is combined in one-piece of 2 stations is attached as a holding clip.





Silencer (For EXH port)

This silencer is to be inserted into the EXH port (one-touch fittings) of the common exhaust type.
* When mounting elbow fitting assembly (VVQ1000-F-L□) on the edge of manifold station, select a silencer, AN203-KM8. A silencer (AN200-KM8) is interfered with fittings.



Dimensions

Series	Applicable fitting size ød	Model	A	L	D	Effective area (mm^2)	Noise reduction (dB)
VQ1000	8	AN200-KM8	59	78	22	20	30
		AN203-KM8	32	51	16	14	25*

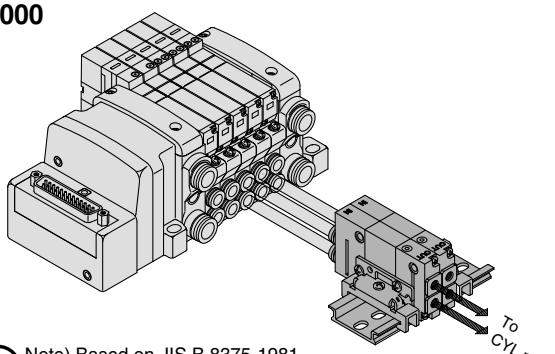
VQC1000: Manifold Optional Parts

Double check block (Separated) for VQC1000
VQ1000-FPG-□□-□

It is used on the outlet side piping to keep the cylinder in the intermediate position for long periods of time. Combining the double check block with a built-in pilot type double check valve and a 3-position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long time.
The combination with a 2-position single/double solenoid valve will permit this block to be used for preventing the dropping at the cylinder stroke end when the SUP residual pressure is released.

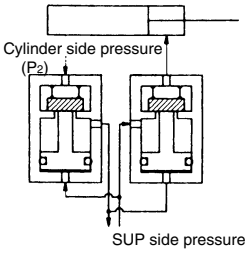
Specifications

Max. operating pressure	0.8 MPa
Min. operating pressure	0.15 MPa
Ambient and fluid temp.	–5 to 50°C
Flow characteristics: C	0.60 dm³/(s·bar)
Max. operating frequency	180 c.p.m



Note) Based on JIS B 8375-1981
(Supply pressure: 0.5 MPa)

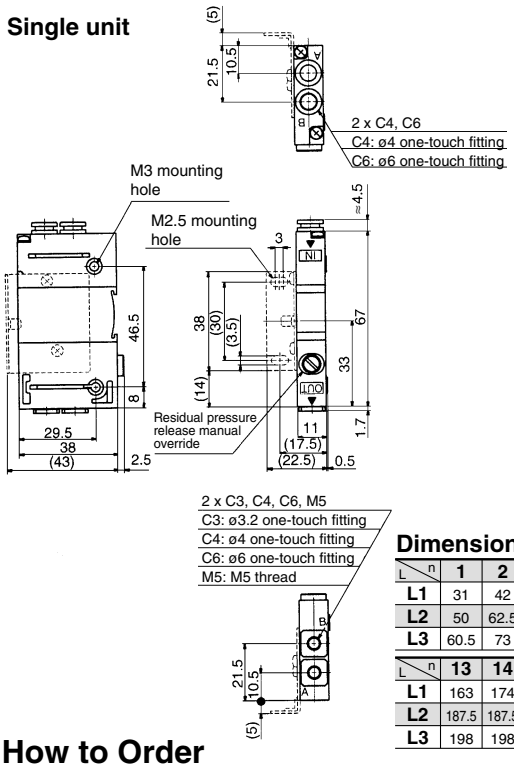
<Circuit diagram>



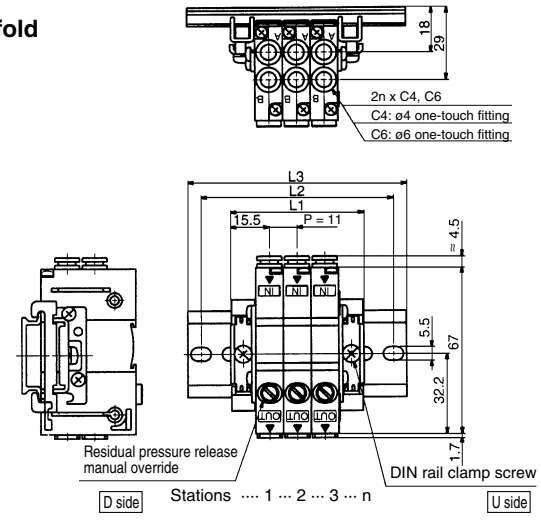
VVQ1000-FPG-02 1 set
∗ VQ1000-FPG-C6M5-D 2 pcs.

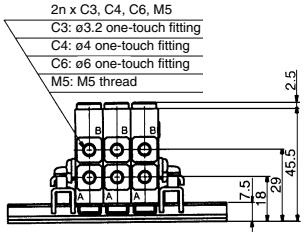
Dimensions

Single unit



Manifold





Dimensions Formula L1 = 11n + 20 n: Station (Maximum 24)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	31	42	53	64	75	86	97	108	119	130	141	152
L2	50	62.5	75	87.5	100	112.5	125	125	137.5	150	162.5	175
L3	60.5	73	85.5	98	110.5	123	135.5	135.5	148	160.5	173	185.5

L \ n	13	14	15	16	17	18	19	20	21	22	23	24
L1	163	174	185	196	207	218	229	240	251	262	273	284
L2	187.5	187.5	200	212.5	225	237.5	250	250	262.5	275	287.5	300
L3	198	198	210.5	223	235.5	248	260.5	260.5	273	285.5	298	310.5

How to Order

Double check block

VQ1000-FPG- C4 M5 – F

IN side port size

M5	M5 thread
C3	ø3.2 one-touch fitting
C4	ø4 one-touch fitting
C6	ø6 one-touch fitting
N3	ø5/32" one-touch fitting
N7	ø1/4" one-touch fitting

OUT side port size

M5	M5 thread
C3	ø3.2 one-touch fitting
C4	ø4 one-touch fitting
C6	ø6 one-touch fitting
N3	ø5/32" one-touch fitting
N7	ø1/4" one-touch fitting

Option

Nil	None
F	With bracket
D	DIN rail mounting (For manifold)
N	Name plate

Note) When two or more symbols are specified, indicate them alphabetically. Example) -DN

Manifold (DIN rail mounting)

VVQ1000-FPG- 06

Stations

01	1 station
⋮	⋮
16	16 stations

When ordering a double check block, order the DIN rail mounting [-D].

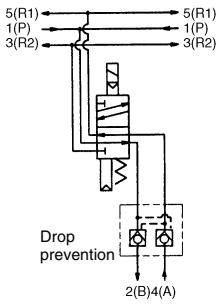
<Ordering example>
VVQ1000-FPG-06···6-station manifold
∗**VQ1000-FPG-C4M5-D, 3 sets**
∗**VQ1000-FPG-C6M5-D, 3 sets**
} **Double check block**

Bracket Assembly

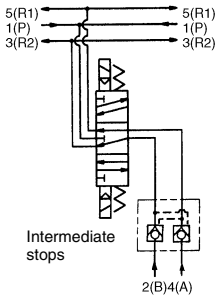
Part no.	Tightening torque
VQ1000-FPG-FB	0.22 to 0.25 N·m

<Example>

2-position



3-position exhaust center



⚠ Caution

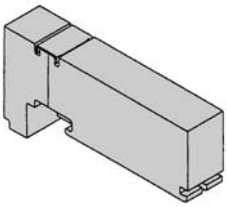
- Air leakage from the pipe between the valve and cylinder or from the fittings will prevent the cylinder from stopping for long periods of time. Check the leakage using neutral household detergent, such as dish washing soap. Also, check the cylinder's tube gasket, piston packing and rod packing for air leakage.
- Since one-touch fittings allow slight air leakage, screw piping (with M5 thread) is recommended when stopping the cylinder in the middle for long periods of time.
- Combining double check block with 3-position closed center or pressure center solenoid valve will not work.
- M5 fitting assembly is attached, not incorporated into the double check block. After screwing in the M5 fittings, mount the assembly on the double check block. {Tightening torque: 0.8 to 1.2 N·m}
- If the exhaust of the double check block is restricted too much, the cylinder may not operate properly and may not stop intermediately.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.

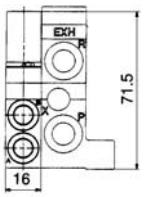
VQC2000: Manifold Optional Parts

Blanking plate assembly
VVQ2000-10A-1

JIS symbol

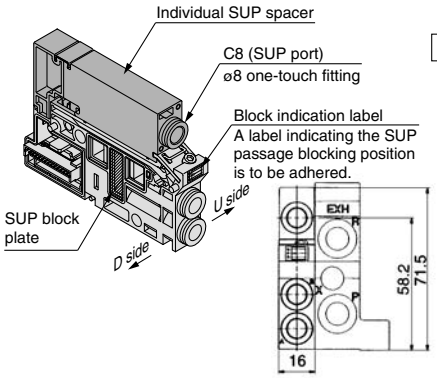
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

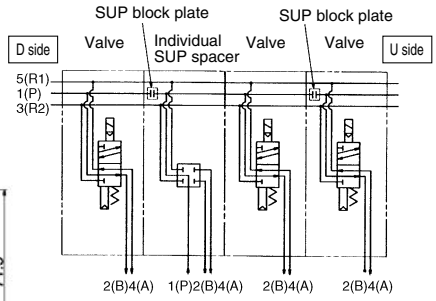




Individual SUP spacer
VVQ2000-P-1-$^{C8}_{N9}$

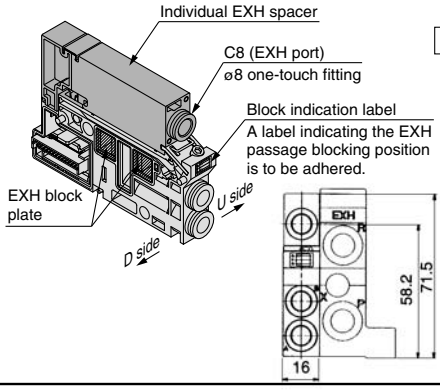
When the same manifold is to be used for different pressures, individual SUP spacers are used as SUP ports for different pressures. (One station space is occupied.)
Block both sides of the station, for which the supply pressure from the individual SUP spacer is used, with SUP block plates. (Refer to the application example.)
* Specify the spacer mounting position and SUP passage blocking position by means of the manifold specification sheet.
  The block plate is used in one or two places for one set.
  (Two SUP block plates for blocking SUP passage are attached to the individual SUP spacer.)
* As a standard, electric wiring is connected to the position of the manifold station where the individual SUP spacer is mounted.
* If wiring is not required for stations equipped with spacers, enter "X" in the special wiring specifications column in the manifold specification sheet.

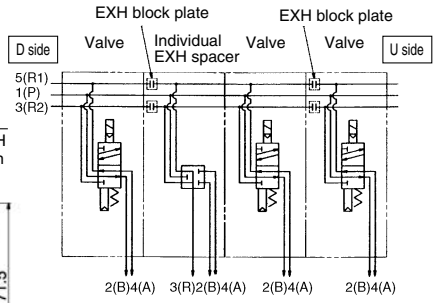




Individual EXH spacer
VVQ2000-R-1-$^{C8}_{N9}$

When valve exhaust affects other stations due to the circuit configuration, this spacer is used for individual valve exhaust. (One station space is occupied.)
Block both sides of the individual valve EXH station. (Refer to the application example.)
* Specify the spacer mounting position, as well as the EXH passage blocking position by means of the manifold specification sheet. The block plate is used in one or two places for one set. (Four EXH block plates (2 sets) for blocking EXH passage are attached to the individual EXH spacer.)
* As a standard, electric wiring is connected to the position of the manifold station where the individual EXH spacer is mounted.
* If wiring is not required for stations equipped with spacers, enter "X" in the special wiring specifications column in the manifold specification sheet.

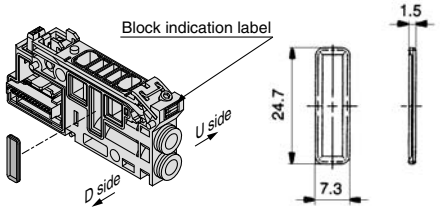




SUP block plate
VVQ2000-16A

When different pressures are supplied to a manifold, a SUP block plate is used to block the stations under different pressures.

* Specify the mounting position by means of the manifold specification sheet.



<Block indication label>
Indication labels to confirm the blocking position are attached. (Each for SUP passage and SUP/EXH passage blocking positions)

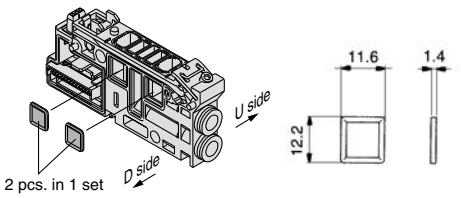
SUP passage blocked **SUP/EXH passage blocked**

* When ordering a block plate incorporated with a manifold, a block indication label is attached to the manifold.

EXH block plate
VVQ2000-19A

The EXH block plate is used between stations for which exhaust is desired to be divided when valve exhaust affects other stations configuration. It is also used in combination with an individual EXH spacer for individual exhaust.

* Specify the mounting position by means of the manifold specification sheet.



<Block indication label>
Indication labels to confirm the blocking position are attached. (Each for EXH passage and SUP/EXH passage blocking positions)

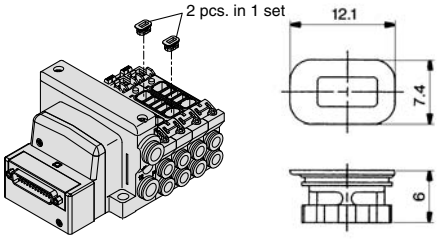
EXH passage blocked **SUP/EXH passage blocked**

* When ordering a block plate incorporated with a manifold, a block indication label is attached to the manifold.

Back pressure check valve assembly [-B]
VVQ2000-18A

It prevents cylinder malfunction caused by other valve exhaust entry. Insert it into R (EXH) port on the manifold side of a valve which is affected.
It is effective when a single-acting cylinder is used or an exhaust center type solenoid valve is used.
* When ordering this option incorporated with a manifold, suffix "-B" to the end of the manifold part number.

Note) When a back pressure check valve is desired, and is to be installed only in certain manifold stations, clearly indicate the part number and specify the mounting position by means of the manifold specification sheet.

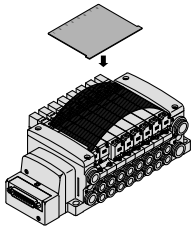


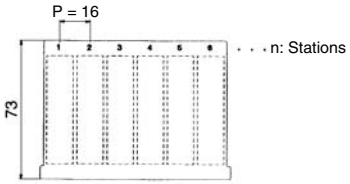
<Precautions>
1. The back pressure check valve assembly is assembly parts with a check valve structure. However, since the valve has sight air leakage, take precautions for the exhaust air not to be restricted at the exhaust port.
2. When a back pressure check valve is mounted, the effective area of the valve will decrease by about 20%.

VQC2000: Manifold Optional Parts

Name plate [-N]
VVQ2000-N-Station (1 to Max. stations)

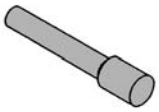
It is a transparent resin plate for placing a label that indicates solenoid valve function, etc.
Insert it into the groove on the side of the end plate and bend it as shown in the figure.
* When ordering this option incorporated with a manifold, suffix "-N" to the end of the manifold part number.

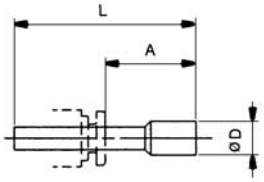




Blanking plug (For one-touch fittings)
KQ2P-□

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



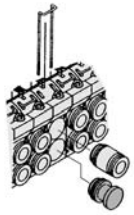


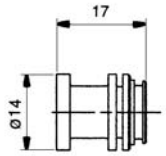
Dimensions

Applicable fitting 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
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

Port plug
VVQ1000-58A

The plug is used to block the cylinder port.
* When ordering this option incorporated with a manifold, indicate "CM" for the port size of the manifold part number, as well as, the mounting station and cylinder port mounting positions, A and B, by means of the manifold specification sheet.

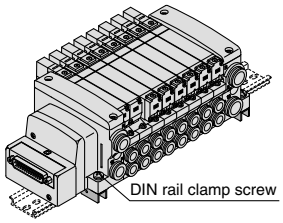


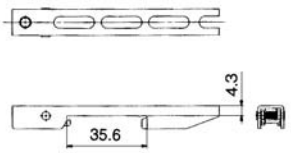


DIN rail mounting bracket [-D]
VVQC2000-57A
{For F/L/M/P/S (EX500) kit}
VVQC2000-57A-S
{For S (EX250) kit}
VVQC2000-57A-T (For T kit)

It is used for mounting a manifold on a DIN rail.
* When ordering this option incorporated with a manifold, suffix "-D" to the end of the manifold part number.

1 set of DIN rail mounting bracket is used for 1 manifold (2 DIN rail mounting brackets).



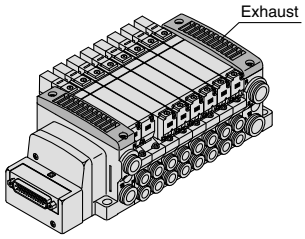


Direct EXH outlet with built-in silencer [-S]

This is a type with an exhaust outlet atop the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect. (Noise reduction: 30 dB)
* When ordering this option incorporated with a manifold, suffix "-S" to the end of the manifold part number.

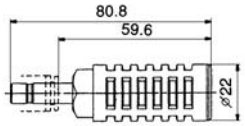
Note) A large quantity of drainage generated in the air source results in exhaust of air together with drainage.

● Refer to back page 5 for maintenance.



Silencer (For EXH port)

This silencer is to be inserted into the EXH port (one-touch fittings).

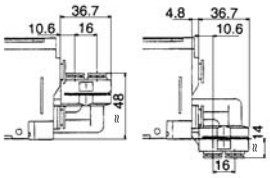


Dimensions

Series	Applicable fitting size ød	Model	A	L	D	Effective area (mm²) (Cv factor)	Noise reduction (dB)
VQ2000	10	AN200-KM10	59.6	80.8	22	26 (1.4)	30

Elbow fitting assembly
VVQ2000-F-L(C4/C6/C8/N3/N7/N9)

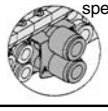
It is used for piping that extends upward or downward from the manifold.
When installing it only in some manifold stations, specify the elbow fitting assembly part number and the mounting position by means of the manifold specification sheet.

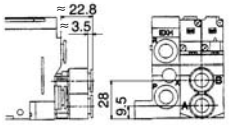


Dual flow fitting assembly
VVQ2000-52A-$^{C10}_{N11}$

This is a fitting to multiply the flow rate by combining the outputs of 2-valve stations. It is used for driving a large bore cylinder. This is a one-touch fitting for a port size of ø10 or ø3/8".

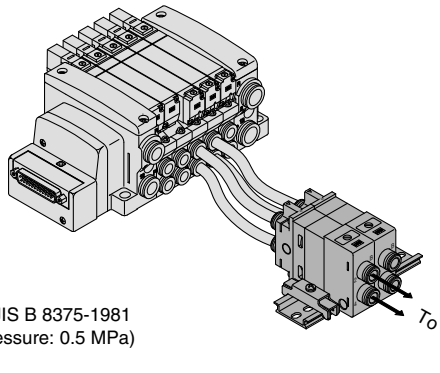
* The port size of the manifold part number is "CM". Clearly indicate the dual flow fitting assembly part number and specify the mounting position by means of the manifold specifications.



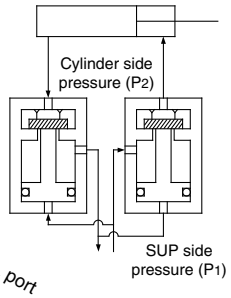


Double check block (Separated) for VQC2000
VQ2000-FPG-□□-□

It is mounted on the outlet side piping to keep the cylinder in the intermediate position for long periods of time. Combining with a 3-position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long time. Combining with a 2-position single/double solenoid valve will prevent a cylinder from dropping at the stroke end when the residual pressure of SUP is released.



<Circuit diagram>



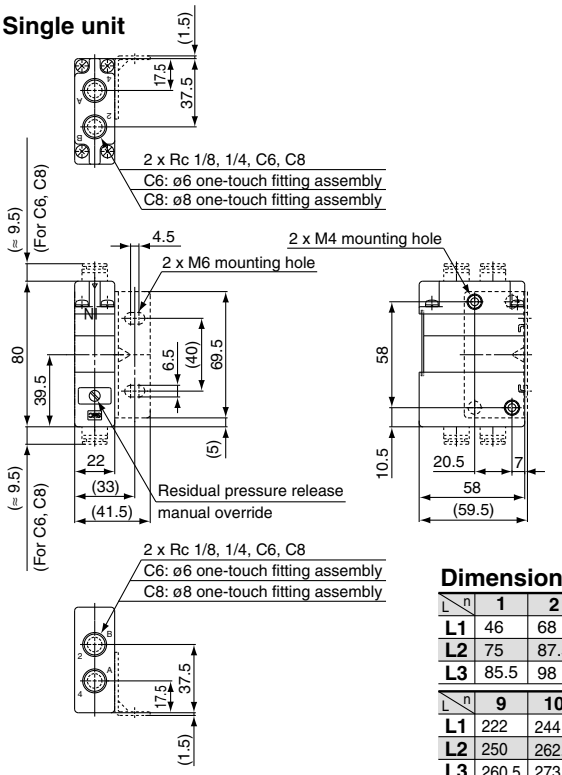
Specifications

Max. operating pressure	0.8 MPa
Min. operating pressure	0.15 MPa
Ambient and fluid temp.	–5 to 50°C
Flow characteristics: C	3.0 dm³/(s·bar)
Max. operating frequency	180 c.p.m

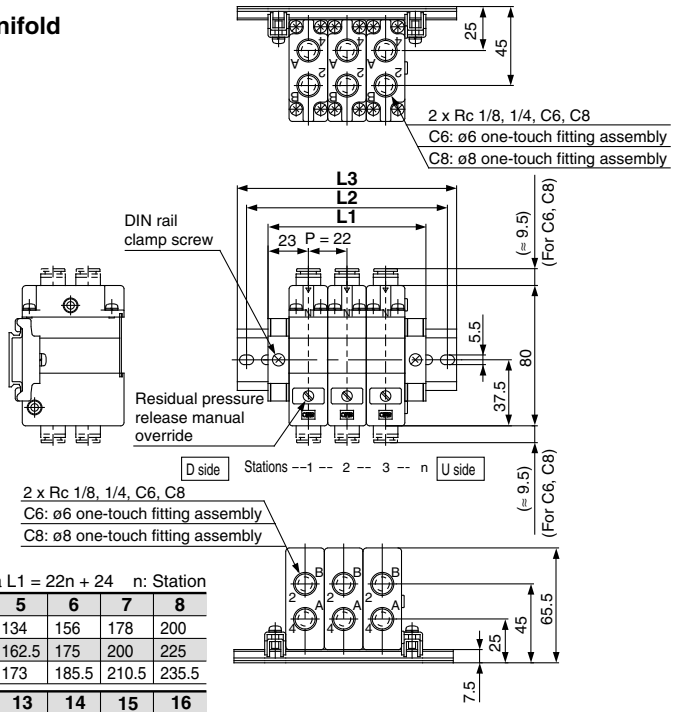
Note) Based on JIS B 8375-1981 (Supply pressure: 0.5 MPa)

Dimensions

Single unit



Manifold



Dimensions

Formula L1 = 22n + 24 n: Station

n	1	2	3	4	5	6	7	8
L1	46	68	90	112	134	156	178	200
L2	75	87.5	112.5	137.5	162.5	175	200	225
L3	85.5	98	123	148	173	185.5	210.5	235.5

n	9	10	11	12	13	14	15	16
L1	222	244	266	288	310	332	354	376
L2	250	262.5	287.5	312.5	337.5	362.5	375	400
L3	260.5	273	298	323	348	373	385.5	410.5

How to Order

Double check block

VQ2000-FPG- 01 01 - F

IN side port size

01	Rc 1/8
02	Rc 1/4
C6	ø6 one-touch fitting
C8	ø8 one-touch fitting
N7	ø1/4" one-touch fitting
N9	ø5/16" one-touch fitting

OUT side port size

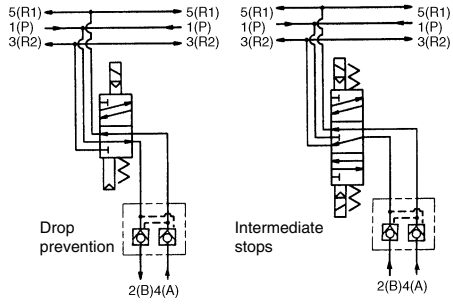
01	Rc 1/8
02	Rc 1/4
C6	ø6 one-touch fitting
C8	ø8 one-touch fitting
N7	ø1/4" one-touch fitting
N9	ø5/16" one-touch fitting

Option

Nil	None
D	DIN rail mounting (For manifold)
F	With bracket
N	Name plate

Note) When two or more symbols are specified, indicate them alphabetically.
Example) -DN

<Example>



Manifold (DIN rail mounting)

VVQ2000-FPG- 06

Stations

01	1 station
⋮	⋮
16	16 stations

When ordering a double check block, order the DIN rail mounting [-D].

<Ordering example>
VVQ2000-FPG-06···6-station manifold
∗VQ2000-FPG-C6C6-D, 3set
∗VQ2000-FPG-C8C8-D, 3set
Double check block

Bracket Assembly

Part no.	Tightening torque
VQ2000-FPG-FB	0.8 to 1.0 N·m

⚠ Caution

- Air leakage from the pipe between the valve and cylinder or from the fittings will prevent the cylinder from stopping for long periods of time. Check the leakage using neutral household detergent, such as dish washing soap. Also, check the cylinder's tube gasket, piston packing and rod packing for air leakage.
- Since one-touch fittings allow slight air leakage, screw piping is recommended when stopping the cylinder in the middle for long periods of time.
- Combining double check block with 3-position closed center or pressure center solenoid valve will not work.
- When fittings, etc. are being screwed to the double check block, tighten them with the torque below.

Connection thread	Proper tightening torque (N·m)
Rc 1/8	7 to 9
Rc 1/4	12 to 14

- If the exhaust of the double check block is restricted too much, the cylinder may not operate properly and may not stop intermediately.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.

Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC), Japan Industrial Standards (JIS)*1) and other safety regulations*2).

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1992: Manipulating industrial robots - Safety.
JIS B 8370: General rules for pneumatic equipment.
JIS B 8361: General rules for hydraulic equipment.
JIS B 9960-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
JIS B 8433-1993: Manipulating industrial robots – Safety.
etc.

*2) Labor Safety and Sanitation Law, etc.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

Safety Instructions

⚠Caution

1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.

If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.

If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

Limited warranty and Disclaimer

1. **The warranty period of the product is 1 year in service or 1.5 years after the product is delivered.∗3)**

   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. **For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.**

   This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. **Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.**

∗3) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.

Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

When the product is exported, strictly follow the laws required by the Ministry of Economy, Trade and Industry (Foreign Exchange and Foreign Trade Control Law).

Series VQC1000/2000
Specific Product Precautions 1

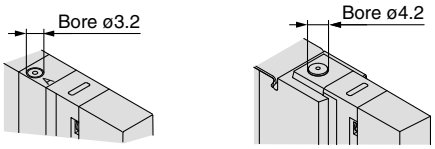
Be sure to read before handling.
Refer to back pages 1 and 2 for Safety Instructions and Handling Precautions for SMC Products (M-E03-3) for 3/4/5 Port Solenoid Valves Precautions.

Manual Override

⚠ Warning

Connected actuator is started by manual operation. Use the manual override after confirming that there is no danger. Push type is standard. (Tool required) Locking type is semi-standard. (Tool required)

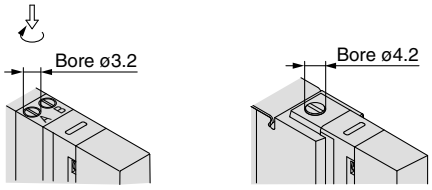
Non-locking push type (Tool required)



VQC1000 **VQC2000**

Push down on the manual override with a small screwdriver until it stops. Release the screwdriver and the manual override will return.

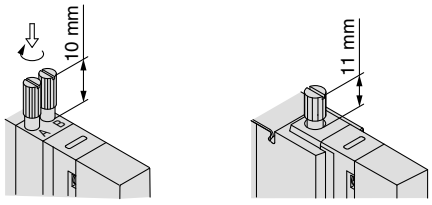
Locking type (Tool required) <Semi-standard>



VQC1000 **VQC2000**

Push down on the manual override with a small flat head screwdriver until it stops. Turn it clockwise by 90° to lock it. Turn it counterclockwise to release it.

Locking type (Manual) <Semi-standard>



VQC1000 **VQC2000**

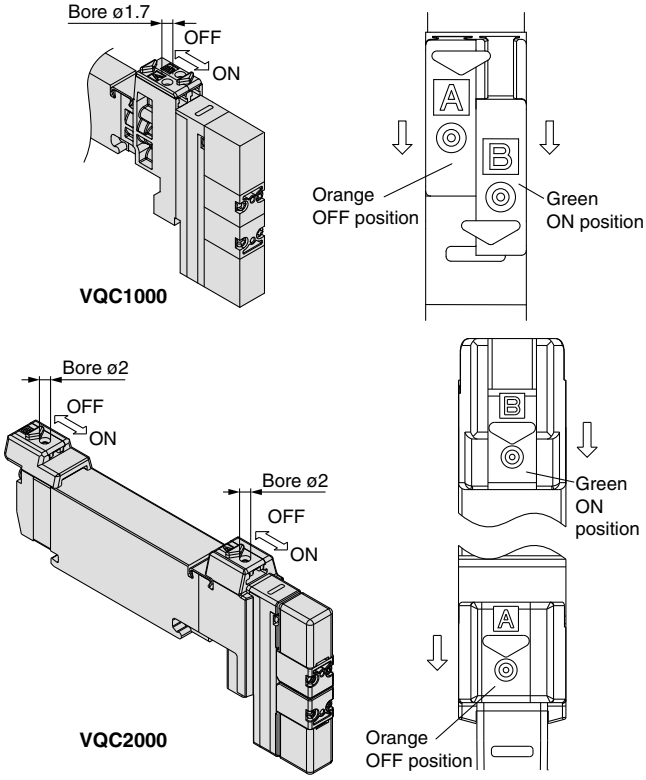
Push down on the manual override with a small screwdriver or with your fingers until it stops. Turn it clockwise by 90° to lock it. Turn it counterclockwise to release it.

⚠ Caution

Do not apply excessive torque when turning the locking type manual override. (0.1 N·m or less)

⚠ Warning

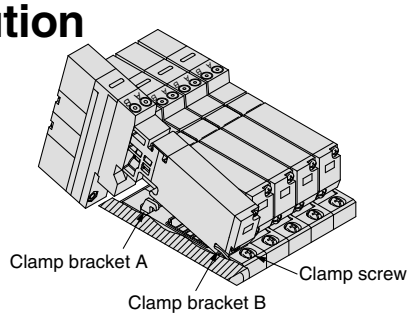
Slide locking type (Manual) <Semi-standard>



The manual override is locked by sliding it all the way to the pilot valve side (ON side) with a small flat head screwdriver or with your fingers. Slide it to the fitting side (OFF side) to release it. In addition, it can also be used as a push type by using a screwdriver, etc., of ø1.7 or less. (ø2 or less for VQC2000)

How to Mount/Remove Solenoid Valves

⚠ Caution



Removing

1. Loosen the clamp screw until it turns freely. (The screw is captive.)
2. Lift the coil side of the valve body while pressing down slightly on the screw head and remove it from the clamp bracket B. When the screw head cannot be pressed easily, gently press the area near the manual override of the valve.

Mounting

1. Press down on the clamp screw. Clamp bracket A opens. Diagonally insert the hook on the valve end plate side into clamp B.
2. Press the valve body downward. (When the screw is released, it will be locked by clamp bracket A.)
3. Tighten the clamp screw. (Proper tightening torque: VQC1000, 0.25 to 0.35 N·m; VQC2000, 0.5 to 0.7 N·m)

⚠ Caution

Dust on the sealing surface of the gasket or solenoid valve can cause air leakage.

Back page 3

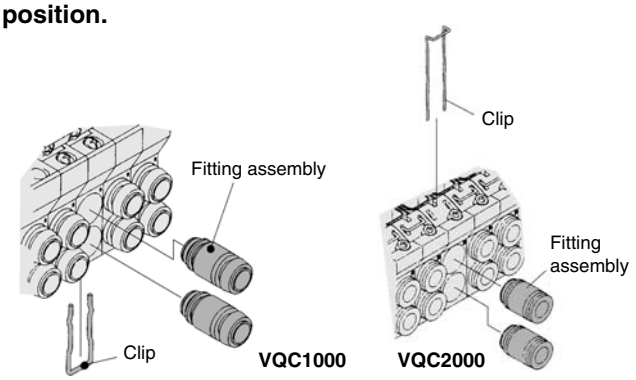
Series VQC1000/2000
Specific Product Precautions 2

Be sure to read before handling.
Refer to back pages 1 and 2 for Safety Instructions and Handling Precautions for SMC Products (M-E03-3) for 3/4/5 Port Solenoid Valves Precautions.

Cylinder Port Fittings Replacement

⚠ Caution

One-touch fittings on the cylinder port are a cassette for easy replacement. The fittings are blocked by a clip. After removing the corresponding valve and take out the clip with a flat head screwdriver, etc., then replace the fittings.
For mounting, insert the fitting until it strikes against the inside wall and then insert the clip to the specified position.



Applicable tubing O.D.	Fitting assembly part no.	
	VQC1000	**VQC2000**
Applicable tubing ø3.2	VVQ1000-50A-C3	——
Applicable tubing ø4	VVQ1000-50A-C4	VVQ1000-51A-C4
Applicable tubing ø6	VVQ1000-50A-C6	VVQ1000-51A-C6
Applicable tubing ø8	——	VVQ1000-51A-C8
M5	VVQ1000-50A-M5	——
Applicable tubing ø1/8"	VVQ1000-50A-N1	——
Applicable tubing ø5/32"	VVQ1000-50A-N3	VVQ1000-51A-N3
Applicable tubing ø1/4"	VVQ1000-50A-N7	VVQ1000-51A-N7
Applicable tubing ø5/16"	——	VVQ1000-51A-N9

∗ Refer to “Manifold Optional Parts” on pages 42 and 45 for other types of fittings.

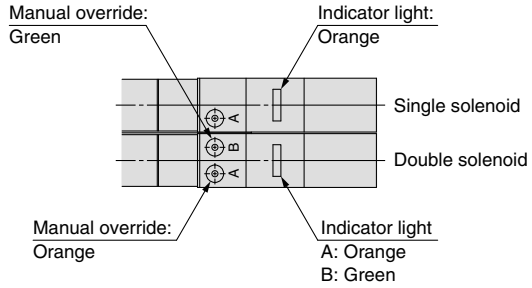
⚠ Caution

1) Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.
2) After screwing in the fittings, mount the M5 fitting assembly on the manifold base. (Tightening torque: 0.8 to 1.2 N·m)
3) Purchasing order is available in units of 10 pieces.

Light/Surge Voltage Suppressor

⚠ Caution

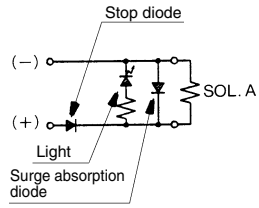
The lighting positions are concentrated on one side for both single solenoid type and double solenoid type. In the double solenoid type, A side and B side energization are indicated by two colors which match the colors of the manual overrides.



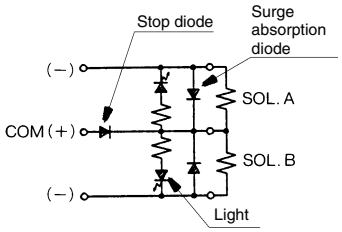
(Drawing shows a VQC1000 case.)

DC circuit diagram

Single solenoid



Double solenoid



Note) A-side energization:
A light (Orange) illuminates.
With wrong wiring prevention (stop diode) mechanism
B-side energization:
B light (Green) illuminates.
With a surge absorption (surge absorption diode) mechanism

Series VQC1000/2000
Specific Product Precautions 3

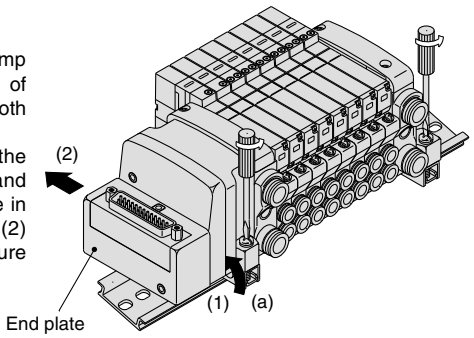
Be sure to read before handling.
Refer to back pages 1 and 2 for Safety Instructions and Handling Precautions for SMC Products (M-E03-3) for 3/4/5 Port Solenoid Valves Precautions.

How to Mount/Remove DIN Rail

⚠Caution

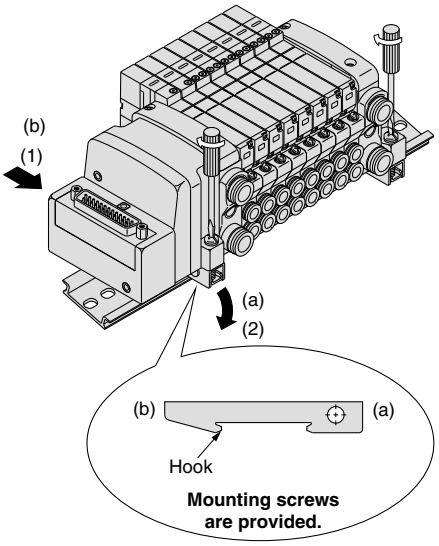
Removing

1. Loosen the clamp screw on side (a) of the end plate on both sides.
2. Lift side (a) of the manifold base and slide the end plate in the direction of (2) shown in the figure to remove.



Mounting

1. Hook side (b) of the manifold base on the DIN rail.
2. Press down side (a) and mount the end plate on the DIN rail. Tighten the clamp screw on side (a) of the end plate. The proper tightening torque for screws is 0.4 to 0.6 N·m.



IP67 Enclosure

⚠Caution

Wiring connection for models conforming to IP67 should also have enclosures equivalent to or of stricter than IP67.

Built-in Silencer Element

⚠Caution

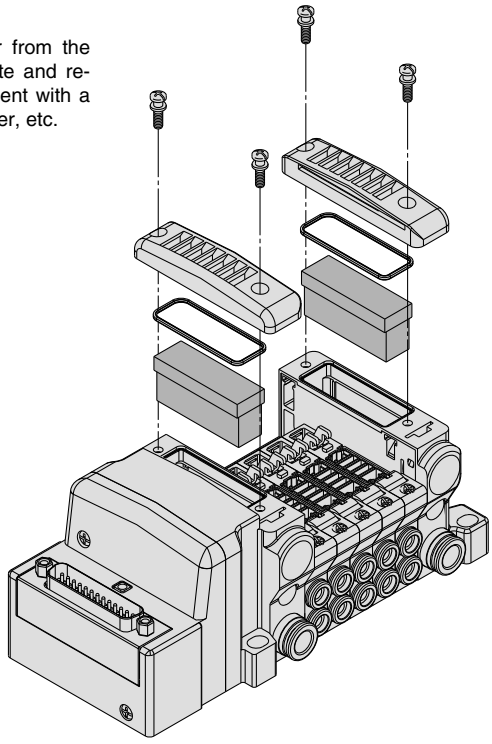
A filter element is incorporated in the end plate on both sides of the manifold base. A dirty and choked element may reduce cylinder speed or cause malfunction. Clean or replace the dirty element.

Element Part No.

Type	Element part no.	
	VQC1000	**VQC2000**
Direct EXH outlet with built-in silencer	VVQ1000-82A-1	VVQ2000-82A-1

The minimum order quantity is 10 pcs.

Remove the cover from the top of the end plate and remove the old element with a flat head screwdriver, etc.



How to Calculate Flow Rate

Refer to Best Pneumatics No. ① for obtaining the flow rate.

Series VQC1000/2000
Specific Product Precautions 4

Be sure to read before handling.
Refer to back pages 1 and 2 for Safety Instructions and Handling Precautions for SMC Products (M-E03-3) for 3/4/5 Port Solenoid Valves Precautions.

EX500/EX250/EX126 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 explosive environments, in the presence of inflammable gases, or in corrosive environments. This can cause injury or fire.**
3. **Work such as transporting, installing, piping, wiring, operation, control and maintenance should be performed by knowledgeable and qualified personnel only. As handling involves the risk of a danger of electrocution, injury or fire.**
4. **Install an external emergency stop circuit that can promptly stop operation and shut off the power supply.**
5. **Do not modify these products. Modifications done to these products carry the risk of injury and damage.**

⚠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.**
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.**
4. **Do not touch connector terminals or internal circuit elements when current is being supplied. There is a danger of malfunction, damage to the unit or electrocution if connector terminals or internal circuit elements are touched when current is being supplied.**
   Be sure that the power supply is OFF when adding or removing manifold valves or input blocks 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 materials from getting inside these products. This can cause fire, failure or malfunction.**
7. **Give consideration to the operating environment depending on the type of enclosure being used.**
   To achieve IP65 and IP67 protection class, 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. Provide a cover or other protection for applications in which there is constant exposure to water.
8. **Use the proper tightening torques.**
   There is a possibility of damaging threads if tightening exceeds the tightening torque range.
9. **Provide adequate protection when operating in locations such as follows:**
   - Where noise is generated by static electricity
   - Where there is a strong electric field
   - Where there is a danger of exposure to radiation
   - When in close proximity to power supply lines

⚠Caution

10. **When these products are installed in equipment, provide adequate protection against noise by using noise filters.**
11. **Since these products are components whose end usage is obtained 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, otherwise it may be impossible to guarantee safety due to unexpected malfunction or erroneous operation.**

Safety Instructions on Power Supply

⚠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 UL-certified products below for combined direct current power supply.**
   (1) Circuit in which voltage and current are controlled in accordance with UL508
   Circuit which makes the winding wire in the secondary side of the insulation transformer (which meets the following conditions) to be as the power supply
   - Maximum voltage (with no load):
     30 Vrms (42.4 V at peak) or less
   - Maximum current:
     1. 8 A or less (including short-circuited)
     2. and in case of being controlled by circuit protection devices (fuse, etc) which meets the below rated voltages.

Voltage with no load (V peak)	Maximum rated current
0 to 20 (V)	5.0
Exceeding 20 (V) up to 30 (V)	$\frac{100}{\text{Voltage figure at peak}}$

   (2) Class 2 power supply unit in accordance with UL1310 or circuit (Class 2 circuit) in accordance with UL1585, that is powered by Class 2 transformer with the maximum of 30 Vrms (42.4 V at peak)

Safety Instructions on Cable

⚠Caution

1. **Avoid miswiring, as 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 when excessive voltage or current is applied.**
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.**

Series VQC1000/2000
Specific Product Precautions 5

Be sure to read before handling.
Refer to back pages 1 and 2 for Safety Instructions and Handling Precautions for SMC Products (M-E03-3) for 3/4/5 Port Solenoid Valves Precautions.

EX600 Precautions

Design/Selection

⚠Warning

1. Use this product within the specification range.
Using beyond the specified specifications range can cause fire, malfunction, or damage to the system.
Confirm the specifications when operating.

2. When using for an interlock circuit:
- **Provide a multiple interlock system which is operated by another system (such as mechanical protection function).**
- **Perform an inspection to check that it is working properly.**

This may cause possible injury due to malfunction.

⚠Caution

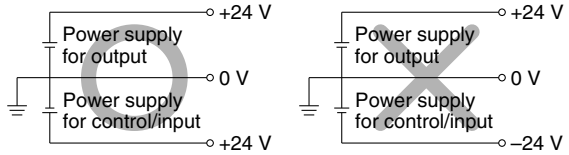
1. Use the UL-certified products below for combined direct current power supply.
(1) Circuit in which voltage and current are controlled in accordance with UL508
Circuit which makes the winding wire in the secondary side of the insulation transformer (which meets the following conditions) to be as the power supply
- Maximum voltage (with no load):
  30 Vrms (42.4 V at peak) or less
- Maximum current:
  1. 8 A or less (including short-circuited)
  2. and in case of being controlled by circuit protection devices (fuse, etc) which meets the below rated voltages.

Voltage with no load (V peak)	Maximum rated current
0 to 20 (V)	5.0
Exceeding 20 (V) up to 30 (V)	$\frac{100}{\text{Voltage figure at peak}}$

(2) Class 2 power supply unit in accordance with UL1310 or circuit (Class 2 circuit) in accordance with UL1585, that is powered by Class 2 transformer with the maximum of 30 Vrms (42.4 V at peak)

2. Use this product within the specified voltage range.
Using beyond the specified voltage range is likely to cause the units and connecting devices to be damaged or to malfunction.

3. The power supply for the unit should be 0 V as the standard for both power supply for output as well as power supply for control/input.



4. Do not install a unit in a place where it can be used as a foothold.
Applying any excessive load such as stepping on the unit by mistake or placing a foot on it, will cause it to break.

5. Keep the surrounding space free for maintenance.
When designing a system, take into consideration the amount of free space needed for performing maintenance.

6. Do not remove the name plate.
Improper maintenance or incorrect use of instruction manual can cause failure and malfunction. Also, there is a risk of losing conformity with safety standards.

7. Beware of inrush current when the power supply is turned on.
Some connected loads can apply an initial charge current which will trigger the over current protection function, causing the unit to malfunction.

Mounting

⚠Caution

1. When handling and assembling units:
- **Do not touch the sharp metal parts of the connector or plug.**
- **Do not apply excessive force to the unit.**
  The connecting portions of the unit are firmly joined with seals.
- **When joining units, take care not to get fingers caught between units.**
  Injury can result.

2. Do not drop, bump, or apply excessive impact.
Otherwise, the unit can become damaged, malfunction, or fail to function.

3. Observe the tightening torque range.
Tightening outside of the allowable torque range will likely damage the product.
IP67 protection class cannot be guaranteed if the screws are not tightened to the specified torque.

4. When lifting a large size manifold solenoid valve unit, take care to avoid causing stress to the valve connection joint.
The connection parts of the unit may be damaged.
Because the unit may be heavy, carrying and installation should be performed by more than one operator to avoid strain or injury.

5. When placing a manifold, mount it on a flat surface.
Torsion in the whole manifold can lead to trouble such as air leakage or defective insulation.

Wiring

⚠Caution

1. Confirm grounding to maintain the safety of the reduced wiring system and for anti-noise performance.
Provide a specific grounding as close to the unit as possible to minimize the distance to grounding.

2. Avoid repeatedly bending or stretching the cable and applying a heavy object or force to it.
Wiring applying repeated bending and tensile stress to the cable can break the circuit.

3. Avoid miswiring.
If miswired, there is a danger of malfunction or damage to the reduced wiring system.

4. Do not wire while energizing the product.
There is a danger of malfunction or damage to the reduced wiring system or input/output equipment.

Back page 7

Series VQC1000/2000
Specific Product Precautions 6

Be sure to read before handling.
Refer to back pages 1 and 2 for Safety Instructions and Handling Precautions for SMC Products (M-E03-3) for 3/4/5 Port Solenoid Valves Precautions.

EX600 Precautions

Wiring

⚠Caution

5. Avoid wiring the power line and high-pressure line in parallel.

Noise or surge produced by signal line resulting from the power line or high pressure line could cause malfunction.
Wiring of the reduced wiring system or input/output device and the power line or high-pressure line should be separated from each other.

6. Confirm the wiring insulation.

Defective insulation (contact with other circuits, improper insulation between terminals, etc.) may cause damage to the reduced wiring system or input/output device due to excessive voltage or current.

7. When a reduced wiring system is installed in machinery/equipment, provide adequate protection against noise by using noise filters, etc.

Noise in signal lines may cause malfunction.

8. When connecting wires of input/output device or handheld terminal, prevent water, solvent or oil from entering inside from the connecter section.

This can cause damage, equipment failure, or malfunction.

9. Avoid wiring patterns in which excessive stress is applied to the connector.

This may cause malfunction or damage to the unit due to contact failure.

Operating Environment

⚠Warning

1. Do not use in an atmosphere containing an inflammable gas or explosive gas.

Use in such an atmosphere is likely to cause a fire or explosion. This system is not explosion-proof.

⚠Caution

1. Select the proper type of enclosure according to the environment of operation.

IP65/67 protection class is achieved when the following conditions are met.

1) The units are connected properly with wiring cable for power supply, communication connector, and cable with M12 connector.
2) Suitable mounting of each unit and manifold valve.
3) Be sure to mount a seal cap on any unused connectors.

If using in an environment that is exposed to water splashes, please take measures such as using a cover.
Also, the Handheld Terminal confirms to IP20, so prevent foreign matter from entering inside, and water, solvent or oil from coming in direct contact with it.

Operating Environment

⚠Caution

2. Provide adequate protection when operating in locations such as the following.

Failure to do so may cause damage or malfunction.
The effect of countermeasures should be checked in individual equipment and machine.

1) Where noise is generated by static electricity, etc.
2) Where there is a strong electric field
3) Where there is a danger of exposure to radiation
4) When in close proximity to power supply lines

3. Do not use in an environment where oil and chemicals are used.

Operating in environments with coolants, cleaning solvents, various oils or chemicals may cause adverse effects (damage, malfunction) to the unit even in a short period of time.

4. Do not use in an environment where the product could be exposed to corrosive gas or liquid.

This may damage the unit and cause it to malfunction.

5. Do not use in locations with sources of surge generation.

Installation of the unit in an area around the equipment (electromagnetic lifters, high frequency induction furnaces, welding machine, motors etc.), which generates the large surge voltage could cause to deteriorate an internal circuitry element of the unit or result in damage. Implement countermeasures against the surge from the generating source, and avoid touching the lines with each other.

6. Use the product type that has an integrated surge absorption element when directly driving a load which generates surge voltage by relay, solenoid valves or lamp.

When a surge generating load is directly driven, the unit may be damaged.

7. The product is CE marked, but not immune to lightning strikes. Take measures against lightning strikes in your system.

8. Keep dust, wire scraps and other extraneous material from getting inside the product.

This may cause malfunction or damage.

9. Mount the unit in such locations, where no vibration or shock is affected.

This may cause malfunction or damage.

10. Do not use in places where there are cyclic temperature changes.

In case that the cyclic temperature is beyond normal temperature changes, the internal unit is likely to be adversely effected.

11. Do not use in direct sunlight.

Do not use in direct sunlight. It may cause malfunction or damage.

12. Use this product within the specified ambient temperature range.

This may cause malfunction.

13. Do not use in places where there is radiated heat around it.

Such a place is likely to cause malfunction.

Series VQC1000/2000
Specific Product Precautions 7

Be sure to read before handling.
Refer to back pages 1 and 2 for Safety Instructions and Handling Precautions for SMC Products (M-E03-3) for 3/4/5 Port Solenoid Valves Precautions.

EX600 Precautions

Adjustment/Operation

⚠Warning

1. Do not perform operation or setting with wet hands.
There is a risk of electrical shock.

<Handheld Terminal>

2. Do not apply pressure to the LCD display.
There is a possibility of the crack of LCD display and injuring.

3. The forced input/output function is used to change the signal status forcibly. When operating this function, be sure to check the safety of the surroundings and installation.
Otherwise, injury or equipment damage could result.

4. Incorrect setting of parameters can cause malfunction. Be sure to check the settings before use.
This may cause injury or equipment damage.

⚠Caution

1. Use a watchmaker's screwdriver with thin blade for the setting of each switch of the SI unit.
When setting the switch, do not touch other unrelated parts.
This may cause parts damage or malfunction due to a short circuit.

2. Provide adequate setting for the operating conditions.
Failure to do so could result in malfunction.
Refer to the instruction manual for setting of the switches.

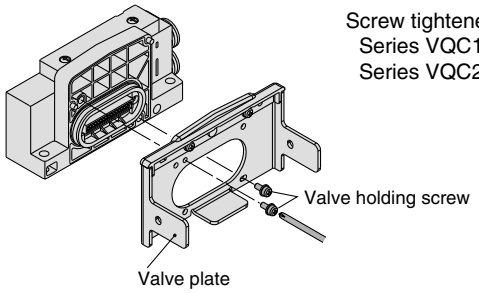
3. For the details of programming and address setting, refer to the manual from the PLC manufacturer.
The content of programming related to protocol is designed by the manufacturer of the PLC used.

<Handheld Terminal>

4. Do not press the setting buttons with a sharp pointed object.
This may cause damage or malfunction.

5. Do not apply excessive load and impact to the setting buttons.
This may cause damage, equipment failure or malfunction.

When the order does not include the SI unit, the valve plate to connect the manifold and SI unit is not mounted. Use attached valve fixing screws and mount the valve plate.
(Tightening torque: 0.6 to 0.7 N·m)



Maintenance

⚠Warning

1. Do not disassemble, modify (including circuit board replacement) or repair this product.
Such actions are likely to cause injuries or breakage.

2. When an inspection is performed,
- **Turn off the power supply.**
- **Stop the air supply, exhaust the residual pressure in piping and verify that the air is released before performing maintenance work.**

Unexpected malfunction of system components and injury can result.

⚠Caution

1. When handling and replacing the unit:
- **Do not touch the sharp metal parts of the connector or plug.**
- **Do not apply excessive force to the unit.**
The connecting portions of the unit are firmly joined with seals.
- **When joining units, take care not to get fingers caught between units.**
Injury can result.

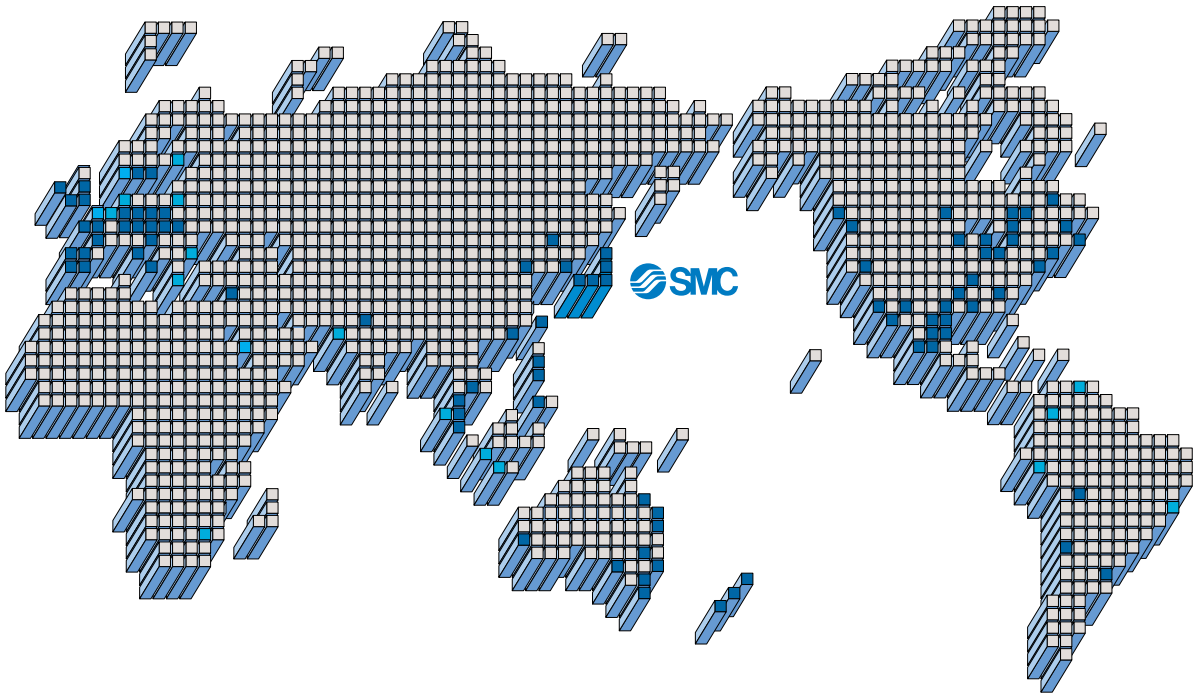
2. Perform periodic inspection.
Unexpected malfunction in the system composition devices is likely to occur due to malfunction of machinery or equipment.

3. After maintenance, make sure to perform an appropriate functionality inspection.
In cases of abnormality such as faulty operation, stop operation. Unexpected malfunction in the system composition devices is likely to occur.

4. Do not use benzene and thinner for cleaning units.
Damage to the surface or erasure of the display can result. Wipe off any stains with a soft cloth.
If the stain is persistent, wipe off with a cloth soaked in a dilute solution of neutral detergent and wrung out tightly, and then finish with a dry cloth.

Back page 9

SMC'S GLOBAL MANUFACTURING, DISTRIBUTION AND SERVICE NETWORK



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⚠ Safety Instructions	Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

SMC Corporation

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Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.

D-DN 1st printing NP printing NP 16400DN Printed in Japan.

This catalog is printed on recycled paper with concern for the global environment.

Fieldbus System
(For Input/Output)

New

RoHS

Applicable Fieldbus protocols

CC-Link V2 | DeviceNet | PROFIBUS | EtherNet/IP | EtherCAT

New unit type added
SI Unit (EtherC AT)

Reduction in wiring time with SPEEDCON (Phoenix Contact). Just insert and make 1/2 rotation!

IP67
Note) Some products are IP40.

Self diagnosis function

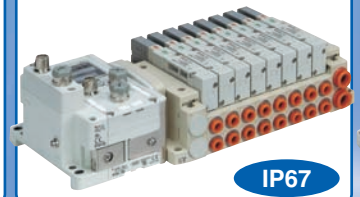
It is possible to asce rtain the maintenance period and identify the parts that require maintenance, by an input/output open circuit detecting function and an input/output signal ON/OFF counter function. Also, the monitoring of input and output signals and the setting of parameters can be performed with a Handheld Terminal.

Max. 9 units Note) Can be connected in any order.

The unit to connect input device such as an auto switch, pressure switch and flow switch, and the unit to connect output device such as a solenoid valve, relay and indicator light can be connected in any order.

Note) Except SI Unit

Manifold Solenoid Valves

Series SY3000/5000	Series SV1000/2000/3000	Series S0700	Series VQC1000/2000/4000
			
IP67	IP67	IP40	IP67

Note) The SY3000/5000, S0700, and VQC1000/2000/4000 are not UL-compatible.

Series EX600

SMC

CAT.NA02-24C

Fieldbus System

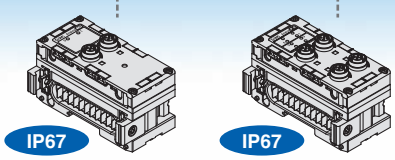
Analog Unit

M12 connector (5 pins)

Input Unit — 2CH

Output Unit — 2CH

Input/Output Unit — 2CH/2CH



Input device


Pressure sensor

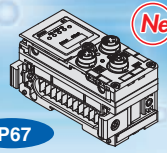

Flow sensor

Output device


Electro-pneumatic regulator, etc.

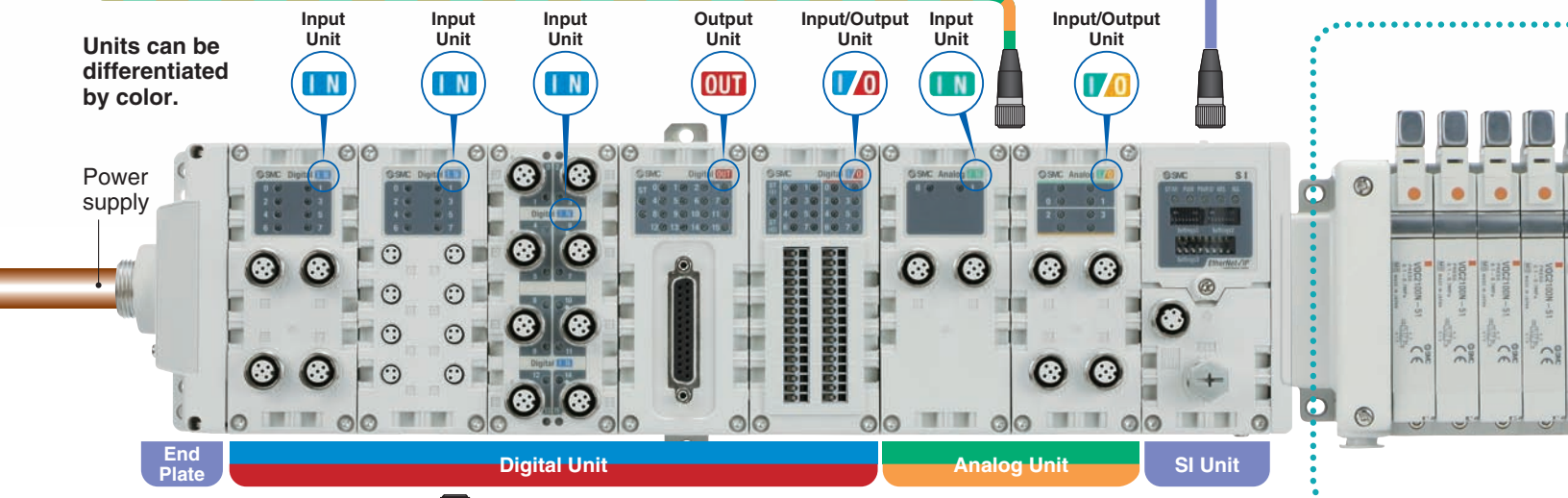
SI Unit

EtherCAT added to compatible communication networks



Handheld Terminal
Parameter setting and I/O monitor tool

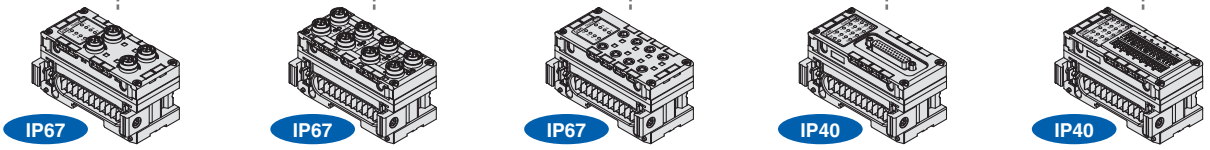
Units can be differentiated by color.



For detailed specifications of connectable device, refer to the catalog of each device and select the right device for your application. If anything is unclear, contact us.

Digital Unit

	M12 connector (5 pins)		M8 connector (3 pins)	D-sub connector	Spring type terminal block
Input Unit	8 inputs	16 inputs	8 inputs	16 inputs	16 inputs
Output Unit	8 outputs			16 outputs	16 outputs
Input/Output Unit				8 inputs/8 outputs	8 inputs/8 outputs



Input device

Pressure switch
Flow switch
Auto switch

Others
Proximate sensor
Photoelectric switch
Limit switch

Output device

Solenoid valve
Others
Indicator light
Relay
Buzzer

SMC

Parameters

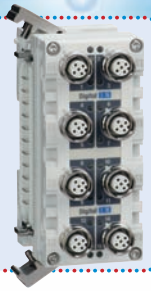
A **parameter** is a set value to change the function and operation of the product through a PLC or Handheld Terminal. The desired operation for the customer's application is realized by the set values. There are some parameters that can only be set using the Handheld Terminal of this series.

SI Unit

Unit to connect various Fieldbus with the EX600 system

Digital Unit

Unit to input or output digital (switch) signals



Analog Unit

Unit to input or output analog (voltage/current) signals

End Plate

Unit to supply power to the EX600 system

Handheld Terminal

Parameter setting and I/O monitor tool

Accessories

Options including a power supply cable, etc. for the EX600 series

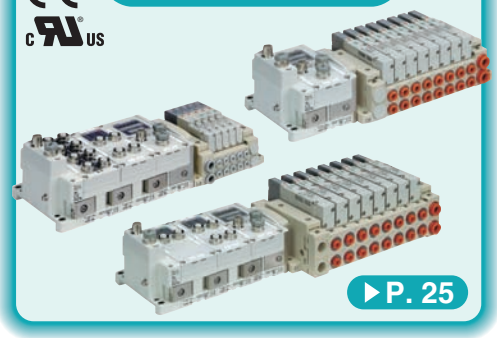
▶P. 13

Manifold solenoid valves

Series SY (IP67)

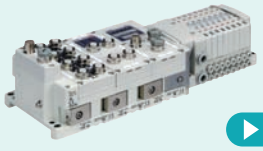
▶P. 17

Series SV (IP67)



▶P. 25

Series S0700 (IP40)



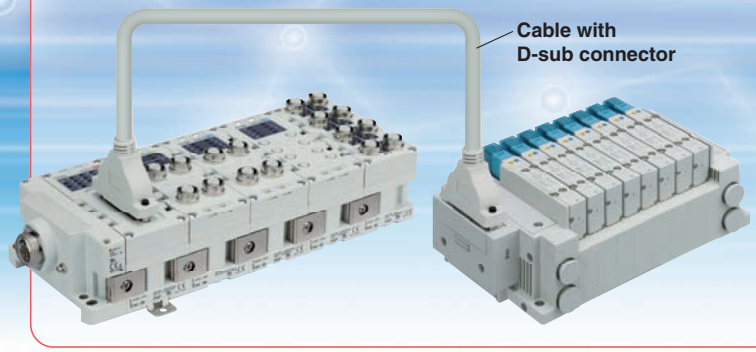
▶P. 33

Series VQC (IP67)

▶P. 37

Connection using D-sub connector

IP40



These units are capable of connection using a D-sub connector. There are three types of units, for digital input, output, and input/output. The Digital Output Unit can be connected with an SMC manifold solenoid valve F kit (D-sub connector).

Manifold solenoid valve can be connected using cable with D-sub connector.

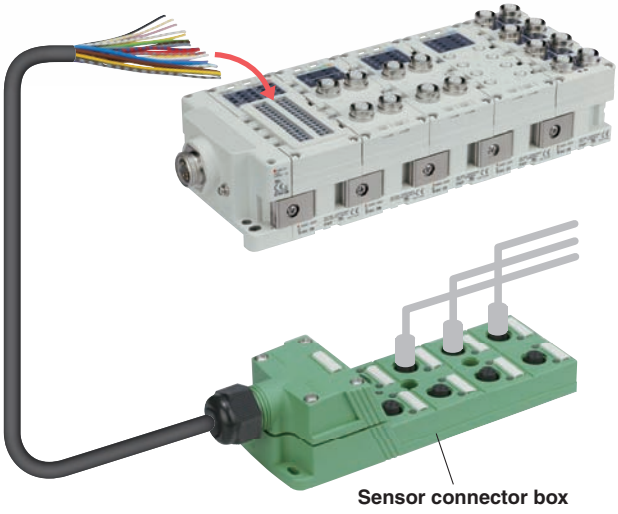
- Series **SY**
- Series **S0700**
- Series **SJ**
- Series **SQ**
- Series **SV**
- Series **VQC**
- Series **VQ**

∗ Please limit the number of valve connections to 16 stations for single and 8 stations for double. Refer to the catalog for each product for pin assignment details.

Connection using spring type terminal block

IP40

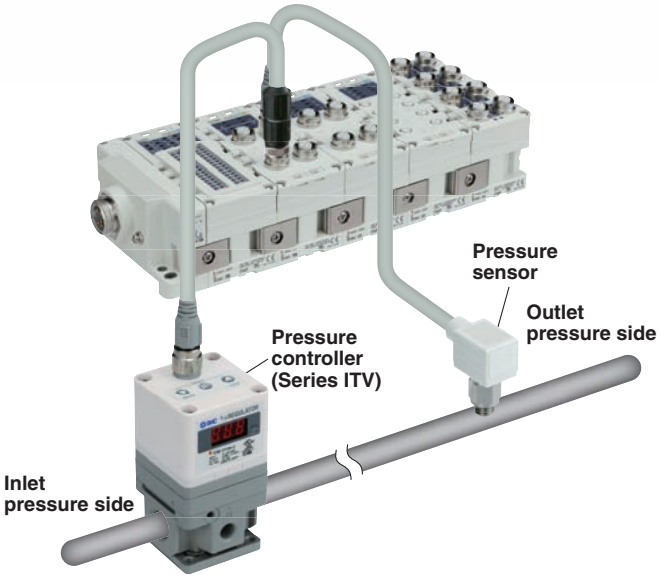
These terminal block units are compatible with individual wiring configurations. There are three types of units, for digital input, output, and input/output. Wiring connection to a sensor connector box, etc., can be carried out easily using only a flat head screwdriver.



Analog Input/Output Unit

IP67

These units input or output analog (voltage/current) signals. A single unit performs both input and output, allowing feedback control where analog signals are received from a pressure sensor and sent to a pressure controller. Installation space is minimized as well.



Self Diagnosis Function

In combination with the Handheld Terminal, the following two functions are available.

Short/Open circuit detecting function

It is possible to detect short or open circuit of input device such as an electronic 2-wire switch and 3-wire switch and output device such as a solenoid valve. The location of the error can be identified by the indicator light and the network.

Green ON Normal

Red ON Short circuit

Red flashing Open circuit

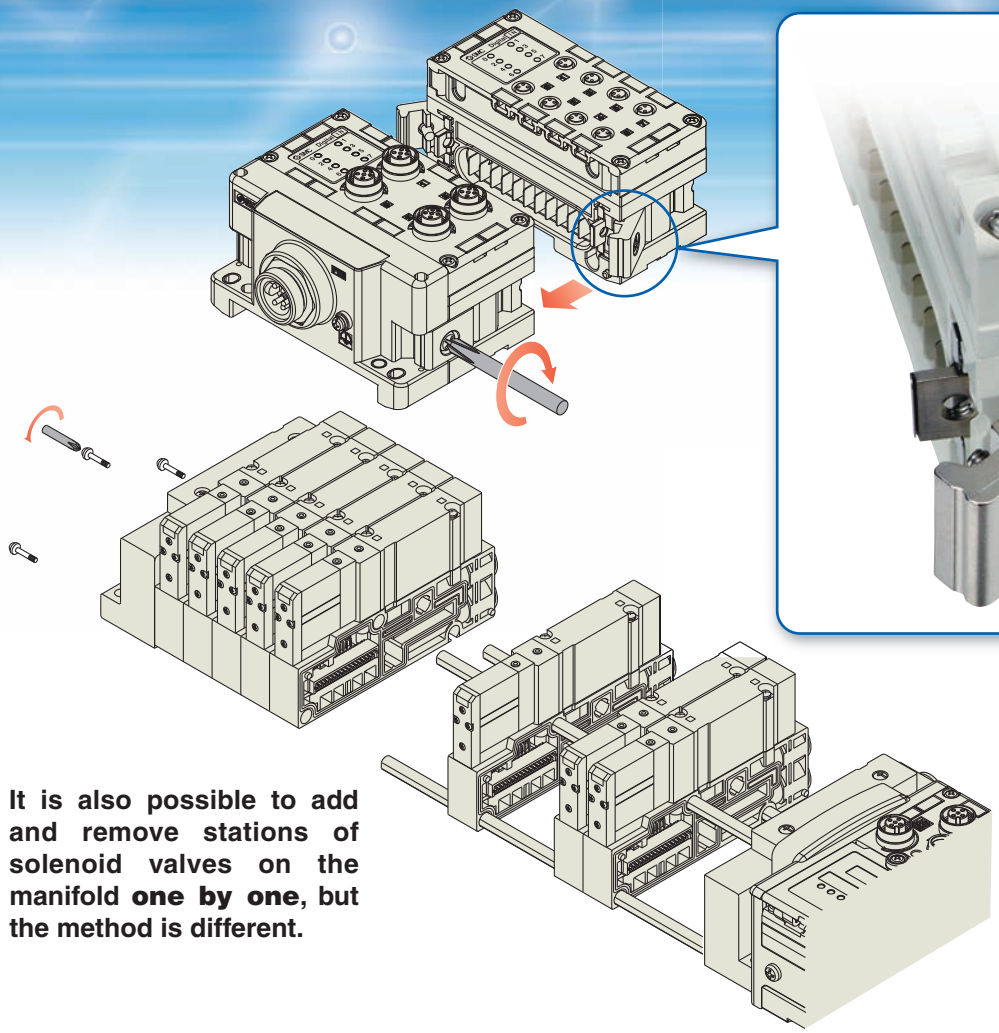
Counter function

It is possible to ascertain the maintenance period and identify the parts that require maintenance by an input and output signal ON/OFF counter function. When the counter function is enabled and a certain number of contact operations is reached, the display of counter will flash in red.

Note) The counter function is not provided with the Analog Unit.

Individual units can be connected and removed one by one.

A unique clamping method is adopted to prevent screws from falling out.
It is easy to separate the unit just by loosening bracket screws.



It is also possible to add and remove stations of solenoid valves on the manifold one by one, but the method is different.

Handheld Terminal

Forced input and output function

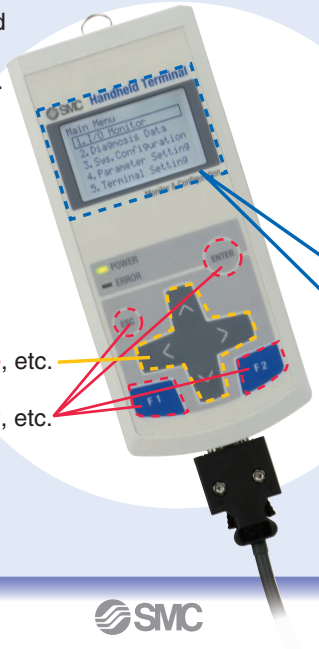
The input and output signals are controlled forcedly without a PLC. The startup time after facility introduction can be shortened.

Password setting function

Simple operation

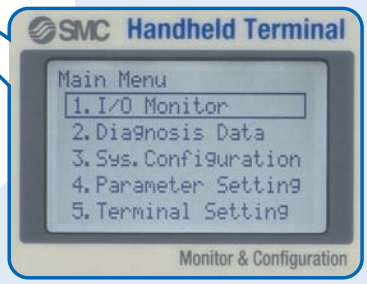
Cursor button: **Mode and setting change**, etc.

Function key: **Value and command entry**, etc.



Can be used for the adjustment of internal parameters and the monitoring of input and output signal status.

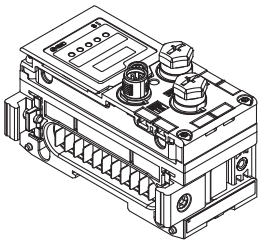
Parameters: **Analog data format**
Analog measurement range
Input filter selection
Counter function
Open circuit detection function, etc.



Fieldbus System
Series EX600

How to Order

SI Unit



EX600-S□□□

Protocol

Symbol	Description
PR	PROFIBUS DP
DN	DeviceNet™
MJ	CC-Link
EN	EtherNet/IP™ Note 1)
EC	EtherCAT Note 1)

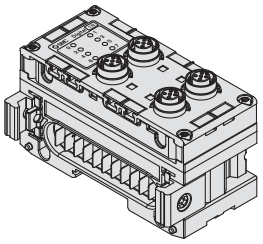
Version

Symbol	Description
Nil	When MJ or EN or EC is selected
A	When PR or DN is selected

Output type

Symbol	Description
1	PNP (Negative common)
2	NPN (Positive common)

Digital Input Unit



EX600-DX□□

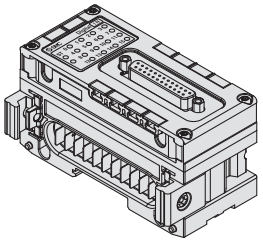
Input type

Symbol	Description
P	PNP
N	NPN

Number of inputs, open circuit detection, and connector

Symbol	Number of inputs	Open circuit detection	Connector
B	8 inputs	No	M12 connector (5 pins) 4 pcs.
C	8 inputs	No	M8 connector (3 pins) 8 pcs.
C1	8 inputs	Yes	M8 connector (3 pins) 8 pcs.
D	16 inputs	No	M12 connector (5 pins) 8 pcs.
E	16 inputs	No	D-sub connector (25 pins) Note1) 2)
F	16 inputs	No	Spring type terminal block (32 pins) Note1) 2)

Digital Output Unit



EX600-DY□□

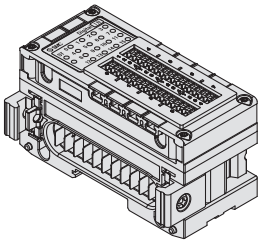
Output type

Symbol	Description
P	PNP
N	NPN

Number of outputs and connector

Symbol	Number of outputs	Connector
B	8 outputs	M12 connector (5 pins) 4 pcs.
E	16 outputs	D-sub connector (25 pins) Note1) 2)
F	16 outputs	Spring type terminal block (32 pins) Note1) 2)

Digital Input/Output Unit



EX600-DM□□

Input/Output type

Symbol	Description
P	PNP
N	NPN

Number of inputs/outputs and connector

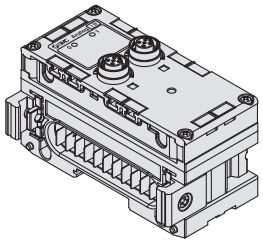
Symbol	Number of inputs	Number of outputs	Connector
E	8 inputs	8 outputs	D-sub connector (25 pins) Note1) 2)
F	8 inputs	8 outputs	Spring type terminal block (32 pins) Note1) 2)

Note 1) Cannot be communicated with the EX600-HT1-□. Refer to page 15 for a table of mountable units.
Note 2) Cannot be connected with the EX600-SPR1, EX600-SPR2, EX600-SDN1, or EX600-SDN2. Refer to page 15 for a table of mountable units.

How rder

Analog Input Unit

EX600-AX□

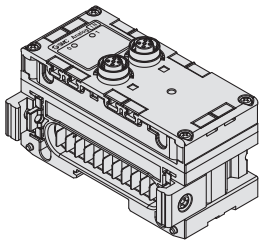


Analog input ● **Number of input channels and connector**

Symbol	Number of input channels	Connector
A	2 channels	M12 connector (5 pins) 2 pcs.

Analog Output Unit

EX600-AY□

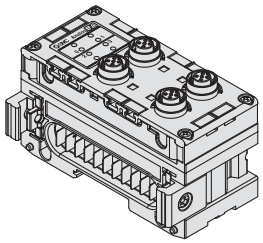


Analog output ● **Number of output channels and connector**

Symbol	Number of output channels	Connector
A	2 channels	M12 connector (5 pins) 2 pcs. Note1) 2)

Analog Input/Output Unit

EX600-AM□

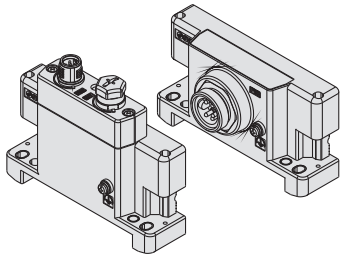


Analog input/output ● **Number of input/output channels and connector**

Symbol	Number of input channels	Number of output channels	Connector
B	2 channels	2 channels	M12 connector (5 pins) 4 pcs. Note1) 2)

End Plate

EX600-ED□-□



Power connector ●

Symbol	Connector
2	M12 (5 pins)
3	7/8 inch (5 pins)

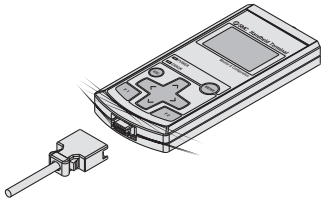
● **Mounting method**

Symbol	Description
Nil	Without DIN rail mounting bracket
2	With DIN rail mounting bracket
3	With DIN rail mounting bracket (Specialized for Series SY)

Handheld Terminal

EX600-HT1A-□

Handheld Terminals are not yet UL-compatible.



Version ● **Cable length**

Symbol	Description
Nil	No cable
1	1 m
3	3 m

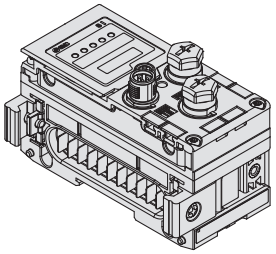
Note 1) Cannot be communicated with the EX600-HT1-□. Refer to page 15 for a table of mountable units.
Note 2) Cannot be connected with the EX600-SPR1, EX600-SPR2, EX600-SDN1, or EX600-SDN2. Refer to page 15 for a table of mountable units.

SI Unit Specifications

All Units Common Specifications

Environmental resistance	**Operating temperature range**	14 to 122°F
	Storage temperature range	–4 to 140°F
	Operating humidity range	35 to 85% RH (No dew condensation)
	Withstand voltage Note)	500 VAC for 1 minute between external terminals and FE
	Insulation resistance Note)	500 VDC, 10 MΩ or more between external terminals and FE

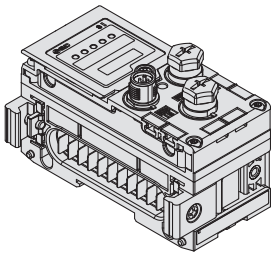
Note) Except Handheld Terminals



EX600-SPR□A

SI Unit (EX600-SPR□A)

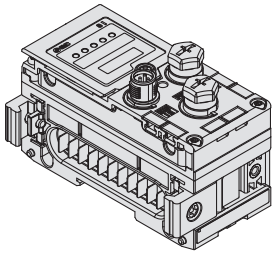
Model		EX600-SPR1A	EX600-SPR2A
Communication	**Protocol**	PROFIBUS DP (DP-V0)	
	Device type	PROFIBUS DP Slave	
	Communication speed	9.6/19.2/45.45/93.75/187.5/500 kbps 1.5/3/6/12 Mbps	
	Configuration file	GSD file	
	I/O occupation area (Inputs/Outputs)	Max. (512 inputs/512 outputs)	
Terminating resistor		Internally implemented	
Internal current consumption (Power supply for Control/Input)		80 mA or less	
Output	**Output type**	PNP (Negative common)	NPN (Positive common)
	Number of outputs	32 outputs (8/16/24/32 outputs selectable)	
	Load	Solenoid valve with surge voltage suppressor 24 VDC, 1.5 W or less (SMC)	
	Power supply	24 VDC, 2 A	
	Fail safe	HOLD/CLEAR/Forced power ON	
	Protection	Short-circuit protection	
Enclosure		IP67 (Manifold assembly)	
Standards		CE marking, UL (CSA), RoHS recognition	
Weight		0.6 lbs (300 g)	



EX600-SDN□A

SI Unit (EX600-SDN□A)

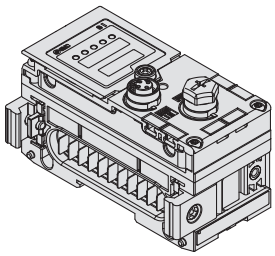
Model		EX600-SDN1A	EX600-SDN2A
Communication	**Protocol**	DeviceNet™: Volume 1 (Edition 2.1), Volume 3 (Edition 1.1)	
	Device type	Group 2 Only Server	
	Communication speed	125/250/500 kbps	
	Configuration file	EDS file	
	I/O occupation area (Inputs/Outputs)	Max. (512 inputs/512 outputs)	
	Applicable messages	Duplicate MAC ID Check Message Group 2 Only Unconnected Explicit Message Explicit Message (Group 2) Poll I/O Message (Predefined M/S Connection set)	
DeviceNet™ power supply		11 to 25 VDC	
Internal current consumption (Power supply for Control/Input)		55 mA or less	
Output	**Output type**	PNP (Negative common)	NPN (Positive common)
	Number of outputs	32 outputs (8/16/24/32 outputs selectable)	
	Load	Solenoid valve with surge voltage suppressor 24 VDC, 1.5 W or less (SMC)	
	Power supply	24 VDC, 2 A	
	Fail safe	HOLD/CLEAR/Forced power ON	
	Protection	Short-circuit protection	
Enclosure		IP67 (Manifold assembly)	
Standards		CE marking, UL (CSA), RoHS recognition	
Weight		0.6 lbs (300 g)	



EX600-SMJ□

SI Unit (EX600-SMJ□)

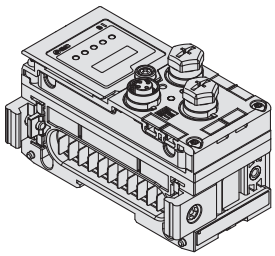
Model		EX600-SMJ1	EX600-SMJ2
Communication	Protocol	CC-Link (Ver. 1.10, Ver. 2.00)	
	Station type	Remote Device Station	
	Communication speed	156/625 kbps 2.5/5/10 Mbps	
	I/O occupation area (Inputs/Outputs)	Max. (512 inputs/512 outputs) 1/2/3/4 stations occupied	
Internal current consumption (Power supply for Control/Input)		75 mA or less	
Output	Output type	PNP (Negative common)	NPN (Positive common)
	Number of outputs	32 outputs (8/16/24/32 outputs selectable)	
	Load	Solenoid valve with surge voltage suppressor 24 VDC, 1.5 W or less (SMC)	
	Power supply	24 VDC, 2 A	
	Fail safe	HOLD/CLEAR/Forced power ON	
	Protection	Short-circuit protection	
Enclosure		IP67 (Manifold assembly)	
Standards		CE marking, UL (CSA), RoHS recognition	
Weight		0.6 lbs (300 g)	



EX600-SEN□

SI Unit (EX600-SEN□)

Model		EX600-SEN1	EX600-SEN2
Communication	Protocol	EtherNet/IP™ (Conformance version: Composite 6)	
	Media	100 BASE-TX	
	Communication speed	10/100 Mbps (Automatic/Manual)	
	Communication method	Full duplex/Half duplex (Automatic/Manual)	
	Configuration file	EDS file	
	I/O occupation area (Inputs/Outputs)	Max. (512 inputs/512 outputs)	
	IP address setting range	SI Unit switch settings: 192.168.0 or 1.1 to 254 Through DHCP server: Optional address	
	Device information	Vendor ID: 7 (SMC Corporation) Product type: 12 (Communication Adapter) Product code: 126	
Internal current consumption (Power supply for Control/Input)		120 mA or less	
Output	Output type	PNP (Negative common)	NPN (Positive common)
	Number of outputs	32 outputs (8/16/24/32 outputs selectable)	
	Load	Solenoid valve with surge voltage suppressor 24 VDC, 1.5 W or less (SMC)	
	Power supply	24 VDC, 2 A	
	Fail safe	HOLD/CLEAR/Forced power ON	
	Protection	Short-circuit protection	
Enclosure		IP67 (Manifold assembly)	
Standards		CE marking, UL (CSA), RoHS recognition	
Weight		0.6 lbs (300 g)	

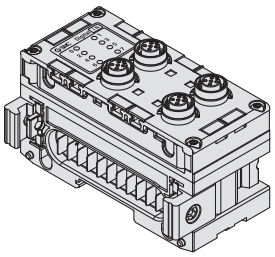


EX600-SEC□

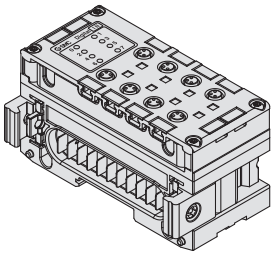
SI Unit (EX600-SEC□)

Model		EX600-SEC1	EX600-SEC2
Communication	Protocol	EtherCAT (Conformance Test Record V.1.2)	
	Communication speed	100 Mbps	
	Configuration file	XML file	
	I/O occupation area (Inputs/Outputs)	Max. (512 inputs/512 outputs)	
Internal current consumption (Power supply for Control/Input)		100 mA or less	
Output	Output type	PNP (Negative common)	NPN (Positive common)
	Number of outputs	32 outputs (8/16/24/32 outputs selectable)	
	Load	Solenoid valve with surge voltage suppressor 24 VDC, 1.5 W or less (SMC)	
	Power supply	24 VDC, 2 A	
	Fail safe	HOLD/CLEAR/Forced power ON	
	Protection	Short-circuit protection	
Enclosure		IP67 (Manifold assembly)	
Standards		CE marking, UL (CSA), RoHS recognition	
Weight		0.6 lbs (300 g)	

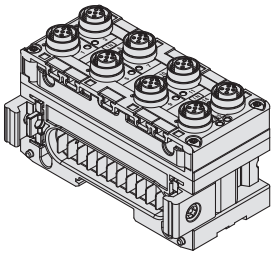
Digital Unit Specifications



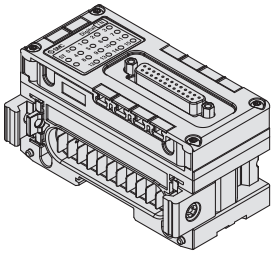
EX600-DX□B



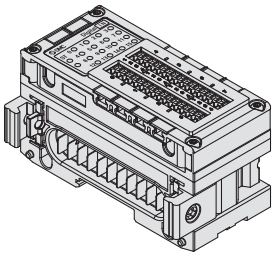
EX600-DX□C□



EX600-DX□D



EX600-DX□E



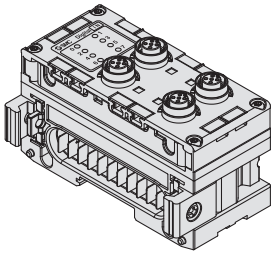
EX600-DX□F

Digital Input Unit

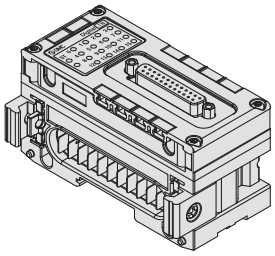
Model			EX600-DXPB	EX600-DXNB	EX600-DXPC□	EX600-DXNC□	EX600-DXPD	EX600-DXND
Input	Input type		PNP	NPN	PNP	NPN	PNP	NPN
	Input connector		M12 (5-pin) socket Note 1)		M8 (3-pin) socket		M12 (5-pin) socket Note 1)	
	Number of inputs		8 inputs (2 inputs/connector)		8 inputs (1 input/connector)		16 inputs (2 inputs/connector)	
	Supplied voltage		24 VDC					
	Max. supplied current		0.5 A/connector 2 A/unit		0.25 A/connector 2 A/unit		0.5 A/connector 2 A/unit	
	Protection		Short-circuit protection					
	Input current (at 24 VDC)		9 mA or less					
	ON voltage		17 V or more (At NPN input, between the pin for input terminal and supplied voltage of +24 V) (At PNP input, between the pin for input terminal and supplied voltage of 0 V)					
	OFF voltage		5 V or less (At NPN input, between the pin for input terminal and supplied voltage of +24 V) (At PNP input, between the pin for input terminal and supplied voltage of 0 V)					
	Open circuit detection current	2 wires	—		0.5 mA/input Note 2)		—	
		3 wires	—		0.5 mA/connector Note 2)		—	
Current consumption			50 mA or less		55 mA or less		70 mA or less	
Enclosure			IP67 (Manifold assembly)					
Standards			CE marking, UL (CSA), RoHS recognition					
Weight			0.6 lbs (300 g)		0.6 lbs (275 g)		0.75 lbs (340 g)	

Note 1) M12 (4-pin) connector can be connected.
Note 2) Function only applies to the EX600-DX□C1.

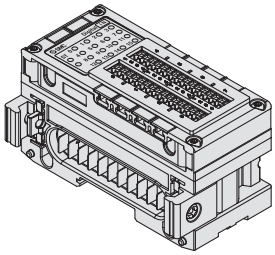
Model		EX600-DXPE	EX600-DXNE	EX600-DXPF	EX600-DXNF
Input	Input type	PNP	NPN	PNP	NPN
	Input connector	D-sub socket (25 pins) Lock screw: No.4-40 UNC		Spring type terminal block (32 pins)	
	Number of inputs	16 inputs		16 inputs (2 inputs x 8 blocks)	
	Supplied voltage	24 VDC			
	Max. supplied current	2 A/unit		0.5 A/block 2 A/unit	
	Protection	Short-circuit protection			
	Input current (at 24 VDC)	5 mA or less			
	ON voltage	17 V or more (At NPN input, between the pin for input terminal and supplied voltage of +24 V) (At PNP input, between the pin for input terminal and supplied voltage of 0 V)			
	OFF voltage	5 V or less (At NPN input, between the pin for input terminal and supplied voltage of +24 V) (At PNP input, between the pin for input terminal and supplied voltage of 0 V)			
Applicable wire		—		0.08 to 1.5 mm² (AWG16 to 28)	
Current consumption		50 mA or less		55 mA or less	
Enclosure		IP40 (Manifold assembly)			
Standards		CE marking, UL (CSA), RoHS recognition			
Weight		0.6 lbs (300 g)			



EX600-DY□B



EX600-DY□E
EX600-DM□E



EX600-DY□F
EX600-DM□F

Digital Output Unit

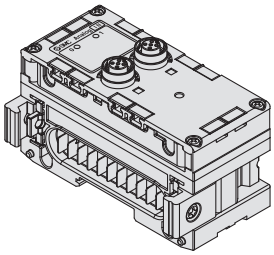
Model		EX600-DYPB	EX600-DYNB	EX600-DYPE	EX600-DYNE	EX600-DYPF	EX600-DYNF
Output	Output type	PNP	NPN	PNP	NPN	PNP	NPN
	Output connector	M12 (5-pin) socket Note)		D-sub socket (25 pins) Lock screw: No.4-40 UNC		Spring type terminal block (32 pins)	
	Number of outputs	8 outputs (2 outputs/connector)		16 outputs		16 outputs (2 outputs x 8 blocks)	
	Supplied voltage	24 VDC					
	Max. load current	0.5 A/output 2 A/unit					
	Protection	Short-circuit protection					
Applicable wire		—		—		0.08 to 1.5 mm² (AWG16 to 28)	
Current consumption		50 mA or less					
Enclosure		IP67 (Manifold assembly)		IP40 (Manifold assembly)			
Standards		CE marking, UL (CSA), RoHS recognition					
Weight		0.6 lbs (300 g)					

Note) M12 (4-pin) connector can be connected.

Digital Input/Output Unit

Model		EX600-DMPE	EX600-DMNE	EX600-DMPF	EX600-DMNF
Input/Output type		PNP	NPN	PNP	NPN
Connector		D-sub socket (25 pins) Lock screw: No.4-40 UNC		Spring type terminal block (32 pins)	
Input	Number of inputs	8 inputs		8 inputs (2 inputs x 4 blocks)	
	Supplied voltage	24 VDC			
	Max. supplied current	2 A/unit		0.5 A/block 2 A/unit	
	Protection	Short-circuit protection			
	Input current (at 24 VDC)	5 mA or less			
	ON voltage	17 V or more (At NPN input, between the pin for input terminal and supplied voltage of +24 V) (At PNP input, between the pin for input terminal and supplied voltage of 0 V)			
	OFF voltage	5 V or less (At NPN input, between the pin for input terminal and supplied voltage of +24 V) (At PNP input, between the pin for input terminal and supplied voltage of 0 V)			
Output	Number of outputs	8 outputs		8 outputs (2 outputs x 4 blocks)	
	Supplied voltage	24 VDC			
	Max. load current	0.5 A/output 2 A/unit			
	Protection	Short-circuit protection			
Applicable wire		—		0.08 to 1.5 mm² (AWG16 to 28)	
Current consumption		50 mA or less		60 mA or less	
Enclosure		IP40 (Manifold assembly)			
Standards		CE marking, UL (CSA), RoHS recognition			
Weight		0.6 lbs (300 g)			

Analog Unit Specifications

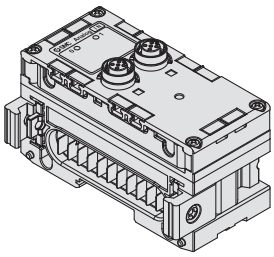


EX600-AXA

Analog Input Unit

Model			EX600-AXA	
Input	Input type		Voltage input	Current input
	Input connector		M12 (5-pin) socket Note 1)	
	Input channel		2 channels (1 channel/connector)	
	Supplied voltage		24 VDC	
	Max. supplied current		0.5 A/connector	
	Protection		Short-circuit protection	
	Input signal range	12 bit resolution	0 to 10 V, 1 to 5 V, 0 to 5 V	0 to 20 mA, 4 to 20 mA
		16 bit resolution	–10 to 10 V, –5 to 5 V	–20 to 20 mA
	Max. rated input signal		±15 V	±22 mA Note 2)
	Input impedance		100 kΩ	50 Ω
	Linearity (77°F)		±0.05% F.S.	
	Repeatability (77°F)		±0.15% F.S.	
	Absolute accuracy (77°F)		±0.5% F.S.	±0.6% F.S.
Current consumption			70 mA or less	
Enclosure			IP67 (Manifold assembly)	
Standards			CE marking, UL (CSA), RoHS recognition	
Weight			0.6 lbs (290 g)	

Note 1) M12 (4-pin) connector can be connected.
Note 2) When input signal exceeds 22 mA, the protection function activates and the input signal is interrupted.

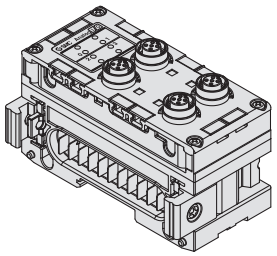


EX600-AYA

Analog Output Unit

Model			EX600-AYA	
Output	Output type		Voltage output	Current output
	Output connector		M12 (5-pin) socket Note)	
	Output channel		2 channels (1 channel/connector)	
	Supplied voltage		24 VDC	
	Max. load current		0.5 A/connector	
	Protection		Short-circuit protection	
	Output signal range	12 bit resolution	0 to 10 V, 1 to 5 V, 0 to 5 V	0 to 20 mA, 4 to 20 mA
	Load impedance		1 kΩ or more	600 Ω or less
	Linearity (77°F)		±0.05% F.S.	
	Repeatability (77°F)		±0.15% F.S.	
	Absolute accuracy (77°F)		±0.5% F.S.	±0.6% F.S.
Current consumption			70 mA or less	
Enclosure			IP67 (Manifold assembly)	
Standards			CE marking, UL (CSA), RoHS recognition	
Weight			0.6 lbs (290 g)	

Note) M12 (4-pin) connector can be connected.

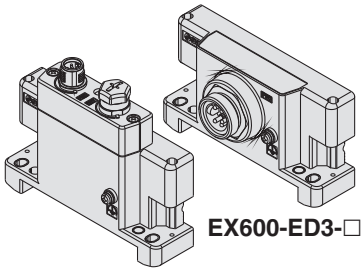


EX600-AMB

Analog Input/Output Unit

Model			EX600-AMB	
Input	Input type		Voltage input	Current input
	Input connector		M12 (5-pin) socket Note 1)	
	Input channel		2 channels (1 channel/connector)	
	Supplied voltage		24 VDC	
	Max. supplied current		0.5 A/connector	
	Protection		Short-circuit protection	
	Input signal range	12 bit resolution	0 to 10 V, 1 to 5 V, 0 to 5 V	0 to 20 mA, 4 to 20 mA
	Max. rated input signal		15 V	22 mA Note 2)
	Input impedance		100 kΩ	250 Ω
	Linearity (77°F)		±0.05% F.S.	
	Repeatability (77°F)		±0.15% F.S.	
	Absolute accuracy (77°F)		±0.5% F.S.	±0.6% F.S.
Output	Output type		Voltage output	Current output
	Output connector		M12 (5-pin) socket Note 1)	
	Output channel		2 channels (1 channel/connector)	
	Supplied voltage		24 VDC	
	Max. load current		0.5 A/connector	
	Protection		Short-circuit protection	
	Output signal range	12 bit resolution	0 to 10 V, 1 to 5 V, 0 to 5 V	0 to 20 mA, 4 to 20 mA
	Load impedance		1 kΩ or more	600 Ω or less
	Linearity (77°F)		±0.05% F.S.	
	Repeatability (77°F)		±0.15% F.S.	
	Absolute accuracy (77°F)		±0.5% F.S.	±0.6% F.S.
Current consumption			100 mA or less	
Enclosure			IP67 (Manifold assembly)	
Standards			CE marking, UL (CSA), RoHS recognition	
Weight			0.6 lbs (300 g)	

Note 1) M12 (4-pin) connector can be connected.
Note 2) When input signal exceeds 22 mA, the protection function activates and the input signal is interrupted.

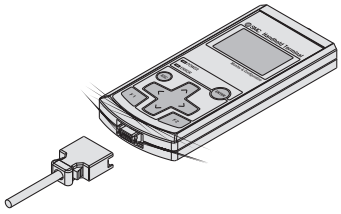


EX600-ED3-□

EX600-ED2-□

End Plate

Model		EX600-ED2-□	EX600-ED3-□
Power specification	Power connector	M12 (5-pin) plug	7/8 inch (5-pin) plug
	Power supply (for Control/Input)	24 VDC ±10%, Class 2, 2 A	24 VDC ±10%, 8 A
	Power supply (for Output)	24 VDC +10/–5%, Class 2, 2 A	24 VDC +10/–5%, 8 A
Enclosure		IP67 (Manifold assembly)	
Standards		CE marking, UL (CSA), RoHS recognition	
Weight		0.4 lbs (170 g)	0.4 lbs (175 g)



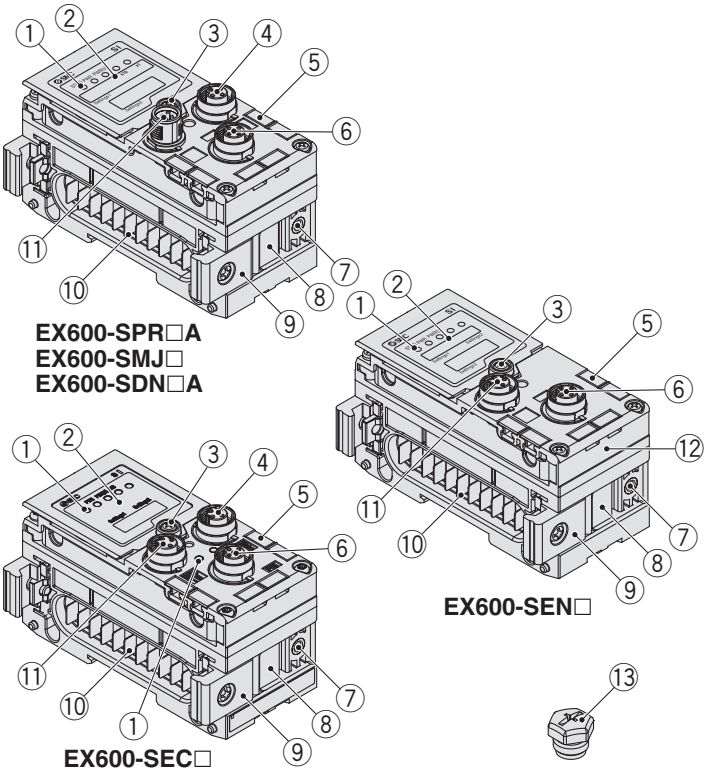
EX600-HT1A-□

Handheld Terminal

Model	EX600-HT1A-□
Power supply	Power supplied from SI Unit connector (24 VDC)
Current consumption	50 mA or less
Display	LCD with backlight
Connection cable	Handheld Terminal cable (1 m ··· EX600-AC010-1, 3 m ··· EX600-AC030-1)
Enclosure	IP20
Standards	CE marking, RoHS recognition
Weight	0.35 lbs (160 g)

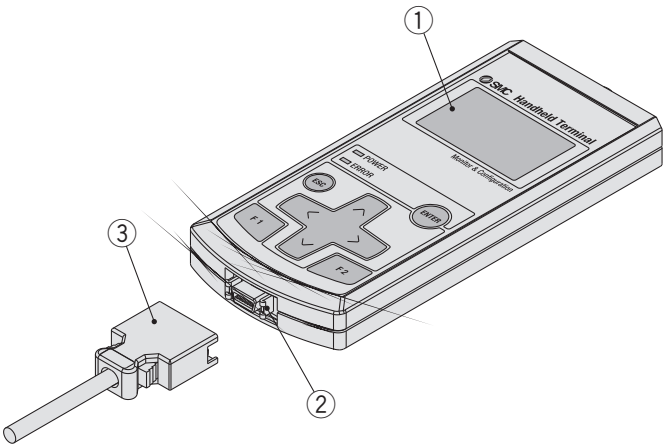
Parts Description

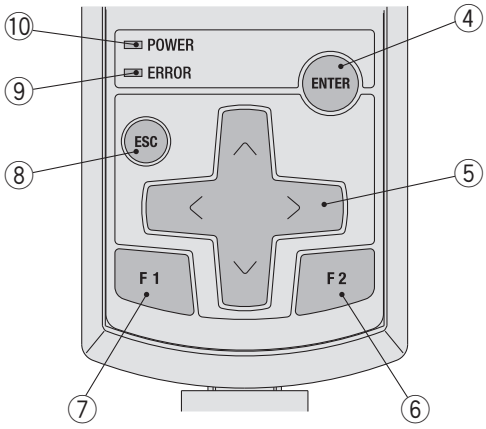
SI Unit



No.	Description	Use
1	**Status indication LED**	Displays unit status.
2	**Indication cover**	Open for setting the switch.
3	**Indication cover set screw**	Loosen for opening the indication cover.
4	**Connector (BUS OUT)**	Connects to the fieldbus output cable.
5	**Marker groove**	Can be used to mount a marker.
6	**Connector (PCI)**	Connects to the Handheld Terminal cable.
7	**Valve Plate mounting holes**	Fixes Valve Plate in place.
8	**Valve Plate mounting groove**	Inserts Valve Plate.
9	**Joint bracket**	Links units to one another.
10	**Connector for unit (Plug)**	Transmits signals to the neighboring unit and supplies power.
11	**Connector (BUS IN)**	Connects to the cable for fieldbus input.
12	**MAC address name plate**	Displays a unique 12-digit MAC address for each SI Unit.
13	**Seal cap**	Mounted on the connectors (BUS OUT and PCI) at the time of shipment.

Handheld Terminal

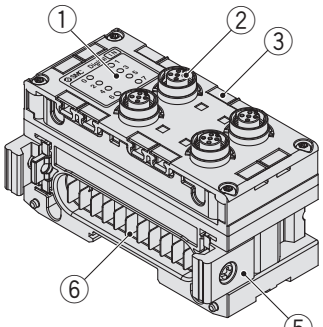




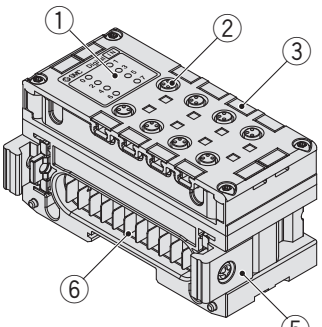
Operation buttons

No.	Description	Use
1	**LCD**	Displays operation and unit information.
2	**Connector**	Connects to the Handheld Terminal cable.
3	**Handheld Terminal cable**	Connects the SI Unit to the Handheld Terminal.
4	**Enter button (ENTER)**	From the selection screen, goes to the screen for the item selected. On the settings screen, registers the settings that have been made so far.
5	**Cursor button (▲ ▼ ◀ ▶)**	Moves the cursor on the LCD up, down, left or right. Moves the cursor on the selection screen up, down, left or right to make selections. On the settings screen, increases or decreases the value of settings or turns settings on and off.
6	**F2 button (F2)**	Functions in accordance with on-screen display or instructions.
7	**F1 button (F1)**	Functions in accordance with on-screen display or instructions.
8	**Escape button (ESC)**	On the selection screen, goes back to the previous screen. On the settings screen, cancels the settings that have been made so far and goes back to the previous screen.
9	**ERROR LED**	Lights up red when the EX600 diagnosis errors occur.
10	**POWER LED**	Connects to the EX600 SI Unit, and lights up green when control/input power supply is on.

Digital Unit

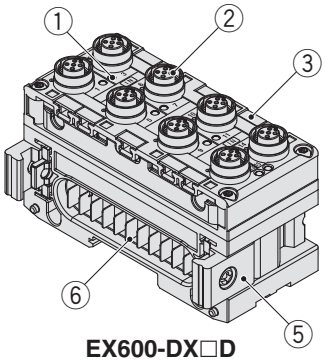


EX600-DX□B
EX600-DY□B

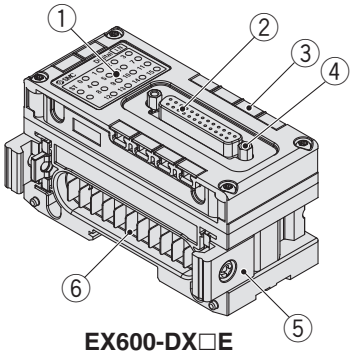


EX600-DX□C□

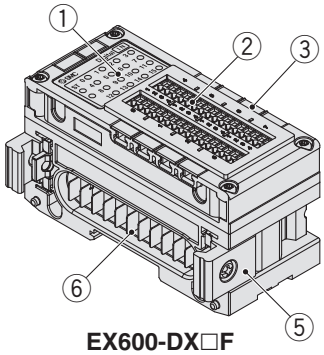
No.	Description	Use
1	**Status indication LED**	Displays unit status.
2	**Connector**	Connects with input or output devices.
3	**Marker groove**	Can be used to mount a marker.
4	**Lock screw**	Fixes the D-sub connector in place. (No.4-40 UNC)
5	**Joint bracket**	Links units to one another.
6	**Connector for unit (Plug)**	Transmits signals to the neighboring unit and supplies power.



EX600-DX□D

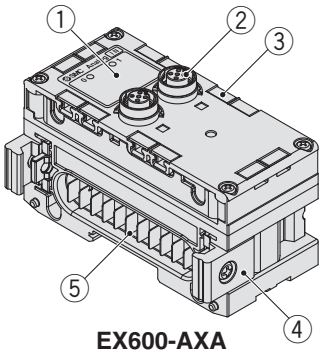


EX600-DX□E
EX600-DY□E
EX600-DM□E

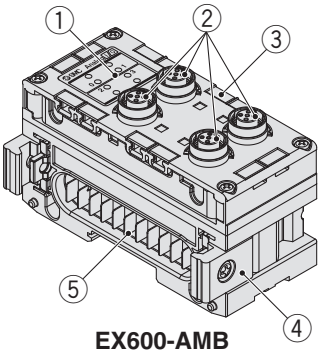


EX600-DX□F
EX600-DY□F
EX600-DM□F

Analog Unit



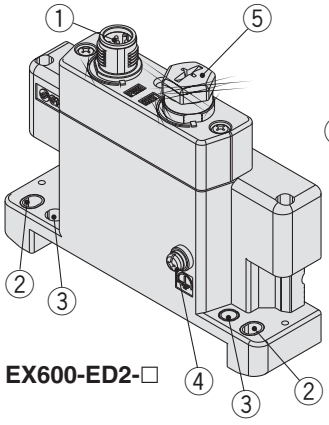
EX600-AXA
EX600-AYA



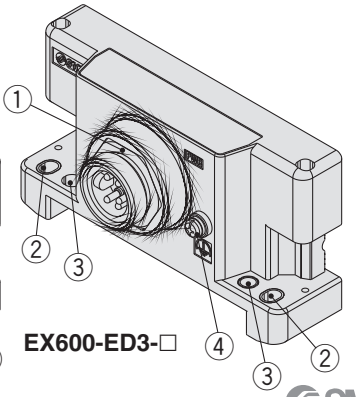
EX600-AMB

No.	Description	Use
1	**Status indication LED**	Displays unit status.
2	**Connector**	Connects with input or output devices.
3	**Marker groove**	Can be used to mount a marker.
4	**Joint bracket**	Links units to one another.
5	**Connector for unit (Plug)**	Transmits signals to the neighboring unit and supplies power.

End Plate



EX600-ED2-□



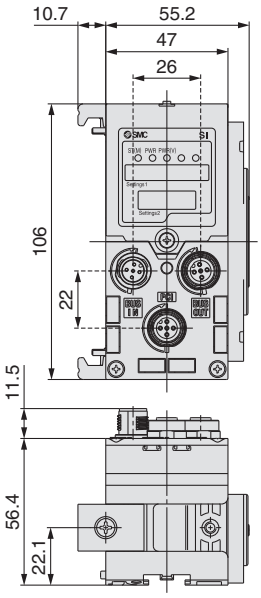
EX600-ED3-□

No.	Description	Use
1	**Power connector**	Supplies power to the unit and/or input/output devices.
2	**Fixing hole for direct mounting**	Connects directly to equipment.
3	**Fixing hole for DIN rail**	Converts to manifold or for DIN rail mounting.
4	**FE terminal**	Connects for grounding to FE (Functional Earth).
5	**Connector (Unused)**	This connector has not yet been used. Do not remove the seal cap.

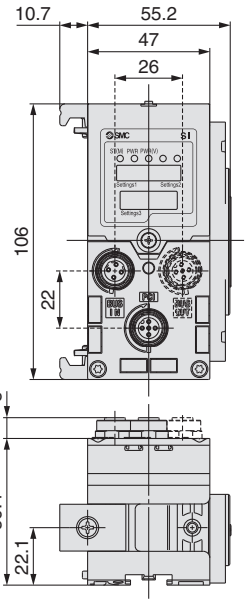
Dimensions

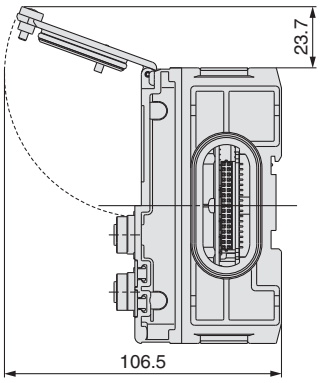
SI Unit

EX600-SPR□A
EX600-SDN□A
EX600-SMJ□



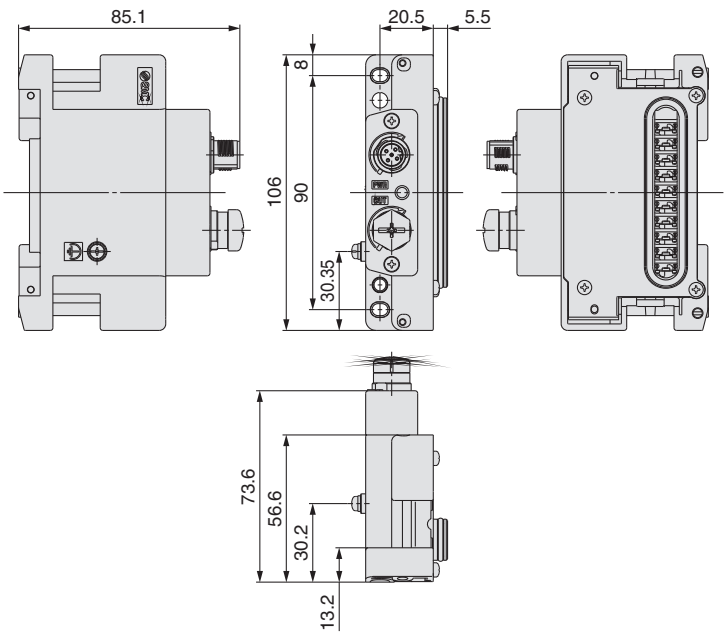
EX600-SEN□
EX600-SEC□



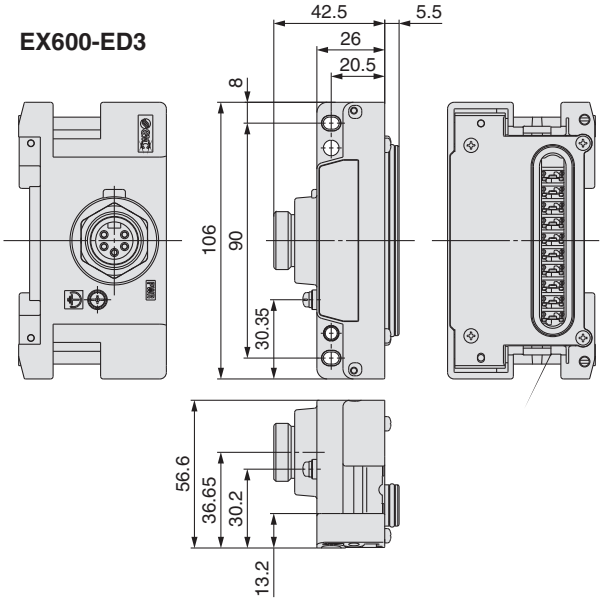


End Plate

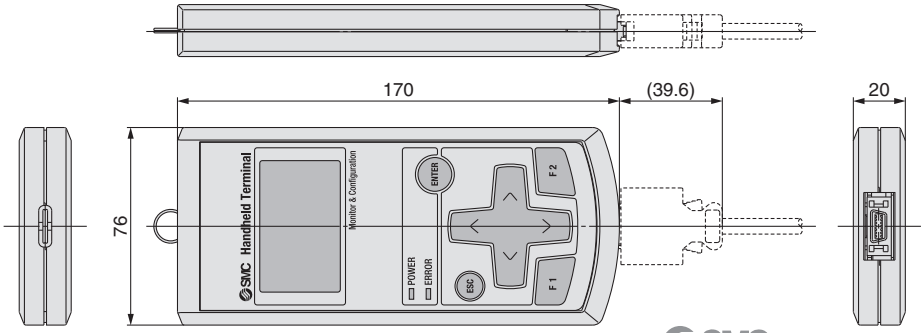
EX600-ED2



EX600-ED3



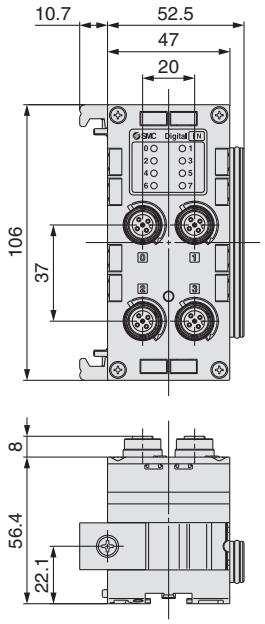
Handheld Terminal



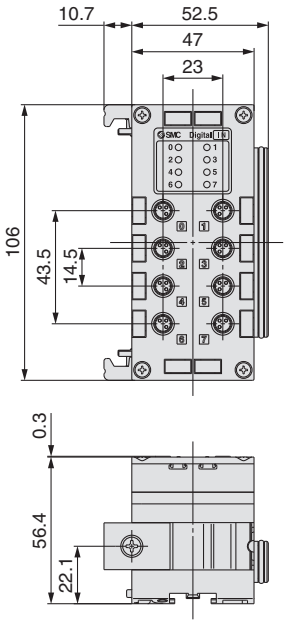
(mm)

Digital Unit

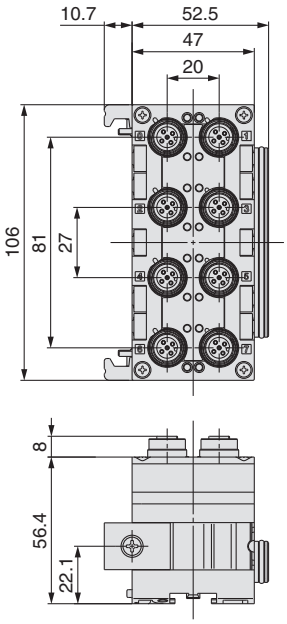
EX600-DX□B
EX600-DY□B



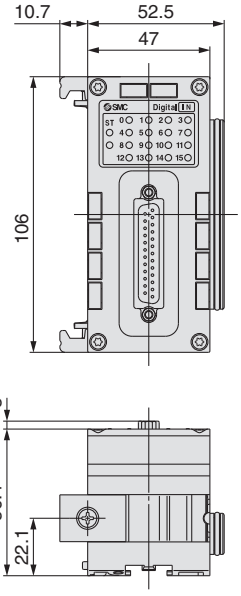
EX600-DX□C□



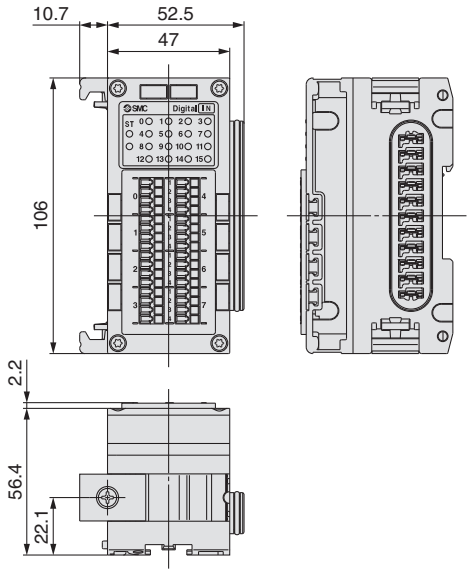
EX600-DX□D



EX600-DX□E
EX600-DY□E
EX600-DM□E

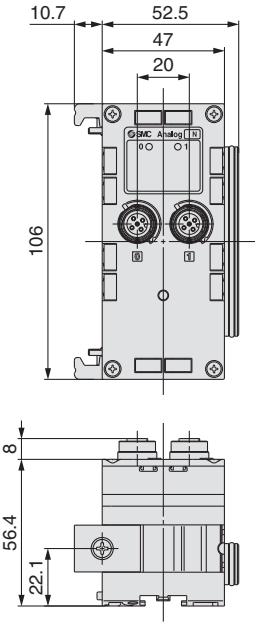


EX600-DX□F
EX600-DY□F
EX600-DM□F

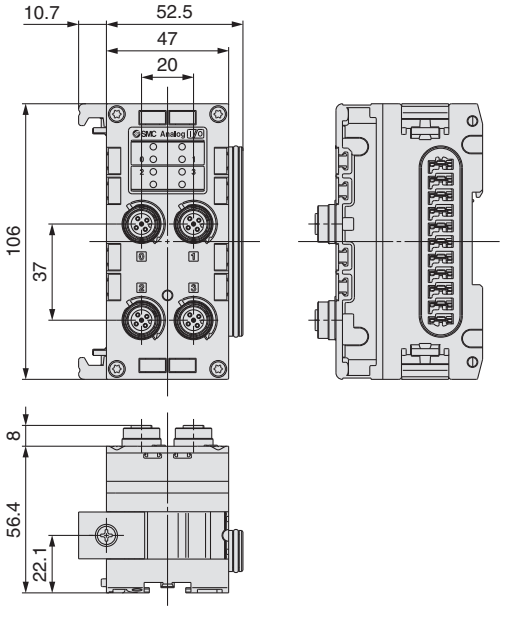


Analog Unit

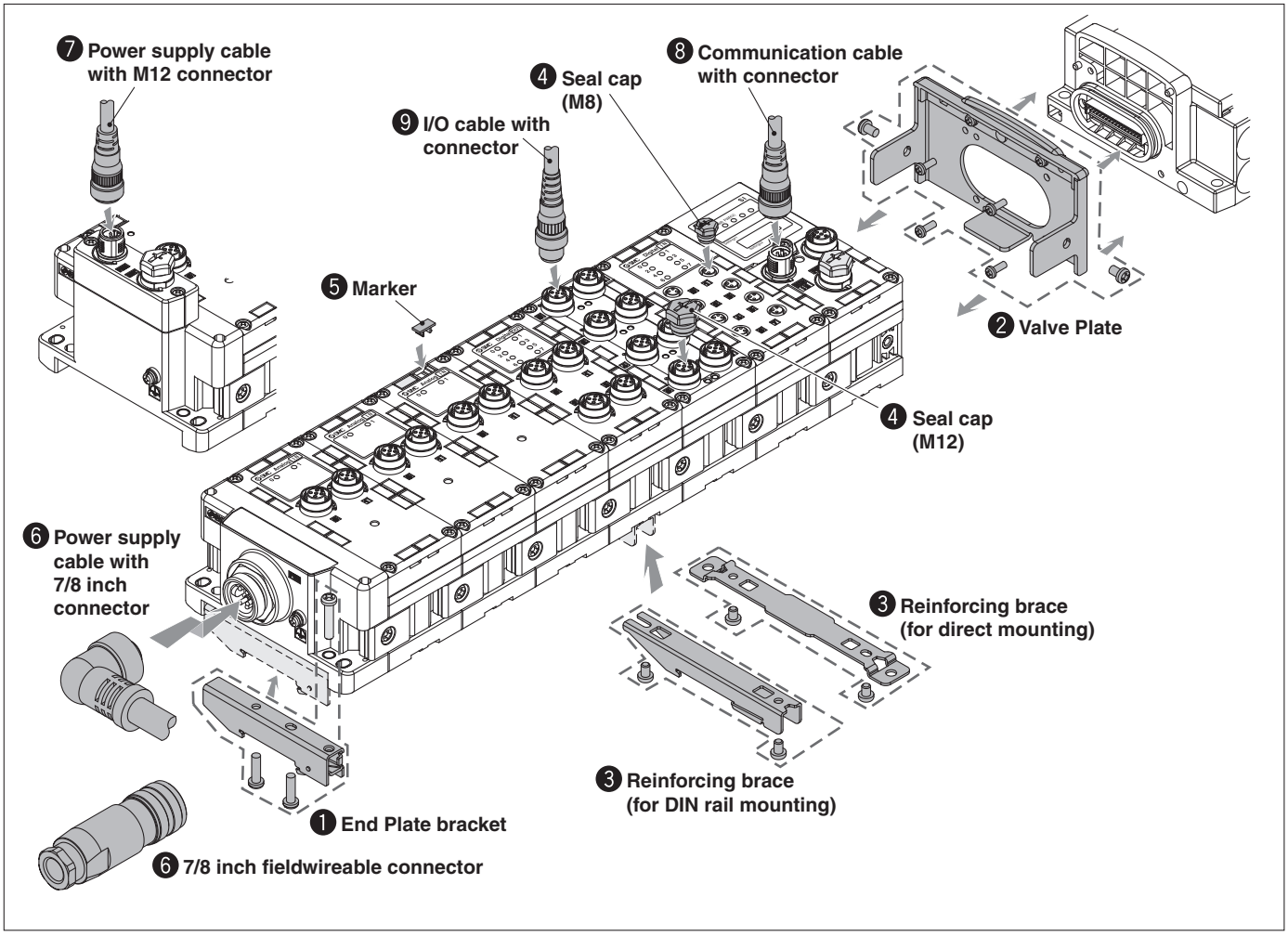
EX600-AXA
EX600-AYA



EX600-AMB



Accessories



❶ End Plate bracket

This bracket is used for the End Plate of DIN rail mounting.

EX600-ZMA2

Enclosed parts

Round head screw (M4 x 20)	1 pc.
P-tight screw (4 x 14)	2 pcs.

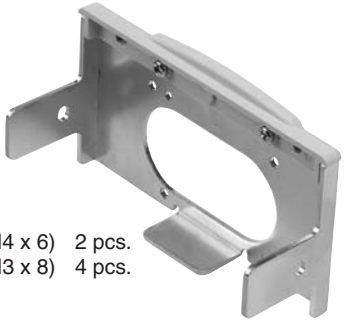
EX600-ZMA3
(Specialized for Series SY)

Enclosed parts

Round head screw with washer (M4 x 20)	1 pc.
P-tight screw (4 x 14)	2 pcs.

❷ Valve Plate

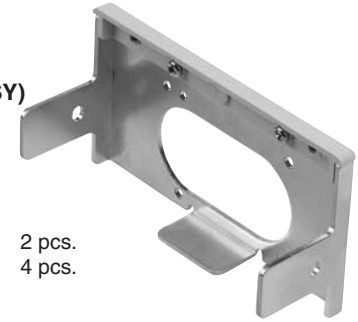
EX600-ZMV1



Enclosed parts

Round head screw (M4 x 6)	2 pcs.
Round head screw (M3 x 8)	4 pcs.

EX600-ZMV2
(Specialized for Series SY)



Enclosed parts

Round head screw (M4 x 6)	2 pcs.
Round head screw (M3 x 8)	4 pcs.

❸ Reinforcing brace

This bracket is used on the bottom of the unit at the intermediate position for connecting 6 units or more.

For direct mounting
EX600-ZMB1

Enclosed parts
Round head screw (M4 x 5) 2 pcs.

For DIN rail mounting
EX600-ZMB2

Enclosed parts
Round head screw (M4 x 6) 2 pcs.

❹ Seal cap (10 pcs.)

The seal cap needs to be placed the unused I/O connector.
The specified protection cannot be maintained.

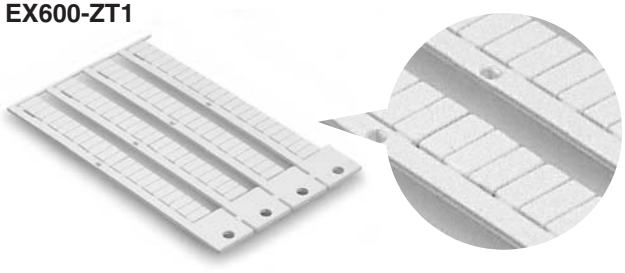
EX9-AWES
For M8

EX9-AWTS
For M12

❺ Marker (1 sheet, 88 pcs.)

The signal name of I/O device and each unit address can be entered and mounted on each unit.

EX600-ZT1



❻ 7/8 inch connector and its related parts

• Power supply cable with 7/8 inch connector

PCA-1558810	Straight 2 m
PCA-1558823	Straight 6 m
PCA-1558836	Right angle 2 m
PCA-1558849	Right angle 6 m

• Fieldwireable 7/8 inch connector [compatible to AWG22-16]

PCA-1578078	Plug
PCA-1578081	Socket

SPEEDCON and Its Related Parts

❼ Power supply cable with M12 connector (5-pin B-coded)

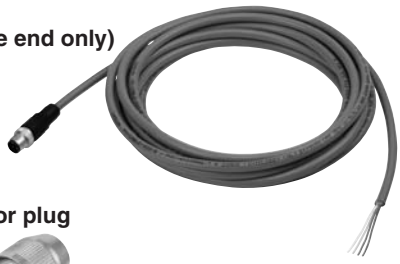
PCA-1564927	Straight 2 m
PCA-1564930	Straight 6 m
PCA-1564943	Right angle 2 m
PCA-1564969	Right angle 6 m

Note) For M12 connector, description of B-coded for a reverse type is used as a connector shape.

❽ Communication cable with connector/ Communication connector

For EtherNet/IP™ and EtherCAT

• Communication cable (with connector on one end only)
Straight 5 m
PCA-1446566



• Fieldwireable connector plug
PCA-1446553

The communication cable with connector and the communication connector that can be used on this series other than EtherNet/IP ™ and EtherCAT are found in the M8/M12 connector catalog.

❾ I/O cable with connector/ I/O connector

The I/O cable with connector and I/O connector that can be used on this series are found in the M8/M12 connector catalog (ES100-73).

Table of Mountable Units

The units that can be connected differ depending on the product number.
Before mounting, please be sure to confirm the types of units that can be connected.

Table of compatible units mountable with each SI Unit

			Product number: SI Unit			
			EX600-SPR□ (PROFIBUS DP) EX600-SDN□ (DeviceNet™)	EX600-SPR□A (PROFIBUS DP) EX600-SDN□A (DeviceNet™)	EX600-SMJ□ (CC-Link)	EX600-SEN□ (EtherNet/IP™) EX600-SEC□ (EtherCAT)
			Version Nil	Version A	Version Nil	Version Nil
Product number	Digital Input Unit	EX600-DX□B	○	○	○	○
		EX600-DX□C□	○	○	○	○
		EX600-DX□D	○	○	○	○
		EX600-DX□E	×	○	○	○
		EX600-DX□F	×	○	○	○
	Digital Output Unit	EX600-DY□B	○	○	○	○
		EX600-DY□E	×	○	○	○
		EX600-DY□F	×	○	○	○
	Digital Input/Output Unit	EX600-DM□E	×	○	○	○
		EX600-DM□F	×	○	○	○
	Analog Input Unit	EX600-AXA	○	○	○	○
	Analog Output Unit	EX600-AYA	×	○	○	○
	Analog Input/Output Unit	EX600-AMB	×	○	○	○
	Handheld Terminal	EX600-HT1-□	○	○	○	×
		EX600-HT1A-□	○	○	○	○

Table of compatible units capable of communication with Handheld Terminals

			Product number: Handheld Terminal	
			EX600-HT1-□	EX600-HT1A-□
			Version Nil	Version A
Product number	SI Unit	EX600-SPR□ (PROFIBUS DP)	○	○
		EX600-SPR□A (PROFIBUS DP)	○	○
		EX600-SDN□ (DeviceNet™)	○	○
		EX600-SDN□A (DeviceNet™)	○	○
		EX600-SMJ□ (CC-Link)	○	○
		EX600-SEN□ (EtherNet/IP™)	×	○
		EX600-SEC□ (EtherCAT)	×	○
	Digital Input Unit	EX600-DX□B	○	○
		EX600-DX□C□	○	○
		EX600-DX□D	○	○
		EX600-DX□E	×	○
		EX600-DX□F	×	○
	Digital Output Unit	EX600-DY□B	○	○
		EX600-DY□E	×	○
		EX600-DY□F	×	○
	Digital Input/Output Unit	EX600-DM□E	×	○
		EX600-DM□F	×	○
	Analog Input Unit	EX600-AXA	○	○
	Analog Output Unit	EX600-AYA	×	○
	Analog Input/Output Unit	EX600-AMB	×	○

For Series EX600

Series VQC1000

How to Order Manifold

VV5QC 1 1 – 08 C6 SD6Q 2 N 1 – [ ]

Series VQC1000

Base mounted plug-in

Stations

Symbol	Stations
01	1 station
⋮	⋮
24 Note)	24 stations

Note) Max. number of stations depends on the wiring specifications.

Cylinder port size

C3	With ø3.2 One-touch fitting
C4	With ø4 One-touch fitting
C6	With ø6 One-touch fitting
M5	M5 thread
CM	Mixed sizes and with port plug
L3	Top ported elbow with ø3.2 One-touch fitting
L4	Top ported elbow with ø4 One-touch fitting
L6	Top ported elbow with ø6 One-touch fitting
L5	M5 thread
B3	Bottom ported elbow with ø3.2 One-touch fitting
B4	Bottom ported elbow with ø4 One-touch fitting
B6	Bottom ported elbow with ø6 One-touch fitting
B5	M5 thread
LM	Mixed port sizes of elbow piping

Note 1) Indicate the sizes on the manifold specification sheet in the case of "CM" and "LM".
Note 2) Symbols for inch size are as follows.
- N1: ø1/8"
- N3: ø5/32"
- N7: ø1/4"
- NM: Mixed sizes

The top ported elbow is LN□ and the bottom ported elbow is BN□.
For NM, specify it on the manifold specification sheet.

Kit type

Kit type	Symbol	Specifications	Stations	Max. number of stations for special wiring specifications	Max. number of solenoids
S kit	**SD60**	Without SI Unit	1 to 12 stations	24 stations	24
	SD6Q	For DeviceNet™			
	SD6N	For PROFIBUS DP			
	SD6V	For CC-Link			
	SD6ZE	For EtherNet/IP™			
	SD6D	For EtherCAT			

Note) Max. number of stations depends on the number of solenoids.
Add the option symbol "-K" when the combination of single wiring and double wiring is specified.
- When "Without SI Unit" is specified, I/O Unit cannot be mounted.
- When "Without SI Unit" is specified, Valve Plate to connect the manifold and SI Unit is not mounted. Refer to page 51 for mounting method.

Refer to the catalog of each series for details on manifold solenoid valve specifications, Common Precautions and Specific Product Precautions.

Option

Nil	None
B Note 2)	With back pressure check valve (All stations)
D	With DIN rail (Rail length: Standard)
D0	Without DIN rail (with bracket)
D□ Note 3)	With DIN rail (Rail length specified, □: Stations)
K Note 4)	Special wiring specifications (Except double wiring)
N	With name plate
R Note 5)	External pilot
S Note 6)	Built-in silencer, Direct exhaust

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) "-BRS"
Note 2) When the back pressure check valve is used only for specified station, specify the back pressure check valve part number, and specify the station number to which the valve is mounted, on the manifold specification sheet.
Note 3) Specified station number shall be longer than manifold station number.
Note 4) When single wiring and double wiring are mixed, specify wiring type of each station on the manifold specification sheet.
Note 5) When the external pilot type is selected, also specify the external pilot type for valves.
Note 6) Built-in silencer type dose not satisfy IP67.
Note 7) When specification change from no DIN rail type to DIN rail mounting type, please consult SMC.
Note 8) When "Without SI Unit (SD60)" is specified, "With DIN rail (D)" cannot be selected.
Note 9) DIN rail is not attached (but shipped together) on the manifold in the case of with DIN rail. Refer to the VQC series catalog (CAT.ES11-101) for mounting method.

I/O Unit stations

Nil	None
1	1 station
⋮	⋮
9	9 stations

Note 1) Without SI Unit, the symbol is nil.
Note 2) SI Unit is not included in I/O Unit stations.
Note 3) When I/O Unit is selected, it is shipped separately and assembled by customer.
Refer to the attached operation manual for mounting method.
Note 4) Refer to page 50 for details on enclosure.

SI Unit common

Nil	Positive common
N	Negative common

Note) Without SI Unit, the symbol is nil.

End Plate type

Nil	No End Plate
2	Power supply with M12 connector (Max. supplied current 2 A)
3	Power supply with 7/8 inch connector (Max. supplied current 8 A)

Note) Without SI Unit, the symbol is nil.

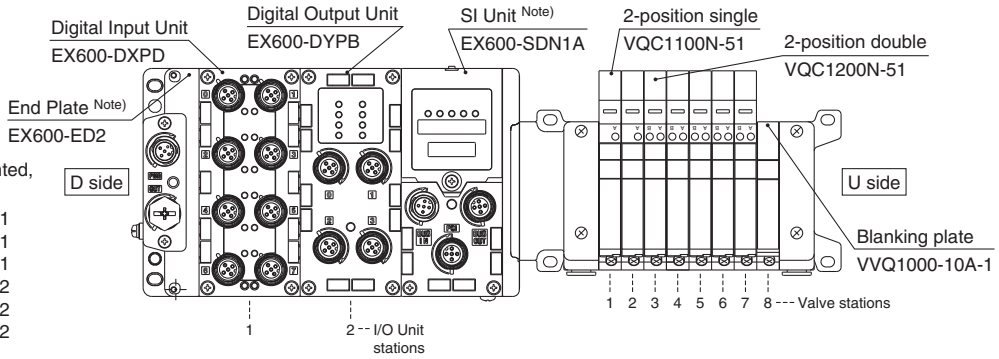
How to Order Manifold Assembly

Example (VV5QC11)

Manifold
Power supply with
M12 connector

For the I/O Unit part number mounted, refer to the following pages.

- Digital Input Unit ····· P.1
- Digital Output Unit ····· P.1
- Digital Input/Output Unit ····· P.1
- Analog Input Unit ····· P.2
- Analog Output Unit ····· P.2
- Analog Input/Output Unit ····· P.2



Serial transmission kit

VV5QC11-08C6SD6Q2N2 ···· 1 set Manifold base part number
* **VQC1100N-51 ····· 2 sets Valve part number (Stations 1 to 2)**
* **VQC1200N-51 ····· 5 sets Valve part number (Stations 3 to 7)**
* **VVQ1000-10A-1 ····· 1 set Blanking plate part number (Station 8)**
* **EX600-DXPD ····· 1 set I/O Unit part number (Station 1)**
* **EX600-DYPB ····· 1 set I/O Unit part number (Station 2)**

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

Enter in order starting from the first station on the D side. If the arrangement becomes complicated, specify on a manifold specification sheet.

Enter in order starting from the first station on the D side. If the arrangement becomes complicated, specify on a manifold specification sheet.

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

How to Order Valves

VQC 1 [1] 0 [0] [ ] – 5 [ ] 1

Series VQC1000

Type of actuation

1	2-position single	Note) A	4-position dual 3-port valve
2	2-position double (Metal)	Note) B	4-position dual 3-port valve
	2-position double (Rubber)	Note) C	4-position dual 3-port valve
3	3-position closed center		
4	3-position exhaust center		
5	3-position pressure center		

Note) Only rubber seal type

Seal type

0	Metal seal
1	Rubber seal

Function

Nil	Standard (0.4 W)
B	Quick response type (0.95 W)
K Note 2)	High pressure type (145 psi)
N Note 3)	Negative common
R Note 4)	External pilot

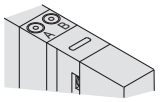
Note 1) When two or more symbols are specified, indicate them alphabetically. However, combination of "B" and "K" is not possible.
Note 2) Only metal seal type
Note 3) When negative common is specified for the SI Unit, select and mount the valve of negative common.
Note 4) Not applicable for dual 3-port valves

Coil voltage

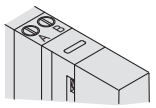
5	24 VDC

Manual override

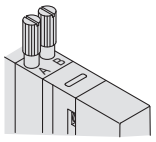
Nil: Non-locking push type (Tool required)



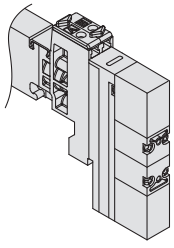
B: Locking type (Tool required)



C: Locking type (Manual)



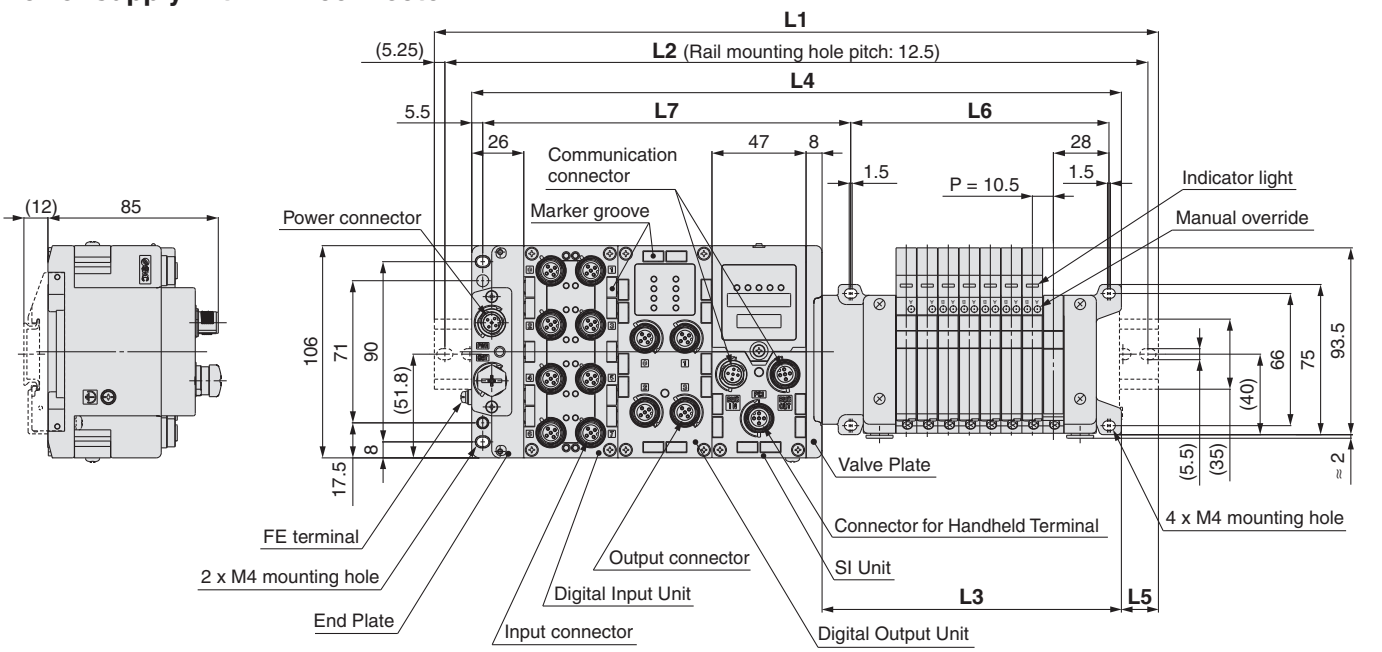
D: Slide locking type (Manual)

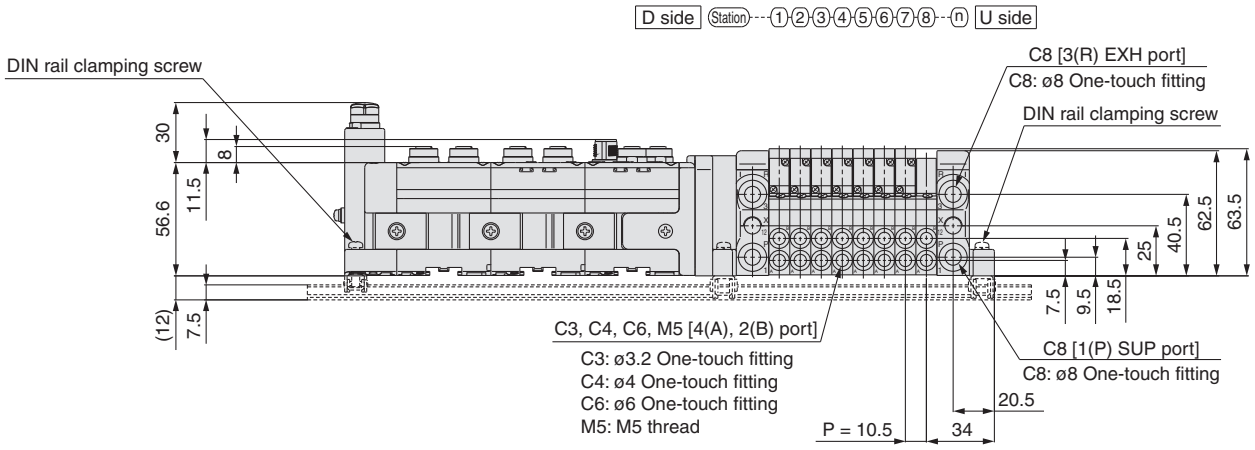


Dimensions

(mm)

Power supply with M12 connector





L2 = L1 – 10.5
L3 = 10.5 x n1 + 65.5
L4 = L3 + 81 + 47 x n2
L5 = (L1 – L4)/2
L6 = 10.5 x n1 + 45
L7 = 47 x n2 + 89.8

L1: DIN Rail Overall Length

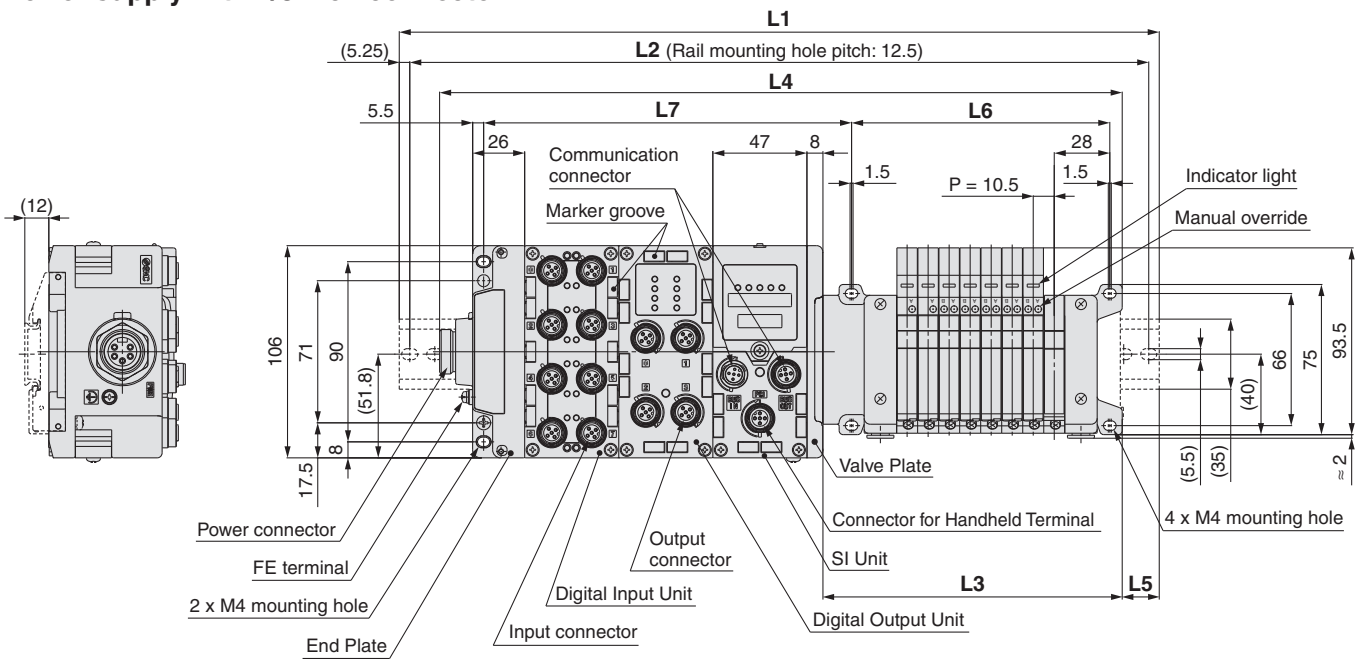
(mm)

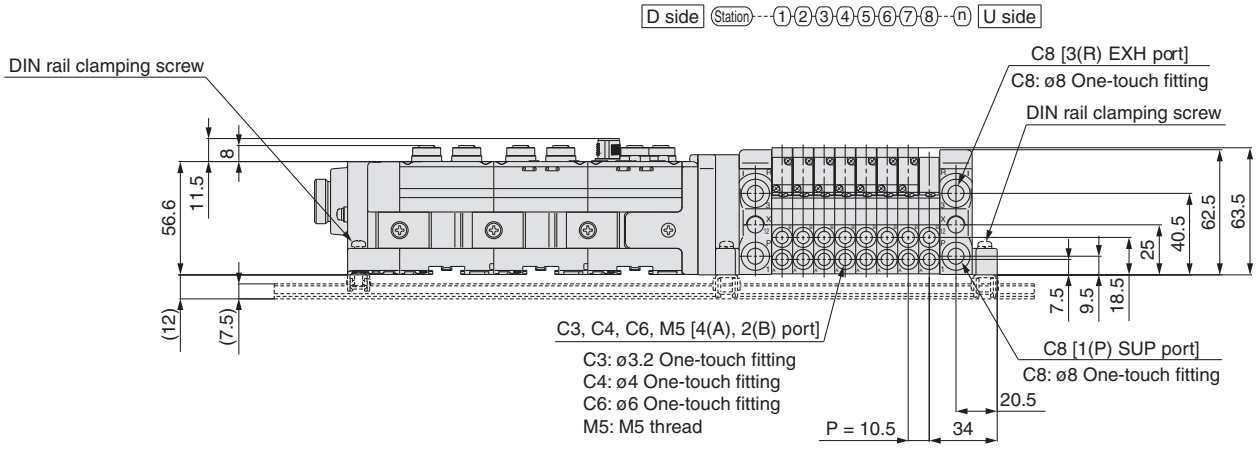
I/O Unit stations (n2) \ Valve stations (n1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	198	198	210.5	223	235.5	248	260.5	260.5	273	285.5	298	310.5	323	335.5	335.5	348	360.5	373	385.5	398	398	410.5	423	435.5
1	235.5	248	260.5	273	285.5	298	298	310.5	323	335.5	348	360.5	360.5	373	385.5	398	410.5	423	423	435.5	448	460.5	473	485.5
2	285.5	298	310.5	323	323	335.5	348	360.5	373	385.5	398	398	410.5	423	435.5	448	460.5	460.5	473	485.5	498	510.5	523	523
3	335.5	348	360.5	360.5	373	385.5	398	410.5	423	423	435.5	448	460.5	473	485.5	485.5	498	510.5	523	535.5	548	560.5	560.5	573
4	385.5	385.5	398	410.5	423	435.5	448	460.5	460.5	473	485.5	498	510.5	523	523	535.5	548	560.5	573	585.5	585.5	598	610.5	623
5	423	435.5	448	460.5	473	485.5	485.5	498	510.5	523	535.5	548	548	560.5	573	585.5	598	610.5	623	623	635.5	648	660.5	673
6	473	485.5	498	510.5	523	523	535.5	548	560.5	573	585.5	585.5	598	610.5	623	635.5	648	648	660.5	673	685.5	698	710.5	710.5
7	523	535.5	548	548	560.5	573	585.5	598	610.5	610.5	623	635.5	648	660.5	673	685.5	685.5	698	710.5	723	735.5	748	748	760.5
8	573	585.5	585.5	598	610.5	623	635.5	648	648	660.5	673	685.5	698	710.5	710.5	723	735.5	748	760.5	773	773	785.5	798	810.5
9	610.5	623	635.5	648	660.5	673	673	685.5	698	710.5	723	735.5	748	748	760.5	773	785.5	798	810.5	810.5	823	835.5	848	860.5

Dimensions

(mm)

Power supply with 7/8 inch connector





L2 = L1 – 10.5
L3 = 10.5 x n1 + 65.5
L4 = L3 + 97.5 + 47 x n2
L5 = (L1 – L4)/2
L6 = 10.5 x n1 + 45
L7 = 47 x n2 + 89.8

L1: DIN Rail Overall Length

(mm)

I/O Unit stations (n2) \ Valve stations (n1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	210.5	223	235.5	235.5	248	260.5	273	285.5	298	298	310.5	323	335.5	348	360.5	373	373	385.5	398	410.5	423	435.5	435.5	448
1	260.5	273	273	285.5	298	310.5	323	335.5	335.5	348	360.5	373	385.5	398	398	410.5	423	435.5	448	460.5	460.5	473	485.5	498
2	298	310.5	323	335.5	348	360.5	360.5	373	385.5	398	410.5	423	435.5	435.5	448	460.5	473	485.5	498	498	510.5	523	535.5	548
3	348	360.5	373	385.5	398	398	410.5	423	435.5	448	460.5	460.5	473	485.5	498	510.5	523	523	535.5	548	560.5	573	585.5	598
4	398	410.5	423	423	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	623	623	635.5
5	448	460.5	460.5	473	485.5	498	510.5	523	523	535.5	548	560.5	573	585.5	585.5	598	610.5	623	635.5	648	660.5	660.5	673	685.5
6	485.5	498	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	685.5	698	710.5	723	735.5
7	535.5	548	560.5	573	585.5	585.5	598	610.5	623	635.5	648	648	660.5	673	685.5	698	710.5	723	723	735.5	748	760.5	773	785.5
8	585.5	598	610.5	623	623	635.5	648	660.5	673	685.5	685.5	698	710.5	723	735.5	748	748	760.5	773	785.5	798	810.5	810.5	823
9	635.5	648	648	660.5	673	685.5	698	710.5	710.5	723	735.5	748	760.5	773	785.5	785.5	798	810.5	823	835.5	848	848	860.5	873

For Series EX600

Series VQC2000

How to Order Manifold

VV5QC 2 1 – 08 C8 SD6Q 2 N 1 – □

Series VQC2000

Base mounted plug-in

Stations

Symbol	Stations
01	1 station
⋮	⋮
24 Note)	24 stations

Note) Max. number of stations depends on the wiring specifications.

Cylinder port size

C4	With ø4 One-touch fitting
C6	With ø6 One-touch fitting
C8	With ø8 One-touch fitting
CM	Mixed sizes and with port plug
L4	Top ported elbow with ø4 One-touch fitting
L6	Top ported elbow with ø6 One-touch fitting
L8	Top ported elbow with ø8 One-touch fitting
B4	Bottom ported elbow with ø4 One-touch fitting
B6	Bottom ported elbow with ø6 One-touch fitting
B8	Bottom ported elbow with ø8 One-touch fitting
LM	Mixed port sizes of elbow piping

Note 1) Indicate the sizes on the manifold specification sheet in the case of "CM" and "LM".

Note 2) Symbols for inch size are as follows.
- N3: ø5/32"
- N7: ø1/4"
- N9: ø5/16"
- NM: Mixed sizes

The top ported elbow is LN□ and the bottom ported elbow is BN□.

For NM, specify it on the manifold specification sheet.

Kit type

Kit type	Symbol	Specifications	Stations	Max. number of stations for special wiring specifications	Max. number of solenoids
S kit	**SD60**	Without SI Unit	1 to 12 stations	24 stations	24
	SD6Q	For DeviceNet™			
	SD6N	For PROFIBUS DP			
	SD6V	For CC-Link			
	SD6ZE	For EtherNet/IP™			
	SD6D	For EtherCAT			

Note) Max. number of stations depends on the number of solenoids.
Add the option symbol "-K" when the combination of single wiring and double wiring is specified.

- When "Without SI Unit" is specified, I/O Unit cannot be mounted.
- When "Without SI Unit" is specified, Valve Plate to connect the manifold and SI Unit is not mounted. Refer to back page 51 for mounting method.

End Plate type

Nil	No End Plate
2	Power supply with M12 connector (Max. supplied current 2 A)
3	Power supply with 7/8 inch connector (Max. supplied current 8 A)

Note) Without SI Unit, the symbol is nil.

Option

Nil	None
B Note 2)	With back pressure check valve (All stations)
D Note 3)	With DIN rail (Rail length: Standard)
D0	Without DIN rail (with bracket)
D□ Note 4)	With DIN rail (Rail length specified, □: Stations)
K Note 5)	Special wiring specifications (Except double wiring)
N	With name plate
R Note 6)	External pilot
S Note 7)	Built-in silencer, Direct exhaust
T Note 8)	P and R ports included on both sides of the U side

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) "-BRS"

Note 2) When the back pressure check valve is used only for specified station, specify the back pressure check valve part number, and specify the station number to which the valve is mounted, on the manifold specification sheet.

Note 3) When selecting the DIN rail mounting (with DIN rail) of the VQC2000 series with the End Plate to a power supply 7/8 inch connector, 9 I/O Unit stations will result in a total of 23 valve stations. With 24 stations, the DIN rail mounting (with DIN rail) cannot be indicated, so please exercise caution. (Refer to "DIN Rail Overall Length" on page 44.)

Note 4) Specified station number shall be longer than manifold station number.

Note 5) When single wiring and double wiring are mixed, specify wiring type of each station on the manifold specification sheet.

Note 6) When the external pilot type is selected, also specify the external pilot type for valves.

Note 7) Built-in silencer type does not satisfy IP67.

Note 8) 2 ports for SUP and EXH are included on both sides of U side (cylinder port and coil side) with ø12 one-touch fittings.

Note 9) When specification change from no DIN rail type to DIN rail mounting type, please consult SMC.

Note 10) When "Without SI Unit (SD60)" is specified, "With DIN rail (D)" cannot be selected.

Note 11) DIN rail is not attached (but shipped together) on the manifold in the case of with DIN rail. Refer to the VQC series catalog (CAT.ES11-101) for mounting method.

I/O Unit stations

Nil	None
1	1 station
⋮	⋮
9	9 stations

Note 1) Without SI Unit, the symbol is nil.

Note 2) SI Unit is not included in I/O Unit stations.

Note 3) When I/O Unit is selected, it is shipped separately and assembled by customer. Refer to the attached operation manual for mounting method.

Note 4) Refer to page 50 for details on enclosure.

SI Unit common

Nil	Positive common
N	Negative common

Note) Without SI Unit, the symbol is nil.

How to Order Valves

VQC 2 1 0 0 ☐ – 5 ☐ 1

Series VQC2000

Type of actuation

1	2-position single	Note) **A**	4-position dual 3-port valve
2	2-position double (Metal)	Note) **B**	4-position dual 3-port valve
	2-position double (Rubber)	Note) **C**	4-position dual 3-port valve
3	3-position closed center		
4	3-position exhaust center		
5	3-position pressure center		

Note) Only rubber seal type

Seal type

0	Metal seal
1	Rubber seal

Function

Nil	Standard (0.4 W)
B	Quick response type (0.95 W)
K Note 2)	High pressure type (145 psi)
N Note 3)	Negative common
R Note 4)	External pilot

Note 1) When two or more symbols are specified, indicate them alphabetically. However, combination of "B" and "K" is not possible.

Note 2) Only metal seal type

Note 3) When negative common is specified for SI Unit, select and mount the valve of negative common.

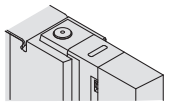
Note 4) Not applicable for dual 3-port valves

Coil voltage

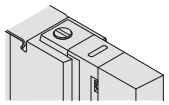
5	24 VDC

Manual override

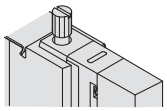
Nil: Non-locking push type (Tool required)



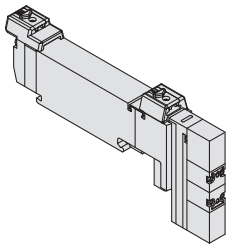
B: Locking type (Tool required)



C: Locking type (Manual)



D: Slide locking type (Manual)

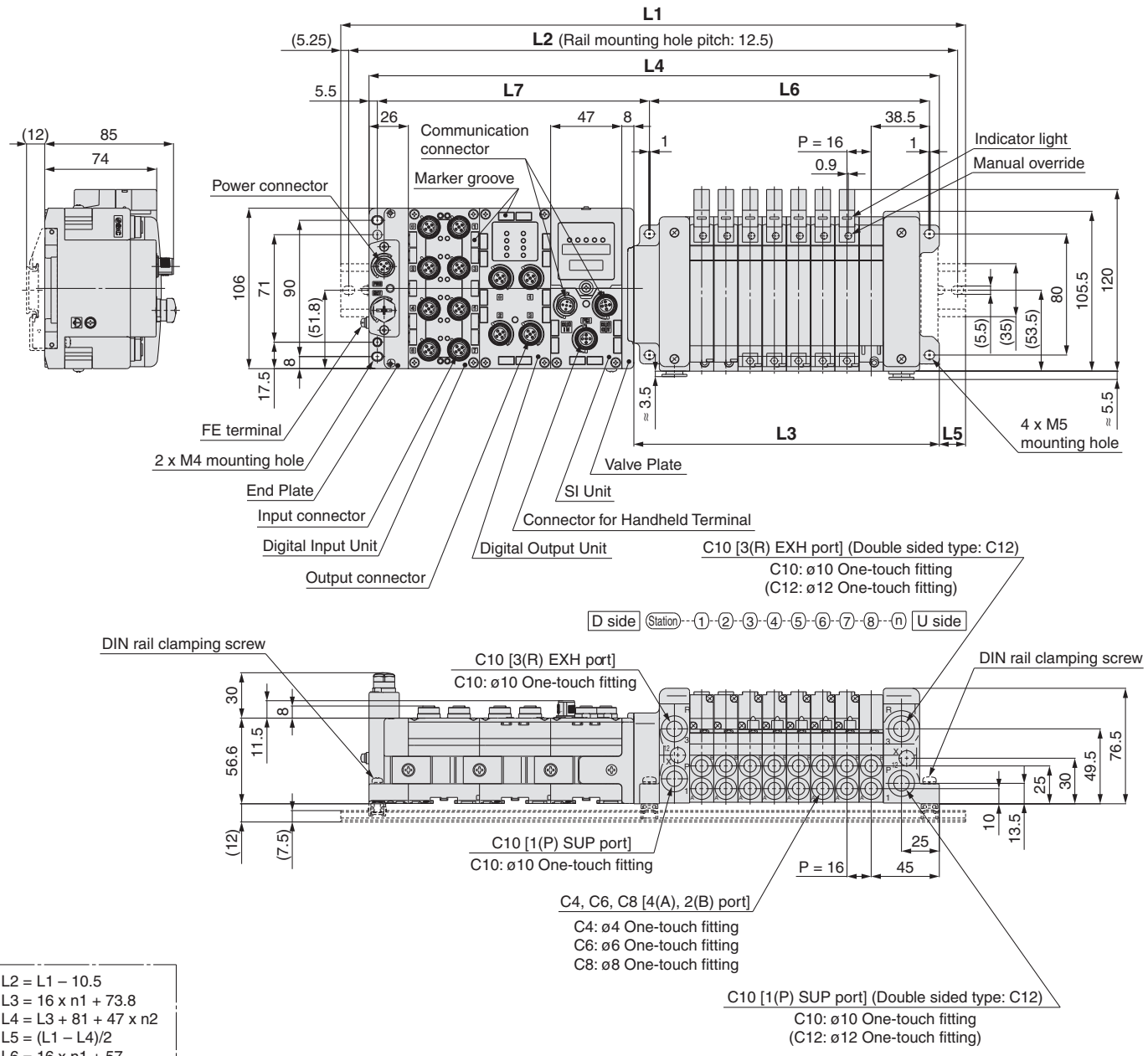


Refer to the catalog of each series for details on manifold solenoid valve specifications, Common Precautions and Specific Product Precautions.

Dimensions

(mm)

Power supply with M12 connector



L2 = L1 – 10.5
L3 = 16 x n1 + 73.8
L4 = L3 + 81 + 47 x n2
L5 = (L1 – L4)/2
L6 = 16 x n1 + 57
L7 = 47 x n2 + 85.8

L1: DIN Rail Overall Length

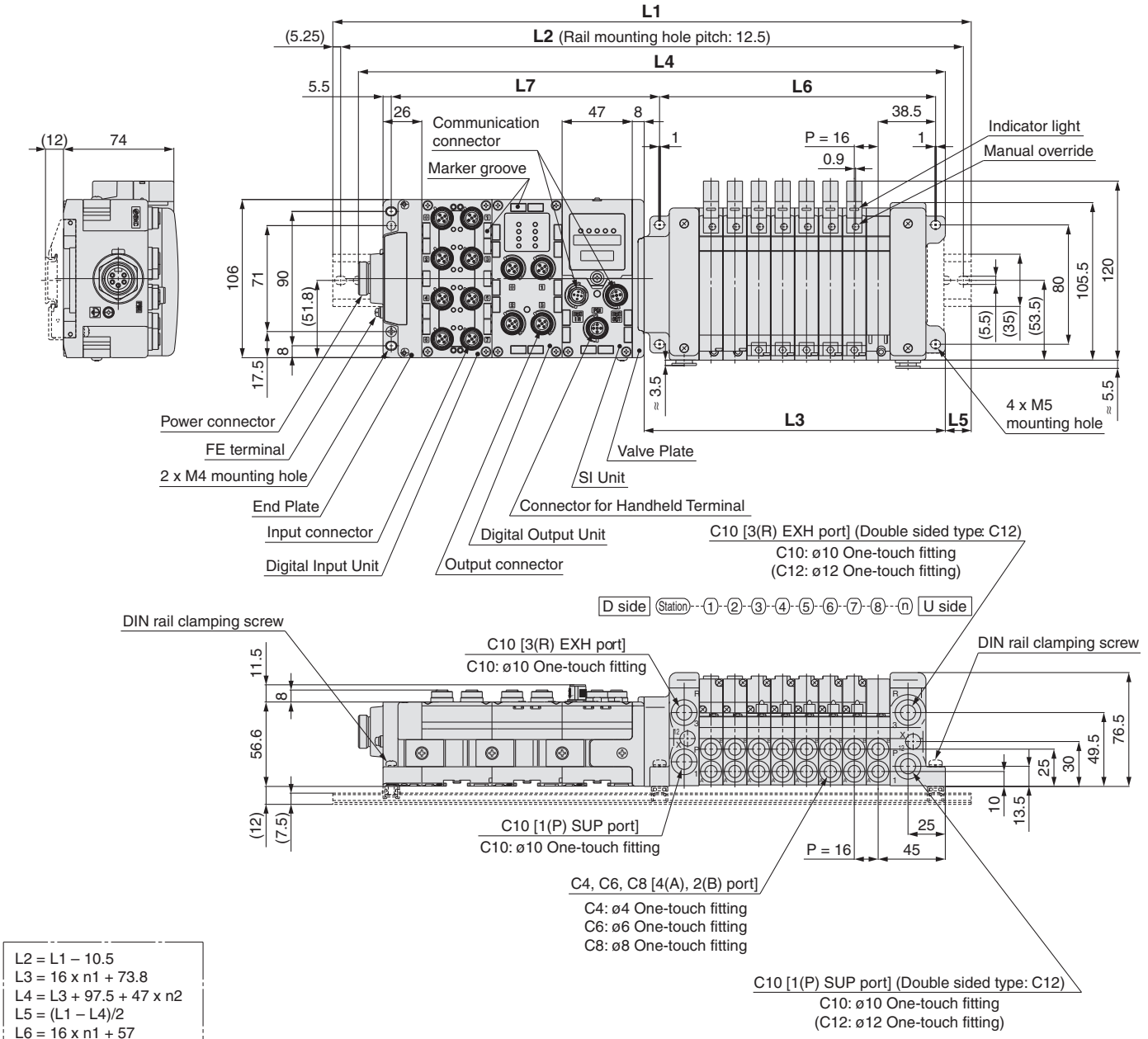
(mm)

I/O Unit stations (n2) \ Valve stations (n1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	210.5	223	235.5	260.5	273	285.5	298	323	335.5	348	373	385.5	398	410.5	435.5	448	460.5	473	498	510.5	523	548	560.5	573
1	248	273	285.5	298	323	335.5	348	360.5	385.5	398	410.5	435.5	448	460.5	473	498	510.5	523	548	560.5	573	585.5	610.5	623
2	298	323	335.5	348	360.5	385.5	398	410.5	423	448	460.5	473	498	510.5	523	535.5	560.5	573	585.5	610.5	623	635.5	648	673
3	348	360.5	385.5	398	410.5	423	448	460.5	473	498	510.5	523	535.5	560.5	573	585.5	598	623	635.5	648	673	685.5	698	710.5
4	398	410.5	423	448	460.5	473	485.5	510.5	523	535.5	560.5	573	585.5	598	623	635.5	648	673	685.5	698	710.5	735.5	748	760.5
5	448	460.5	473	485.5	510.5	523	535.5	548	573	585.5	598	623	635.5	648	660.5	685.5	698	710.5	735.5	748	760.5	773	798	810.5
6	485.5	510.5	523	535.5	548	573	585.5	598	623	635.5	648	660.5	685.5	698	710.5	723	748	760.5	773	798	810.5	823	835.5	860.5
7	535.5	548	573	585.5	598	610.5	635.5	648	660.5	685.5	698	710.5	723	748	760.5	773	798	810.5	823	835.5	860.5	873	885.5	898
8	585.5	598	610.5	635.5	648	660.5	673	698	710.5	723	748	760.5	773	785.5	810.5	823	835.5	860.5	873	885.5	898	923	935.5	948
9	635.5	648	660.5	673	698	710.5	723	748	760.5	773	785.5	810.5	823	835.5	848	873	885.5	898	923	935.5	948	960.5	985.5	985.5

Dimensions

(mm)

Power supply with 7/8 inch connector



L2 = L1 – 10.5
L3 = 16 x n1 + 73.8
L4 = L3 + 97.5 + 47 x n2
L5 = (L1 – L4)/2
L6 = 16 x n1 + 57
L7 = 47 x n2 + 85.8

L1: DIN Rail Overall Length

(mm)

I/O Unit stations (n2) \ Valve stations (n1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	223	235.5	260.5	273	285.5	298	323	335.5	348	373	385.5	398	410.5	435.5	448	460.5	485.5	498	510.5	523	548	560.5	573	585.5
1	273	285.5	298	323	335.5	348	360.5	385.5	398	410.5	435.5	448	460.5	473	498	510.5	523	548	560.5	573	585.5	610.5	623	635.5
2	323	335.5	348	360.5	385.5	398	410.5	435.5	448	460.5	473	498	510.5	523	535.5	560.5	573	585.5	610.5	623	635.5	648	673	685.5
3	360.5	385.5	398	410.5	423	448	460.5	473	498	510.5	523	535.5	560.5	573	585.5	610.5	623	635.5	648	673	685.5	698	710.5	735.5
4	410.5	423	448	460.5	473	485.5	510.5	523	535.5	560.5	573	585.5	598	623	635.5	648	673	685.5	698	710.5	735.5	748	760.5	785.5
5	460.5	473	485.5	510.5	523	535.5	560.5	573	585.5	598	623	635.5	648	660.5	685.5	698	710.5	735.5	748	760.5	773	798	810.5	823
6	510.5	523	535.5	548	573	585.5	598	623	635.5	648	660.5	685.5	698	710.5	735.5	748	760.5	773	798	810.5	823	835.5	860.5	873
7	548	573	585.5	598	610.5	635.5	648	660.5	685.5	698	710.5	723	748	760.5	773	798	810.5	823	835.5	860.5	873	885.5	910.5	923
8	598	610.5	635.5	648	660.5	685.5	698	710.5	723	748	760.5	773	785.5	810.5	823	835.5	860.5	873	885.5	898	923	935.5	948	973
9	648	660.5	673	698	710.5	723	748	760.5	773	785.5	810.5	823	835.5	860.5	873	885.5	898	923	935.5	948	960.5	985.5	985.5	—

For Series EX600

Series VQC4000

How to Order Manifold

VV5QC 4 1 – 16 02 [ ] SD6Q 2 N 1 – [ ]

Series VQC4000

Base mounted plug-in

Stations

Symbol	Stations
01	1 station
⋮	⋮
16 Note)	16 stations

Note) Max. number of stations depends on the wiring specifications.

Cylinder port size

C8	With ø8 One-touch fitting
C10	With ø10 One-touch fitting
C12	With ø12 One-touch fitting
02	1/4
03	3/8
B	Bottom ported 1/4
CM	Mixed sizes

Thread type

Nil	Rc
F	G
T	NPT/NPTF

Kit type

Kit type	Symbol	Specifications	Stations	Max. number of stations for special wiring specifications	Max. number of solenoids
S kit	SD60	Without SI Unit	1 to 12 stations	16 stations	24
	SD6Q	For DeviceNet™			
	SD6N	For PROFIBUS DP			
	SD6V	For CC-Link			
	SD6ZE	For EtherNet/IP™			
	SD6D	For EtherCAT			

Note) Max. number of stations depends on the number of solenoids.
Add the option symbol "-K" when the combination of single wiring and double wiring is specified.

- When "Without SI Unit" is specified, I/O Unit cannot be mounted.
- When "Without SI Unit" is specified, Valve Plate to connect the manifold and SI Unit is not mounted. Refer to page 51 for mounting method.

End Plate type

Nil	No End Plate
2	Power supply with M12 connector (Max. supplied current 2 A)
3	Power supply with 7/8 inch connector (Max. supplied current 8 A)

Note) Without SI Unit, the symbol is nil.

SI Unit common

Nil	Positive common
N	Negative common

Note) Without SI Unit, the symbol is nil.

I/O Unit stations

Nil	None
1	1 station
⋮	⋮
9	9 stations

Note 1) Without SI Unit, the symbol is nil.

Note 2) SI Unit is not included in I/O Unit stations.

Note 3) When I/O Unit is selected, it is shipped separately and assembled by customer. Refer to the attached operation manual for mounting method.

Note 4) Refer to page 50 for details on enclosure.

Option

Nil	None
K Note)	Special wiring specifications (Except double wiring)

Note) When single wiring and double wiring are mixed, specify wiring type of each station on the manifold specification sheet.

Refer to the catalog of each series for details on manifold solenoid valve specifications, Common Precautions and Specific Product Precautions.

How to Order Valves

VQC 4 1 0 0 – 5

Series VQC4000

Type of actuation

1	2-position single (A) (B) 4 2 5 1 3 (R1) (P) (R2)
2	2-position double (Metal) (A) (B) 4 2 5 1 3 (R1) (P) (R2)
	2-position double (Rubber) (A) (B) 4 2 5 1 3 (R1) (P) (R2)
3	3-position closed center (A) (B) 4 2 5 1 3 (R1) (P) (R2)
4	3-position exhaust center (A) (B) 4 2 5 1 3 (R1) (P) (R2)
5	3-position pressure center (A) (B) 4 2 5 1 3 (R1) (P) (R2)
6	3-position double check (A) (B) 4 2 5 1 3 (R1) (P) (R2)

Seal type

0	Metal seal
1	Rubber seal

Function

Nil	Standard (1 W)
R	External pilot
Y Note 2)	Low wattage type (0.5 W)

Note 1) When two or more symbols are specified, indicate them alphabetically.
Note 2) Suitable for continuously energizing for long periods of time.

Coil voltage

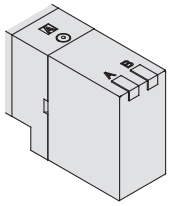
5	24 VDC

Light/surge voltage suppressor

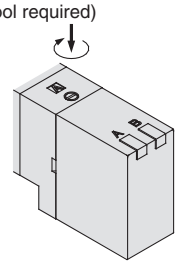
Nil	With
E	Without light, with surge voltage suppressor

Manual override

Nil: Non-locking push type (Tool required)



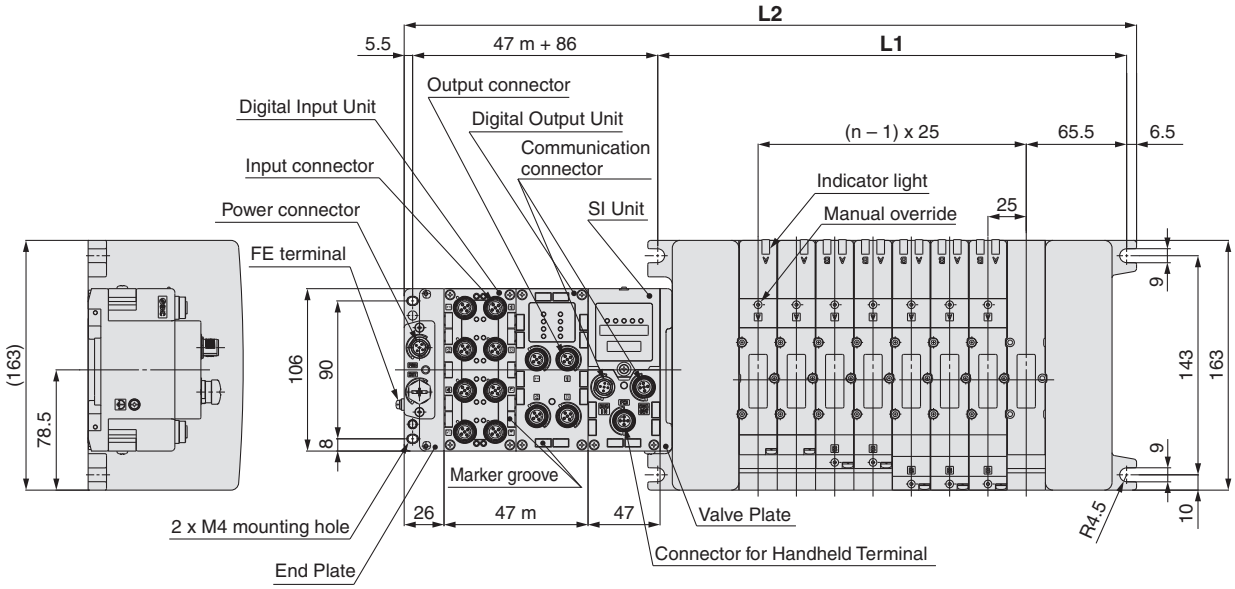
B: Locking type (Tool required)

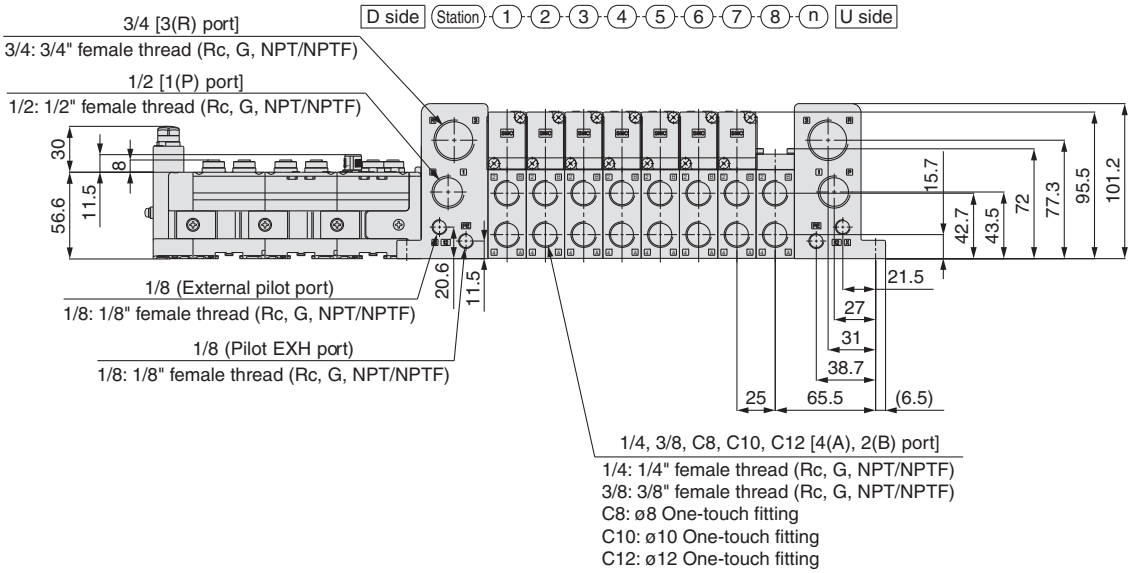


Dimensions

(mm)

Power supply with M12 connector





Formulas
L1 = 25n + 106
L2 = 25n + 184
∗ L2 is the dimension without I/O Unit. Add 47 mm for each additional I/O Unit s.
∗ "m" is number of I/O Units.

Dimensions

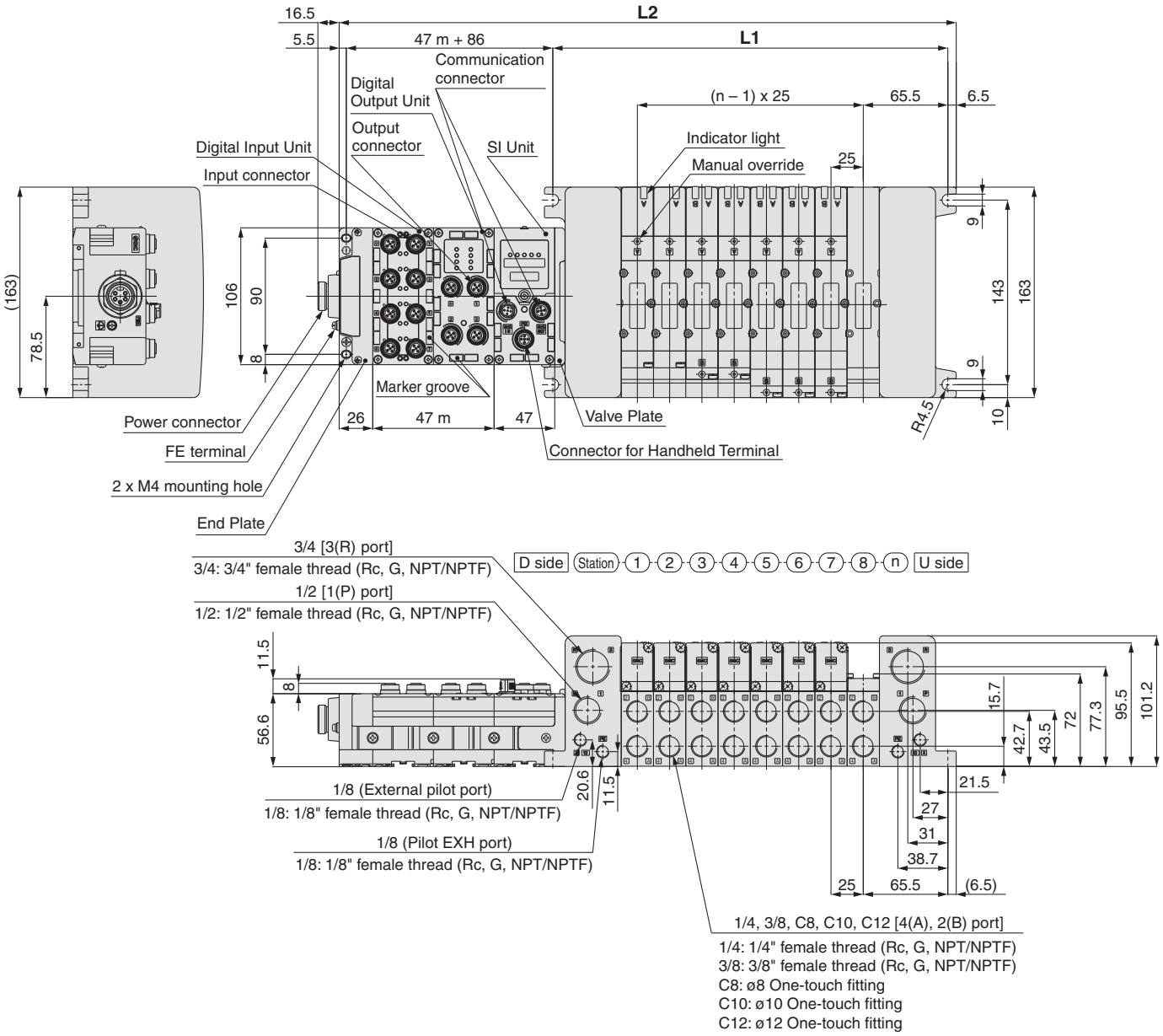
n: Stations (Maximum 16 stations) (mm)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	209	234	259	284	309	334	359	384	409	434	459	484	509	534	559	584

Dimensions

(mm)

Power supply with 7/8 inch connector



Formulas
L1 = 25n + 106
L2 = 25n + 184
∗ L2 is the dimension without I/O Unit. Add 47 mm for each additional I/O Unit s.
∗ "m" is number of I/O Units.

Dimensions

n: Stations (Maximum 16 stations) (mm)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	209	234	259	284	309	334	359	384	409	434	459	484	509	534	559	584

Series EX600
Specific Product Precautions 1

Be sure to read this before handling. Refer to back cover for Safety Instructions, "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" for 3/4/5 Port Solenoid Valve Precautions. The Operation Manual can be downloaded from the SMC website, http://www.smcworld.com

Design/Selection

⚠ Warning

1. Use this product within the specification range.

Using beyond the specified specifications range can cause fire, malfunction, or damage to the system.
Check the specifications before operation.

2. When using for an interlock circuit:

- **Provide a multiple interlock system which is operated by another system (such as mechanical protection function).**
- **Perform an inspection to confirm that it is working properly.**

This may cause possible injury due to malfunction.

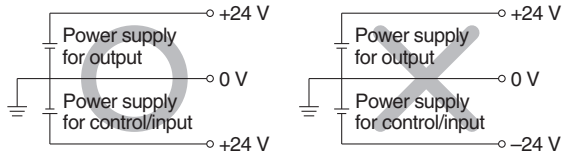
⚠ Caution

1. When applicable to UL, use a Class 2 power supply unit conforming to UL1310 for direct current power supply.

2. Use this product within the specified voltage range.

Using beyond the specified voltage range is likely to cause the units and connecting devices to be damaged or to malfunction.

3. The power supply for the unit should be 0 V as the standard for both power supply for output as well as power supply for control/input.



4. Do not install a unit in a place where it can be used as a foothold.

Applying any excessive load such as stepping on the unit by mistake or placing a foot on it, will cause it to break.

5. Keep the surrounding space free for maintenance.

When designing a system, take into consideration the amount of free space needed for performing maintenance.

6. Do not remove the name plate.

Improper maintenance or incorrect use of operation manual can cause failure and malfunction. Also, there is a ri sk of losing conformity with safety standards.

7. Beware of inrush current when the power supply is turned on.

Some connected loads can apply an initial charge current which will trigger the over current protection function, causing the unit to malfunction.

Mounting

⚠ Caution

1. When handling and assembling units:

- **Do not touch the sharp metal parts of the connector or plug.**
- **Do not apply excessive force to the unit when disassembling.**

The connecting portions of the unit are firmly joined with seals.

- **When joining units, take care not to get fingers caught between units.**

Injury can result.

Mounting

⚠ Caution

2. Do not drop, bump, or apply excessive impact.

Otherwise, the unit can become damaged, malfunction, or fail to function.

3. Observe the tightening torque range.

Tightening outside of the allowable torque range will likely damage the screw.
IP67 cannot be guaranteed if the screws are not tightened to the specified torque.

4. When lifting a large size manifold solenoid valve unit, take care to avoid causing stress to the valve connection joint.

The connection parts of the unit may be damaged.
Because the unit may be heavy, carrying and installation should be performed by more than one operator to avoid strain or injury.

5. When placing a manifold, mount it on a flat surface.

Torsion in the whole manifold can lead to trouble such as air leakage or defective insulation.

Wiring

⚠ Caution

1. Check the grounding to maintain the safety of the reduced wiring system and for anti-noise performance.

Provide a specific grounding as close to the unit as possible to minimize the distance to grounding.

2. Avoid repeatedly bending or stretching the cable and applying a heavy object or force to it.

Wiring applying repeated bending and tensile stress to the cable can break the circuit.

3. Avoid miswiring.

If miswired, there is a danger of malfunction or damage to the reduced wiring system.

4. Do not wire while energizing the product.

There is a danger of malfunction or damage to the reduced wiring system or input/output device.

5. Avoid wiring the power line and high pressure line in parallel.

Noise or surge produced by signal line resulting from the power line or high pressure line could cause malfunction.
Wiring of the reduced wiring system or input/output device and the power line or high pressure line should be separated from each other.

6. Check the wiring insulation.

Defective insulation (contact with other circuits, improper insulation between terminals, etc.) may cause damage to the reduced wiring system or input/output device due to excessive voltage or current.

Series EX600
Specific Product Precautions 2

Be sure to read this before handling. Refer to back cover for Safety Instructions, "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" for 3/4/5 Port Solenoid Valve Precautions. The Operation Manual can be downloaded from the SMC website, http://www.smcworld.com

Wiring

⚠Caution

7. When a reduced wiring system is installed in machinery/equipment, provide adequate protection against noise by using noise filters, etc.

Noise in signal lines may cause malfunction.

8. When connecting wires of input/output device or Handheld Terminal, prevent water, solvent or oil from entering inside from the connecter section.

This can cause damage, equipment failure or malfunction.

9. Avoid wiring patterns in which excessive stress is applied to the connector.

This may cause malfunction or damage to the unit due to contact failure.

Operating Environment

⚠Warning

1. Do not use in an atmosphere containing an inflammable gas or explosive gas.

Use in such an atmosphere is likely to cause a fire or explosion. This system is not explosion-proof.

⚠Caution

1. Select the proper type of enclosure according to the environment of operation.

IP65/67 is achieved when the following conditions are met.

1) Provide appropriate wiring between all units using electrical wiring cables, communication connectors and cables with M12 connectors.

2) Suitable mounting of each unit and manifold valve.

3) Be sure to mount a seal cap on any unused connectors.

If using in an environment that is exposed to water splashes, please take measures such as using a cover.
When the enclosure is IP40, do not use in an operating environment or atmosphere where it may come in contact with corrosive gas, chemical agents, seawater, water, or water vapor. When connected to the EX600-D□□E or EX600-D□□F, manifold enclosure is IP40.
Also, the Handheld Terminal conforms to IP20, so prevent foreign matter from entering inside, and water, solvent or oil from coming in direct contact with it.

2. Provide adequate protection when operating in locations such as the following.

Failure to do so may cause damage or malfunction.
The effect of countermeasures should be checked in individual equipment and machine.

1) Where noise is generated by static electricity, etc.

2) Where there is a strong electric field

3) Where there is a danger of exposure to radiation

4) When in close proximity to power supply lines

Operating Environment

⚠Caution

3. Do not use in an environment where oil and chemicals are used.

Operating in environments with coolants, cleaning solvents, various oils or chemicals may cause adverse effects (damage, malfunction) to the unit even in a short period of time.

4. Do not use in an environment where the product could be exposed to corrosive gas or liquid.

This may damage the unit and cause it to malfunction.

5. Do not use in locations with sources of surge generation.

Installation of the unit in an area around the equipment (electromagnetic lifters, high frequency induction furnaces, welding machine, motors, etc.), which generates the large surge voltage could cause to deteriorate an internal circuitry element of the unit or result in damage. Implement countermeasures against the surge from the generating source, and avoid touching the lines with each other.

6. Use the product type that has an integrated surge absorption element when directly driving a load which generates surge voltage by relay, solenoid valves or lamp.

When a surge generating load is directly driven, the unit may be damaged.

7. The product is CE marked, but not immune to lightning strikes. Take measures against lightning strikes in your system.

8. Keep dust, wire scraps and other extraneous material from getting inside the product.

This may cause malfunction or damage.

9. Mount the unit in such locations, where no vibration or shock is affected.

This may cause malfunction or damage.

10. Do not use in places where there are cyclic temperature changes.

In case that the cyclic temperature is beyond normal temperature changes, the internal unit is likely to be adversely effected.

11. Do not use in direct sunlight.

Do not use in direct sunlight. It may cause malfunction or damage.

12. Use this product within the specified ambient temperature range.

This may cause malfunction.

13. Do not use in places where there is radiated heat around it.

Such a place is likely to cause malfunction.

Series EX600
Specific Product Precautions 3

Be sure to read this before handling. Refer to back cover for Safety Instructions, "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" for 3/4/5 Port Solenoid Valve Precautions. The Operation Manual can be downloaded from the SMC website, http://www.smcworld.com

Adjustment/Operation

⚠Warning

1. Do not perform operation or setting with wet hands.
There is a risk of electrical shock.

<Handheld Terminal>

2. Do not apply pressure to the LCD.
There is a possibility of the crack of LCD and injuring.

3. The forced input/output function is used to change the signal status forcibly. When operating this function, be sure to check the safety of the surroundings and installation.
Otherwise, injury or equipment damage could result.

4. Incorrect setting of parameters can cause malfunction. Be sure to check the settings before use.
This may cause injury or equipment damage.

⚠Caution

1. Use a watchmakers' screwdriver with thin blade for the setting of each switch of the SI Unit.
When setting the switch, do not touch other unrelated parts.
This may cause parts damage or malfunction due to a short circuit.

2. Provide adequate setting for the operating conditions.
Failure to do so could result in malfunction.
Refer to the operation manual for setting of the switches.

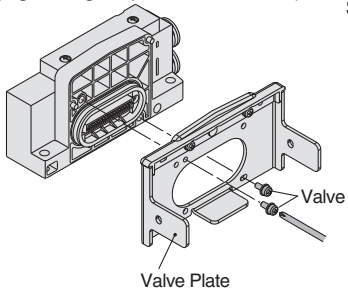
3. For details on programming and address setting, refer to the manual from the PLC manufacturer.
The content of programming related to protocol is designed by the manufacturer of the PLC used.

<Handheld Terminal>

4. Do not press the setting buttons with a sharp pointed object.
This may cause damage or malfunction.

5. Do not apply excessive load and impact to the setting buttons.
This may cause damage, equipment failure or malfunction.

When the order does not include the SI Unit, the Valve Plate to connect the manifold and SI Unit is not mounted. Use attached valve fixing screws and mount the Valve Plate.
(Tightening torque: 0.6 to 0.7 N·m)



Screw tightened parts
Series SV: 2 places
Series S0700: 2 places
Series VQC1000: 2 places
Series VQC2000: 3 places
Series VQC4000: 4 places
Series SY: 2 places

Maintenance

⚠Warning

1. Do not disassemble, modify (including circuit board replacement) or repair this product.
Such actions are likely to cause injuries or breakage.

2. When an inspection is performed,
- **Turn off the power supply.**
- **Stop the air supply, exhaust the residual pressure in piping and verify that the air is released before performing maintenance work.**
Unexpected malfunction of system components and injury can result.

⚠Caution

1. When handling and replacing the unit:
- **Do not touch the sharp metal parts of the connector or plug.**
- **Do not apply excessive force to the unit when disassembling.**
The connecting portions of the unit are firmly joined with seals.
- **When joining units, take care not to get fingers caught between units.**
Injury can result.

2. Perform periodic inspection.
Unexpected malfunction in the system composition devices is likely to occur due to malfunction of machinery or equipment.

3. After maintenance, make sure to perform an appropriate functionality inspection.
In cases of abnormality such as faulty operation, stop operation. Unexpected malfunction in the system composition devices is likely to occur.

4. Do not use benzene and thinner for cleaning units.
Damage to the surface or erasure of the display can result. Wipe off any stains with a soft cloth.
If the stain is persistent, wipe off with a cloth soaked in a dilute solution of neutral detergent and wrung out tightly, and then finish with a dry cloth.

Other

⚠Caution

1. Refer to the catalog of each series for Common Precautions and Specific Product Precautions on manifold solenoid valves.

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots - Safety.
etc.

⚠ Warning

1. **The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.**
   Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.
2. **Only personnel with appropriate training should operate machinery and equipment.**
   The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.
3. **Do not service or attempt to remove product and machinery/equipment until safety is confirmed.**
   1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
   2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
   3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.
4. **Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.**
   1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
   2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
   3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
   4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. **The product is provided for use in manufacturing industries.**
   The product herein described is basically provided for peaceful use in manufacturing industries.
   If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
   If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".
Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered.*2)
   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
   This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) **Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Revision history

Edition B	∗ EtherNet/IP™ communication protocol added.	
	∗ Analog Output Unit and Input/Output Unit added.	
	∗ D-sub connector and spring type terminal block added.	
	∗ Applicable solenoid valve SY3000/5000 series added.	
	∗ Number of pages decreased from 64 to 60.	OW
Edition C	∗ EtherCAT communication protocol added.	PX

⚠ Safety	Be sure to read "Handling Precautions for SMC Products" (M-E03-3) before using.

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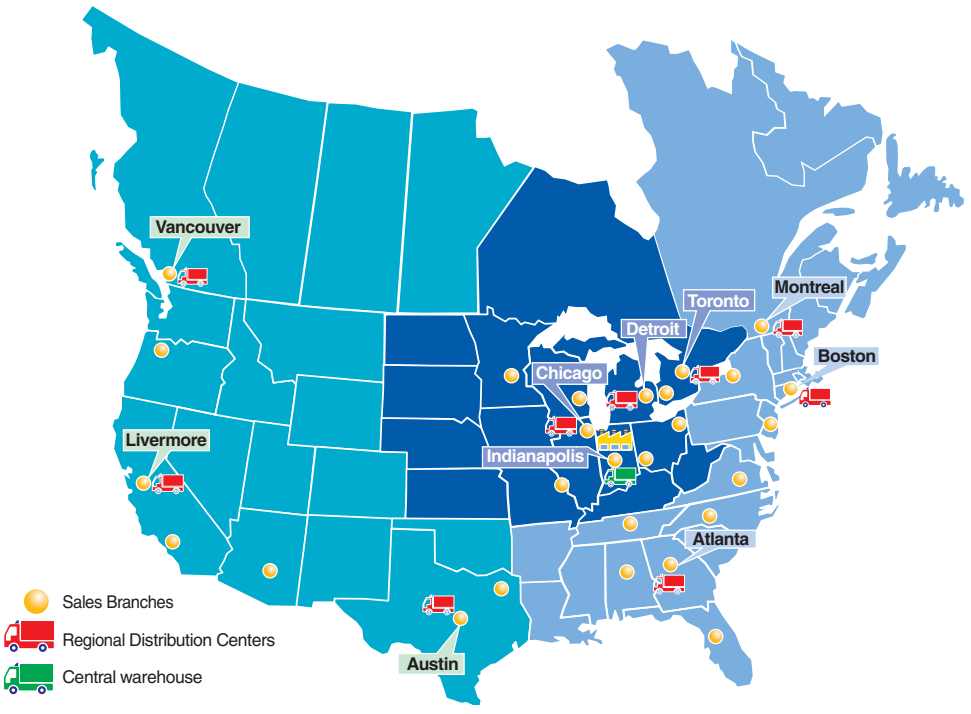

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PY-10M-RRD

Fieldbus System

(Output device for driving 5 port solenoid valves)

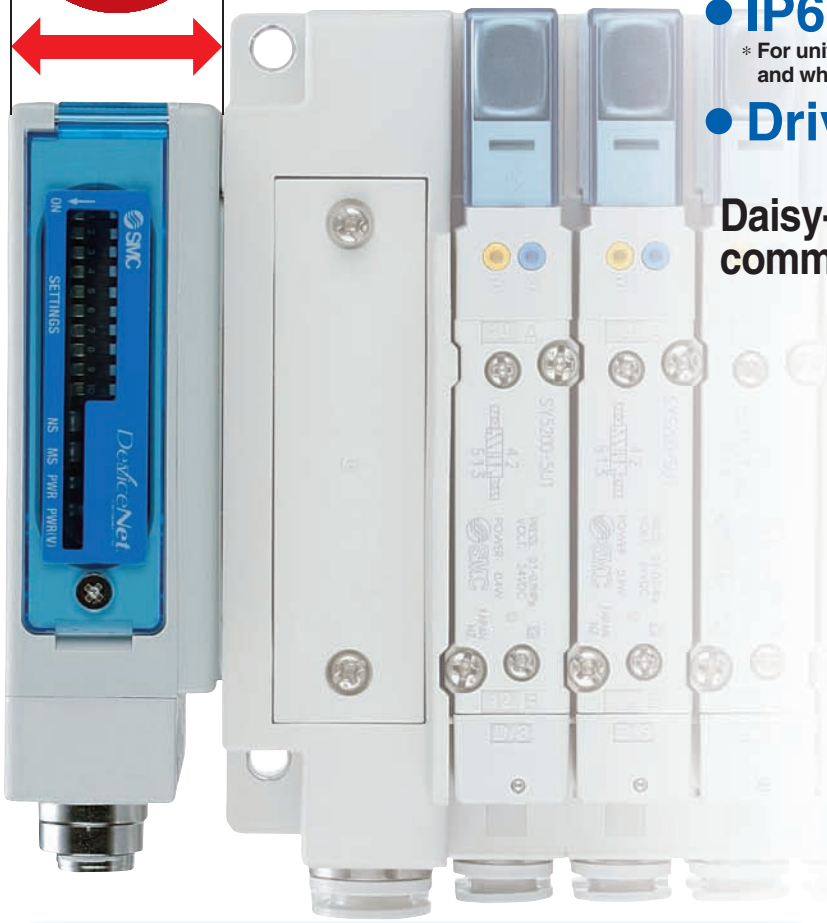
New

CE cULus RoHS

Compact
28 mm
(Actual size)

Space-saving Installation

EtherNet/IP™ added !

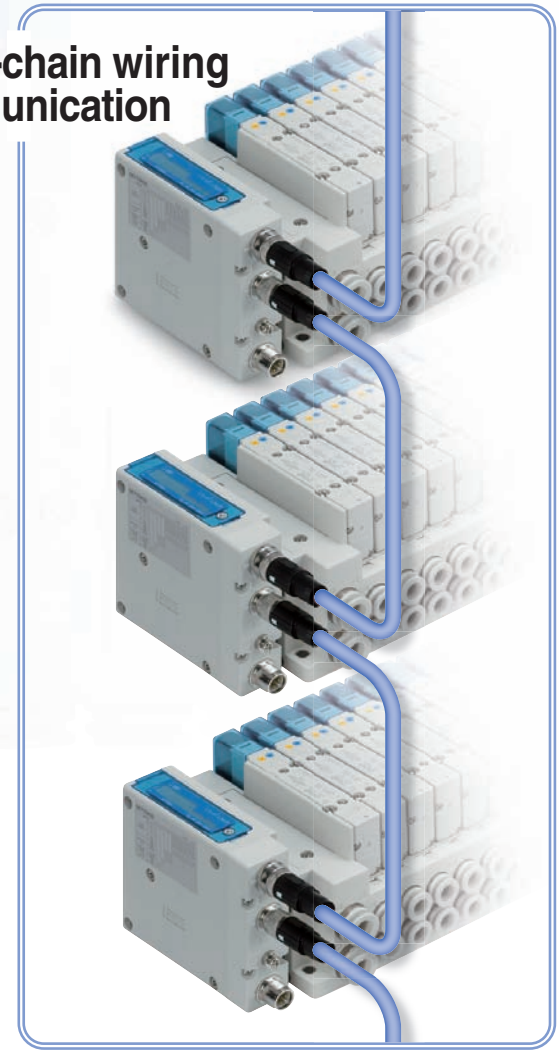


- **IP67***

  * For units with D-sub connector, and when connected to S0700 manifolds, it is IP40.

- **Drives up to 32 solenoids**

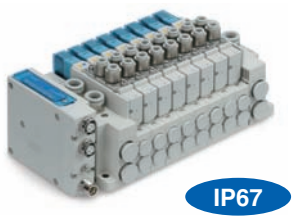
Daisy-chain wiring communication



Applicable Fieldbus protocols

PROFIBUS® DeviceNet™ CC-Link

PROFINET® New EtherNet/IP™ EtherCAT®

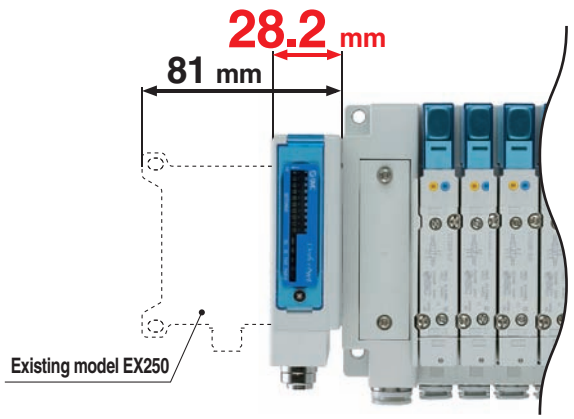
Top ported valve	Bottom ported valve	Side ported valve Mixed valve sizes manifold	7 mm width valve
			
IP67	IP67	IP67	IP40

Series EX260

SMC

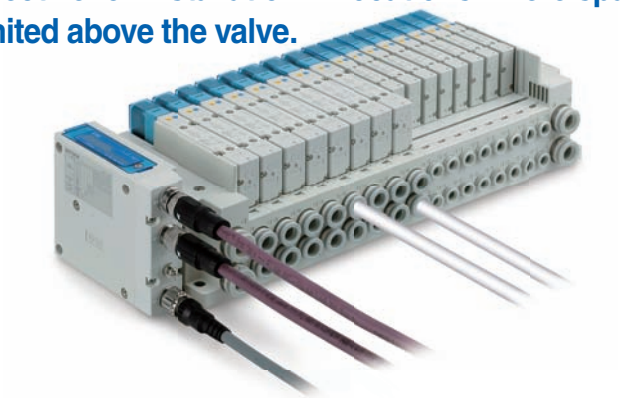
CAT.NAS02-25B

Manifold length is shortened by the small fieldbus output module (SI unit).

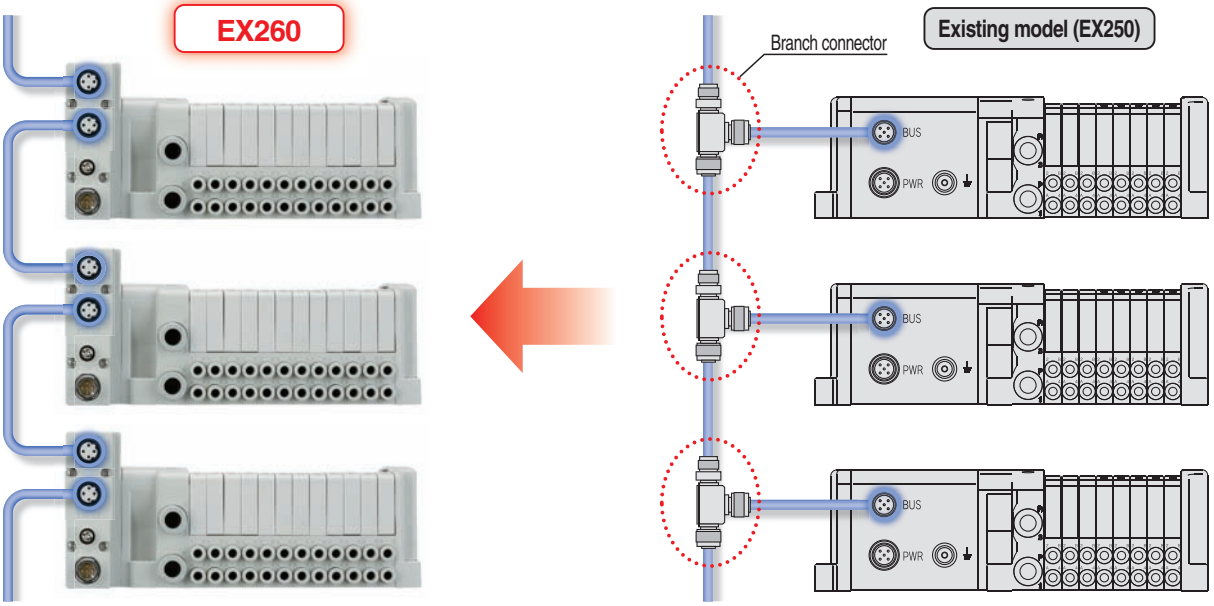


Wiring and piping from the same direction is possible. (for side ported)

Effective for installation in locations where space is limited above the valve.

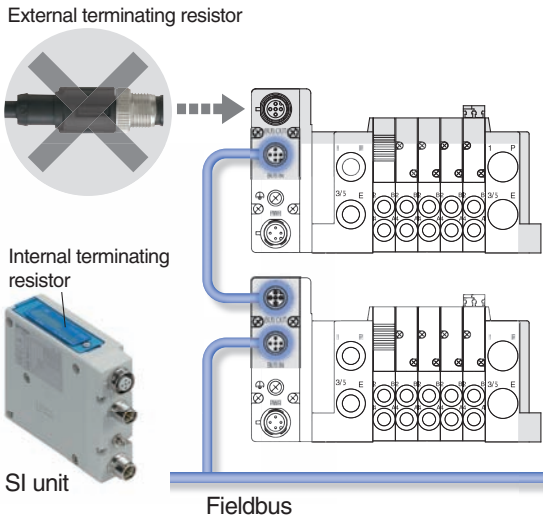


External branch connector is not necessary. Daisy-chain wiring is possible. Reduced wiring space



External terminating resistor is not necessary. (Only available for M12 PROFIBUS DP, CC-Link communication connectors)

ON/OFF switching is possible with an internal terminating resistor. External terminating resistor is not necessary.



Product Specification Variations

	PROFIBUS DP	DeviceNet	CC-Link	PROFINET	EtherNet/IP	EtherCAT
Number of outputs	16 32	16 32	16 32	16 32	16 32	16 32
Output polarity	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN
Communication connector	M12 D-sub	M12	M12	M12	M12	M12

■ Communication connector examples

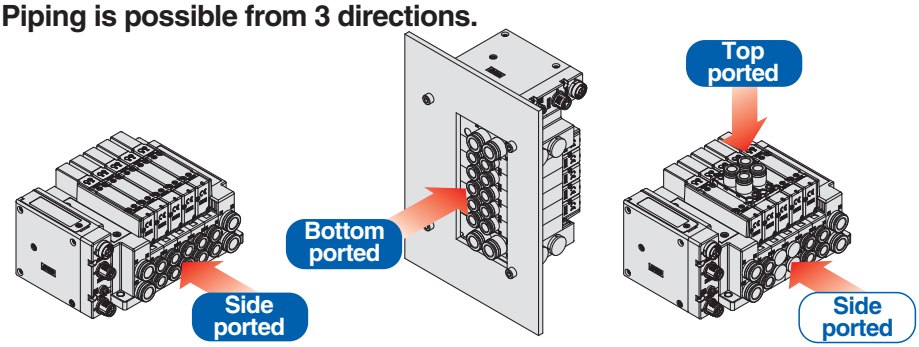
M12 communication connector
(PROFIBUS DP)

D-sub communication connector
(PROFIBUS DP)

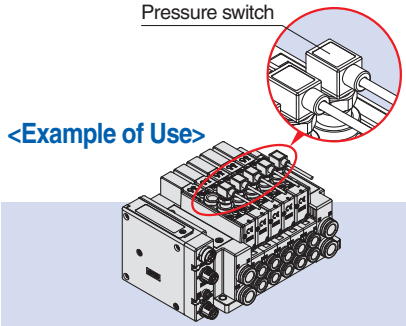
Series SY3000/5000

Valve piping direction variations

■ **Piping is possible from 3 directions.**

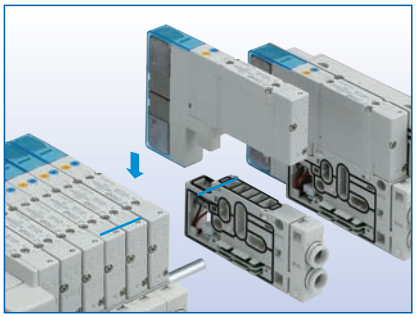


Mixed mounting of top ported and side ported is possible.



By mounting top ported valves on side ported and bottom ported type manifolds, it is possible to detect the output of the A/B port with a pressure switch.

Valves can be freely connected up to 24 stations.



■ **It is possible to connect only the number of valves required, from 1 to 24 stations, to suit the application. (Maximum number of solenoids connected: 32)**

Mixed valve sizes manifold

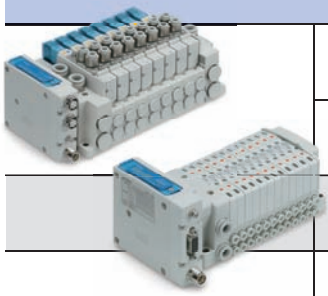
■ **Valves of different sizes, SY3000 and SY5000, can be mounted on the same manifold.**

Series S0700

7 mm width valves can be connected.

■ **It is possible to connect only the number of 7 mm width valves required, from 1 to 24 stations. (Maximum number of solenoids connected: 32)**

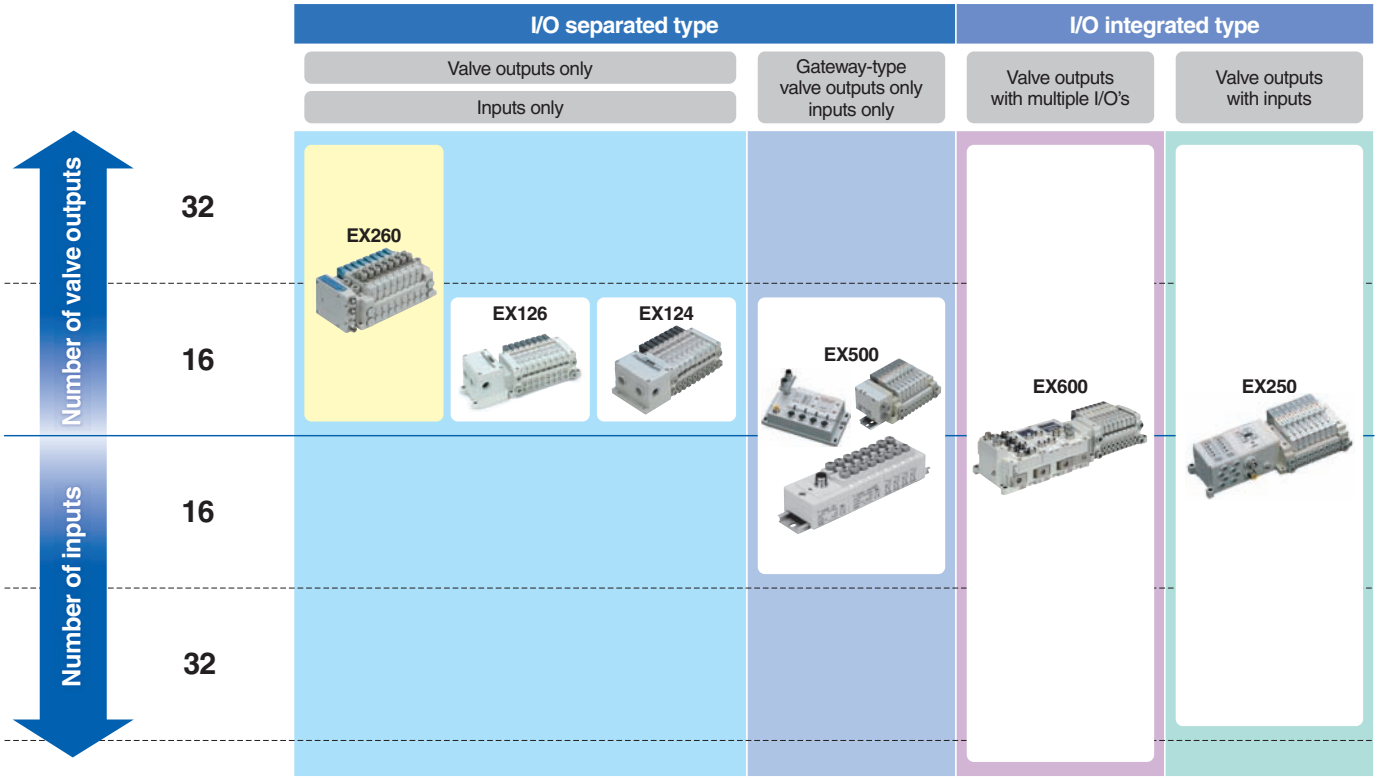
● Applicable Valve Series

Series		Flow-rate characteristics (4/2→5/3) C [dm³/(s·bar)]	Flow-rate characteristics (4/2→5/3) b	Maximum number of solenoids	Power consumption (W)	Enclosure	Standards	Page
	SY3000	1.6	0.19	32	0.35 (standard) 0.1 (with power-saving circuit)	IP67	CE	page 7
	SY5000	3.6	0.17					
	S0700	0.37	0.39	32	0.35	IP40	CE	page 38
	SV1000	1.1	0.35	32	0.6	IP67	CE cULus	page 24
	SV2000	2.4	0.18					
	SV3000	4.3	0.21					
	VQC1000	1.0	0.30	24	0.4 (standard)	IP67	CE	page 29
	VQC2000	3.2	0.30					
	VQC4000	7.3	0.38		1.0 (standard)			

Note) For units with D-sub communication connector, it is IP40.

Fieldbus System Variations

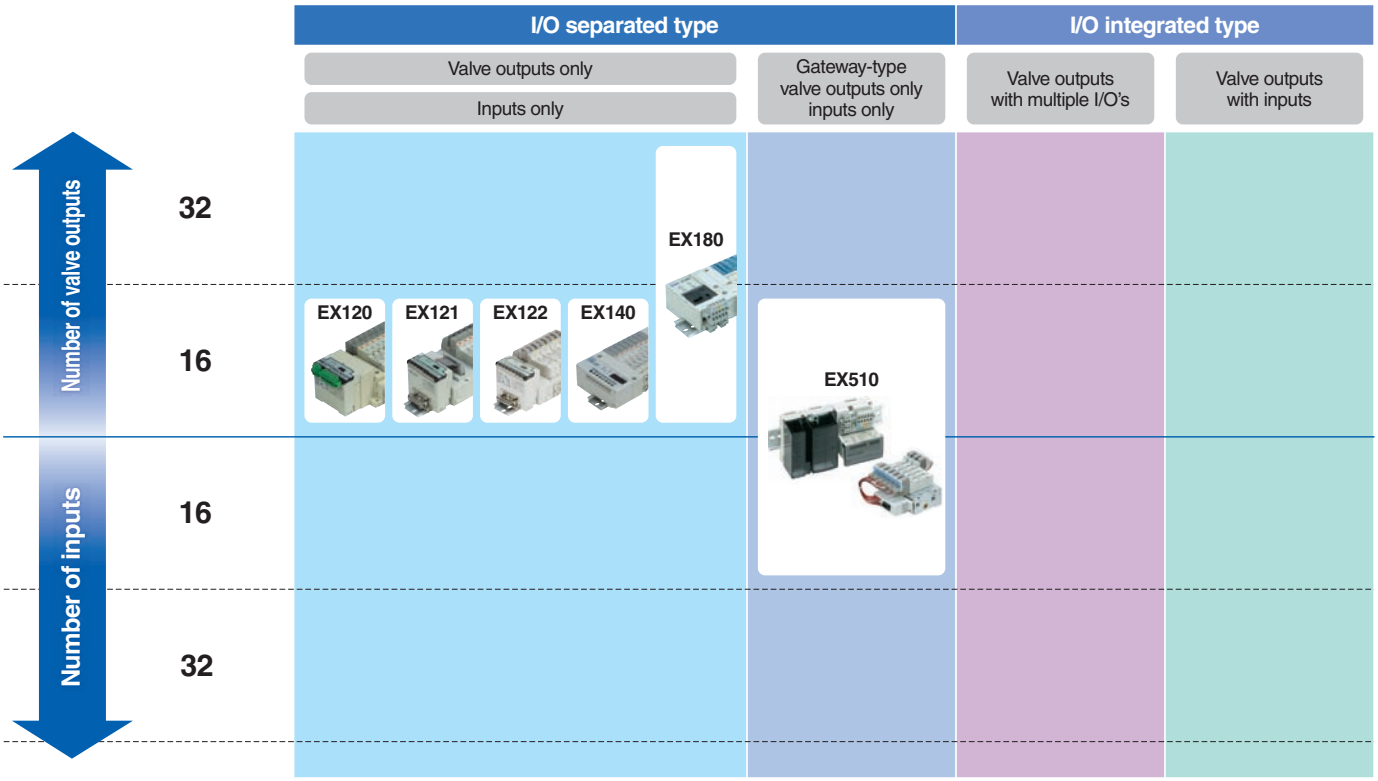
IP67/65 specification models



Number of valve outputs	16			32	16 (total 64)	32	32
Number of inputs	None				16 (total 64)	144	32
SI unit series	EX260	EX126	EX124	EX260	EX500	EX600	EX250
Open network: PROFINET	●			●			
Open network: EtherCAT	●			●		●	
Open network: EtherNet/IP™	●			●	●	●	●
Open network: PROFIBUS DP	●			●	●	●	●
Open network: DeviceNet™	●		●	●	●	●	●
Open network: CC-Link	●	●	●	●	●	●	●
Open network: AS-Interface							●
Open network: CANopen							●
Open network: CompoNet™							
Applicable valve series: SY (Plug-in connector connecting base) 3000	●	●		●	●	●	●
Applicable valve series: SY (Plug-in connector connecting base) 5000	●	●		●	●	●	●
Applicable valve series: S0700 (Stacking base) 0700	●			●	●	●	●
Applicable valve series: SV 1000	●	●		●	●	●	●
Applicable valve series: SV 2000	●	●		●	●	●	●
Applicable valve series: SV 3000	●	●		●	●	●	●
Applicable valve series: SV 4000					●		
Applicable valve series: VQC 1000	●	●		●	●	●	●
Applicable valve series: VQC 2000	●	●		●	●	●	●
Applicable valve series: VQC 4000	●	●		●	●	●	●
Applicable valve series: VQ 1000							
Applicable valve series: VQ 2000			●				
Applicable valve series: VQ 4000			●				
Applicable valve series: VQ 5000			●				

Fieldbus System Variations

IP20 specification models



Number of valve outputs		16				32	16 (total 64)
Number of inputs		None					16 (total 64)
SI unit series		EX120	EX121	EX122	EX140	EX180	EX510
Open network	PROFINET						
	EtherCAT						
	EtherNet/IP™						
	PROFIBUS DP						●
	DeviceNet™	●	●	●	●	●	●
	CC-Link	●	●	●	●	●	●
	AS-Interface						
	CANopen						
	CompoNet™	●	●	●			
Applicable valve series	SY (Plug-in connector connecting base) 3000	●					
	SY (Plug-in connector connecting base) 5000	●					
	SJ 2000					●	●
	SJ 3000					●	●
	SY (Plug-in metal base) 3000						●
	SY (Plug-in metal base) 5000						●
	S0700 (Bar stock) 0700					●	●
	SY (Bar stock) 3000						●
	SY (Bar stock) 5000						●
	SY (Bar stock) 7000						●
	SY (Stacking base) 3000		●	●			●
	SY (Stacking base) 5000		●	●			●
	SY (Stacking base) 7000						●
	SV 1000	●					
	SV 2000	●					
	SV 3000	●					
	SV 4000	●					
	VQ 1000	●					●
	VQ 2000	●					●
	VQ 4000						
	VQ 5000						
	SQ 1000				●		●
	SQ 2000				●		●
	SZ 3000				●		●
	VQZ 1000						●
	VQZ 2000						●
	VQZ 3000						●
	SYJ 3000						●
	SYJ 5000						●
	SYJ 7000						●

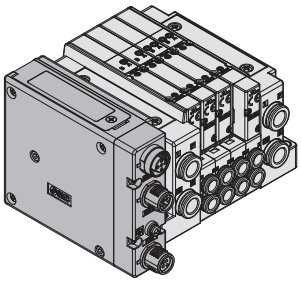
SI Unit Integrated-type/For Output

Series EX260

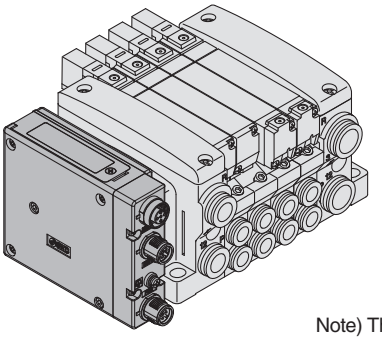
Note)

Compact design	Compact design for space saving
Number of outputs	Each 32/16 digital output type available in the series
Output polarity	Each negative common (PNP) / positive common (NPN) type available in the series
Enclosure	IP67 (For units with D-sub connector, and when connected with S0700 manifolds, it is IP40.)
Internal terminating resistor	ON/OFF switching is possible with an internal terminating resistor for communication. (Only for units compatible with M12 PROFIBUS DP, CC-Link communication connectors)

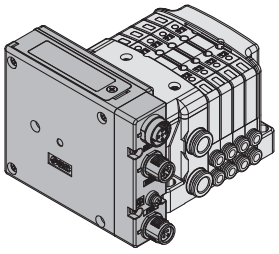
SY3000/5000



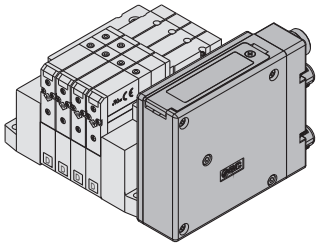
VQC1000/2000/4000



S0700



SV1000/2000/3000



Note) The SY3000/5000, VQC1000/2000/4000, and S0700 are not yet UL-compatible.

How to Order SI Units

EX260 – S PR1

● Communication protocol

Symbol	Protocol	Number of outputs	SI unit output polarity	Communication connector	Manifold symbol
DN1	DeviceNet™	32	Source/PNP (Negative common)	M12	QAN
DN2			Sink/NPN (Positive common)		QA
DN3		16	Source/PNP (Negative common)		QBN
DN4			Sink/NPN (Positive common)		QB
PR1	PROFIBUS DP	32	Source/PNP (Negative common)	M12	NAN
PR2			Sink/NPN (Positive common)		NA
PR3		16	Source/PNP (Negative common)		NBN
PR4			Sink/NPN (Positive common)		NB
PR5		32	Source/PNP (Negative common)	D-sub Note)	NCN
PR6			Sink/NPN (Positive common)		NC
PR7		16	Source/PNP (Negative common)		NDN
PR8			Sink/NPN (Positive common)		ND
MJ1	CC-Link	32	Source/PNP (Negative common)	M12	VAN
MJ2			Sink/NPN (Positive common)		VA
MJ3		16	Source/PNP (Negative common)		VBN
MJ4			Sink/NPN (Positive common)		VB
EC1	EtherCAT	32	Source/PNP (Negative common)	M12	DAN
EC2			Sink/NPN (Positive common)		DA
EC3		16	Source/PNP (Negative common)		DBN
EC4			Sink/NPN (Positive common)		DB
PN1	PROFINET	32	Source/PNP (Negative common)	M12	FAN
PN2			Sink/NPN (Positive common)		FA
PN3		16	Source/PNP (Negative common)		FBN
PN4			Sink/NPN (Positive common)		FB
EN1	EtherNet/IP™	32	Source/PNP (Negative common)	M12	EAN
EN2			Sink/NPN (Positive common)		EA
EN3		16	Source/PNP (Negative common)		EBN
EN4			Sink/NPN (Positive common)		EB

Note) Enclosure is IP40 when the communication connector is D-sub.

SI Unit Specifications

Model		EX260-SPR1/3	EX260-SPR2/4	EX260-SPR5/7	EX260-SPR6/8	EX260-SDN1/3	EX260-SDN2/4	EX260-SMJ1/3	EX260-SMJ2/4
Applicable system	Protocol	PROFIBUS DP				DeviceNet™		CC-Link	
	Version Note 1)	DP-V0				Volume 1(Edition 3.5) Volume 3(Edition 1.5)		Ver.1.10	
	Configuration file Note 3)	GSD file				EDS file		—	
I/O occupation area (Inputs/Outputs)		SPR1: 0/32 SPR3: 0/16	SPR2: 0/32 SPR4: 0/16	SPR5: 0/32 SPR7: 0/16	SPR6: 0/32 SPR8: 0/16	SDN1: 0/32 SDN3: 0/16	SDN2: 0/32 SDN4: 0/16	SMJ1: 32/32 SMJ3: 32/32 (1 station, remote I/O stations)	SMJ2: 32/32 SMJ4: 32/32 (1 station, remote I/O stations)
Communication speed		9.6 k/19.2 k/45.45 k/93.75 k/ 187.5 k/500 k/1.5 M/3 M/6 M/12 Mbps				125 k/250 k/500 kbps		156 k/625 k/ 2.5 M/5 M/10 Mbps	
Power supply for control	Power supply voltage	21.6 to 26.4 VDC				—		21.6 to 26.4 VDC	
	Internal current consumption	100 mA or less				—		100 mA or less	
Power supply for output	Power supply voltage	—		22.8 to 26.4 VDC					
Power supply for communication	Power supply voltage	—				11 to 25 VDC		—	
	Internal current consumption					100 mA or less		—	
Communication connector specification		M12		D-sub		M12			
Terminating resistor switch		Built-in		None				Built-in	
Output	Output type	Source/PNP (Negative common)	Sink/NPN (Positive common)	Source/PNP (Negative common)	Sink/NPN (Positive common)	Source/PNP (Negative common)	Sink/NPN (Positive common)	Source/PNP (Negative common)	Sink/NPN (Positive common)
	Number of outputs	SPR1: 32 points SPR3: 16 points	SPR2: 32 points SPR4: 16 points	SPR5: 32 points SPR7: 16 points	SPR6: 32 points SPR8: 16 points	SDN1: 32 points SDN3: 16 points	SDN2: 32 points SDN4: 16 points	SMJ1: 32 points SMJ3: 16 points	SMJ2: 32 points SMJ4: 16 points
	Load	Solenoid valve with protective circuit for surge voltage of 24 VDC/1.5 W or less (SMC)							
	Supplied voltage	24 VDC							
	Supplied current	SPR1: Max. 2.0 A SPR3: Max. 1.0 A	SPR2: Max. 2.0 A SPR4: Max. 1.0 A	SPR5: Max. 2.0 A SPR7: Max. 1.0 A	SPR6: Max. 2.0 A SPR8: Max. 1.0 A	SDN1: Max. 2.0 A SDN3: Max. 1.0 A	SDN2: Max. 2.0 A SDN4: Max. 1.0 A	SMJ1: Max. 2.0 A SMJ3: Max. 1.0 A	SMJ2: Max. 2.0 A SMJ4: Max. 1.0 A
Environmental resistance	Enclosure	IP67		IP40		IP67			
	Operating temperature range	14 to 122°F (–10 to 50°C)							
	Operating humidity range	35 to 85%RH (No condensation)							
	Withstand voltage	500 VAC for 1 minute between terminals and housing							
	Insulation resistance	10 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing							
Standards		CE marking, UL (CSA) compatible							
Weight		0.44 lbs (200 g)							
Accessories	Mounting screw	2 pcs.							
	Seal cap (for M12 connector socket)	EX9-AWTS (1 pc.)		—		EX9-AWTS (1 pc.)			

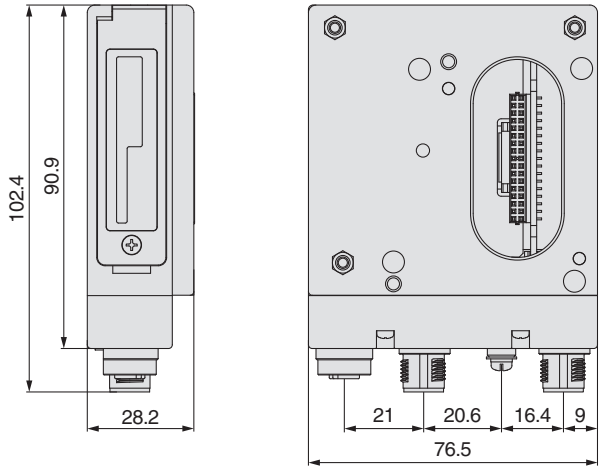
Model		EX260-SEC1/3	EX260-SEC2/4	EX260-SPN1/3	EX260-SPN2/4	EX260-SEN1/3	EX260-SEN2/4
Applicable system	Protocol	EtherCAT Note 2)		PROFINET Note 2)		EtherNet/IP™ Note 2)	
	Version Note 1)	Conformance Test Record V.1.1		PROFINET Specification Version 2.2		Volume 1(Edition 3.8) Volume 2(Edition 1.9)	
	Configuration file Note 3)	XML file		GSD file		EDS file	
I/O occupation area (Inputs/Outputs)		SEC1: 0/32 SEC3: 0/16	SEC2: 0/32 SEC4: 0/16	SPN1: 0/32 SPN3: 0/16	SPN2: 0/32 SPN4: 0/16	SEN1: 16/32 SEN3: 16/16	SEN2: 16/32 SEN4: 16/16
Communication speed		100 Mbps Note 2)				10 M/100 Mbps Note 2)	
Power supply for control	Power supply voltage	21.6 to 26.4 VDC					
	Internal current consumption	100 mA or less					
Power supply for output	Power supply voltage	22.8 to 26.4 VDC					
Power supply for communication	Power supply voltage	—					
	Internal current consumption	—					
Communication connector specification		M12					
Terminating resistor switch		None					
Output	Output type	Source/PNP (Negative common)	Sink/NPN (Positive common)	Source/PNP (Negative common)	Sink/NPN (Positive common)	Source/PNP (Negative common)	Sink/NPN (Positive common)
	Number of outputs	SEC1: 32 points SEC3: 16 points	SEC2: 32 points SEC4: 16 points	SPN1: 32 points SPN3: 16 points	SPN2: 32 points SPN4: 16 points	SEN1: 32 points SEN3: 16 points	SEN2: 32 points SEN4: 16 points
	Load	Solenoid valve with protective circuit for surge voltage of 24 VDC/1.5 W or less (SMC)		Solenoid valve with protective circuit for surge voltage of 24 VDC/1.0 W or less (SMC)		Solenoid valve with protective circuit for surge voltage of 24 VDC/1.5 W or less (SMC)	
	Supplied voltage	24 VDC					
	Supplied voltage	SEC1: Max. 2.0 A SEC3: Max. 1.0 A	SEC2: Max. 2.0 A SEC4: Max. 1.0 A	SPN1: Max. 2.0 A SPN3: Max. 1.0 A	SPN2: Max. 2.0 A SPN4: Max. 1.0 A	SEN1: Max. 2.0 A SEN3: Max. 1.0 A	SEN2: Max. 2.0 A SEN4: Max. 1.0 A
Environmental resistance	Enclosure	IP67					
	Operating temperature range	14 to 12°F (–10 to 50°C)					
	Operating humidity range	35 to 85%RH (No condensation)					
	Withstand voltage	500 VAC for 1 minute between terminals and housing					
	Insulation resistance	10 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing					
Standards		CE marking, UL (CSA) compatible					
Weight		0.44 lbs (200 g)					
Accessories	Mounting screw	2 pcs.					
	Seal cap (for M12 connector socket)	EX9-AWTS (1 pc.)					

Note 1) Please note that the version is subject to change.
Note 2) Use a CAT5 or higher transmission cable for EtherCAT, PROFINET, EtherNet/IP™.
Note 3) Each file can be downloaded from the SMC website, http://www.smcworld.com

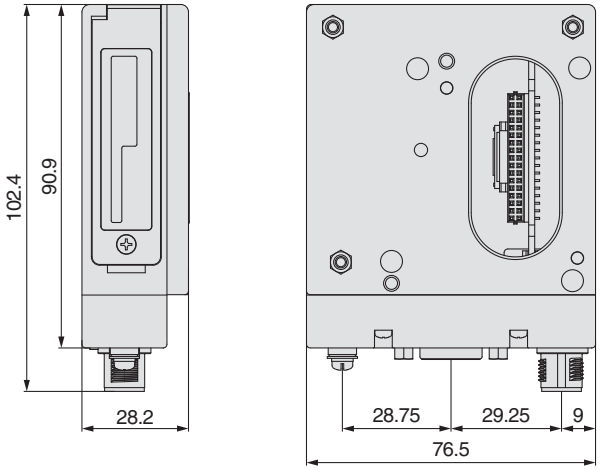
SI Unit Dimensions

(mm)

M12 communication connector type

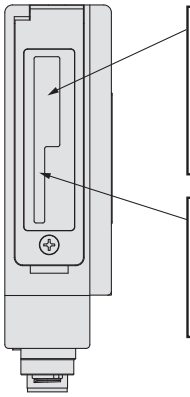


D-sub communication connector type



Functions of SI Unit Parts

<LED indication and setting switch>

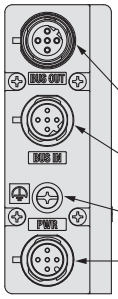


<Setting switch>
- **Address switch**
- **Communication speed switch**
- **Terminating resistor switch**
- **Others**

<LED indication>
- **Communication state**
- **Unit power supply state**
- **Valve power supply state**

Note) The setting switch varies depending on the model.
Refer to the operation manual for details.
Please download it via the SMC website, http://www.smcworld.com

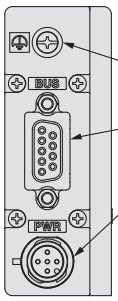
<Connector>
M12 communication connector type



Part no.	EX260-SPR1/-SPR2 -SPR3/-SPR4	EX260-SDN□	EX260-SMJ□	EX260-SEC□ EX260-SPN□ EX260-SEN□
Communication protocol	**PROFIBUS DP**	**DeviceNet™**	**CC-Link**	**EtherCAT PROFINET EtherNet/IP™**
Communication connector (M12) BUS OUT	5 pins, socket, B code	5 pins, socket, A code	5 pins, socket, A code	4 pins, socket, D code
Communication connector (M12) BUS IN	5 pins, plug, B code	5 pins, plug, A code	4 pins, plug, A code	4 pins, socket, D code
Ground terminal	M3			
Power connector (M12)	5 pins, plug, A code	4 pins, plug, A code	5 pins, plug, B code	5 pins[Note1], 4 pins[Note2], plug, A code

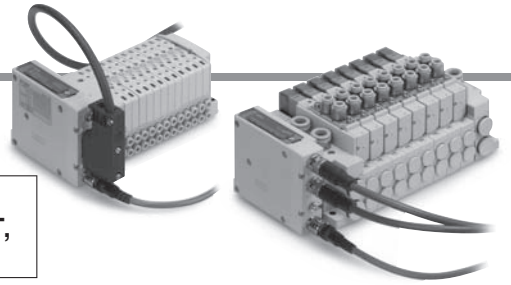
Note 1) For EtherCAT, PROFINET
Note 2) For EtherNet/IP™

D-sub communication connector type



Part no.	EX260-SPR5/-SPR6/-SPR7/-SPR8
Communication protocol	**PROFIBUS DP**
Ground terminal	M3
Communication connector (D-sub) BUS IN/OUT	9 pins, socket
Power connector (M12)	5 pins, plug, A code

Accessories



① Communication cable with connector

For SI units compatible with PROFIBUS DP, DeviceNet™, CC-Link

For SI units compatible with EtherCAT, PROFINET, EtherNet/IP™

Refer to the catalog (CAT. NAS100-73) for details.

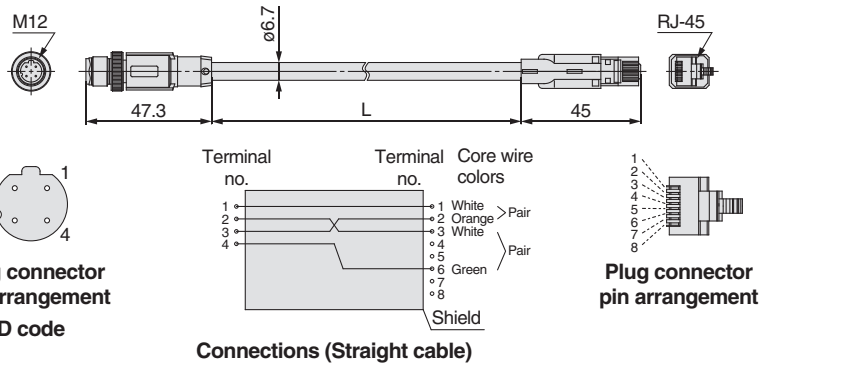
EX9 – AC 020 EN – PSRJ

Cable length (L)

010	1000 [mm]
020	2000 [mm]
030	3000 [mm]
050	5000 [mm]
100	10000 [mm]

Connector specification

PSRJ	M12 plug (straight) ⇔ RJ-45 connector

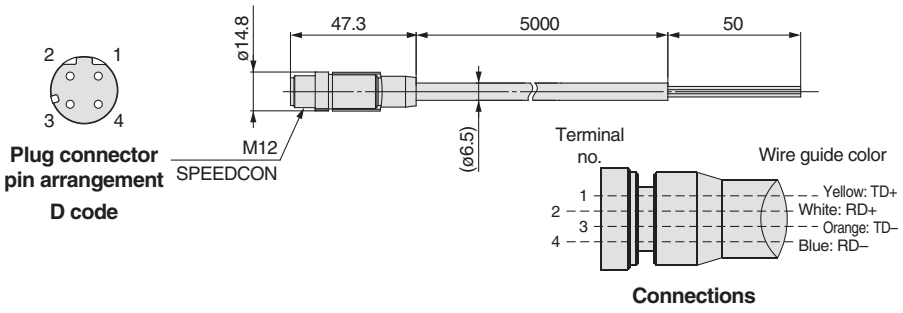


For SI units compatible with EtherCAT, PROFINET, EtherNet/IP™

PCA – 1446566

Cable length

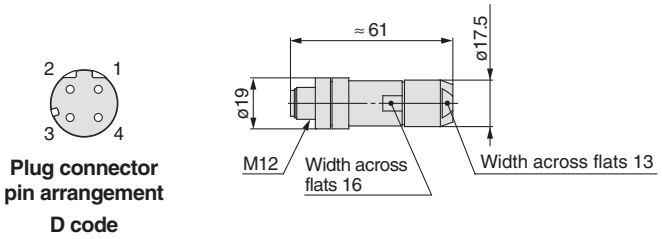
1446566	5000 [mm]



For SI units compatible with EtherCAT, PROFINET, EtherNet/IP™

Fieldwireable connector

PCA – 1446553



Accessories

② Power cable with connector (for SI units)

For SI units compatible with PROFIBUS DP, DeviceNet™, EtherCAT, PROFINET, EtherNet/IP™

EX500 − AP 050 − S

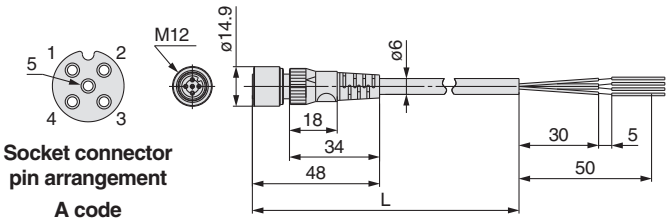
Cable length (L)

010	1000 [mm]
050	5000 [mm]

Connector specification

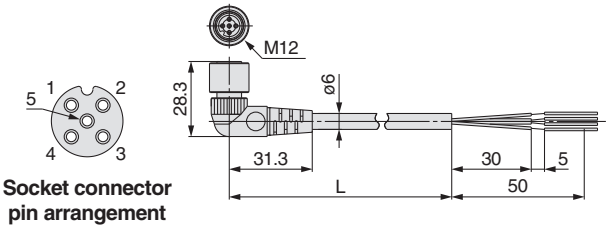
S	Straight
A	Angle

Straight connector type



Socket connector pin arrangement
A code

Angle connector type



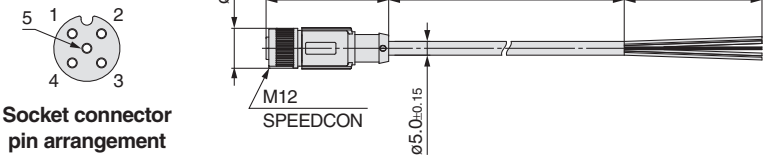
Socket connector pin arrangement
A code

SPEEDCON

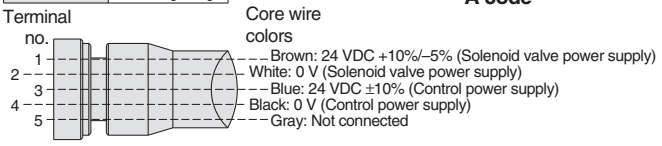
PCA− 1401804

Cable length (L)

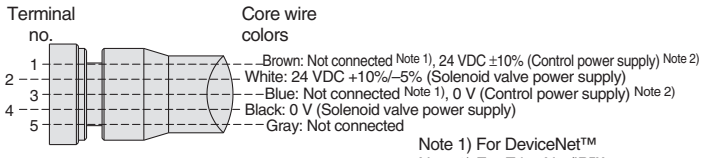
1401804	1500 [mm]
1401805	3000 [mm]
1401806	5000 [mm]



Socket connector pin arrangement
A code



Connections (PROFIBUS DP/EtherCAT)



Connections (DeviceNet™, EtherNet/IP™)

Note 1) For DeviceNet™
Note 2) For EtherNet/IP™

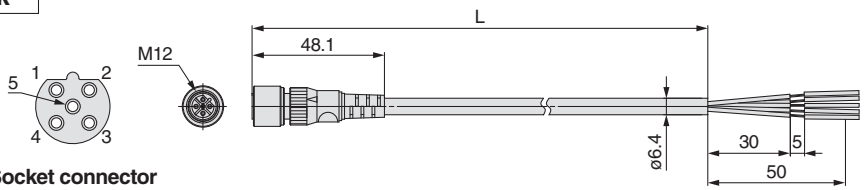
For SI units compatible with CC-Link

Straight connector type

EX9 − AC 050 − 1

Cable length (L)

010	1000 [mm]
030	3000 [mm]
050	5000 [mm]



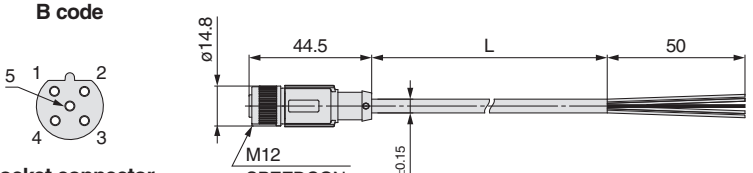
Socket connector pin arrangement
B code

SPEEDCON

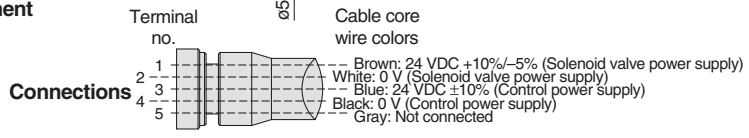
PCA− 1401807

Cable length (L)

1401807	1500 [mm]
1401808	3000 [mm]
1401809	5000 [mm]



Socket connector pin arrangement
B code



Connections

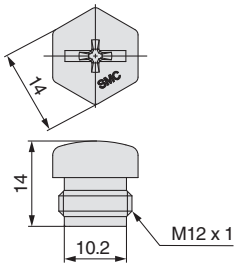
③ Seal cap: For M12 connector socket

Use this on ports that are not being used for communication connector (M12 connector socket).
Use of this seal cap maintains the integrity of the IP67 enclosure.
Note) Tighten the seal cap with the prescribed tightening torque. (For M12: 0.07 lbf·ft (0.1 N·m)

EX9 − AW TS

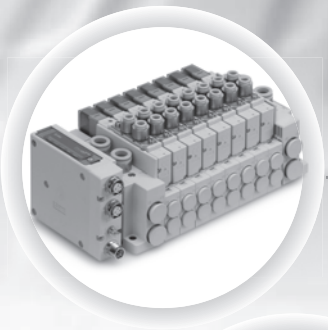
Connector type

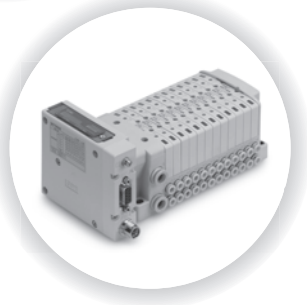
TS	For M12 connector socket (10 pcs.)



For M12 connector socket

Manifold Solenoid Valves for *Series EX260* Integrated-type (For Output) Serial Transmission System





Type 10
Side Ported

Type 11
Bottom Ported

Plug-in Connector Connecting Base: For EX260 Integrated-type (For Output) Serial Transmission System

Series SY3000/5000

CE RoHS

How to Order Manifold

Refer to page 11 for Type 11/Bottom ported dimensions.

SS5Y **3** – **10** **S** **NA** **N** – **05** **U** **[ ]** – **C6** **[ ]**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Series

3	SY3000
5	SY5000

❷ Type

10	Side ported
11	Bottom ported*

* The SY5000 manifold base is used for the bottom ported of the SY3000. When ordering, refer to Plug-in Mixed Type Manifold (from page 17).

❸ SI unit specifications

Symbol	Protocol	Number of outputs	Communication connector
0	Without SI unit		
QA	DeviceNet™	32	M12
QB		16	
NA	PROFIBUS DP	32	M12
NB		16	
NC		32	D-sub Note)
ND		16	
VA	CC-Link	32	M12
VB		16	
DA	EtherCAT	32	M12
DB		16	
FA	PROFINET	32	M12
FB		16	
EA	EtherNet/IP™	32	M12
EB		16	

Note) IP40 for the D-sub applicable communication connector specification.
For SI unit part number, refer to page 1.
DIN rail and SI unit output polarity "N" cannot be selected for the product without SI unit.

❹ SI unit output polarity

Nil	Positive common
N	Negative common

Note 1) Ensure a match with the common specifications of the valve to be used.
Note 2) Without SI unit, the symbol is nil.

❺ Valve stations

In the case of the 32-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout Note 2) (Available up to 32 solenoids)
⋮	⋮	
24	24 stations	

In the case of the 16-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout Note 2) (Available up to 16 solenoids)
⋮	⋮	
16	16 stations	

Note 1) Double wiring: 2-position single, double, 3-position and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
Note 2) Specified layout: Indicate the wiring specifications on the manifold specification sheet.
(Note that 2-position double, 3-position and 4-position valves cannot be used where single wiring has been specified.)
Note 3) Includes the number of blanking plate assemblies.
Note 4) For the model without the SI unit (S0), note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.

❻ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

❼ SUP/EXH block assembly

Nil	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.

❾ Mounting and Option

Symbol	Mounting	Option
Nil	Direct mounting	None
AA		Name plate (With station number)
BA		Name plate (Without station number)
D□	DIN rail mounting	Without name plate
A□		Name plate (With station number)
B□		Name plate (Without station number)

Note 1) Enter the number of stations inside □. (Refer to "DIN Rail Option" below.)
Note 2) Only direct mounting is available for Type 11 (Bottom ported).

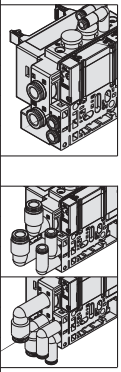
DIN Rail Option

Nil	Direct mounting	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
24	For 24 stations	

* When it is necessary to mount a DIN rail without an SI unit, select D0 and order DIN rail length separately, referring to L3 in the dimensions. Refer to the SY3000/5000 series catalog (CAT. NAS11-103) for part numbers of DIN rail.

❽ A, B port size (Metric)

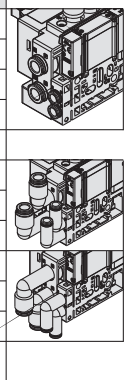
Symbol		A, B port	Type 10/ Side ported SY3000	Type 10/ Side ported SY5000	Type 11/ Bottom ported SY5000
C2	Straight	ø2 One-touch fitting	●	—	—
C3		ø3.2 One-touch fitting	●	—	—
C4		ø4 One-touch fitting	●	—	●
C6		ø6 One-touch fitting	●	●	●
C8		ø8 One-touch fitting	—	●	●
CM*		Straight port, mixed sizes	●	●	●
L4	Elbow Upward	ø4 One-touch fitting	●	●	—
L6		ø6 One-touch fitting	●	●	—
L8		ø8 One-touch fitting	—	●	—
B4	Elbow Downward	ø4 One-touch fitting	●	●	—
B6		ø6 One-touch fitting	●	●	—
B8		ø8 One-touch fitting	—	●	—
LM*		Elbow port, mixed sizes (Including upward and downward piping)	●	●	—
P, E port size (One-touch fittings)			ø8	ø10	ø10



Note) To avoid interference with the body or piping, select downward elbow port when mounting the optional spacer assembly (Refer to the SY3000/ 5000 series catalog (CAT. NAS11-103)).

A, B port size (Inch)

Symbol		A, B port	Type 10/ Side ported SY3000	Type 10/ Side ported SY5000	Type 11/ Bottom ported SY5000
N1	Straight	ø1/8" One-touch fitting	●	—	—
N3		ø5/32" One-touch fitting	●	●	●
N7		ø1/4" One-touch fitting	●	●	●
N9		ø5/16" One-touch fitting	—	●	●
CM*		Straight port, mixed sizes	●	●	●
LN3	Elbow Upward	ø5/32" One-touch fitting	●	—	—
LN7		ø1/4" One-touch fitting	●	●	—
LN9		ø5/16" One-touch fitting	—	●	—
BN3	Elbow Downward	ø5/32" One-touch fitting	●	—	—
BN7		ø1/4" One-touch fitting	●	●	—
BN9		ø5/16" One-touch fitting	—	●	—
LM*		Elbow port, mixed sizes (Including upward and downward piping)	●	●	—
P, E port size (One-touch fittings)			ø5/16"	ø3/8"	ø3/8"

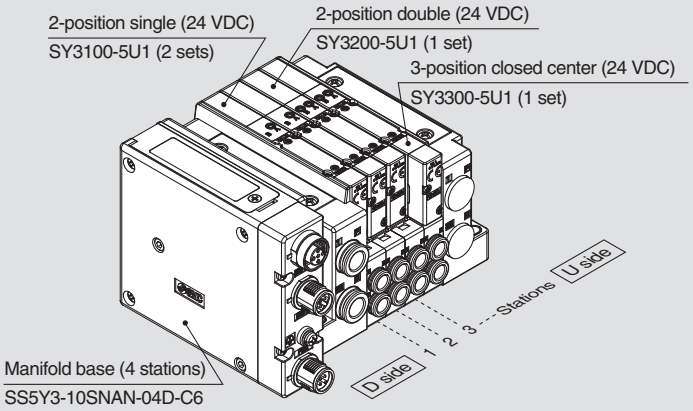


* Indicate the sizes on the manifold specification sheet in the case of "CM", "LM".
* The direction of P, E port fittings is the same as for A, B port. If selecting "LM", indicate it on the manifold specification sheet for the P, E port fitting direction.

SMC

How to Order Manifold Assembly

Example (SS5Y3-10SNAN-□)



SS5Y3-10SNAN-04D-C6 ···1 set (Type 10 4-station manifold base part no.)
∗SY3100-5U1 ·····2 sets (2-position single part no.)
∗SY3200-5U1 ·····1 set (2-position double part no.)
∗SY3300-5U1 ·····1 set (3-position closed center part no.)
∗The asterisk denotes the symbol for assembly.
∗Prefix it to the part nos. of the valve, etc.

- The valve arrangement is numbered as the 1st station from the D side.
- Under the manifold part number, state the valves to be mounted in order from the 1st station as shown in the figure above. If the arrangement becomes complicated, specify on a manifold specification sheet.

Note) When mixing top ported configurations, select from page 13. Specify on a manifold specification sheet if plugs are required on the A and B port on the manifold.

How to Order Valves (With two mounting screws)

Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for details on valve specifications.

SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

● **Base mounted**

❶ Series

3	SY3000
5	SY5000

❷ 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.)

∗ Only rubber seal type is available for the 4-position dual 3-port valve.

❸ Seal type

0	Rubber seal
1	Metal seal

❹ Pilot type

Nil	Internal pilot
R	External pilot

❺ Back pressure check valve (Built-in valve type)

Nil	None
H	Built-in

∗ Only rubber seal type.
Manifold installed type is available if the back pressure check valve is required for a valve with metal seal. Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for details. However, it is not recommended to use the built-in valve type and the manifold installed type at the same time because it will reduce the flow.
∗ The built-in valve type back pressure check valve is not available for the 3-position type.

❻ Pilot valve option

Nil	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)
K∗	High pressure type (1.0 MPa)

∗ Only metal seal type is available for the high pressure type.

❼ Coil type

Nil	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type when a valve is continuously energized for long periods of time.
∗ Note the specified energizing time when power saving circuit is selected.

❽ Rated voltage

5	24 VDC

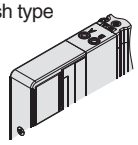
❾ Light/surge voltage suppressor and common specification

R	With surge voltage suppressor (Non-polar)
U	With light/surge voltage suppressor (Non-polar)
S	With surge voltage suppressor (Positive common)
Z	With light/surge voltage suppressor (Positive common)
NS	With surge voltage suppressor (Negative common)
NZ	With light/surge voltage suppressor (Negative common)

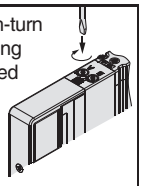
∗ Only "Z" and "NZ" types are available for the product with power saving circuit. Select a valve from R, U, S or Z when the SI unit output polarity is Nil (Positive common). Select a valve from R, U, NS or NZ when the SI unit output polarity is N (Negative common).

❿ Manual override

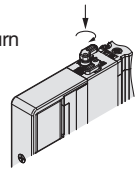
Nil: Non-locking push type



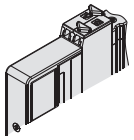
D: Push-turn locking slotted type



E: Push-turn locking manual type



F: Slide locking type



⓫ Type of mounting screw

Nil	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Falling-out-prevention type)
H	Hexagon socket head cap screw (Falling-out-prevention type)

∗ For "K" and "H", the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance etc.
∗ When ordering a valve individually, the base gasket is not included. Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance service. Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for part numbers of the base gasket and mounting screw.
∗ "B" and "H" cannot be selected for the individual SUP/EXH spacer assembly or double check spacer assembly with residual pressure release valve.

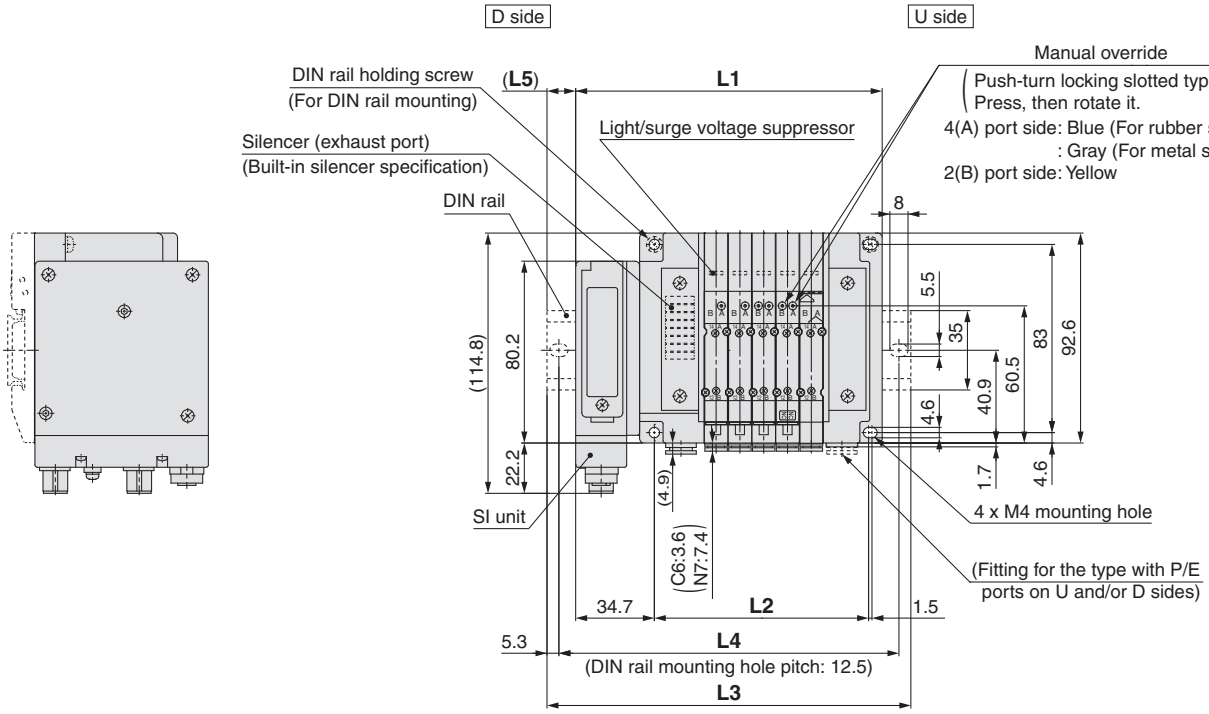
Refer to the SMC website or the SY3000/5000 series catalog (CAT.NAS11-103) for details on solenoid valve specifications, Common Precautions and Specific Product Precautions.

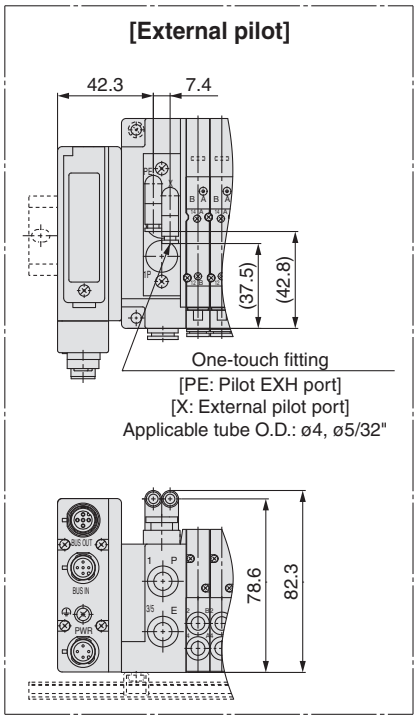
⚠ Protective class class Ⅲ(Mark: ⏚)

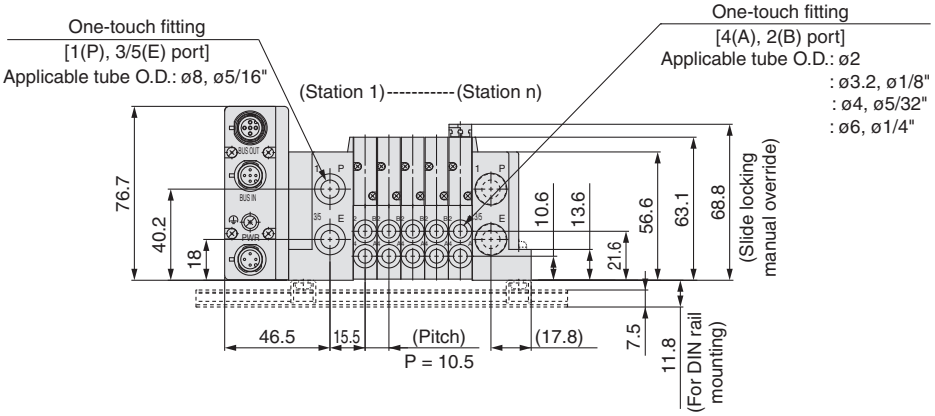
Dimensions: Type 10/For EX260/Series SY3000

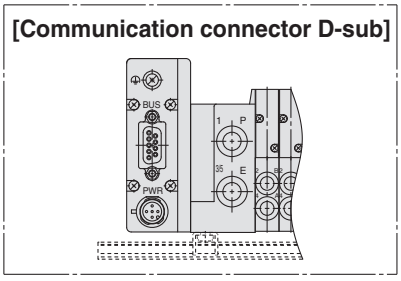
(mm)

SS5Y3-10S□□- Stations U/D/B (S, R) - C2/C3, N1/C4, N3/C6, N7 (D)









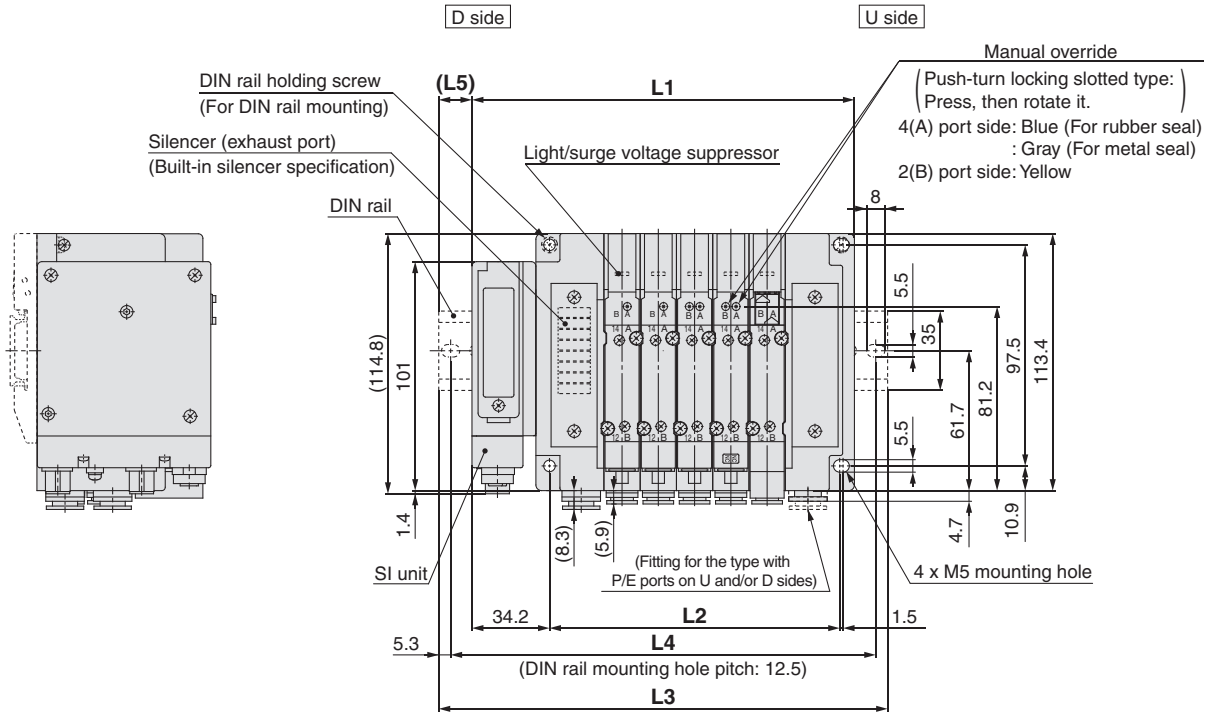
Note) These figures show the “SS5Y3-10SQA-05D-C6”.

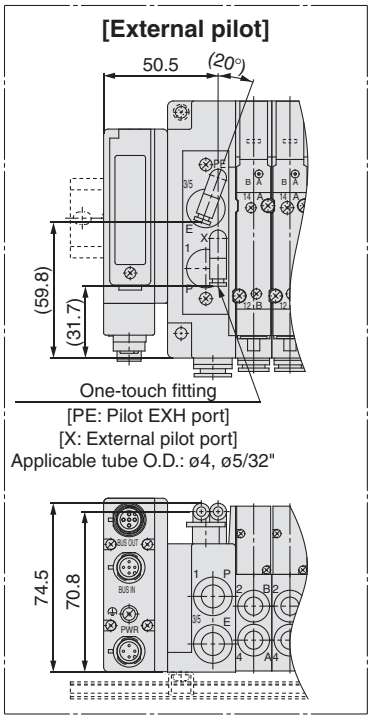
n: stations	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	103.7	114.2	124.7	135.2	145.7	156.2	166.7	177.2	187.7	198.2	208.7	219.2	229.7	240.2	250.7	261.2	271.7	282.2	292.7	303.2	313.7	324.2	334.7
L2	63	73.5	84	94.5	105	115.5	126	136.5	147	157.5	168	178.5	189	199.5	210	220.5	231	241.5	252	262.5	273	283.5	294
L3	135.5	148	148	160.5	173	185.5	198	210.5	223	223	235.5	248	260.5	273	285.5	285.5	298	310.5	323	335.5	348	348	360.5
L4	125	137.5	137.5	150	162.5	175	187.5	200	212.5	212.5	225	237.5	250	262.5	275	275	287.5	300	312.5	325	337.5	337.5	350
L5	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	16	17	12	13

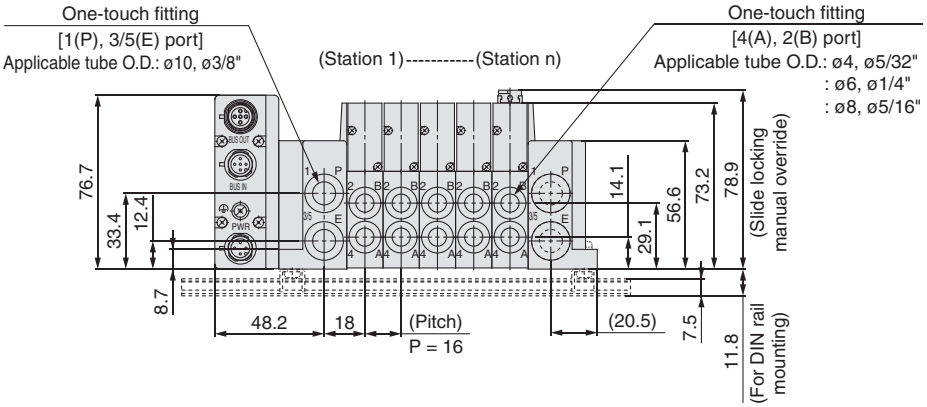
Dimensions: Type 10/For EX260/Series SY5000

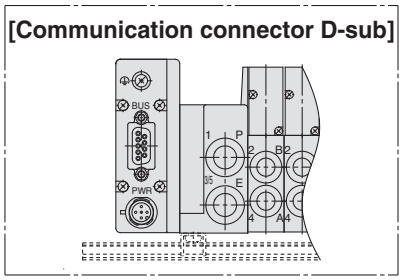
(mm)

SS5Y5-10S□□-Stations U/D/B (S, R) - C4, N3 / C6, N7 / C8, N9 (D)









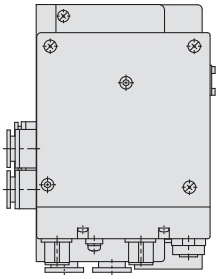
Note) These figures show the "SS5Y5-10SQA-05D-C8".

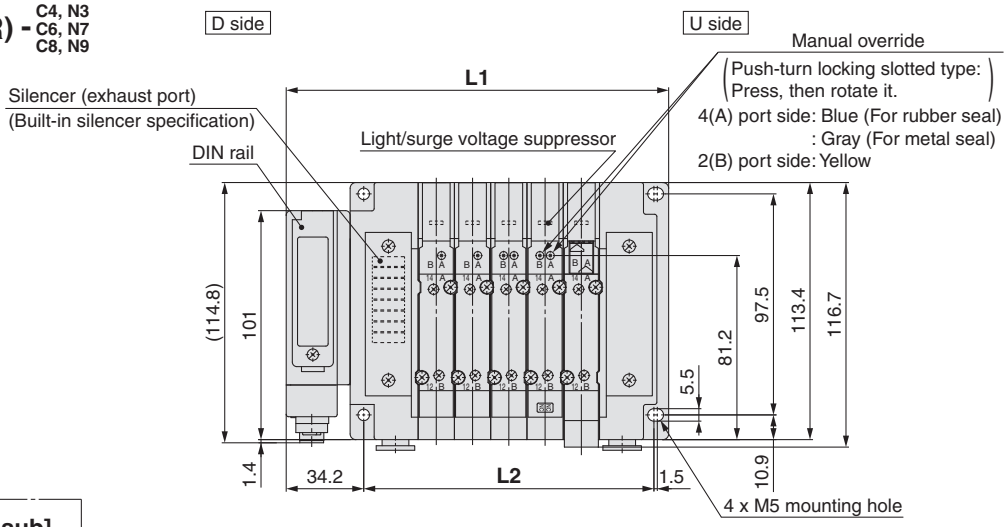
n: Station	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	120.7	136.7	152.7	168.7	184.7	200.7	216.7	232.7	248.7	264.7	280.7	296.7	312.7	328.7	344.7	360.7	376.7	392.7	408.7	424.7	440.7	456.7	472.7
L2	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320	336	352	368	384	400	416	432
L3	148	160.5	185.5	198	210.5	235.5	248	260.5	273	298	310.5	323	348	360.5	373	385.5	410.5	423	435.5	448	473	485.5	498
L4	137.5	150	175	187.5	200	225	237.5	250	262.5	287.5	300	312.5	337.5	350	362.5	375	400	412.5	425	437.5	462.5	475	487.5
L5	13.5	12	16.5	14.5	13	17.5	15.5	14	12	16.5	15	13	17.5	16	14	12.5	17	15	13.5	11.5	16	14.5	12.5

Dimensions: Type 11/For EX260/Series SY5000

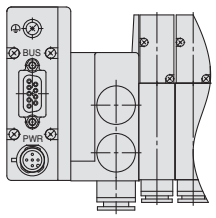
(mm)

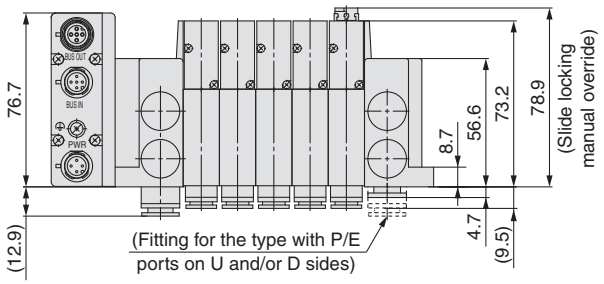
SS5Y5-11S□□-Stations U/D/B (S, R) - C4, N3 / C6, N7 / C8, N9



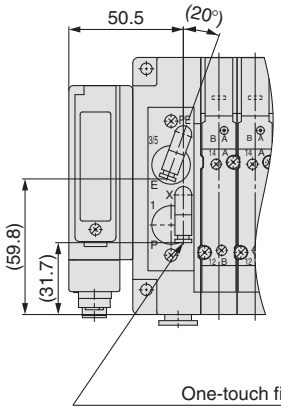


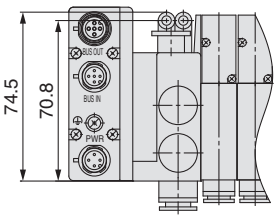
[Communication connector D-sub]

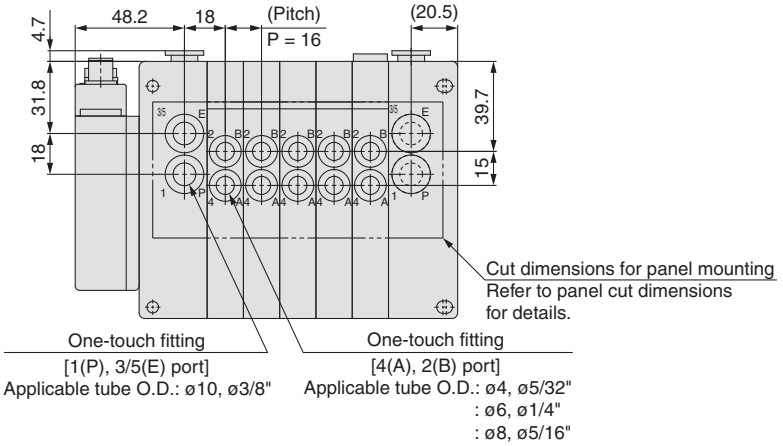




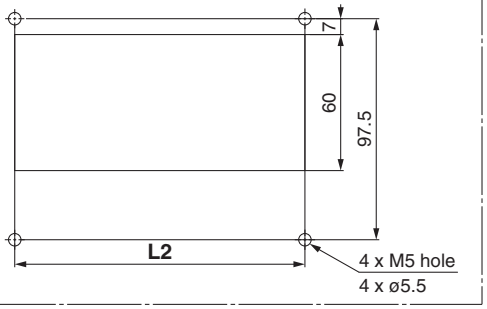
[External pilot]







Panel cut dimensions



Note) These figures show the "SS5Y5-11SQA-05D-C8".

n: Stations	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	120.7	136.7	152.7	168.7	184.7	200.7	216.7	232.7	248.7	264.7	280.7	296.7	312.7	328.7	344.7	360.7	376.7	392.7	408.7	424.7	440.7	456.7	472.7
L2	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320	336	352	368	384	400	416	432

Type 12
Top Ported

Plug-in Connector Connecting Base: For EX260 Integrated-type (For Output) Serial Transmission System

Series SY3000/5000

CE RoHS

How to Order Manifold

Refer to pages 15, 16 for Type 12/Top ported dimensions.

SS5Y 3 – 12S NA N – 05 U □ – □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

3	SY3000
5	SY5000

❷ SI unit specifications

Symbol	Protocol	Number of outputs	Communication connector
0	Without SI unit		
QA	DeviceNet™	32	M12
QB		16	
NA	PROFIBUS DP	32	M12
NB		16	
NC		32	D-sub Note)
ND		16	
VA	CC-Link	32	M12
VB		16	
DA	EtherCAT	32	M12
DB		16	
FA	PROFINET	32	M12
FB		16	
EA	EtherNet/IP™	32	M12
EB		16	

Note) IP40 for the D-sub applicable communication connector specification.
For SI unit part number, refer to page 1.
DIN rail and SI unit output polarity "N" cannot be selected for the product without SI unit.

❸ SI unit output polarity

Nil	Positive common
N	Negative common

Note 1) Ensure a match with the common specifications of the valve to be used.
Note 2) Without SI unit, the symbol is nil.

❹ Valve stations

In the case of the 32-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout Note 2) (Available up to 32 solenoids)
⋮	⋮	
24	24 stations	

In the case of the 16-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout Note 2) (Available up to 16 solenoids)
⋮	⋮	
16	16 stations	

Note 1) Double wiring: 2-position single, double, 3-position and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
Note 2) Specified layout: Indicate the wiring specifications on the manifold specification sheet.
(Note that 2-position double, 3-position and 4-position valves cannot be used where single wiring has been specified.)
Note 3) Includes the number of blanking plate assemblies.
Note 4) For the model without the SI unit (S0), note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.

❺ P, E port entry

U Note)	U side (2 to 10 stations)
D Note)	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

Note) ❻ For type "S", supply/exhaust block assembly with built-in silencer, choose U or D for P port entry.

❻ SUP/EXH block assembly

Nil	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

∗ For built-in silencer type, P and E ports are available on U and D sides. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of P, E port entry. (Example: When the P, E port entry is D side, the silencer exhaust port is U side.)
∗ When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.

❼ P, E port size (One-touch fittings)

Symbol	SY3000	SY5000
Nil	ø8	ø10
N	ø5/16"	ø3/8"

∗ For N, sizes are in inches.

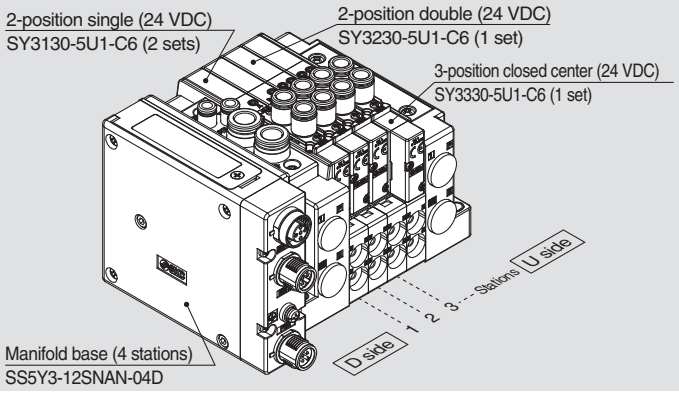
❽ Mounting

Nil	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a longer rail than the standard length.
⋮	⋮	
D24	For 24 stations	

∗ When it is necessary to mount a DIN rail without an SI unit, select D0 and order DIN rail length separately, referring to L3 in the dimensions. Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for part numbers of DIN rail.

How to Order Manifold Assembly

Example (SS5Y3-12SNAN-□)



SS5Y3-12SNAN-04D ····· **1 set (Type 12 4-station manifold base part no.)**
***SY3130-5U1-C6** ····· **2 sets (2-position single part no.)**
***SY3230-5U1-C6** ····· **1 set (2-position double part no.)**
***SY3330-5U1-C6** ····· **1 set (3-position closed center part no.)**
*** The asterisk denotes the symbol for assembly.**
*** Prefix it to the part nos. of the valve, etc.**

- The valve arrangement is numbered as the 1st station from the D side.
- Under the manifold part number, state the valves to be mounted in order from the 1st station as shown in the figure above. If the arrangement becomes complicated, specify on a manifold specification sheet.

How to Order Valves (With two mounting screws)

Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for details on valve specifications.

SY 3 1 3 0 ❶ ❷ ❸ ❹ ❺ ❻ ❼ – 5 ❽ ❾ ❿ 1 – C6 ⓫ ⓬ – ⓭

• Top ported

❶ Series

3	SY3000
5	SY5000

❷ 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.)

* Only rubber seal type is available for the 4-position dual 3-port valve.

❸ Seal type

0	Rubber seal
1	Metal seal

❹ Pilot type

Nil	Internal pilot
R	External pilot

❺ Back pressure check valve (Built-in valve type)

Nil	None
H	Built-in

* Only rubber seal type.
  Manifold installed type is available if the back pressure check valve is required for a valve with metal seal. Refer to the SY3000/5000 series catalog (CAT. NAS11-103) for details. However, it is not recommended to use the built-in valve type and the manifold installed type at the same time because it will reduce the flow.
* The built-in valve type back pressure check valve is not available for the 3-position type.

Refer to the SMC website or the SY3000/5000 series catalog (CAT.NAS11-103) for details on solenoid valve specifications, Common Precautions and Specific Product Precautions.

❻ Pilot valve option

Nil	Standard (101 psi (0.7 MPa))
B	Quick response type (101 psi (0.7 MPa))
K*	High pressure type (145psi (1.0 MPa))

* Only metal seal type is available for the high pressure type.

❼ Coil type

Nil	Standard
T	With power saving circuit (Continuous duty type)

* Be sure to select the power saving circuit type when a valve is continuously energized for long periods of time.
* Note the specified energizing time when power saving circuit is selected.

❽ Rated voltage

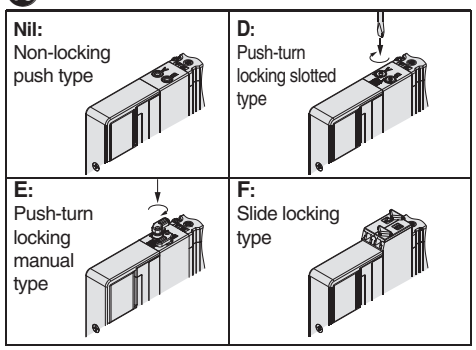
5	24 VDC

❾ Light/surge voltage suppressor and common specification

R	With surge voltage suppressor (Non-polar)
U	With light/surge voltage suppressor (Non-polar)
S	With surge voltage suppressor (Positive common)
Z	With light/surge voltage suppressor (Positive common)
NS	With surge voltage suppressor (Negative common)
NZ	With light/surge voltage suppressor (Negative common)

* Only "Z" and "NZ" types are available for the product with power saving circuit. Select a valve from R, U, S or Z when the SI unit output polarity is Nil (Positive common). Select a valve from R, U, NS or NZ when the SI unit output polarity is N (Negative common).

❿ Manual override



⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000

One-touch fitting (Metric)

Symbol	A and B port	SY3000	SY5000
C2	ø2 One-touch fitting	●	—
C3	ø3.2 One-touch fitting	●	—
C4	ø4 One-touch fitting	●	●
C6	ø6 One-touch fitting	●	●
C8	ø8 One-touch fitting	—	●

One-touch fitting (Inch)

Symbol	A and B port	SY3000	SY5000
N1	ø1/8" One-touch fitting	●	—
N3	ø5/32" One-touch fitting	●	●
N7	ø1/4" One-touch fitting	●	●
N9	ø5/16" One-touch fitting	—	●

⓬ Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

* Only Nil is available for M5.

⓭ Type of mounting screw

Nil	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw(Falling-out-prevention type)
H	Hexagon socket head cap screw(Falling-out-prevention type)

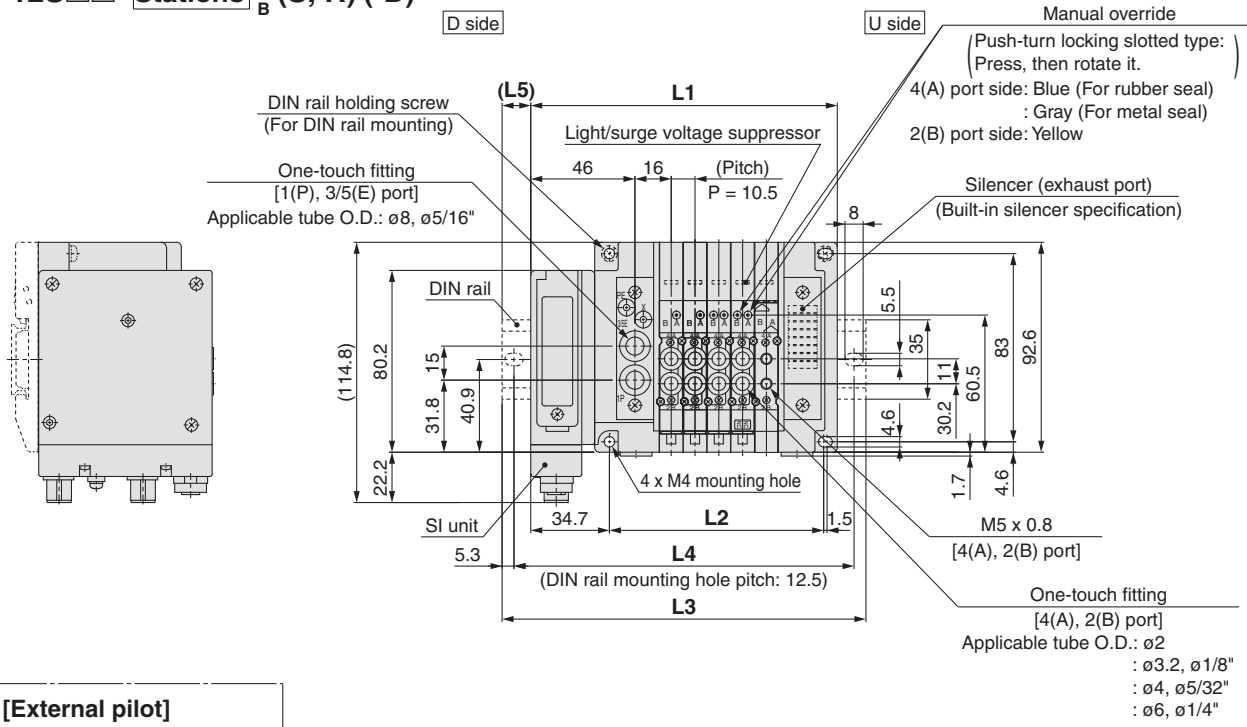
* For "K" and "H", the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance etc.
* When ordering a valve individually, the base gasket is not included. Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance service. Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for part numbers of the base gasket and mounting screw.
* "B" and "H" cannot be selected for the individual SUP/EXH spacer assembly.

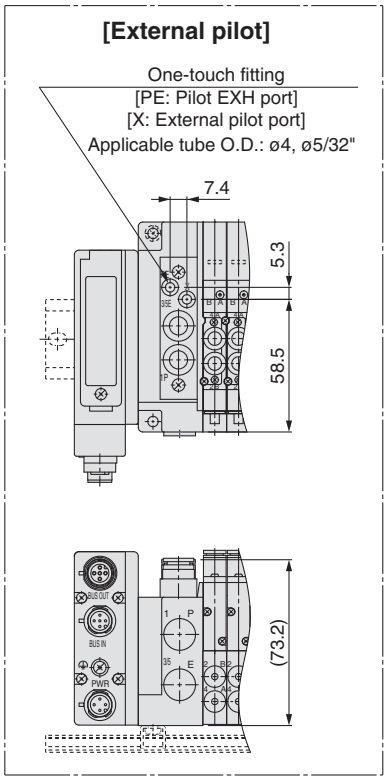
⚠ Protective class class Ⅲ(Mark: ⧼Ⅲ⧽)

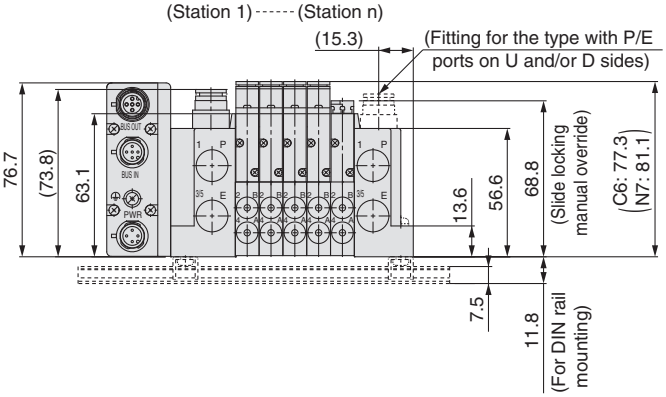
Dimensions: Type 12/For EX260/Series SY3000

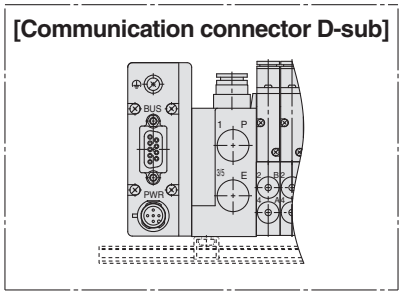
(mm)

SS5Y3-12S□□- Stations U/D/B (S, R) (-D)









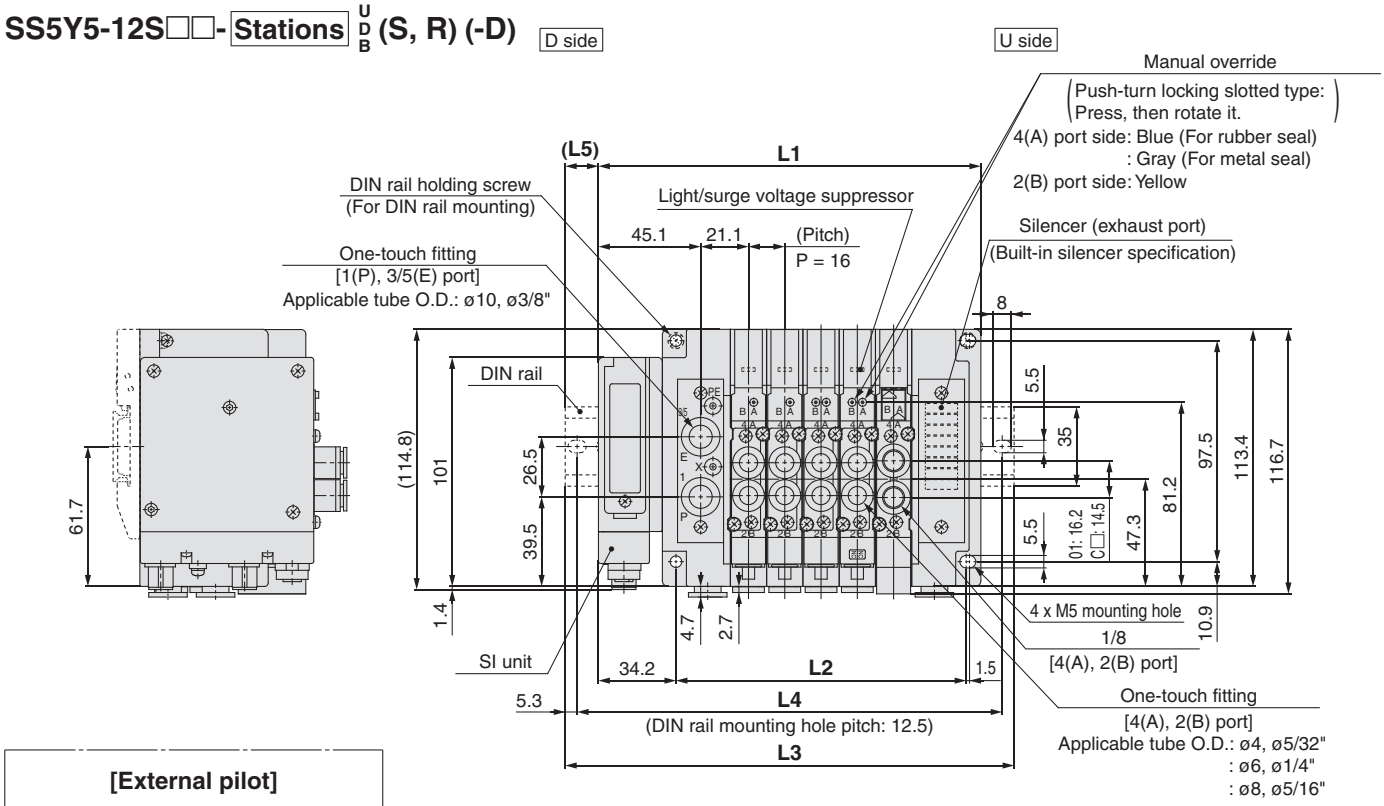
Note 1) These figures show the "SS5Y3-12SQA-05D".
Note 2) For built-in silencer type, a silencer is mounted on the opposite side of U or D side with P or E port.

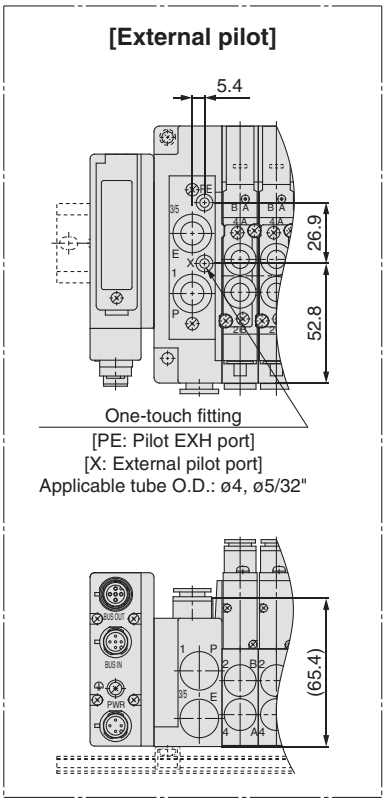
n:Stations	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	103.7	114.2	124.7	135.2	145.7	156.2	166.7	177.2	187.7	198.2	208.7	219.2	229.7	240.2	250.7	261.2	271.7	282.2	292.7	303.2	313.7	324.2	334.7
L2	63	73.5	84	94.5	105	115.5	126	136.5	147	157.5	168	178.5	189	199.5	210	220.5	231	241.5	252	262.5	273	283.5	294
L3	135.5	148	148	160.5	173	185.5	198	210.5	223	223	235.5	248	260.5	273	285.5	285.5	298	310.5	323	335.5	348	348	360.5
L4	125	137.5	137.5	150	162.5	175	187.5	200	212.5	212.5	225	237.5	250	262.5	275	275	287.5	300	312.5	325	337.5	337.5	350
L5	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	16	17	12	13

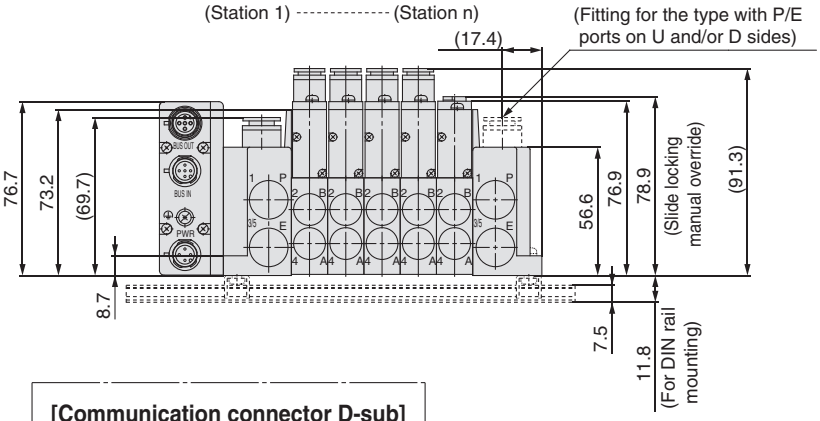
Dimensions: Type 12/For EX260/Series SY5000

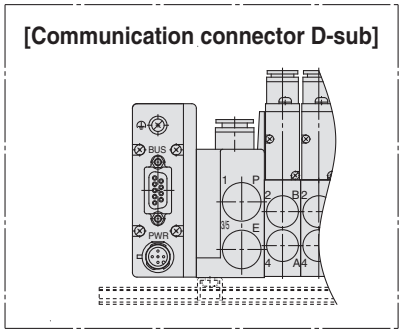
(mm)

SS5Y5-12S□□-Stations $\frac{U}{D}_{B}$ (S, R) (-D)









Note 1) These figures show the "SS5Y5-12SQA-05D".
Note 2) For built-in silencer type, a silencer is mounted on the opposite side of U or D side with P or E port.

n:Stations	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	120.7	136.7	152.7	168.7	184.7	200.7	216.7	232.7	248.7	264.7	280.7	296.7	312.7	328.7	344.7	360.7	376.7	392.7	408.7	424.7	440.7	456.7	472.7
L2	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320	336	352	368	384	400	416	432
L3	148	160.5	185.5	198	210.5	235.5	248	260.5	273	298	310.5	323	348	360.5	373	385.5	410.5	423	435.5	448	473	485.5	498
L4	137.5	150	175	187.5	200	225	237.5	250	262.5	287.5	300	312.5	337.5	350	362.5	375	400	412.5	425	437.5	462.5	475	487.5
L5	13.5	12	16.5	14.5	13	17.5	15.5	14	12	16.5	15	13	17.5	16	14	12.5	17	15	13.5	11.5	16	14.5	12.5

Type 10
Side Ported

Type 11
Bottom Ported

Plug-in Connector Connecting Base: Plug-in Mixed Mounting Type Manifold For EX260 Integrated-type (For Output) Serial Transmission System

Series SY3000/5000

CE RoHS

SY3000 can be mounted onto SY5000 size manifold.

How to Order Manifold

Refer to page 20 for Type 11/ Bottom ported dimensions.

SS5Y5 − M 10 S NA N − 05 U □ − C 8 6 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

Mixed Mounting Type

It is possible to mount SY3000 size valves on all stations. In this case, there is no need to fill in part ❽ in the order code. However, the manifold block width should be 12.5 mm.

❶ Type

10	Side ported
11	Bottom ported

❷ SI unit specifications

Symbol	Protocol	Number of outputs	Communication connector
0	Without SI unit		
QA	DeviceNet™	32	M12
QB		16	
NA	PROFIBUS DP	32	M12
NB		16	
NC		32	D-sub Note)
ND		16	
VA	CC-Link	32	M12
VB		16	
DA	EtherCAT	32	M12
DB		16	
FA	PROFINET	32	M12
FB		16	
EA	EtherNet/IP™	32	M12
EB		16	

Note) IP40 for the D-sub applicable communication connector specification. For SI unit part number, refer to page 1. DIN rail and SI unit output polarity "N" cannot be selected for the product without SI unit.

❸ SI unit output polarity

Nil	Positive common
N	Negative common

Note 1) Ensure a match with the common specifications of the valve to be used.
Note 2) Without SI unit, the symbol is nil.

❹ Valve stations

In the case of the 32-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout Note 2) (Available up to 32 solenoids)
⋮	⋮	
24	24 stations	

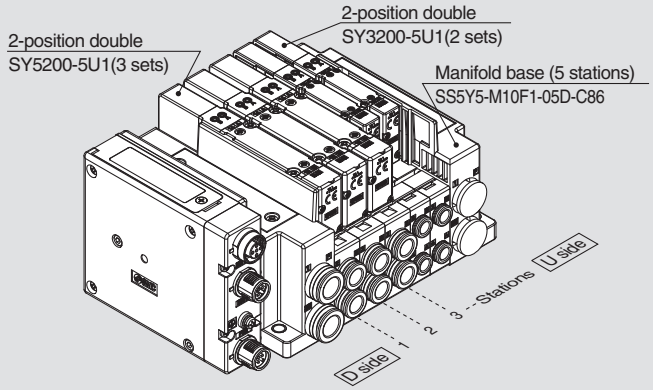
In the case of the 16-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout Note 2) (Available up to 16 solenoids)
⋮	⋮	
16	16 stations	

Note 1) Double wiring: 2-position single, double, 3-position and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
Note 2) Specified layout: Indicate the wiring specifications on the manifold specification sheet.
(Note that 2-position double, 3-position and 4-position valves cannot be used where single wiring has been specified.)
Note 3) Includes the number of blanking plate assemblies.
Note 4) For the model without the SI unit (S0), note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.

How to Order Manifold Assembly

Example (SS5Y5-M10SNAN-□)



SS5Y5-M10F1-05D-C86 ···1 set (Type 10 5-station manifold base part no.)
∗**SY5200-5U1** ·····3 sets (2-position double part no.)
∗**SY3200-5U1** ·····2 sets (2-position double part no.)
→∗The asterisk denotes the symbol for assembly.
∗Prefix it to the part nos. of the valve, etc.

- The valve arrangement is numbered as the 1st station from the D side.
- Under the manifold part number, state the valves to be mounted in order from the 1st station as shown in the figure above.
If the arrangement becomes complicated, then indicate on the manifold specification sheet.

Note) When mounting top ported valves, select from page 21. In this case, use caution as there is also output on the A and B port on base side.
Specify on a manifold specification sheet if plugs are required on the A and B port on base side.

❺ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

❻ SUP/EXH block assembly

Nil	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

∗ 3/5(E) port is plugged for the built-in silencer type.
∗ When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.

Refer to the page on the right for ❼, ❽, ❾

❿ Mounting and Option

Symbol	Mounting	Option
Nil	Direct mounting	None
AA		Name plate (With station number)
BA		Name plate (Without station number)
D□	DIN rail mounting	Without name plate
A□		Name plate (With station number)
B□		Name plate (Without station number)

Note 1) Enter the number of stations inside □.
(Refer to "DIN Rail Option" below.)
Note 2) Only direct mounting is available for Type 11 (Bottom ported).

DIN Rail Option

Nil	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations. [The SY5000 valve is now at a mountable length (manifold block length of 16 mm).]
⋮	⋮	
24	For 24 stations	

∗ When it is necessary to mount a DIN rail without an SI unit, select D0 and calculate DIN rail length, referring to L3 in the dimensions on page 19.

❼ Fitting type

Symbol	A, B port
C	Metric size: Straight one-touch fitting
L	Metric size: Elbow one-touch fitting for upward Note)
B	Metric size: Elbow one-touch fitting for downward Note)
N	Inch size: Straight one-touch fitting
LN	Inch size: Elbow one-touch fitting for upward Note)
BN	Inch size: Elbow one-touch fitting for downward Note)
CM*	Straight port, mixed sizes
LM*	Elbow port, mixed sizes (Including upward and downward piping) Note)

Note) To avoid interference with the body or piping, select downward elbow port when mounting the optional spacer assembly.

∗ Indicate the sizes on the manifold specification sheet in the case of "CM", "LM".

∗ The direction of P, E port fittings is the same as for A,B port.
If selecting "LM", indicate it on the manifold specification sheet for the P, E port fitting direction.

∗ Elbow fittings: ø2, ø3.2 and ø1.8" are not available for the SY3000 series. ø2, ø3.2, ø1.8" and ø5/32" are not available for the SY5000 series.

❽ SY5000: A, B port size

(Metric)

Symbol	Port size
4	ø4 One-touch fitting
6	ø6 One-touch fitting
8	ø8 One-touch fitting
Nil	For all stations of SY3000

(Inch)

Symbol	Port size
3	ø5/32" One-touch fitting
7	ø1/4" One-touch fitting
9	ø5/16" One-touch fitting
Nil	For all stations of SY3000

∗ No symbol needs to be specified when fitting type "CM", "LM" is selected.

❾ SY3000: A, B port size

(Metric)

Symbol	Port size
2	ø2 One-touch fitting
3	ø3.2 One-touch fitting
4	ø4 One-touch fitting
6	ø6 One-touch fitting

(Inch)

Symbol	Port size
1	ø1/8" One-touch fitting
3	ø5/32" One-touch fitting
7	ø1/4" One-touch fitting

∗ No symbol needs to be specified when fitting type "CM", "LM" is selected.

How to Order Valves (With two mounting screws)

Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for details on valve specifications.

SY [3][1][0][0][ ][ ][ ][ ] – [5][ ][ ] **1** – [ ]

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	SY3000
5	SY5000

❷ 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.)

∗ Only rubber seal type is available for the 4-position dual 3-port valve.

❸ Seal type

0	Rubber seal
1	Metal seal

❹ Pilot type

Nil	Internal pilot
R	External pilot

❺ Back pressure check valve (Built-in valve type)

Nil	None
H	Built-in

∗ Only rubber seal type.
Manifold installed type is available if the back pressure check valve is required for a valve with metal seal. Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for details. However, it is not recommended to use the built-in valve type and the manifold installed type at the same time because it will reduce the flow.

∗ The built-in valve type back pressure check valve is not available for the 3-position type.

❻ Pilot valve option

Nil	Standard (101 psi (0.7 MPa))
B	Quick response type (101 psi (0.7 MPa))
K*	High pressure type (145 psi (1.0 MPa))

∗ Only metal seal type is available for the high pressure type.

❼ Coil type

Nil	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type when a valve is continuously energized for long periods of time.

∗ Note the specified energizing time when power saving circuit is selected.

❽ Rated voltage

5	24 VDC

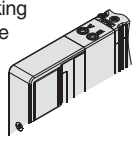
❾ Light/surge voltage suppressor and common specification

Nil	Without light/surge voltage suppressor (Non-polar)
R	With surge voltage suppressor (Non-polar)
U	With light/surge voltage suppressor (Non-polar)
S	With surge voltage suppressor (Positive common)
Z	With light/surge voltage suppressor (Positive common)
NS	With surge voltage suppressor (Negative common)
NZ	With light/surge voltage suppressor (Negative common)

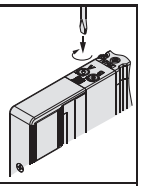
∗ Only "Z" and "NZ" types are available for the product with power saving circuit. Select a valve from R, U, S or Z when the SI unit output polarity is Nil (Positive common).
Select a valve from R, U, NS or NZ when the SI unit output polarity is N (Negative common).

❿ Manual override

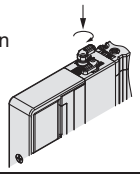
Nil: Non-locking push type



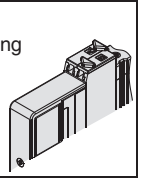
D: Push-turn locking slotted type



E: Push-turn locking manual type



F: Slide locking type



⓫ Type of mounting screw

Nil	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Falling-out-prevention type)
H	Hexagon socket head cap screw (Falling-out-prevention type)

∗ For "K" and "H", the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance etc.

∗ When ordering a valve individually, the base gasket is not included. Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance service.
Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for part numbers of the base gasket and mounting screw.

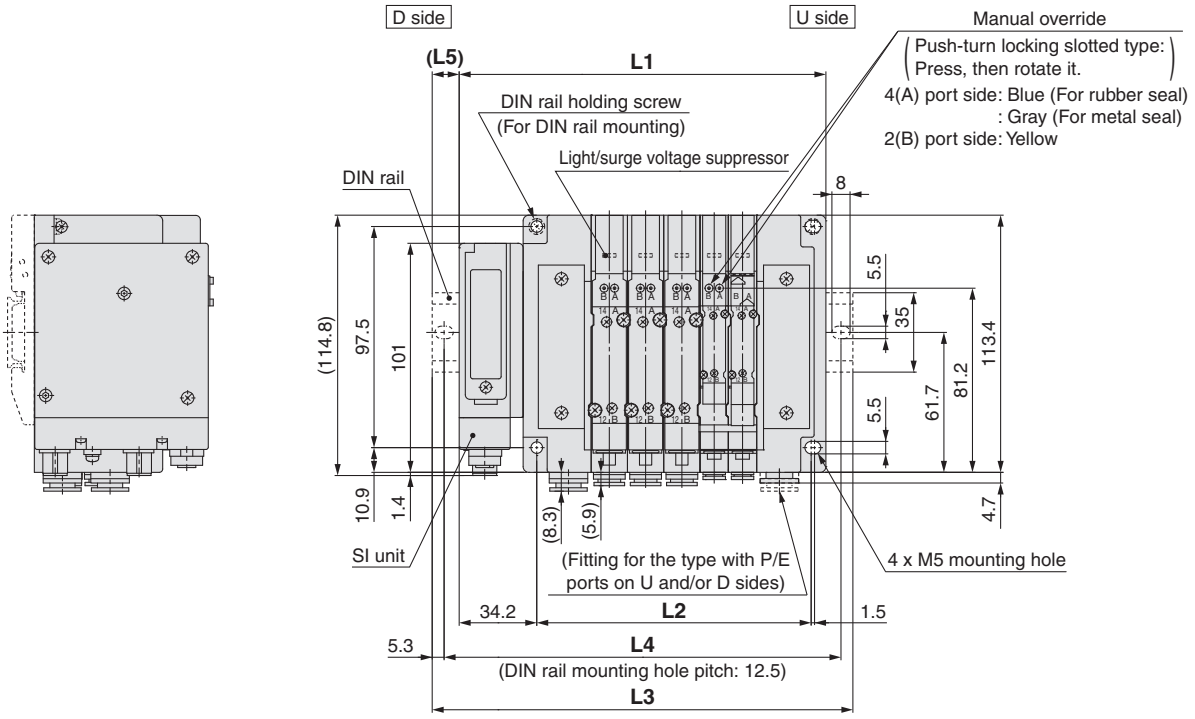
∗ "B" and "H" cannot be selected for the individual SUP/EXH spacer assembly or double check spacer assembly with residual pressure release valve.

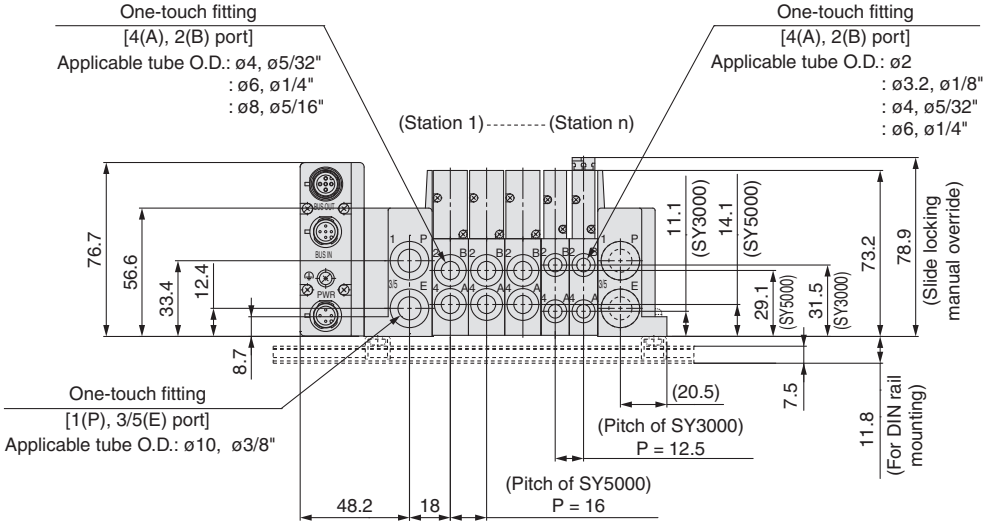
Refer to the SMC website or the SY3000/5000 series catalog (CAT.NAS11-103) for details on solenoid valve specifications, Common Precautions and Specific Product Precautions.

Dimensions: Type 10/For EX260/Mixed Mounting Type

(mm)

SS5Y5-M10S□□-Stations U/D/B (-D)





Note 1) These figures show the "SS5Y5-M10SQA-05D-C86".
Note 2) Refer to page 10 for dimensions of D-sub communication connector, external pilot and built-in silencer.

EX260 Serial transmission Calculation of dimensions

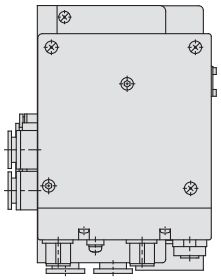
L1 = 12.5 x n1 + 16 x n2 + 88.7
L2 = 12.5 x n1 + 16 x n2 + 48
M = L1/12.5 + 1 Remove all numbers after the decimal
L3 = 12.5 x M + 23
L4 = L3 – 10.5
L5 = (L3 – L1)/2

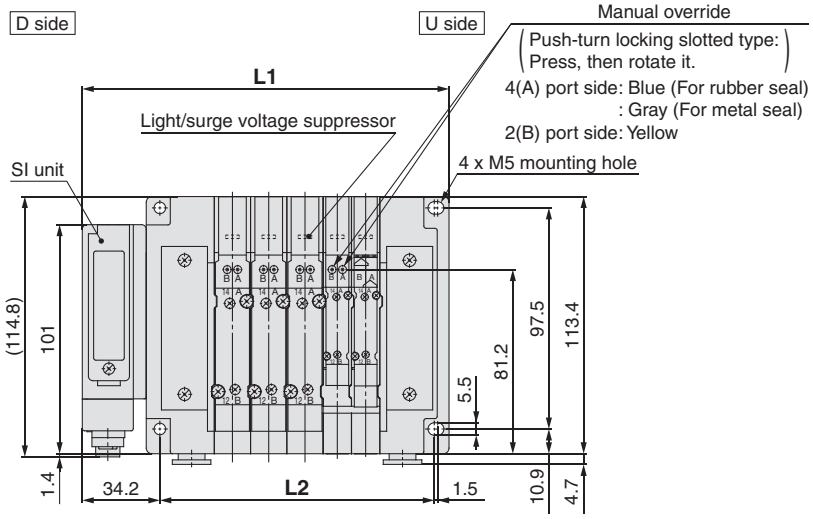
n1: SY3000 Valve stations
n2: SY5000 Valve stations

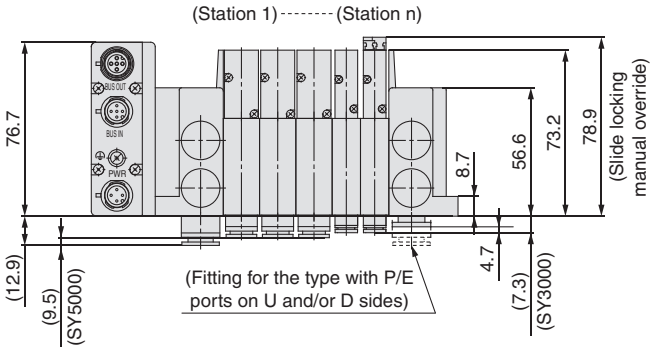
Dimensions: Type 11/For EX260/Mixed Mounting Type

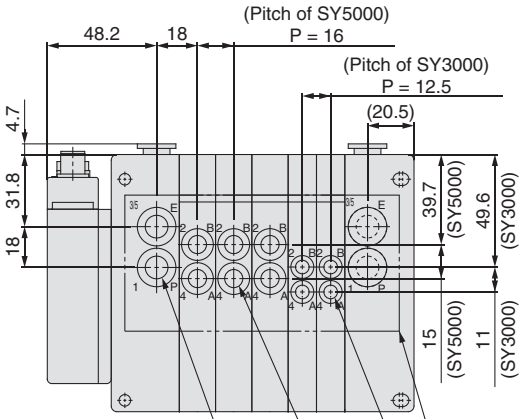
(mm)

SS5Y5-M11S□□- **Stations** U D B

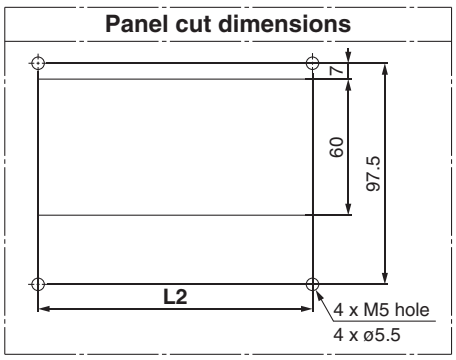








Panel cut dimensions



One-touch fitting
[1(P), 3/5(E) port]
Applicable tube O.D.: ø10, ø3/8"

Cut dimensions for panel mounting
Refer to panel cut dimensions for details.

One-touch fitting
[4(A), 2(B) port]
Applicable tube O.D.: ø4, ø5/32"
: ø6, ø1/4"
: ø8, ø5/16"

One-touch fitting
[4(A), 2(B) port]
Applicable tube O.D.: ø2
: ø3.2, ø1/8"
: ø4, ø5/32"
: ø6, ø1/4"

Note 1) These figures show the "SS5Y5-M11SQA-05D-C86".
Note 2) Refer to page 11 for dimensions of D-sub communication connector, external pilot and built-in silencer.

EX260 Serial transmission Calculation of dimensions

L1 = 12.5 x n1 + 16 x n2 + 88.7
L2 = 12.5 x n1 + 16 x n2 + 48

n1: SY3000 Valve stations
n2: SY5000 Valve stations

Type 12
Top Ported

Plug-in Connector Connecting Base: Plug-in Mixed MountingType Manifold For EX260 Integrated-type (For Output) Serial Transmission System

Series SY3000/5000

CE RoHS

SY3000 can be mounted onto SY5000 size manifold.

How to Order Manifold

Refer to page 23 for Type 12/ Top ported dimensions.

SS5Y5 − M 12S NA N − 05 U □ − □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼

Mixed Mounting Type

It is possible to mount SY3000 size valves on all stations. However, the manifold block width should be 12.5 mm.

❶ SI unit specifications

Symbol	Protocol	Number of outputs	Communication connector
0	Without SI unit		
QA	DeviceNet™	32	M12
QB		16	
NA	PROFIBUS DP	32	M12
NB		16	
NC		32	D-sub Note)
ND		16	
VA	CC-Link	32	M12
VB		16	
DA	EtherCAT	32	M12
DB		16	
FA	PROFINET	32	M12
FB		16	
EA	EtherNet/IP™	32	M12
EB		16	

Note) IP40 for the D-sub applicable communication connector specification.
For SI unit part number, refer to page 1.
DIN rail and SI unit output polarity "N" cannot be selected for the product without SI unit.

❷ SI unit output polarity

Nil	Positive common
N	Negative common

Note 1) Ensure a match with the common specifications of the valve to be used.
Note 2) Without SI unit, the symbol is nil.

❸ Valve stations

In the case of the 32-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout Note 2) (Available up to 32 solenoids)
⋮	⋮	
24	24 stations	

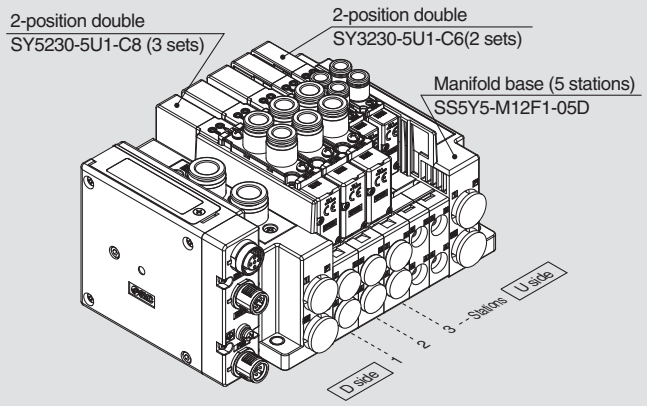
In the case of the 16-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout Note 2) (Available up to 16 solenoids)
⋮	⋮	
16	16 stations	

Note 1) Double wiring: 2-position single, double, 3-position and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
Note 2) Specified layout: Indicate the wiring specifications on the manifold specification sheet.
(Note that 2-position double, 3-position and 4-position valves cannot be used where single wiring has been specified.)
Note 3) Includes the number of blanking plate assemblies.
Note 4) For the model without the SI unit (S0), note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.

How to Order Manifold Assembly

Example (SS5Y5-M12SNAN-□)



SS5Y5-M12F1-05D·····1 set (Type M12 5-station manifold base part no.)
∗ SY5230-5U1-C8·····3 sets (2-position double part no.)
∗ SY3230-5U1-C6·····2 sets (2-position double part no.)
∗ The asterisk denotes the symbol for assembly.
∗ Prefix it to the part nos. of the valve, etc.

- The valve arrangement is numbered as the 1st station from the D side.
- Under the manifold part number, state the valves to be mounted in order from the 1st station as shown in the figure above.
  If the arrangement becomes complicated, specify on a manifold specification sheet.

❹ P, E port entry

U Note)	U side (2 to 10 stations)
D Note)	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

Note) For type "S", supply/exhaust block assembly with built-in silencer, choose U or D for P port entry.

❺ SUP/EXH block assembly

Nil	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

∗ For built-in silencer type, P and E ports are available on U and D sides. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of P, E port entry. (Example: When the P, E port entry is D side, the silencer exhaust port is U side.)
∗ When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.

❻ P, E port size (One-touch fittings)

Nil	ø10
N	ø3/8"

∗ For N, sizes are in inches.

❼ Mounting

Nil	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a longer rail than the standard length. [The SY5000 valve is now at a mountable length (manifold block length of 16 mm).]
⋮	⋮	
D24	For 24 stations	

∗ When it is necessary to mount a DIN rail without an SI unit, select D0 and order DIN rail length separately, referring to L3 in the dimensions. Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for part numbers of DIN rail.

SMC

How to Order Valves (With two mounting screws)

Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for details on valve specifications.

SY [3][1][3][0][ ][ ][ ][ ] – [5][ ][ ] 1 – [C6][ ] – [ ]

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❸ Top ported

❶ Series

3	SY3000
5	SY5000

❷ 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.)

* Only rubber seal type is available for the 4-position dual 3-port valve.

❸ Seal type

0	Rubber seal
1	Metal seal

❹ Pilot type

Nil	Internal pilot
R	External pilot

❺ Back pressure check valve (Built-in valve type)

Nil	None
H	Built-in

* Only rubber seal type.
  Manifold installed type is available if the back pressure check valve is required for a valve with metal seal. Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for details. However, it is not recommended to use the built-in valve type and the manifold installed type at the same time because it will reduce the flow.
* The built-in valve type back pressure check valve is not available for the 3-position type.

❻ Pilot valve option

Nil	Standard (101 psi (0.7 MPa))
B	Quick response type (101 psi (0.7 MPa))
K*	High pressure type (145 psi (1.0 MPa))

* Only metal seal type is available for the high pressure type.

❼ Coil type

Nil	Standard
T	With power saving circuit (Continuous duty type)

* Be sure to select the power saving circuit type when a valve is continuously energized for long periods of time.
* Note the specified energizing time when power saving circuit is selected.

❽ Rated voltage

5	24 VDC

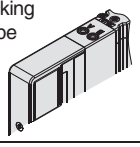
❾ Light/surge voltage suppressor and common specification

Nil	Without light/surge voltage suppressor (Non-polar)
R	With surge voltage suppressor (Non-polar)
U	With light/surge voltage suppressor (Non-polar)
S	With surge voltage suppressor (Positive common)
Z	With light/surge voltage suppressor (Positive common)
NS	With surge voltage suppressor (Negative common)
NZ	With light/surge voltage suppressor (Negative common)

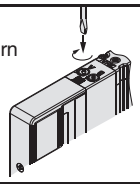
* Only "Z" and "NZ" types are available for the product with power saving circuit. Select a valve from R, U, S or Z when the SI unit output polarity is Nil (Positive common). Select a valve from R, U, NS or NZ when the SI unit output polarity is N (Negative common).

❿ Manual override

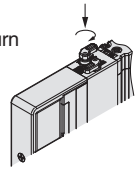
Nil: Non-locking push type



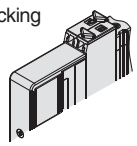
D: Push-turn locking slotted type



E: Push-turn locking manual type



F: Slide locking type



⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000

One-touch fitting (Metric)

Symbol	A and B port	SY3000	SY5000
C2	ø2 One-touch fitting	●	—
C3	ø3.2 One-touch fitting	●	—
C4	ø4 One-touch fitting	●	●
C6	ø6 One-touch fitting	●	●
C8	ø8 One-touch fitting	—	●

One-touch fitting (Inch)

Symbol	A and B port	SY3000	SY5000
N1	ø1/8" One-touch fitting	●	—
N3	ø5/32" One-touch fitting	●	●
N7	ø1/4" One-touch fitting	●	●
N9	ø5/16" One-touch fitting	—	●

⓬ Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

* Only Nil is available for M5.

⓭ Type of mounting screw

Nil	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Falling-out-prevention type)
H	Hexagon socket head cap screw (Falling-out-prevention type)

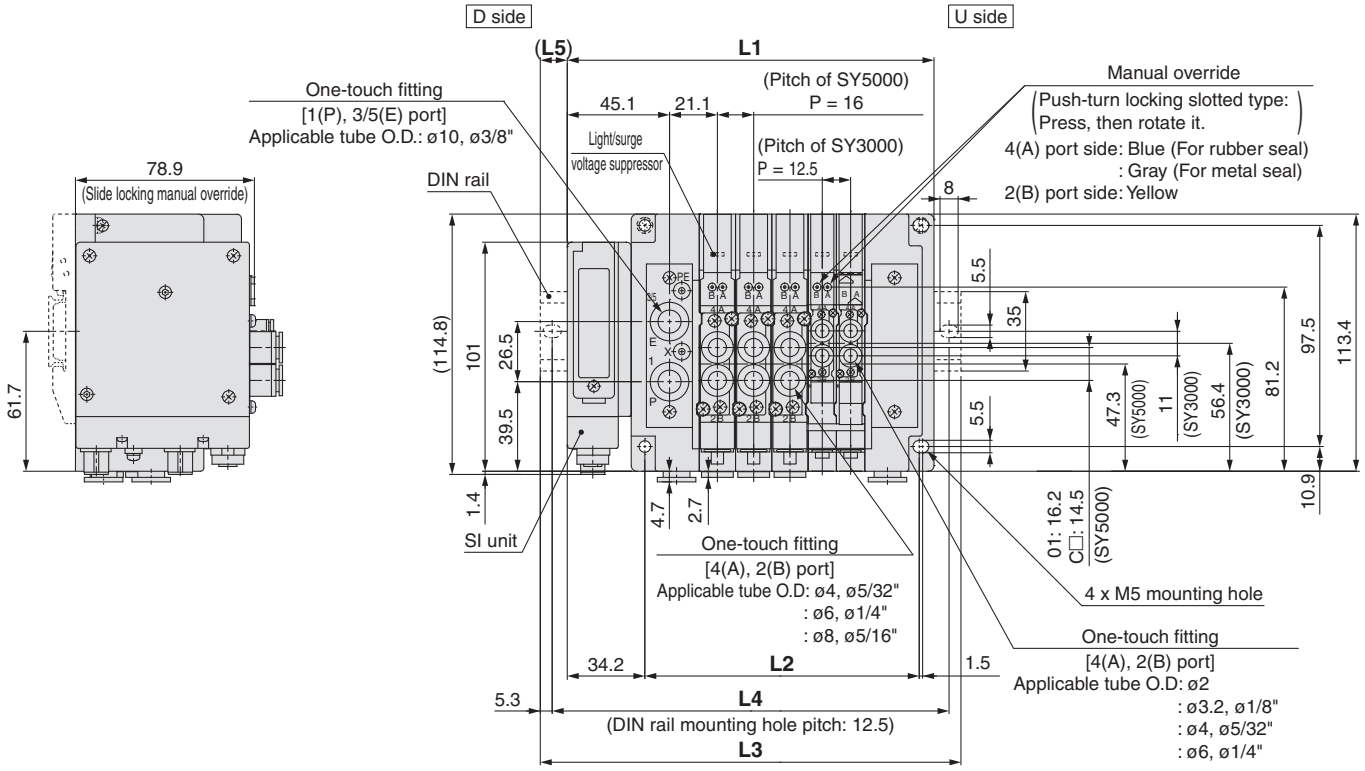
* For "K" and "H", the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance etc.
* When ordering a valve individually, the base gasket is not included. Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance service. Refer to the SY3000/5000 series catalog (CAT.NAS11-103) for part numbers of base gasket and mounting screw.
* "B" and "H" cannot be selected for the individual SUP/EXH spacer assembly.

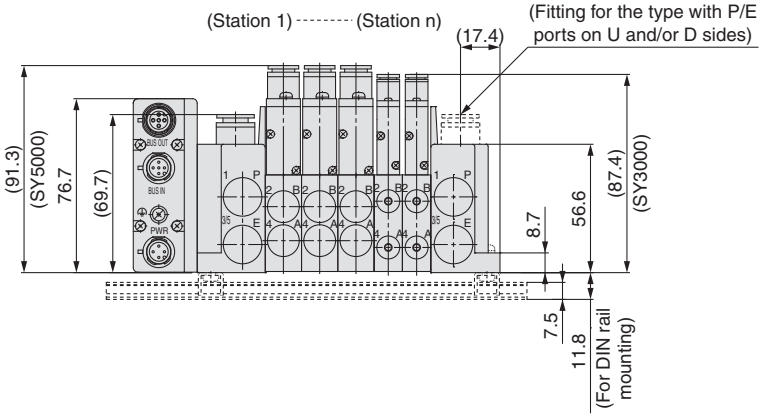
Refer to the SMC website or the SY3000/5000 series catalog (CAT.NAS11-103) for details on solenoid valve specifications, Common Precautions and Specific Product Precautions.

Dimensions: Type 12/Mixed Mounting Type

(mm)

SS5Y5-M12S□□- Stations U/D/B(-D)





Note 1) These figures show the "SS5Y5-M12SQA-05D".
Note 2) Refer to page 16 for dimensions of D-sub communication connector, external pilot and built-in silencer.

EX260 Serial transmission Calculation of dimensions

L1 = 12.5 x n1 + 16 x n2 + 88.7
L2 = 12.5 x n1 + 16 x n2 + 48
M = L1/12.5 + 1 Remove all numbers after the decimal.
L3 = 12.5 x M + 23
L4 = L3 – 10.5
L5 = (L3 – L1)/2

n1: SY3000 Valve stations
n2: SY5000 Valve stations

Tie-rod Base:
For EX260 Integrated-type (For Output)
Serial Transmission System
Series SV

How to Order Manifold

SS5V 1 – W 10S1 NA N D – 05 U □ – □ – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❷ Enclosure
IP67

∗Refer to Note 1) of the ❷ SI unit specifications.

❶ Series

1	SV1000
2	SV2000
3	SV3000

❷ SI unit specifications

Symbol	Protocol	Number of outputs	Communication connector
0	Without SI unit		
QA	DeviceNet™	32	M12
QB		16	
NA	PROFIBUS DP	32	M12
NB		16	
NC		32	D-sub Note 1)
ND		16	
VA	CC-Link	32	M12
VB		16	
DA	EtherCAT	32	M12
DB		16	
FA	PROFINET	32	M12
FB		16	
EA	EtherNet/IP™	32	M12
EB		16	

- DIN rail cannot be selected for the product without SI unit.

Note 1) IP40 for the D-sub applicable communication connector specification. (The manifold part number is "SS5V□-10S1NC/ND□D".)

Note 2) For SI unit part number, refer to page 1.

❸ SI unit output polarity

Nil	Positive common
N	Negative common

Note) Without SI unit, the symbol is nil.

❹ Valve stations

In the case of the 32-output SI unit

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

In the case of the 16-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout Note 2) (Available up to 16 solenoids)
⋮	⋮	
16	16 stations	

Note 1) Double wiring: 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 the 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.)

Note 3) Includes the number of blanking plate assemblies.

❺ P, E port entry

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

❻ SUP/EXH block assembly

Nil	Internal pilot
S Note)	Internal pilot, Built-in silencer
R	External pilot
RS Note)	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.

❽ 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	

❼ 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 ports mixed		

A, B port size (Inch)

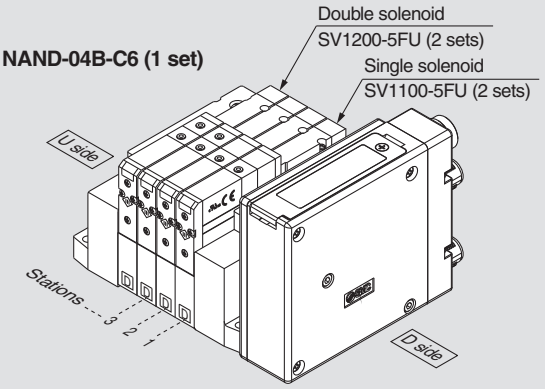
Symbol	A, B port	P, E port	Applicable series
N1	ø1/8" One-touch fitting	ø5/16" One-touch fitting	SV1000
N3	ø5/32" One-touch fitting		
N7	ø1/4" One-touch fitting		
N3	ø5/32" One-touch fitting	ø3/8" One-touch fitting	SV2000
N7	ø1/4" One-touch fitting		
N9	ø5/16" One-touch fitting		
N7	ø1/4" One-touch fitting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

∗ In the case of mixed specifications (M), indicate separately on the manifold specification sheet.
∗ The X and PE port size of External pilot type (R, RS) are ø4 (mm) or ø5/32" (inch) for the SV1000/2000 series, and ø6 (mm) or ø1/4" (inch) for the SV3000 series.

How to Order Manifold Assembly

Example (SV1000)

Manifold
SS5V1-W10S1NAND-04B-C6 (1 set)



SS5V1-W10S1NAND-04B-C6·····1 set (Manifold part no.)
∗SV1100-5FU·····2 sets (Single solenoid part no.)
∗SV1200-5FU·····2 sets (Double solenoid part no.)

How to Order Valves

SV 1 1 0 0 ❸ ❹ – 5 F ❻ ❼ – ❺ – ❽
Note)

❶ Series

1	SV1000
2	SV2000
3	SV3000

❷ 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 the SV1000/2000 series only.

❸ Pilot type

Nil	Internal pilot
R	External pilot

∗ External pilot specification is not available for 4-position dual 3-port valves.

❹ Back pressure check valve

Nil	None
K	Built-in

∗ Built-in back pressure check valve type is applicable to the SV1000 series only.
∗ Back pressure check valve is not available for 3-position valve.
Note) Refer to Specific Product Precautions 2 in Best Pneumatics No. 1.

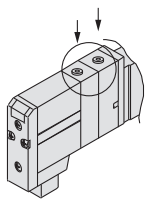
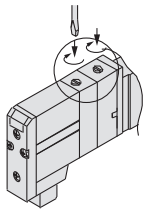
❺ Rated voltage

5	24 VDC

❻ Light/surge voltage suppressor

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

❼ Manual override

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

Note) Available with manifold block for station additions. Refer to Best Pneumatics No. 1.

❽ Made to Order

Nil	—
X90	Main valve fluororubber (Refer to page 448 in Best Pneumatics No. 1.)

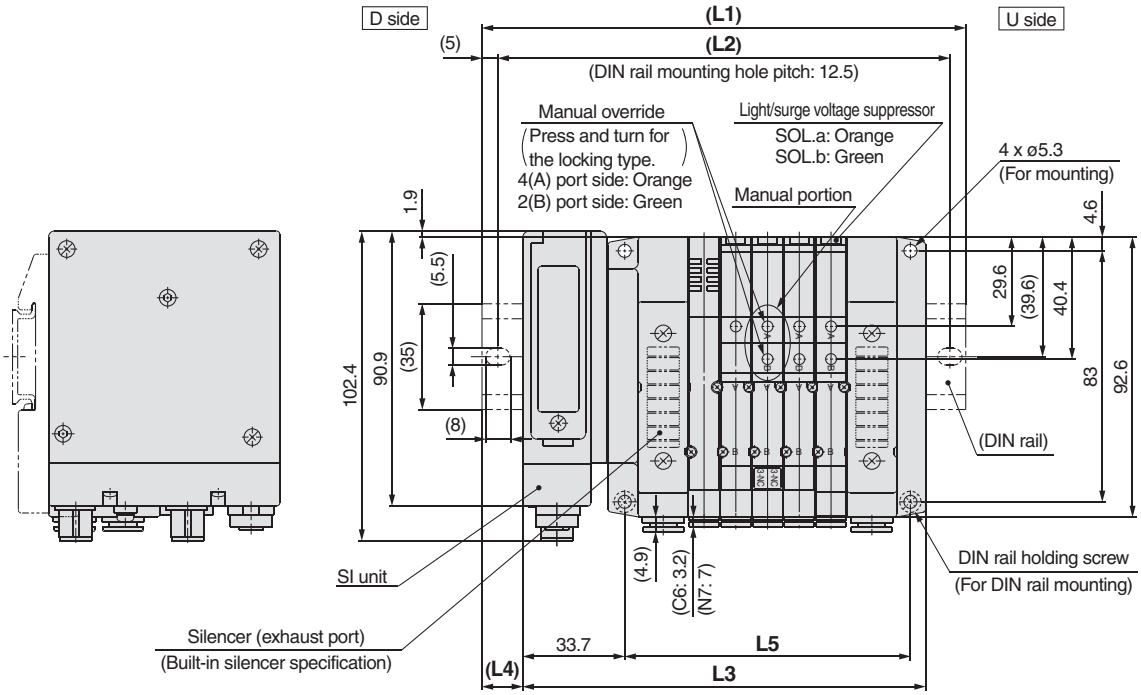
Refer to the SMC website or the SV series in Best Pneumatics No.1 for details on solenoid valve specifications, Common Precautions and Specific Product Precautions.

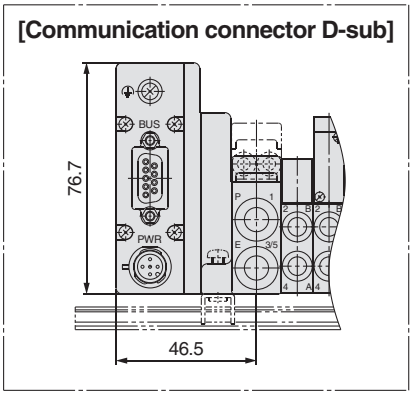
Dimensions: For EX260 Integrated-type (For Output) Serial Transmission System/Series SV1000

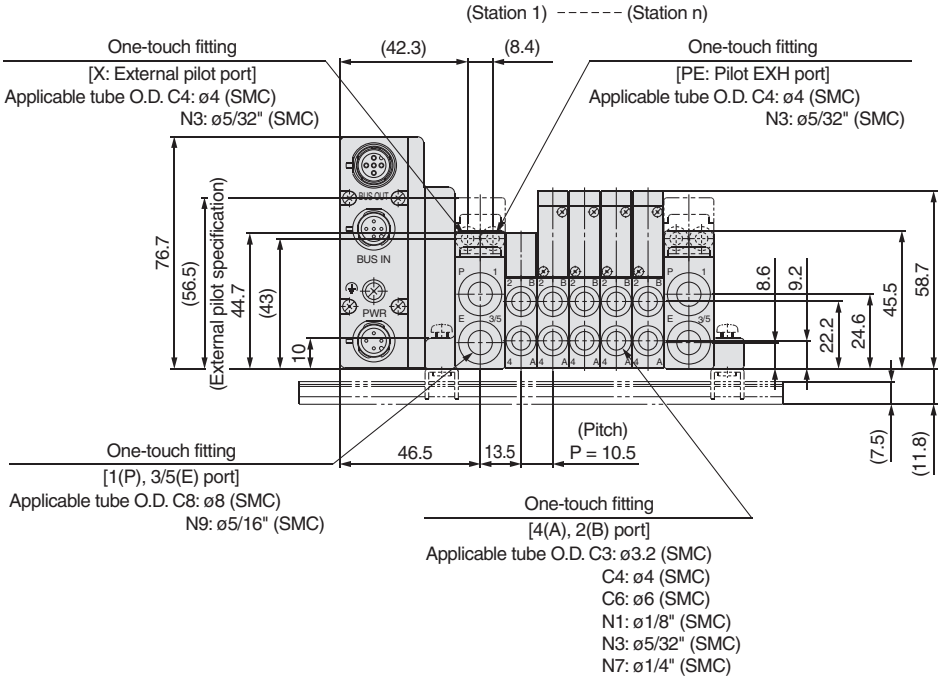
(mm)

● Tie-rod base manifold: SS5V1-W10S1□□D- 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.







L: DIN Rail Overall Length

n: Stations

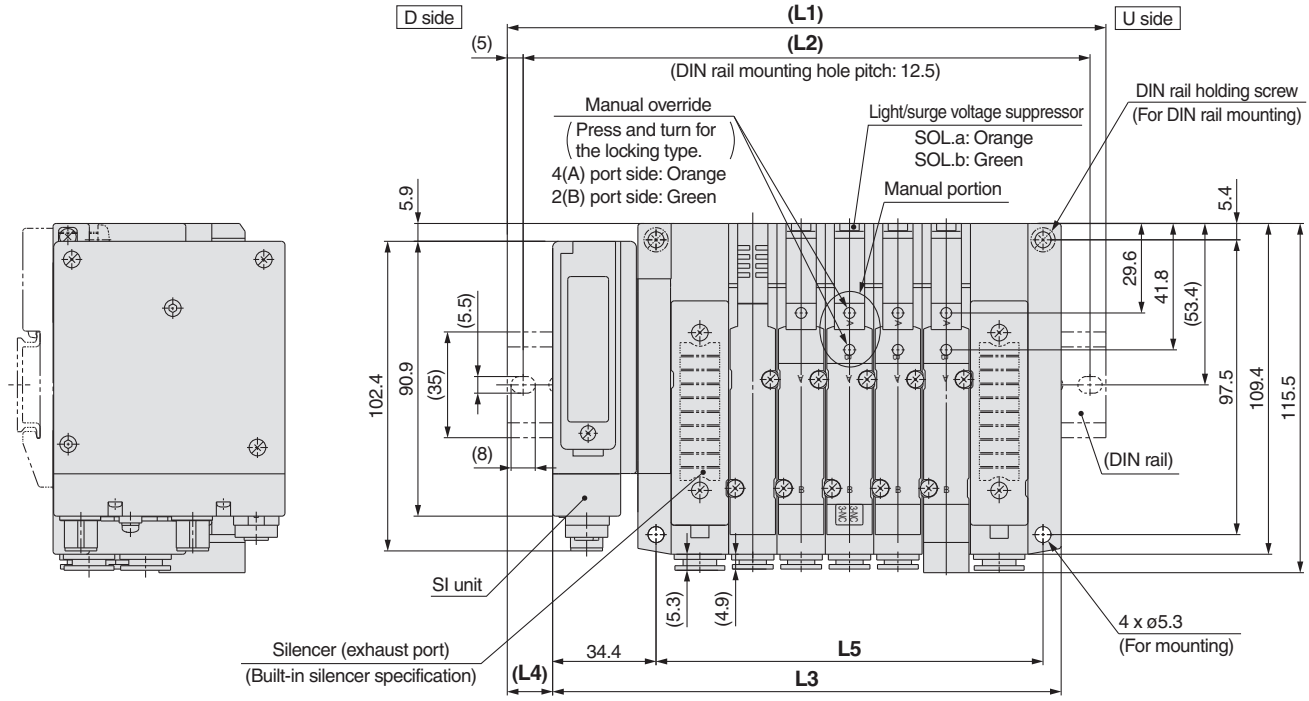
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	135.5	148	148	160.5	173	185.5	198	210.5	210.5	223	235.5	248	260.5	273	273	285.5	298	310.5	323
L2	125	137.5	137.5	150	162.5	175	187.5	200	200	212.5	225	237.5	250	262.5	262.5	275	287.5	300	312.5
L3	102.2	112.7	123.2	133.7	144.2	154.7	165.2	175.7	186.2	196.7	207.2	217.7	228.2	238.7	249.2	259.7	270.2	280.7	291.2
L4	16.5	17.5	12.5	13.5	14.5	15.5	16.5	17.5	12	13	14	15	16	17	12	13	14	15	16
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

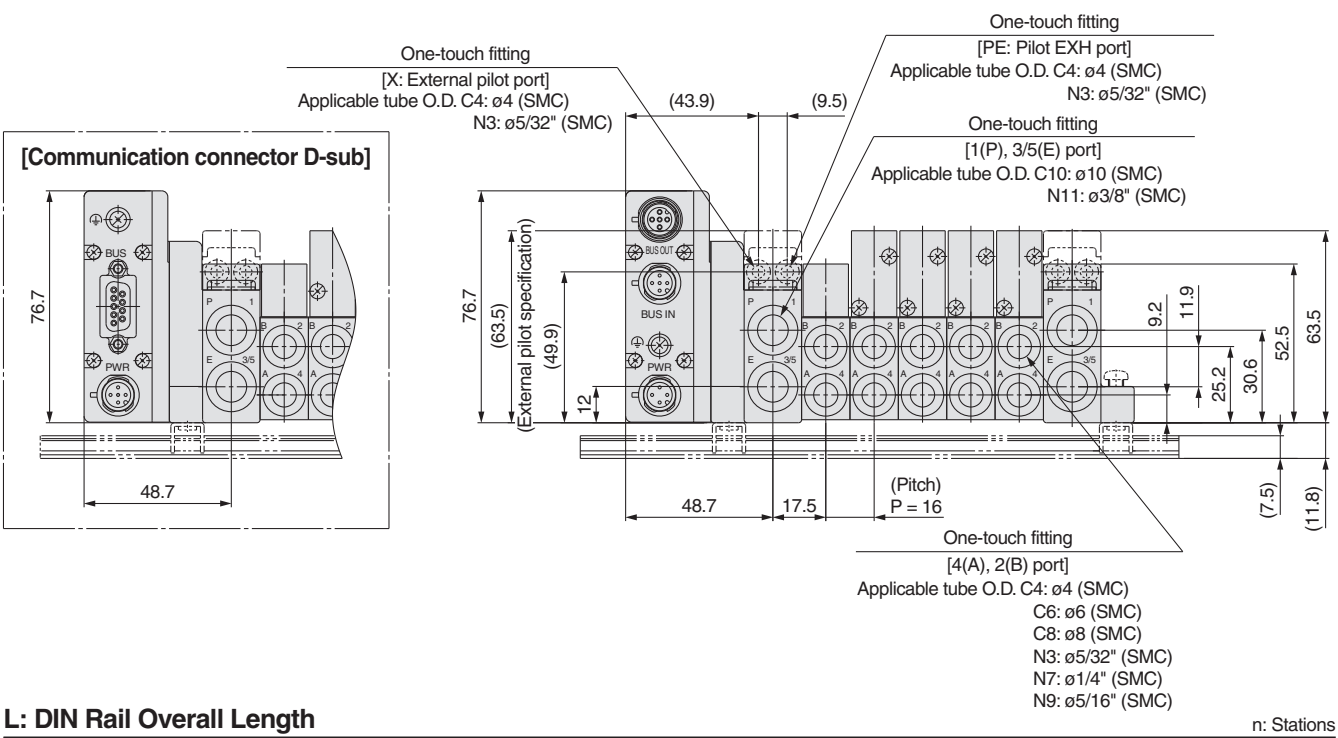
Dimensions: For EX260 Integrated-type (For Output) Serial Transmission System/Series SV2000

(mm)

● Tie-rod base manifold: SS5V2-W10S1□□D-[Stations] [U/D/B] (S, R, RS)- [C4, N3 / 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.





L: DIN Rail Overall Length

n: Stations

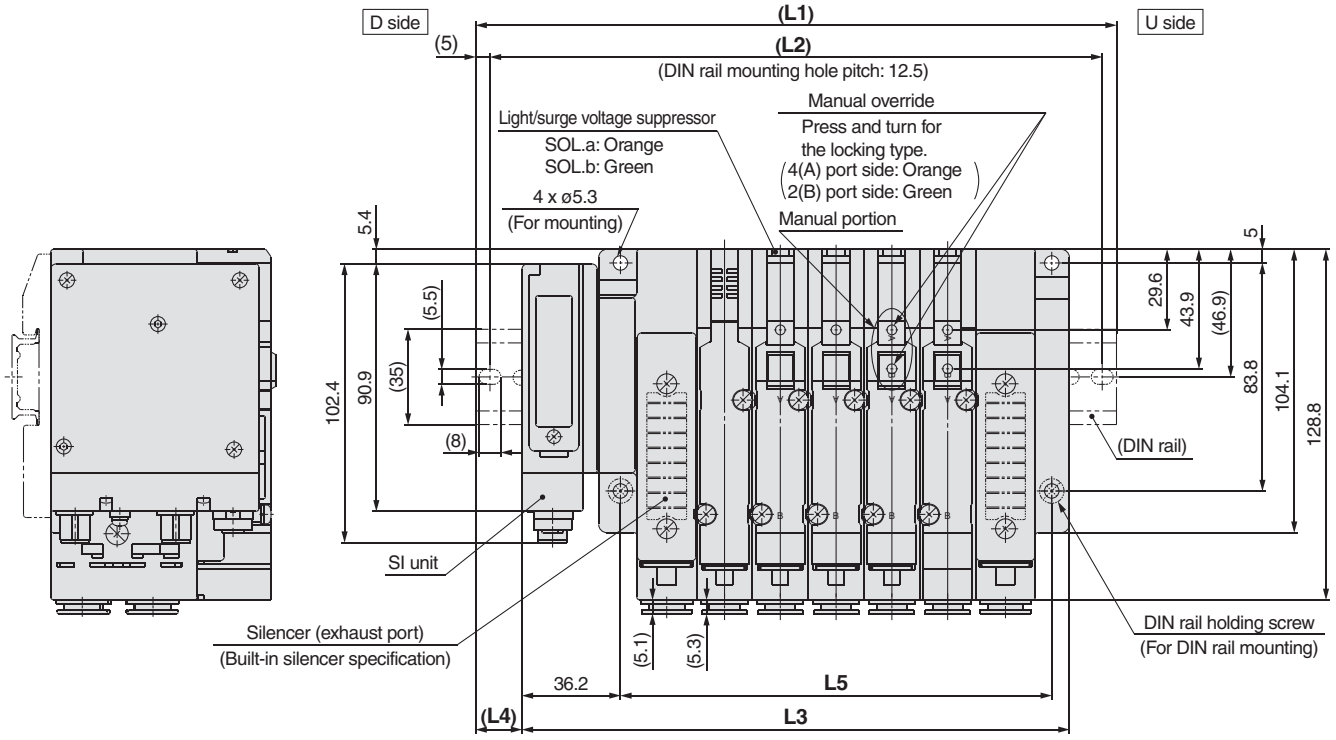
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	148	160.5	185.5	198	210.5	235.5	248	260.5	273	298	310.5	323	335.5	360.5	373	385.5	410.5	423	435.5
L2	137.5	150	175	187.5	200	225	237.5	250	262.5	287.5	300	312.5	325	350	362.5	375	400	412.5	425
L3	120.2	136.2	152.2	168.2	184.2	200.2	216.2	232.2	248.2	264.2	280.2	296.2	312.2	328.2	344.2	360.2	376.2	392.2	408.2
L4	14	12	16.5	15	13	17.5	16	14	12.5	17	15	13.5	11.5	16	14.5	12.5	17	15.5	13.5
L5	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320	336	352	368

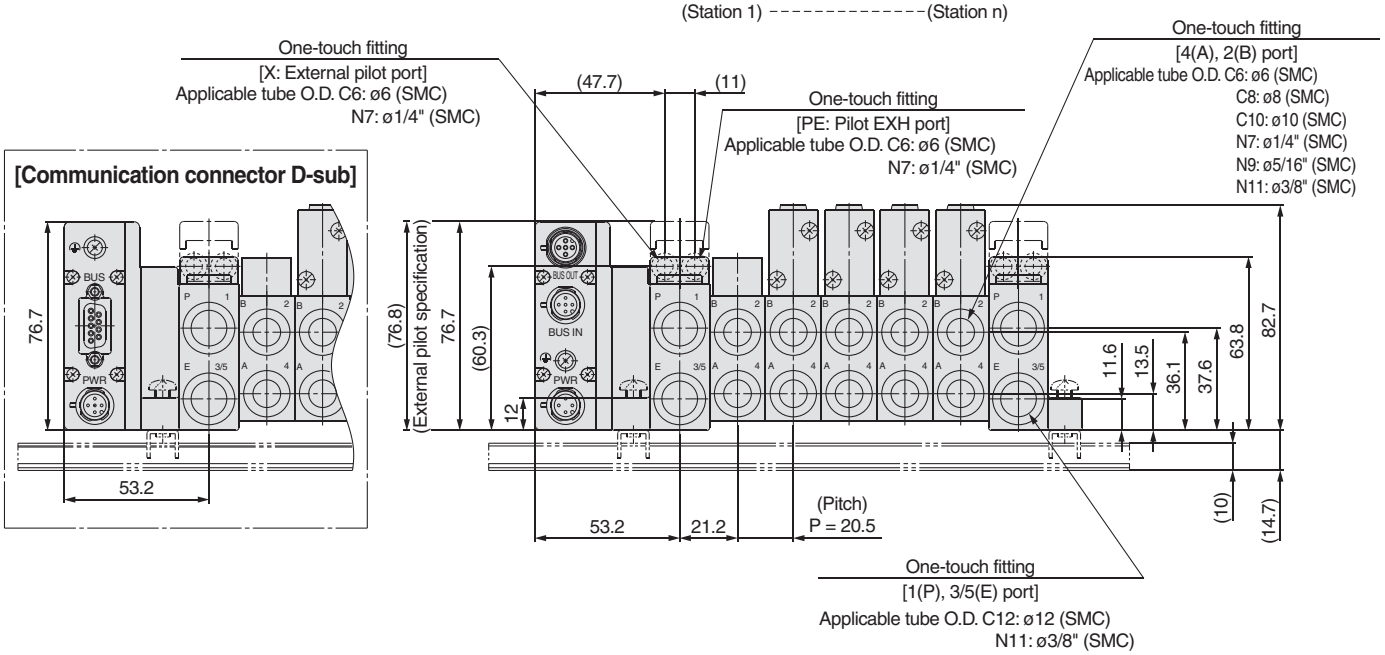
Dimensions: For EX260 Integrated-type (For Output) Serial Transmission System/Series SV3000

(mm)

● Tie-rod base manifold: SS5V3-W10S1□□D-Stations U/D/B (S, R, RS)- C6, N7 / C8, N9 / 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.





L: DIN Rail Overall Length

n: Stations

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	173	185.5	210.5	235.5	248	273	298	310.5	335.5	348	373	398	410.5	435.5	460.5	473	498	523	535.5
L2	162.5	175	200	225	237.5	262.5	287.5	300	325	337.5	362.5	387.5	400	425	450	462.5	487.5	512.5	525
L3	139.7	160.2	180.7	201.2	221.7	242.2	262.7	283.2	303.7	324.2	344.7	365.2	385.7	406.2	426.7	447.2	467.7	488.2	508.7
L4	16.5	12.5	15	17	13	15.5	17.5	13.5	16	12	14	16.5	12.5	14.5	17	13	15	17.5	13.5
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

Base Mounted

Plug-in Unit: For EX260 Integrated-type (For Output) Serial Transmission System

Series VQC1000

RoHS

How to Order Manifold

VV5QC 1 1 – 08 C6 SNA N – B ····· S Kit

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series

1	VQC1000

❷ Manifold model

1	Plug-in unit

❸ Stations

In the case of the 32-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
12	12 stations	
02	2 stations	Specified layout Note 2) (Available up to 24 solenoids)
⋮	⋮	
24	24 stations	

In the case of the 16-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout Note 2) (Available up to 16 solenoids)
⋮	⋮	
16	16 stations	

Note 1) Double wiring: 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 the wiring specifications on the manifold specification sheet.
(Note that 2-position double, 3-position and 4-position valves cannot be used where single wiring has been specified.)
Note 3) Includes the number of blanking plate assemblies.

❹ Cylinder port size

C3	With ø3.2 One-touch fitting
C4	With ø4 One-touch fitting
C6	With ø6 One-touch fitting
M5	M5 thread
CM	Mixed sizes and with port plug
L3	Top ported elbow with ø3.2 One-touch fitting
L4	Top ported elbow with ø4 One-touch fitting
L6	Top ported elbow with ø6 One-touch fitting
L5	M5 thread
B3	Bottom ported elbow with ø3.2 One-touch fitting
B4	Bottom ported elbow with ø4 One-touch fitting
B6	Bottom ported elbow with ø6 One-touch fitting
B5	M5 thread
LM	Elbow port, mixed sizes
MM Note2)	Mixed size for different types of piping, option installed

Note 1) Indicate the sizes on the manifold specification sheet in the case of "CM", "LM".
Note 2) When selecting the mixed size for different types of piping or dual flow fitting assembly, enter "MM" and give instructions in the manifold specification sheet.
Note 3) Symbols for inch sizes are as follows:
- N1: ø1/8"
- N3: ø5/32"
- N7: ø1/4"
- NM: Mixed

The top ported elbow is LN□ and the bottom ported elbow is BN□.

❻ SI unit output polarity

Nil	Positive common
N	Negative common

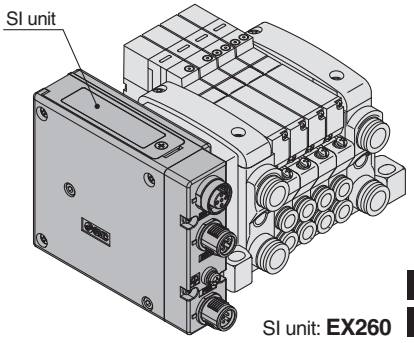
❼ Option

Nil	None
B	With back pressure check valve (All stations) Note 2)
D	With DIN rail (Rail length: Standard)
D□	With DIN rail (Rail length: Special) Note 3)
K	Special wiring spec. (Except double wiring) Note 4)
N	With name plate
R	External pilot Note 5)
S	Built-in silencer, Direct exhaust Note 6)

Note 1) When two or more symbols are specified, indicate them alphabetically.
Example: -BRS
Note 2) When the back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position on the manifold specification sheet.
Note 3) For special DIN rail length, indicate "D□".
(Enter the number of stations inside □.)
Example: -D08
In this case, stations will be mounted on a DIN rail for 8 stations regardless of the actual number of manifold stations.
The specified number of stations must be larger than the number of stations on the manifold.
Indicate "-D0" for the option without DIN rail.
Note 4) Specify wiring type of each station on the manifold specification sheet.
Note 5) For external pilot option, "-R", indicate the external pilot specification "R" for the applicable valves as well.
Note 6) Built-in silencer type does not satisfy IP67.
Note 7) When the "SD0" (Without SI unit) is specified, "-D", "-D□" cannot be selected.

❺ Kit type

S **Kit (Serial transmission kit (for Output))**



SI unit: **EX260**

IP40 specification
IP67 specification

Symbol	Protocol	Number of outputs	Communication connector
SD0	Without SI unit		
SQA	DeviceNet™	32	M12
SQB		16	
SNA	PROFIBUS DP	32	M12
SNB		16	
SNC		32	D-sub Note 1)
SND		16	
SVA	CC-Link	32	M12
SVB		16	
SDA	EtherCAT	32	M12
SDB		16	
SFA	PROFINET	32	M12
SFB		16	
SEA	EtherNet/IP™	32	M12
SEB		16	

Note 1) D-sub S kit: IP40 specification (IP67 specification for all other S kits)
Note 2) For SI unit part number, refer to page 1.

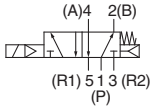
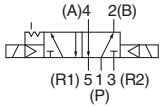
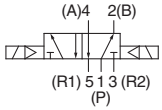
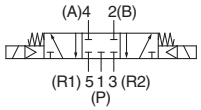
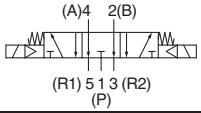
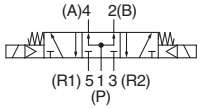
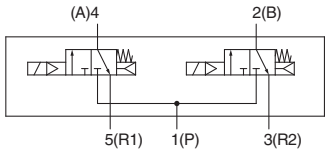
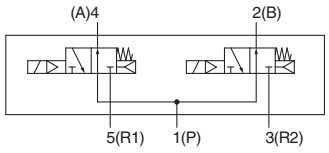
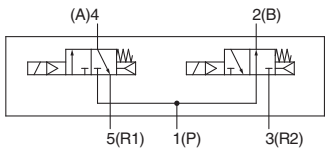
SMC

How to Order Valves

VQC 1 1 0 0 □ – 5 □ □ 1

Series VQC1000 ❶ ❷ ❸ ❹ ❺ ❻

❶ Type of actuation

1	2-position single 
2	2-position double (Metal) 
	2-position double (Rubber) 
3	3-position closed center 
4	3-position exhaust center 
5	3-position pressure center 
A Note)	4-position dual 3-port valve (A) 
B Note)	4-position dual 3-port valve (B) 
C Note)	4-position dual 3-port valve (C) 

Note) Only rubber seal type

❷ Seal type

0	Metal seal
1	Rubber seal

❸ Function

Nil	Standard (0.4 W)
B	Quick response type (0.95 W)
K Note 2)	High pressure type (145 psi (1.0 MPa), 0.95 W)
N Note 3)	Negative common
R Note 4)	External pilot

Note 1) When two or more symbols are specified, indicate them alphabetically. However, combination of "B" and "K" is not possible.
Note 2) Only metal seal type
Note 3) When negative common is specified for SI unit, select and mount the valve of negative common.
Note 4) Not applicable for dual 3-port valves

❹ Coil voltage

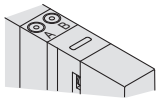
5	24 VDC

❺ Light/surge voltage suppressor

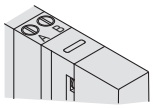
Nil	Yes

❻ Manual override

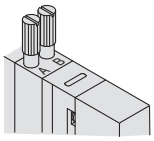
Nil: Non-locking push type (Tool required)



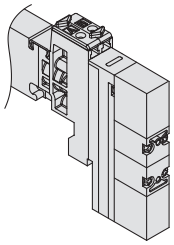
B: Locking type (Tool required)



C: Locking type (Manual)



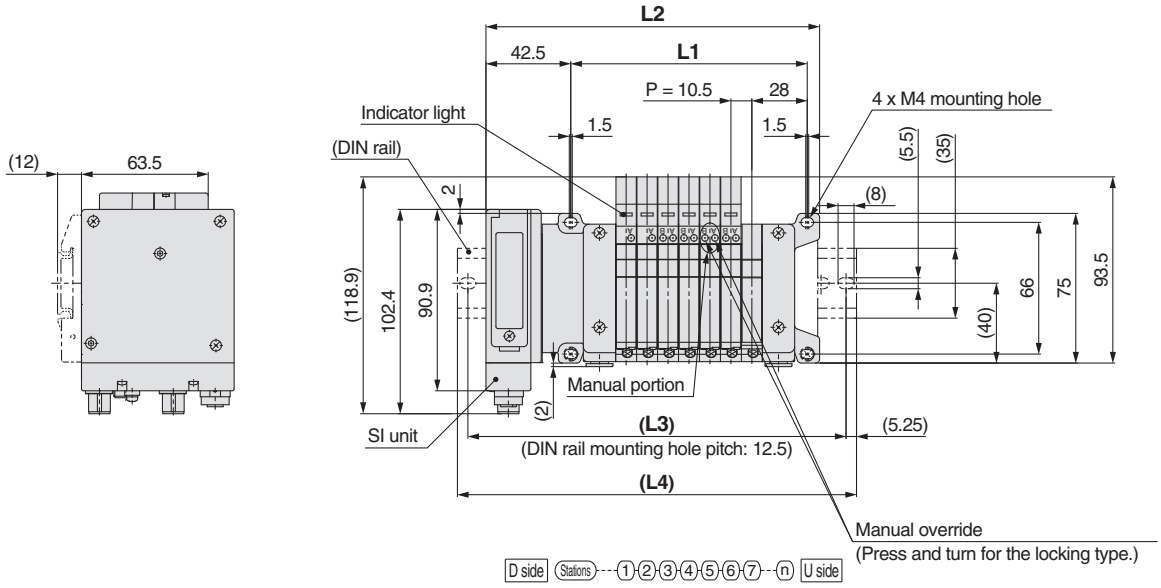
D: Slide locking type (Manual)

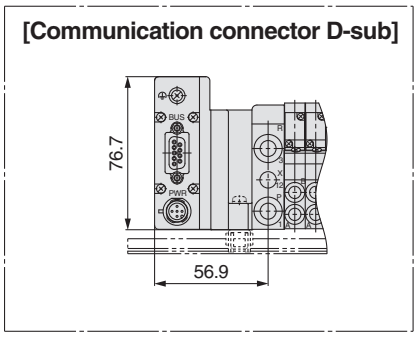


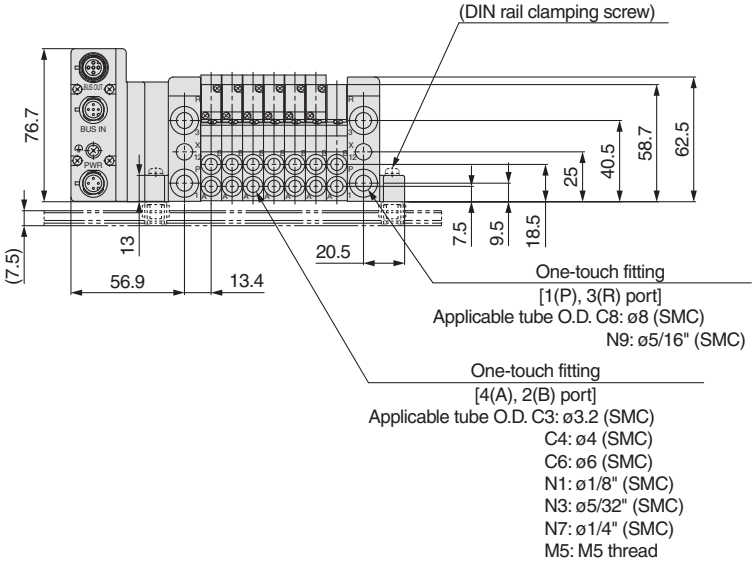
Refer to the SMC website or the VQC1000/2000 series catalog (CAT.NAS11-101) for details on solenoid valve specifications, Common Precautions and Specific Product Precautions.

(mm)

VV5QC11
S Kit (Serial transmission kit: EX260)







n: Stations (Maximum 24 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5	234	244.5	255	265.5	276	286.5	297
L2	104.2	114.7	125.2	135.7	146.2	156.7	167.2	177.7	188.2	198.7	209.2	219.7	230.2	240.7	251.2	261.7	272.2	282.7	293.2	303.7	314.2	324.7	335.2	345.7
L3	127	139.5	152	164.5	177	177	189.5	202	214.5	227	239.5	239.5	252	264.5	277	289.5	302	314.5	314.5	327	339.5	352	364.5	377
L4	137.5	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5	275	287.5	300	312.5	325	325	337.5	350	362.5	375	387.5

Plug-in Unit: For EX260 Integrated-type (For Output) Serial Transmission System

Series VQC2000

RoHS

How to Order Manifold

VV5QC 2 1 – 08 C6 SNA N – B ····· S Kit

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series

2	VQC2000

❷ Manifold model

1	Plug-in unit

❸ Stations

In the case of the 32-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
12	12 stations	
02	2 stations	Specified layout Note 2) (Available up to 24 solenoids)
⋮	⋮	
24	24 stations	

In the case of the 16-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout Note 2) (Available up to 16 solenoids)
⋮	⋮	
16	16 stations	

Note 1) Double wiring: 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 the wiring specifications on the manifold specification sheet.
(Note that 2-position double, 3-position and 4-position valves cannot be used where single wiring has been specified.)
Note 3) Includes the number of blanking plate assemblies.

❹ Cylinder port size

C4	ø4 One-touch fitting
C6	ø6 One-touch fitting
C8	ø8 One-touch fitting
CM	Mixed sizes and with port plug
L4	Top ported elbow with ø4 One-touch fitting
L6	Top ported elbow with ø6 One-touch fitting
L8	Top ported elbow with ø8 One-touch fitting
B4	Bottom ported elbow with ø4 One-touch fitting
B6	Bottom ported elbow with ø6 One-touch fitting
B8	Bottom ported elbow with ø8 One-touch fitting
LM	Elbow port, mixed sizes
MM Note 2)	Mixed size for different types of piping, option installed

Note 1) Indicate the sizes on the manifold specification sheet in the case of "CM", "LM".
Note 2) When selecting the mixed size for different types of piping or dual flow fitting assembly, enter "MM" and give instructions in the manifold specification sheet.
Note 3) Symbols for inch sizes are as follows:
- N3: ø5/32"
- N7: ø1/4"
- N9: ø5/16"
- NM: Mixed

The top ported elbow is LN□ and the bottom ported elbow is BN□.

❻ SI unit output polarity

Nil	Positive common
N	Negative common

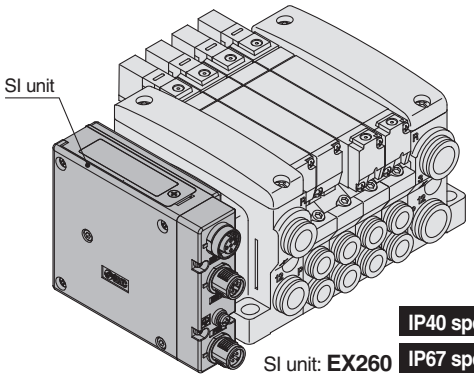
❼ Option

Nil	None
B	With back pressure check valve (All stations) Note 2)
D	With DIN rail (Rail length: Standard)
D□	With DIN rail (Rail length: Special) Note 3)
K	Special wiring spec. (Except double wiring) Note 4)
N	With name plate
R	External pilot Note 5)
S	Built-in silencer, Direct exhaust Note 6)
T	P and R ports included on both sides of the U side Note 7)

Note 1) When two or more symbols are specified, indicate them alphabetically.
Example: -BRS
Note 2) When the back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position on the manifold specification sheet.
Note 3) For special DIN rail length, indicate "D□".
(Enter the number of stations inside □.)
Example: -D08
In this case, stations will be mounted on a DIN rail for 8 stations regardless of the actual number of manifold stations.
The specified number of stations must be larger than the number of stations on the manifold.
Indicate "-D0" for the option without DIN rail.
Note 4) Specify wiring type of each station on the manifold specification sheet.
Note 5) For external pilot option, "-R", indicate the external pilot specification "R" for the applicable valves as well.
Note 6) Built-in silencer type does not satisfy IP67.
Note 7) 2 ports for SUP and EXH are included on both sides of U side (cylinder port and coil side) with ø12 One-touch fittings.
Note 8) When the "SD0" (Without SI unit) is specified, "-D", "-D□" cannot be selected.

❺ Kit type

S Kit (Serial transmission kit (for Output))



Symbol	Protocol	Number of outputs	Communication connector
SD0	Without SI unit		
SQA	DeviceNet™	32	M12
SQB		16	
SNA	PROFIBUS DP	32	M12
SNB		16	
SNC		32	D-sub Note 1)
SND		16	
SVA	CC-Link	32	M12
SVB		16	
SDA	EtherCAT	32	M12
SDB		16	
SFA	PROFINET	32	M12
SFB		16	
SEA	EtherNet/IP™	32	M12
SEB		16	

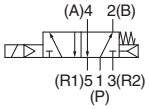
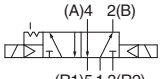
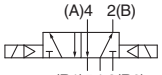
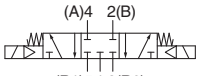
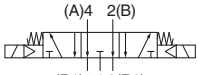
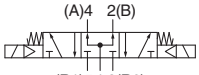
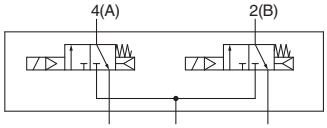
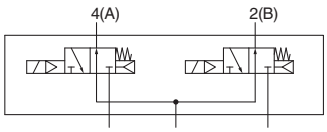
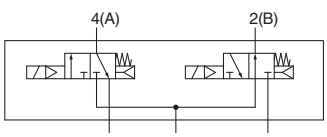
Note 1) D-sub S kit: IP40 specification (IP67 specification for all other S kits)
Note 2) For SI unit part number, refer to page 1.

How to Order Valves

VQC 2 1 0 0 □ – 5 □ □ 1

Series VQC2000 ❶ ❷ ❸ ❹ ❺ ❻

❶ Type of actuation

1	2-position single 
2	2-position double (Metal) 
	2-position double (Rubber) 
3	3-position closed center 
4	3-position exhaust center 
5	3-position pressure center 
A Note)	4-position dual 3-port valve (A) 
B Note)	4-position dual 3-port valve (B) 
C Note)	4-position dual 3-port valve (C) 

Note) Only rubber seal type

❷ Seal type

0	Metal seal
1	Rubber seal

❸ Function

Nil	Standard (0.4 W)
B	Quick response type (0.95 W)
K Note 2)	High pressure type (145 psi (1.0 MPa), 0.95 W)
N Note 3)	Negative common
R Note 4)	External pilot

Note 1) When two or more symbols are specified, indicate them alphabetically. However, combination of "B" and "K" is not possible.
Note 2) Only metal seal type
Note 3) When negative common is specified for SI unit, select and mount the valve of negative common.
Note 4) Not applicable for dual 3-port valves

❹ Coil voltage

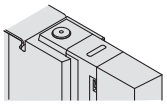
5	24 VDC

❺ Light/surge voltage suppressor

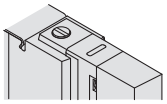
Nil	Yes

❻ Manual override

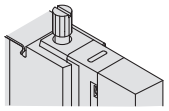
Nil: Non-locking push type (Tool required)



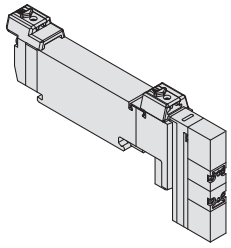
B: Locking type (Tool required)



C: Locking type (Manual)



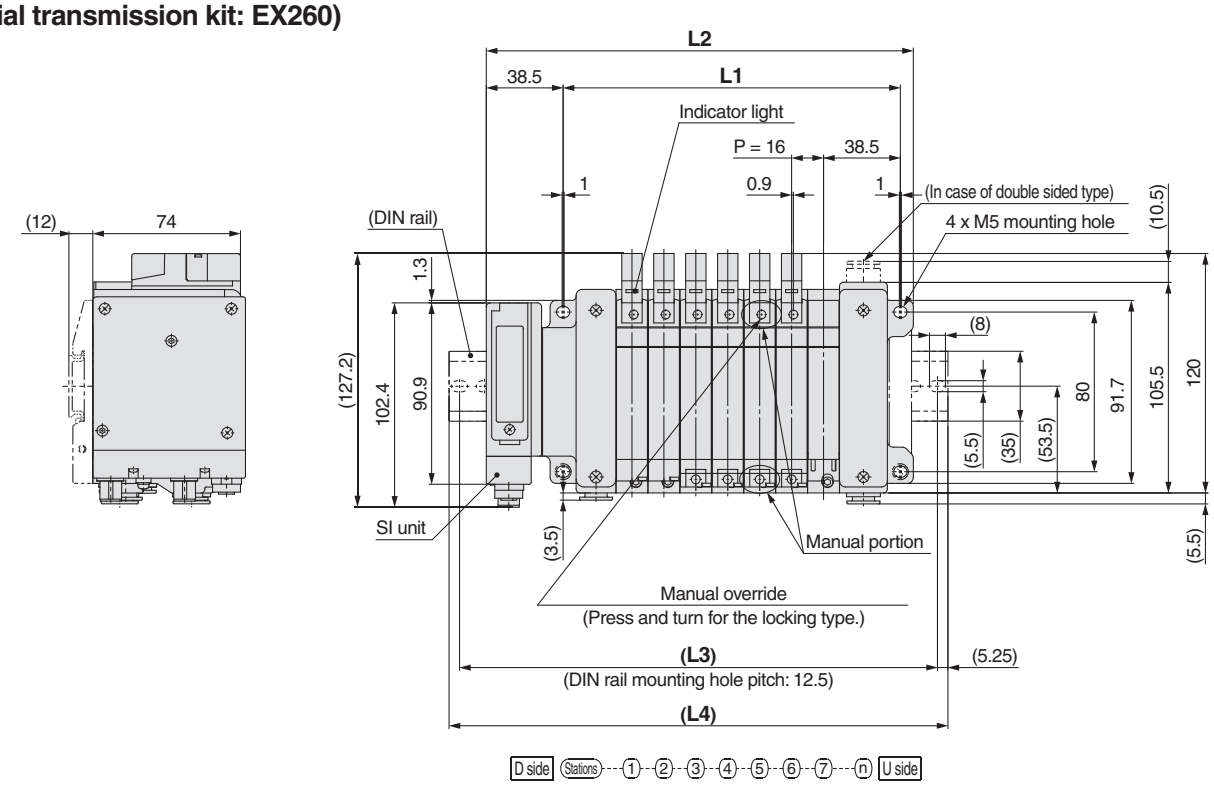
D: Slide locking type (Manual)

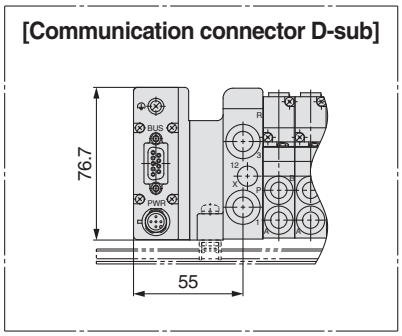


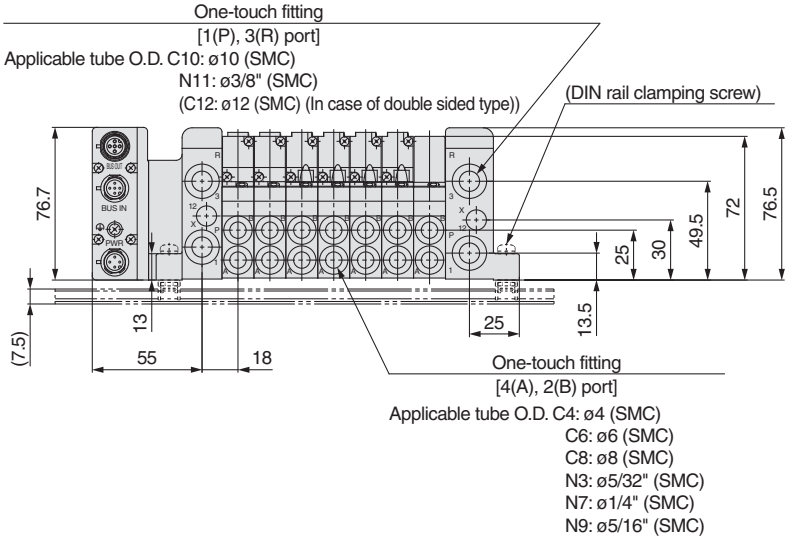
Refer to the SMC website or the VQC1000/2000 series catalog (CAT.NAS11-101) for details on solenoid valve specifications, Common Precautions and Specific Product Precautions.

(mm)

VV5QC21
S Kit (Serial transmission kit: EX260)







n: Stations (Maximum 24 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329	345	361	377	393	409	425	441
L2	118	134	150	166	182	198	214	230	246	262	278	294	310	326	342	358	374	390	406	422	438	454	470	486
L3	139.5	164.5	177	189.5	202	227	239.5	252	277	289.5	302	314.5	339.5	352	364.5	389.5	402	414.5	427	452	464.5	477	489.5	514.5
L4	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	462.5	475	487.5	500	525

Base Mounted

Plug-in Unit: For EX260 Integrated-type (For Output) Serial Transmission System

Series VQC4000

RoHS

How to Order Manifold

VV5QC 4 1 – 16 03 ☐ SNA N – ☐ ····· S Kit

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

4	VQC4000

❷ Manifold model

1	Plug-in unit

❹ Cylinder port size

C8	With ø8 One-touch fitting
C10	With ø10 One-touch fitting
C12	With ø12 One-touch fitting
02	Rc1/4
03	Rc3/8
B	Bottom ported Rc1/4
CM	Mixed

Note 1) Indicate the sizes on the manifold specification sheet in the case of "CM".
Note 2) Symbols for inch sizes are as follows:
<In the case of One-touch fittings>
- N7: ø1/4"
- N9: ø5/16"
- N11: ø3/8"
- NM: Mixed

❺ Thread type

Nil	Rc
F	G
T	NPT/NPTF

❸ Stations

In the case of the 32-output SI unit

Symbol	Stations	Note
01	1 station	Double wiring Note 1)
⋮	⋮	
12	12 stations	
01	1 station	Specified layout Note 2) (Available up to 24 solenoids)
⋮	⋮	
16	16 stations	

In the case of the 16-output SI unit

Symbol	Stations	Note
01	1 station	Double wiring Note 1)
⋮	⋮	
08	8 stations	
01	1 station	Specified layout Note 2) (Available up to 16 solenoids)
⋮	⋮	
16	16 stations	

Note 1) Double wiring: 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 the wiring specifications on the manifold specification sheet.
(Note that 2-position double, 3-position and 4-position valves cannot be used where single wiring has been specified.)
Note 3) Includes the number of blanking plate assemblies.

❼ SI unit output polarity

Nil	Positive common
N	Negative common

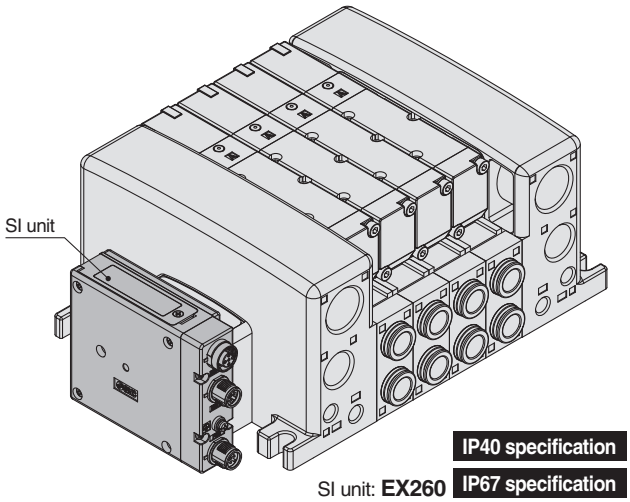
❽ Option

Nil	None
S	Built-in silencer, Direct exhaust Note 1)
K	Special wiring spec. (Except double wiring) Note 2)

Note 1) Built-in silencer type does not satisfy IP67.
Note 2) Specify wiring type of each station on the manifold specification sheet.

❻ Kit type

S **Kit (Serial transmission kit (for Output))**



IP40 specification
SI unit: **EX260** IP67 specification

Symbol	Protocol	Number of outputs	Communication connector
SD0A	Without SI unit		
SQA	DeviceNet™	32	M12
SQB		16	
SNA	PROFIBUS DP	32	M12
SNB		16	
SNC		32	D-sub Note 1)
SND		16	
SVA	CC-Link	32	M12
SVB		16	
SDA	EtherCAT	32	M12
SDB		16	
SFA	PROFINET	32	M12
SFB		16	
SEA	EtherNet/IP™	32	M12
SEB		16	

Note 1) D-sub S kit: IP40 specification (IP67 specification for all other S kits)
Note 2) For SI unit part number, refer to page 1.

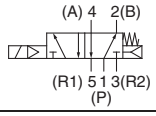
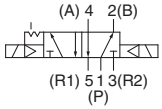
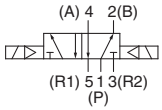
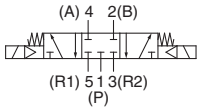
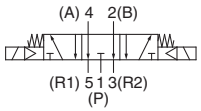
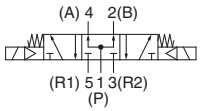
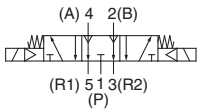
SMC

How to Order Valves

VQC 4 1 0 0 □ – 5 □ □

Series VQC4000 ❶ ❷ ❸ ❹ ❺ ❻

❶ Type of actuation

1	2-position single 
2	2-position double (Metal) 
	2-position double (Rubber) 
3	3-position closed center 
4	3-position exhaust center 
5	3-position pressure center 
6	3-position double check 

❷ Seal type

0	Metal seal
1	Rubber seal

❸ Function

Nil	Standard (1 W)
R	External pilot
Y Note 2)	Low wattage type (0.5 W)

Note 1) When two or more symbols are specified, indicate them alphabetically.

Note 2) Select "Y" when a valve is continuously energized for long periods of time.

❹ Coil voltage

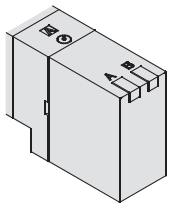
5	24 VDC

❺ Light/surge voltage suppressor

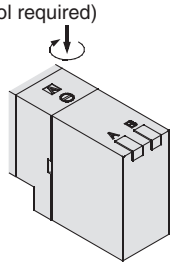
Nil	Yes
E	Without light, with surge voltage suppressor

❻ Manual override

Nil: Non-locking push type (Tool required)



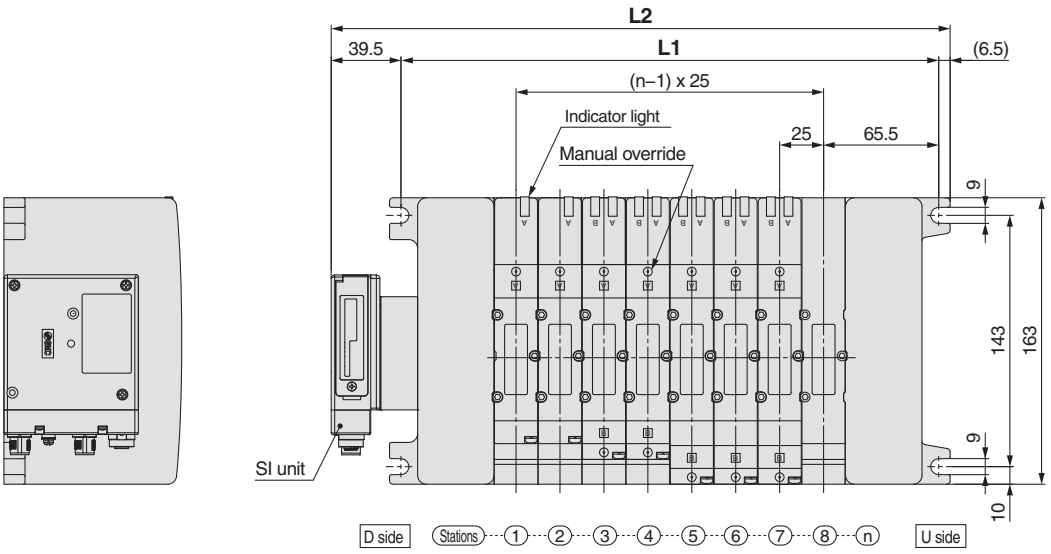
B: Locking type (Tool required)

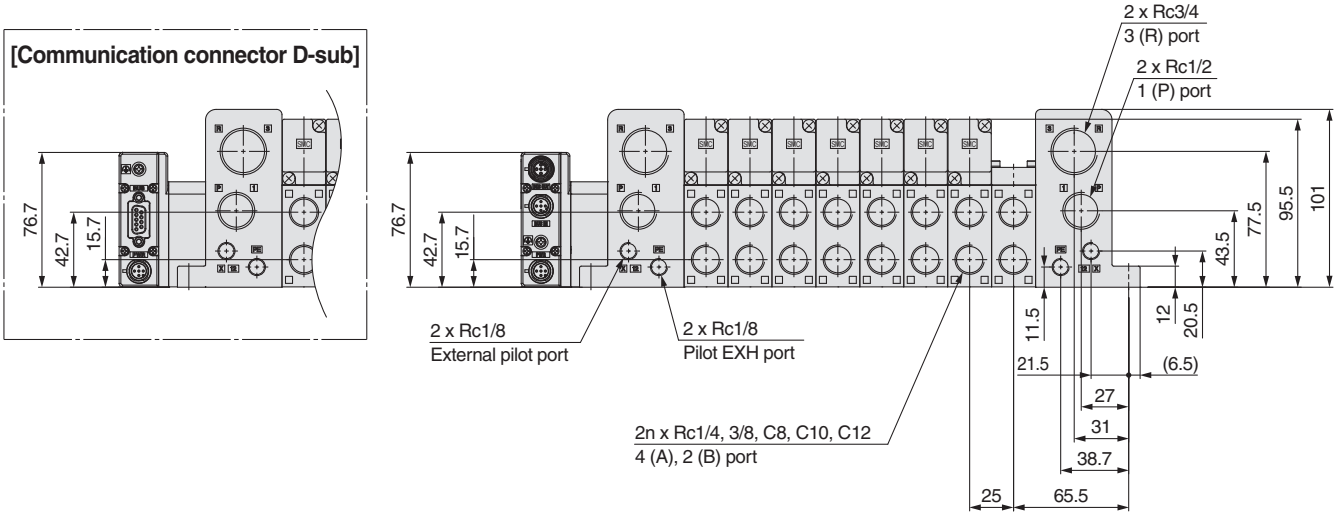


Refer to the SMC website or the VQC4000 series in Best Pneumatics No.1 for details on solenoid valve specifications, Common Precautions and Specific Product Precautions.

(mm)

VV5QC41
S Kit (Serial transmission kit: EX260)





n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	177	202	227	252	277	302	327	352	377	402	427	452	477	502	527	552

Plug-in Manifold Stacking Base S Kit (Serial Transmission): For EX260 Integrated-type (For Output) Serial Transmission System

Series S0700

CE RoHS

How to Order Manifold

SS0750 − 08 C4 C8 SNA N − B

❶ ❷ ❸ ❹ ❺ ❻

❶ Stations

In the case of the 32-output SI unit

Symbol	Stations	Note
01	1 station	Double wiring Note 1)
⋮	⋮	
16	16 stations	
01	1 station	Specified layout Note 2) (Available up to 32 solenoids)
⋮	⋮	
24	24 stations	

In the case of the 16-output SI unit

Symbol	Stations	Note
01	1 station	Double wiring Note 1)
⋮	⋮	
08	8 stations	
01	1 station	Specified layout Note 2) (Available up to 16 solenoids)
⋮	⋮	
16	16 stations	

Note 1) Double wiring: 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 the wiring specifications on the manifold specification sheet.
(Note that 2-position double, 3-position and 4-position valves cannot be used where single wiring has been specified.)
Note 3) Includes the number of blanking plate assemblies.

❷ Cylinder port size

Symbol	Port size	
C2	With ø2 One-touch fitting	Metric
C3	With ø3.2 One-touch fitting	
C4	With ø4 One-touch fitting	
CM	Mixed sizes and with port plug Note)	
N1	With ø1/8" One-touch fitting	Inch
N3	With ø5/32" One-touch fitting	
NM	Mixed sizes and with port plug Note)	

Note) Indicate the sizes on the manifold specification sheet in the case of "CM", "NM".

❸ P, R port size

Symbol	Port size	
Nil	With ø8 One-touch fitting Note)	Metric
C6	With ø6 One-touch fitting	
C8	With ø8 One-touch fitting	
N7	With ø1/4" One-touch fitting	Inch
N9	With ø5/16" One-touch fitting	

Note) The cylinder port is ø5/16" when measured in inches.

❹ Kit type

Symbol	Protocol	Number of outputs	Communication connector
SD0	Without SI unit		
SQA	DeviceNet™	32	M12
SQB		16	
SNA	PROFIBUS DP	32	M12
SNB		16	
SNC		32	D-sub Note 1)
SND		16	
SVA	CC-Link	32	M12
SVB		16	
SDA	EtherCAT	32	M12
SDB		16	
SFA	PROFINET	32	M12
SFB		16	
SEA	EtherNet/IP™	32	M12
SEB		16	

Note 1) The maximum number of stations is determined by the total number of solenoids.
For mixed single and double wirings, enter "-K" to the order code options.
Note 2) For SI unit part number, refer to page 1.

Type of actuation	Single	Double, Dual 3-port
Number of solenoids	1	2

❺ SI unit output polarity

Nil	Positive common
N	Negative common

❻ Option

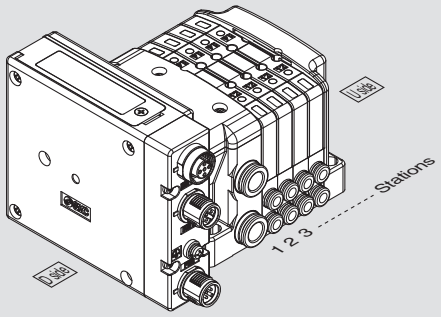
Symbol	Option
Nil	None
B Note 2)	With back pressure check valve (All stations)
D	With DIN rail (Rail length: Standard)
D0	Without DIN rail (With bracket)
D□ Note 3)	With DIN rail (Rail length specified, □: Stations)
K Note 4)	Special wiring specifications (Except double wiring)
N	With name plate
R Note 5)	External pilot
S	Built-in silencer

Note 1) When two or more options are specified, indicate them alphabetically.
Example) -BKN
Note 2) When the back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position on the manifold specification sheet.
Note 3) The available number of stations is larger than the number of manifold stations.
Note 4) Indicate the wiring specifications for mixed single and double wirings.
Note 5) Refer to the S0700 series catalog (CAT.NAS11-88) for details.

* **Refer to the S0700 series catalog (CAT.NAS11-88) for manifold optional parts.**
* **Refer to the S0700 series catalog (CAT.NAS11-88) for manifold exploded view.**
* **When the "SD0" (Without SI unit) is specified, "-D", "-D□" cannot be selected.**

How to Order Manifold Assembly

Example (Serial transmission kit)



SS0750-04C4SNAN ···1 set – Manifold base part no.
∗S0720-5····· 4 sets – Valve part no. (Stations 1 to 4)
∗ Prefix the asterisk to the part nos. of the solenoid valve, etc.
Write sequentially from the 1st station on the D side.
When part nos. written collectively are complicated, specified on the manifold specification sheet.

• Specify the part numbers for valves and options together beneath the manifold base part number.

How to Order Valves

S07 1 0 □ – 5

Type of actuation

Symbol	Port size
1	2-position single
2	2-position double
A	4-position dual 3-port (N.C. + N.C.) [Exhaust center]
B	4-position dual 3-port (N.O. + N.O.) [Pressure center]
C	4-position dual 3-port (N.C. + N.O.)

Note) Refer to the S0700 series catalog (CAT.NAS11-88) for symbol.

Base mounted plug-in

Function

Symbol	Specification
Nil	Standard
R	External pilot Note)

Note) Not applicable for dual 3-port valves

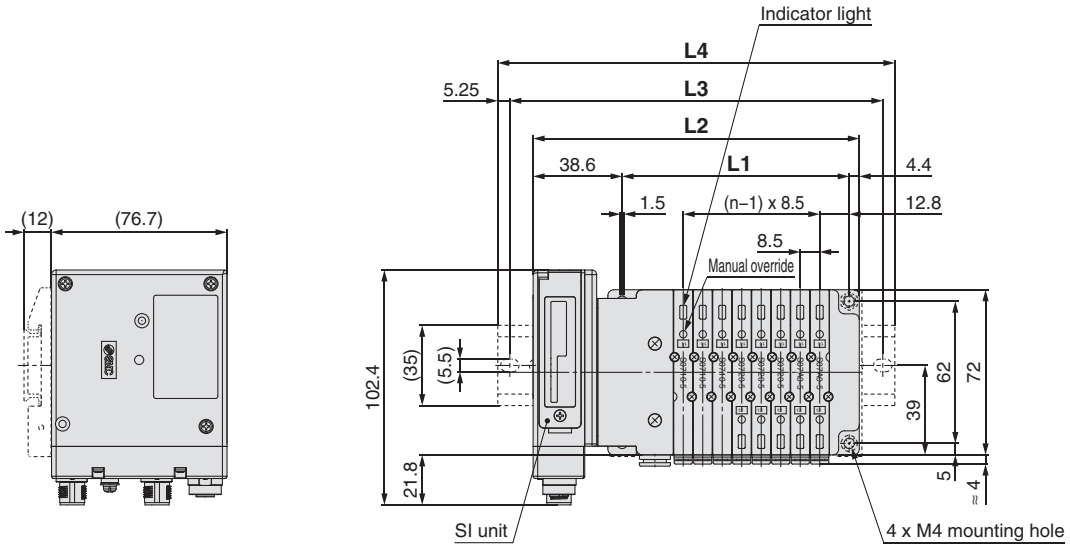
Voltage: 24 VDC

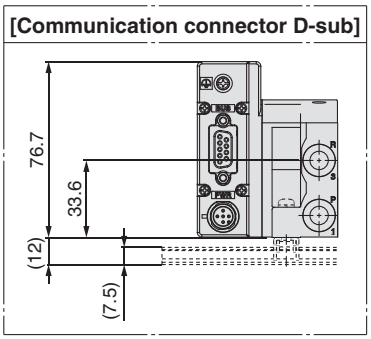
Refer to the SMC website or the S0700 series catalog (CAT.NAS11-88) for details on solenoid valve specifications, Common Precautions and Specific Product Precautions.

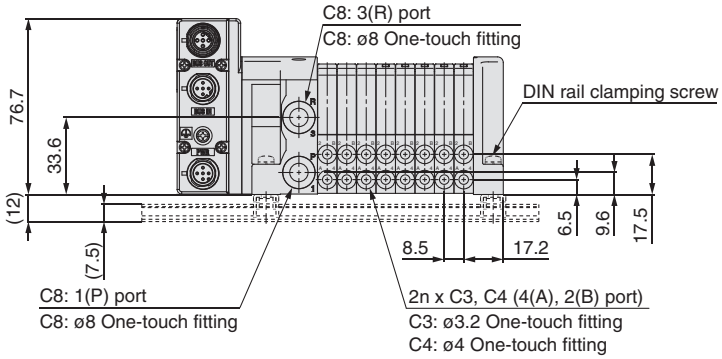
Dimensions

(mm)

SS0750
S Kit (Serial transmission kit: EX260)







Dimensions

Formula L1 = 8.5n + 31, L2 = 8.5n + 74 n: Station (Maximun 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	39.5	48	56.5	65	73.5	82	90.5	99	107.5	116	124.5	133	141.5	150	158.5	167
L2	82.5	91	99.5	108	116.5	125	133.5	142	150.5	159	167.5	176	184.5	193	201.5	210
L3	112.5	112.5	125	137.5	137.5	150	162.5	162.5	175	187.5	187.5	200	212.5	212.5	225	237.5
L4	123	123	135.5	148	148	160.5	173	173	185.5	198	198	210.5	223	223	235.5	248

Series EX260
Specific Product Precautions 1

Be sure to read before handling. Refer to back cover for Safety Instructions, "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" for 3/4/5 Port Solenoid Valve Precautions. The Operation Manual can be downloaded from the SMC website, http://www.smcworld.com

Design/Selection

⚠Warning

1. Use this product within the specification range.

Using beyond the specified specifications range can cause fire, malfunction, or damage to the system.

Check the specifications before operation.

2. When using for an interlock circuit:

- **Provide a multiple interlock system which is operated by another system (such as mechanical protection function).**
- **Perform an inspection to confirm that it is working properly.**

This may cause possible injury due to malfunction.

⚠Caution

1. When applicable to UL, use a Class 2 power supply unit conforming to UL1310 for direct current power supply.

2. Use this product within the specified voltage range.

Using beyond the specified voltage range is likely to cause the units and connecting devices to be damaged or to malfunction.

3. Do not install a unit in a place where it can be used as a foothold.

Applying any excessive load such as stepping on the unit by mistake or placing a foot on it, will cause it to break.

4. Keep the surrounding space free for maintenance.

When designing a system, take into consideration the amount of free space needed for performing maintenance.

5. Do not remove the name plate.

Improper maintenance or incorrect use of operation manual can cause failure and malfunction. Also, there is a risk of losing conformity with safety standards.

Mounting

⚠Caution

1. When handling and assembling units:

- **Do not apply excessive force to the unit when disassembling.**

  The connecting portions of the unit are firmly joined with seals.
- **When joining units, take care not to get fingers caught between units.**

  Injury can result.

2. Do not drop, bump, or apply excessive impact.

Otherwise, the unit can become damaged, malfunction, or fail to function.

3. Observe the tightening torque range.

Tightening outside of the allowable torque range will likely damage the screw.

IP67 cannot be guaranteed if the screws are not tightened to the specified torque.

Mounting

⚠Caution

4. When lifting a large size manifold solenoid valve unit, take care to avoid causing stress to the valve connection joint.

The connection parts of the unit may be damaged. Because the unit may be heavy, carrying and installation should be performed by more than one operator to avoid strain or injury.

5. When placing a manifold, mount it on a flat surface.

Torsion in the whole manifold can lead to trouble such as air leakage or defective insulation.

Wiring

⚠Caution

1. Check the grounding to maintain the safety of the reduced wiring system and for anti-noise performance.

Provide a specific grounding as close to the unit as possible to minimize the distance to grounding.

2. Avoid repeatedly bending or stretching the cable and applying a heavy object or force to it.

Wiring applying repeated bending and tensile stress to the cable can break the circuit.

3. Avoid miswiring.

If miswired, there is a danger of malfunction or damage to the reduced wiring system.

4. Do not wire while energizing the product.

There is a danger of malfunction or damage to the reduced wiring system or output device.

5. Avoid wiring the power line and high pressure line in parallel.

Noise or surge produced by signal line resulting from the power line or high pressure line could cause malfunction.Wiring of the reduced wiring system or output device and the power line or high pressure line should be separated from each other.

6. Check the wiring insulation.

Defective insulation (contact with other circuits, improper insulation between terminals, etc.) may cause damage to the reduced wiring system or output device due to excessive voltage and current.

7. When a reduced wiring system is installed in machinery/equipment, provide adequate protection against noise by using noise filters, etc.

Noise in signal lines may cause malfunction.

Series EX260
Specific Product Precautions 2

Be sure to read before handling. Refer to back cover for Safety Instructions, "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" for 3/4/5 Port Solenoid Valve Precautions. The Operation Manual can be downloaded from the SMC website, http://www.smcworld.com

Wiring

⚠Caution

8. When connecting wires of output device, prevent water, solvent or oil from entering inside the connector section.

This can cause damage, equipment failure or malfunction.

9. Avoid wiring patterns in which excessive stress is applied to the connector.

This may cause malfunction or damage to the unit due to contact failure.

10. Select connectors that are ø16 or less if mounting manifolds directly using fieldwireable connectors for SI unit power supply wiring.

Using large diameter connectors causes interference with the mounting surface.

The following cables with connectors are recommended.

■ For EX260-SPR□/-SDN□/-SEC□/-SPN□/-SEN□

<Cable with connector>

- EX500-AP□□□-□
- PCA-1401804/-1401805/-1401806

■ For EX260-SMJ□

<Cable with connector>

- EX9-AC□□□-1
- PCA-1401807/-1401808/-1401809

Operating Environment

⚠Warning

1.Do not use in an atmosphere containing an inflammable gas or explosive gas.

Use in such an atmosphere is likely to cause a fire or explosion. This system is not explosion-proof.

⚠Caution

1. Select the proper type of enclosure according to the environment of operation.

IP67 is achieved when the following conditions are met.

1) Provide appropriate wiring between all units using electrical wiring cables, communication connectors and cables with M12 connectors.

2) Suitable mounting of each unit and manifold valve.

3) Be sure to mount a seal cap on any unused connectors.

If using in an environment that is exposed to water splashes, please take measures such as using a cover.

When the enclosure is IP40, do not use in an operating environment or atmosphere where it may come in contact with corrosive gas, chemical agents, seawater, water, or water vapor.

When connected to the EX260-SPR5/6/7/8, manifold enclosure is IP40.

Operating Environment

⚠Caution

2. Provide adequate protection when operating in locations such as the following.

Failure to do so may cause damage or malfunction.

The effect of countermeasures should be checked in individual equipment and machine.

1) Where noise is generated by static electricity, etc.

2) Where there is a strong electric field

3) Where there is a danger of exposure to radiation

4) When in close proximity to power lines or high voltage lines

3. Do not use in an environment where oil and chemicals are used.

Operating in environments with coolants, cleaning solvents, various oils or chemicals may cause adverse effects (damage, malfunction) to the unit even in a short period of time.

4. Do not use in an environment where the product could be exposed to corrosive gas or liquid.

This may damage the unit and cause it to malfunction.

5. Do not use in locations with sources of surge generation.

Installation of the unit in an area around the equipment (electromagnetic lifters, high frequency induction furnaces, welding machine, motors, etc.), which generates the large surge voltage could cause to deteriorate an internal circuitry element of the unit or result in damage. Implement countermeasures against the surge from the generating source, and avoid touching the lines with each other.

6. The product is CE marked, but not immune to lightning strikes. Take measures against lightning strikes in your system.

7. Keep dust, wire scraps and other extraneous material from getting inside the product.

This may cause malfunction or damage.

8. Mount the unit in such locations, where no vibration or shock is affected.

This may cause malfunction or damage.

9. Do not use in places where there are cyclic temperature changes.

In case that the cyclic temperature is beyond normal temperature changes, the internal unit is likely to be adversely effec-ted.

10. Do not use in direct sunlight.

Do not use in direct sunlight. It may cause malfunction or damage.

11. Use this product within the specified ambient temperature range.

This may cause malfunction.

12. Do not use in places where there is radiated heat around it.

Such a place is likely to cause malfunction.

Series EX260
Specific Product Precautions 3

Be sure to read before handling. Refer to back cover for Safety Instructions, "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" for 3/4/5 Port Solenoid Valve Precautions. The Operation Manual can be downloaded from the SMC website, http://www.smcworld.com

Adjustment/Operation

⚠Warning

1. Do not perform operation or setting with wet hands.

There is a risk of electrical shock.

⚠Caution

1. Use a watchmakers' screwdriver with thin blade for the setting of each switch of the SI unit.
When setting the switch, do not touch other unrelated parts.

This may cause parts damage or malfunction due to a short circuit.

2. Provide adequate setting for the operating conditions.

Failure to do so could result in malfunction.
Refer to the operation manual for setting of the switches.

3. For details on programming and address setting, refer to the manual from the PLC manufacturer.

The content of programming related to protocol is designed by the manufacturer of the PLC used.

4. For the EX260-SPN□, the side of the SI unit may become hot.

It may cause burns.

Maintenance

⚠Warning

1. Do not disassemble, modify (including circuit board replacement) or repair this product.

Such actions are likely to cause injuries or breakage.

2. When an inspection is performed,
- **Turn off the power supply.**
- **Stop the air supply, exhaust the residual pressurein piping and verify that the air is released before performing maintenance work.**

Unexpected malfunction of system components and injury can result.

⚠Caution

1. When handling and replacing the unit:
- **Do not apply excessive force to the unit when disassembling.**

The connecting portions of the unit are firmly joined with seals.
- **When joining units, take care not to get fingers caught between units.**

Injury can result.

2. Perform periodic inspection.

Unexpected malfunction in the system composition devices is likely to occur due to malfunction of machinery or equipment.

3. After maintenance, make sure to perform an appropriate functionality inspection.

In cases of abnormality such as faulty operation, stop operation. Unexpected malfunction in the system composition devices is likely to occur.

4. Do not use benzene and thinner for cleaning units.

Damage to the surface or erasure of the display can result.
Wipe off any stains with a soft cloth.
If the stain is persistent, wipe off with a cloth soaked in a dilute solution of neutral detergent and wrung out tightly, and then finish with a dry cloth.

Other

⚠Caution

1. Refer to the catalog of each series for Common Precautions and Specific Product Precautions on manifold solenoid valves.

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots - Safety.
etc.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.
Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.
The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.
1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.
1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. The product is provided for use in manufacturing industries.
The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".
Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered.*2)
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) **Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Revision history	
Edition B	● EtherNet/IP™ added to applicable Fieldbus protocols.
	QS

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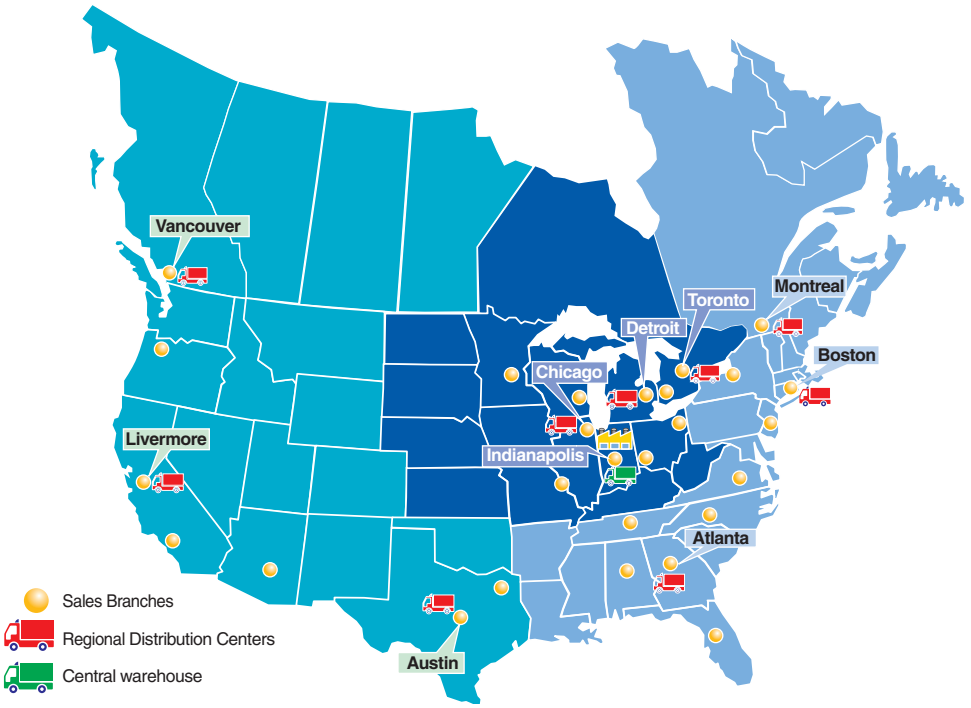

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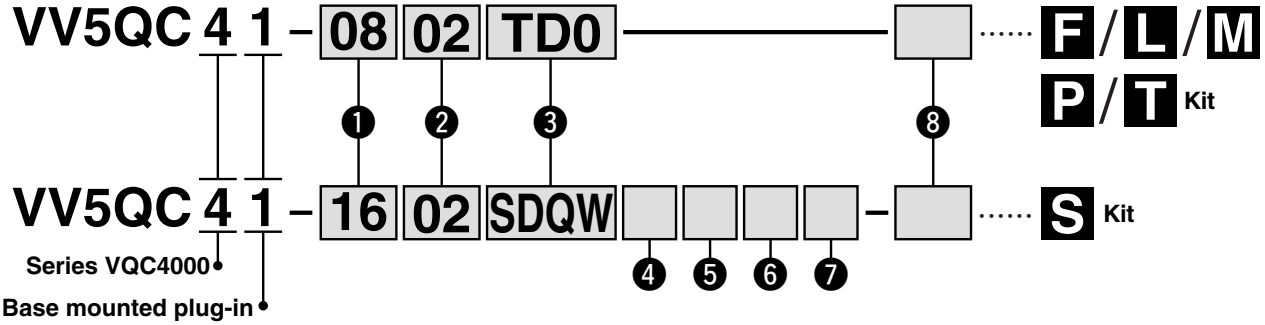
QT-RRD-5M

Base Mounted
Plug-in Unit
Series VQC4000

How to Order Manifold



❶ Stations

01	1 station
⋮	⋮

The minimum or maximum number of stations differs depending on the electrical entry. (Refer to ③)

Note) In the case of compatibility with the S kit/AS-Interface, the maximum number of solenoids is as shown below, so please be careful of the number of stations.
8 in/8 out: Maximum 8 solenoids
4 in/4 out: Maximum 4 solenoids

❷ Cylinder port size

C8	With ø8 One-touch fitting
C10	With ø10 One-touch fitting
C12	With ø12 One-touch fitting
02	Rc 1/4 Note)
03	Rc 3/8 Note)
B	Bottom ported Rc 1/4 Note)
CM	Mixed

Note) Besides Rc, also compatible with G, NPT/NPTF. Part number displayed is as shown below.

V5QC41-0803 □ TD0

Cylinder port •

Thread type •

Nil	Rc
F	G
T	NPT/NPTF

❹ SI unit COM

SI unit COM		EX240 integrated type (for I/O) serial transmission system	
		DeviceNet	PROFIBUS DP
Nil	+ COM	○	—
N	− COM	—	○

SI unit COM		EX250 integrated type (for I/O) serial transmission system						
		DeviceNet	PROFIBUS DP	CC-Link	AS-Interface	CANopen	ControlNet	EtherNet/IP
Nil	+ COM	—	—	○	—	—	—	—
N	− COM	○	○	—	○	○	○	p

SI unit COM		EX500 gateway type serial transmission system			
		DeviceNet	PROFIBUS DP	CC-Link	EtherNet/IP
Nil	+ COM	○	○	○	○
N	− COM	○	○	○	○

Note) Leave the box blank for the SI unit COM without SI unit (SDO□).

❺ Number of input blocks
(Enter only for S kit compliant with EX240 and EX250)

Symbol	No. of blocks	EX240	EX250
Nil	Without SI unit	○	○
0	Without input block	○	○
1	With 1 input block	○	○
⋮	⋮	○	○
4	With 4 input blocks	○	○
⋮	⋮	—	○
8	With 8 input blocks	—	○

❻ Input block type (Fill out for I/O unit only)

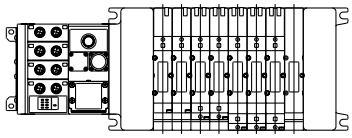
Nil	Without input block
0	M12, 8 inputs (EX240)
1	M12, 2 inputs (EX250)
2	M12, 4 inputs (EX250)
3	M8, 4 inputs (EX250)

❼ Input block COM
(Enter only for S kit compliant with EX240 and EX250)

Nil	PNP sensor input (+ COM) or without input block
N	NPN sensor input (– COM)

❽ Option

Nil	None
K	Special wiring specifications (except for double wiring)
N	With name plate (available for T kit only)



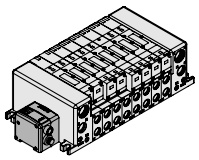
D side Stations···1···2···3···4···5···6···7···8···n U side

∗ Stations are counted from station 1 on the D side.

❸ Kit Designation/Electrical Entry/Cable Length

* Numbers in parentheses represent the maximum number of solenoids in the case of mixed single and double wiring. The total number of solenoids determines the maximum number of stations. When ordering mixed wiring, please add the option symbol "-K".

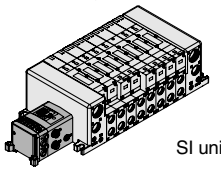
S Kit (Serial transmission kit: EX500 gateway type)



SI unit: **EX500** — **IP67 compliant**

SD0A	Serial kit without SI unit	1 to 8 stations (16 stations)
SDA2	Device Net, PROFIBUS DP, CC-Link, Ether Net/IP	

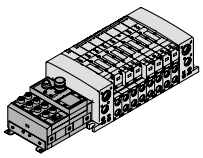
S Kit (Serial transmission kit: EX250 integrated type (for I/O))



SI unit: **EX250** — **IP40 compliant** **IP67 compliant**

SD0	Serial kit without SI unit	1 to 12 stations (16 stations)
SDQ	Serial kit for DeviceNet	
SDN	Serial kit for PROFIBUS-DP	
SDV	Serial kit for CC-LINK	
SDTA	AS-i, 8 in/out, 31 slave modes, 2 power supply systems	1 to 4 stations (8 stations)
SDTB	AS-i, 4 in/out, 31 slave modes, 2 power supply systems	1 to 2 stations (4 stations)
SDTC Note 1)	AS-i, 8 in/out, 31 slave modes, 1 power supply systems	1 to 4 stations (8 stations)
SDTD Note 1)	AS-i, 4 in/out, 31 slave modes, 1 power supply systems	1 to 2 stations (4 stations)
SDY	For CANopen	1 to 12 stations (16 stations)
SDZCN	For ControlNet (IP40 complaint) Note 2)	
SDZEN	For EtherNet/IP	

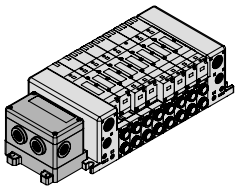
S Kit (Serial transmission kit: EX240 integrated type (for I/O))



SI unit: **EX240** — **IP65 compliant**

SD0W	Serial kit without SI unit	1 to 12 stations (16 stations)
SDQW	Serial kit for DeviceNet	
SDNW	Serial kit for PROFIBUS-DP	

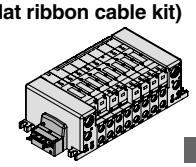
S Kit (Serial transmission kit: EX126 integrated type (for output))



SI unit: **EX126** — **IP67 compliant**

SDVB	Serial kit for CC-LINK	1 to 8 stations (16 stations)

P Kit (Flat ribbon cable kit)

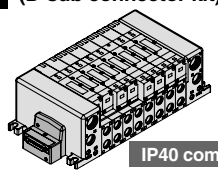


IP40 compliant

Note) For a 20P flat ribbon cable, the cable assembly must be ordered separately.

PD0	Flat ribbon cable kit (26P) without cable	1 to 12 stations (16 stations)
PD1	Flat ribbon cable kit (26P) with 1.5 m cable	
PD2	Flat ribbon cable kit (26P) with 3.0 m cable	
PD3	Flat ribbon cable kit (26P) with 5.0 m cable	
PDC	Flat ribbon cable kit (20P) without cable (1)	1 to 9 stations (16 stations)

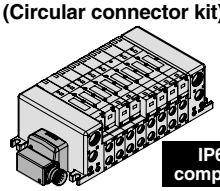
F Kit (D-sub connector kit)



IP40 compliant

FD0	D-sub connector kit (25P) without cable	1 to 12 stations (16 stations)
FD1	D-sub connector kit (25P) with 1.5 m cable	
FD2	D-sub connector kit (25P) with 3.0 m cable	
FD3	D-sub connector kit (25P) with 5.0 m cable	

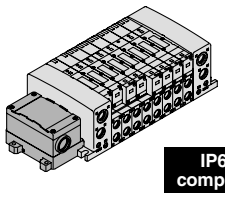
M Kit (Circular connector kit)



IP67 compliant

MD0	Circular connector kit (26P) without cable	1 to 12 stations (16 stations)
MD1	Circular connector kit (26P) with 1.5 m cable	
MD2	Circular connector kit (26P) with 3.0 m cable	
MD3	Circular connector kit (26P) with 5.0 m cable	

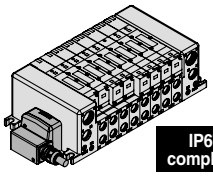
T Kit (Terminal block box kit)



IP67 compliant

TD0	Terminal block box kit	1 to 10 stations (16 stations)

L Kit (Lead wire kit)



IP67 compliant

LD0	Lead wire kit (25 core) 0.6 m lead wire	1 to 12 stations (16 stations)
LD1	Lead wire kit (25 core) 1.5 m lead wire	
LD2	Lead wire kit (25 core) 3.0 m lead wire	

* The maximum number of stations displayed in parentheses is applied to the special wiring specification (Option "-K").

Note 1) When selecting SI units with SDTC or SDTD specifications, there are limits to the supply current from the SI unit to the input block or valve. Refer to page 1667 for details.

Note 2) When selecting SI units with SDZCN specifications only, IP40 is compatible. (All other SI units are IP67 compliant.)

EX500 SI Unit Part No. Table

Symbol	Protocol type	Serial unit No.		Page
		NPN output (+ COM)	PNP output (– COM)	
SDA2	Serial kit for DeviceNet	EX500-Q001	EX500-Q101	P. 1688
	Serial kit for PROFIBUS-DP			
	Serial kit for CC-LINK			
	EtherNet/IP			

EX240 SI Unit Part No. Table

Symbol	Protocol type	Serial unit No.	Page
SDQW	For DeviceNet	EX240-SDN2	P. 1661
SDNW	For PROFIBUS DP	EX240-SPR1	

EX250 SI Unit Part No. Table

Symbol	Protocol type	Serial unit no.	Page
SDQ	Serial kit for DeviceNet	EX250-SDN1	P. 1664
SDN	Serial kit for PROFIBUS-DP	EX250-SPR1	
SDV	Serial kit for CC-LINK	EX250-SMJ2	
SDTA	AS-i, 8 in/out, 31 slave modes, 2 power supply systems	EX250-SAS3	
SDTB	AS-i, 4 in/out, 31 slave modes, 2 power supply systems	EX250-SAS5	
SDTC	AS-i, 8 in/out, 31 slave modes, 1 power supply systems	EX250-SAS7	
SDTD	AS-i, 4 in/out, 31 slave modes, 1 power supply systems	EX250-SAS9	
SDY	CANopen	EX250-SCA1A	
SDZCN	ControlNet	EX250-SCN1	
SDZEN	EtherNet/IP	EX250-SEN1	

Refer to pages 1680 to 1694 for the details of EX500 gateway type serial transmission systems, pages 1664 to 1679 for the details of EX250 integrated-type (for I/O) serial transmission systems and pages 1661 to 1663 for the details of EX240 integrated-type (for I/O) serial transmission systems.

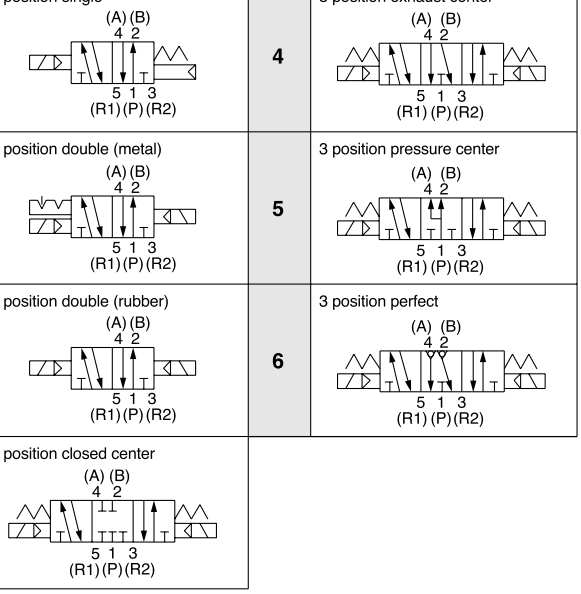
How to Order Valves

VQC 4 1 0 0 □ – 5 □ □

Series VQC4000 (A) (B) (C) (D) (E) (F)

Ⓐ Type of actuation

1	2 position single	4	3 position exhaust center
2	2 position double (metal)	5	3 position pressure center
	2 position double (rubber)	6	3 position perfect
3	3 position closed center		



Ⓑ Seal type

0	Metal seal
1	Rubber seal

Ⓒ Function

Nil	Standard type (1 W)
R	External pilot
Y	Low wattage type (0.5 W)

Note 1) When specifying more than one option, enter symbols in alphabetical order.

Note 2) Please select when you expect to energize the unit for extended periods of time. Refer to page 3 for details.

Ⓓ Coil voltage

5	24 VDC Note)
6	12 VDC

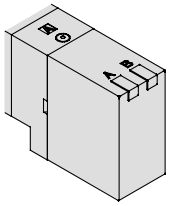
Note) S kit is only available for 24 VDC.

Ⓔ Light/Surge voltage suppressor

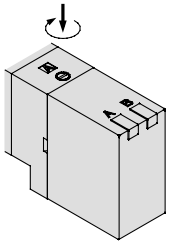
Nil	With
E	Without light, with surge voltage supressor

Ⓕ Manual override

Nil: Non-locking push type (Tool required)



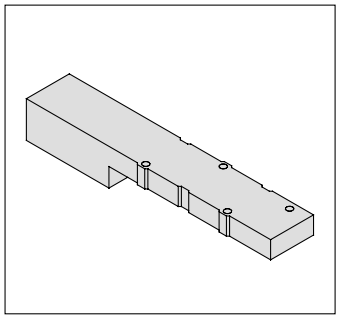
B: Locking type (Tool required)



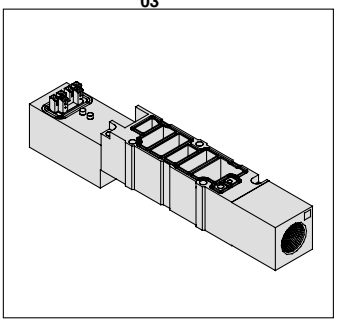
Manifold Option

Refer to pages 790 to 791 for option details.

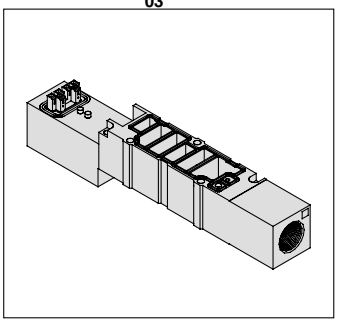
Blanking plate assembly
VVQ4000-10A-1



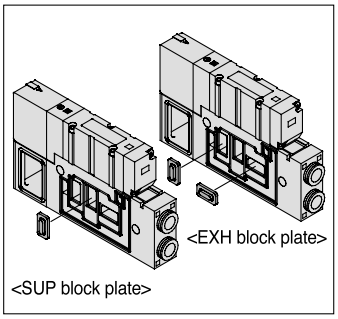
Individual SUP spacer
VVQ4000-P-1- $^{02}_{03}$



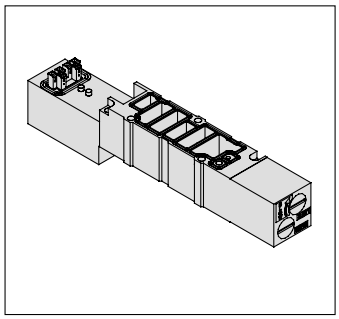
Individual EXH spacer
VVQ4000-R-1- $^{02}_{03}$



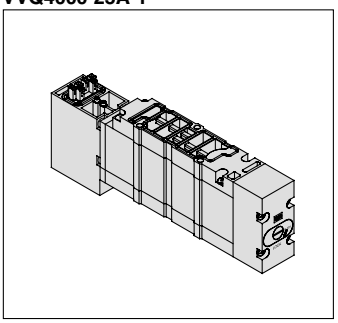
SUP/EXH block plate
VVQ4000-16A



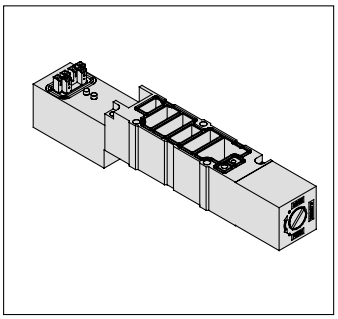
Throttle valve spacer
VVQ4000-20A-1



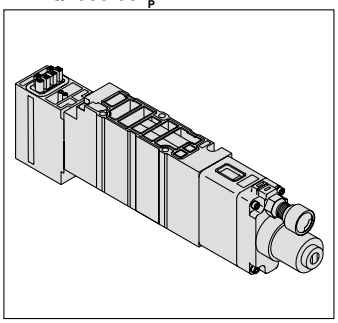
Residual pressure release valve perfect spacer
VVQ4000-25A-1 Note 1)



SUP stop valve spacer
VVQ4000-37A-1



Interface regulator
ARBQ4000-00-$^{A}_{B}$**-1**

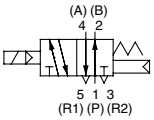


Note 1) Perfect spacers with residual pressure release valve cannot be combined with external pilot specifications.

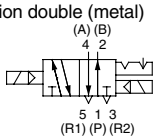
Series VQC
Base Mounted
Plug-in Unit

JIS Symbol

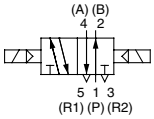
2 position single



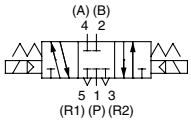
2 position double (metal)



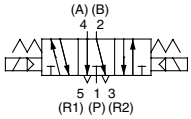
2 position double (rubber)



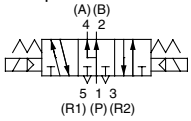
3 position closed center



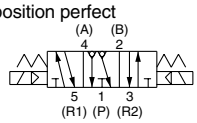
3 position exhaust center



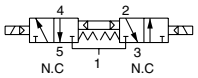
3 position pressure center



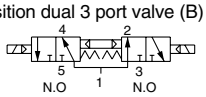
3 position perfect



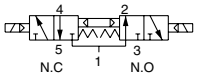
4 position dual 3 port valve (A)



4 position dual 3 port valve (B)



4 position dual 3 port valve (C)



Model

Series	No. of solenoids		Model		Flow characteristics: 1 → 4, 2 (P → A, B) C[dm³/(s•bar)]	b	Cv	Flow characteristics: 4, 2 → 5, 3 (A, B → R1, R2) C[dm³/(s•bar)]	b	Cv	Response time (ms) Note 2): Standard: 1 W	Low wattage	Mass (g)
VQC1000	2 position	Single	Metal seal	VQC1100	0.70	0.15	0.16	0.72	0.25	0.18	12 or less	15 or less	64
			Rubber seal	VQC1101	0.85	0.20	0.21	1.0	0.30	0.25	15 or less	20 or less	
		Double	Metal seal	VQC1200	0.70	0.15	0.16	0.72	0.25	0.18	10 or less	13 or less	78
			Rubber seal	VQC1201	0.85	0.20	0.21	1.0	0.30	0.25	15 or less	20 or less	
	3 position	Closed center	Metal seal	VQC1300	0.68	0.15	0.16	0.72	0.25	0.18	20 or less	26 or less	
			Rubber seal	VQC1301	0.70	0.20	0.16	0.65	0.42	0.18	25 or less	33 or less	
		Exhaust center	Metal seal	VQC1400	0.68	0.15	0.16	0.72	0.25	0.18	20 or less	26 or less	
			Rubber seal	VQC1401	0.70	0.20	0.16	1.0	0.30	0.25	25 or less	33 or less	
		Pressure center	Metal seal	VQC1500	0.70	0.15	0.16	0.72	0.25	0.18	20 or less	26 or less	
			Rubber seal	VQC1501	0.85	0.20	0.21	0.65	0.42	0.18	25 or less	33 or less	
	4 position	Dual 3 port valve	Rubber seal	VQC1A/B/C01	0.70	0.20	0.16	0.70	0.20	0.16	25 or less	33 or less	
VQC2000	2 position	Single	Metal seal	VQC2100	2.0	0.15	0.46	2.6	0.15	0.60	22 or less	29 or less	90
			Rubber seal	VQC2101	2.2	0.28	0.55	3.2	0.30	0.80	24 or less	31 or less	
		Double	Metal seal	VQC2200	2.0	0.15	0.46	2.6	0.15	0.60	15 or less	20 or less	110
			Rubber seal	VQC2201	2.2	0.28	0.55	3.2	0.30	0.80	20 or less	26 or less	
	3 position	Closed center	Metal seal	VQC2300	2.0	0.15	0.46	2.0	0.18	0.46	29 or less	38 or less	
			Rubber seal	VQC2301	2.0	0.28	0.49	2.2	0.31	0.60	34 or less	44 or less	
		Exhaust center	Metal seal	VQC2400	2.0	0.15	0.46	2.6	0.15	0.60	29 or less	38 or less	
			Rubber seal	VQC2401	2.0	0.28	0.49	3.2	0.30	0.80	34 or less	44 or less	
		Pressure center	Metal seal	VQC2500	2.4	0.17	0.57	2.0	0.18	0.46	29 or less	38 or less	
			Rubber seal	VQC2501	3.2	0.28	0.80	2.2	0.31	0.60	34 or less	44 or less	
	4 position	Dual 3 port valve	Rubber seal	VQC2A/B/C01	1.8	0.28	0.46	1.8	0.28	0.46	34 or less	44 or less	
VQC4000	2 position	Single	Metal seal	VQC4100	6.2	0.19	1.5	6.9	0.17	1.7	20 or less	22 or less	230
			Rubber seal	VQC4101	7.2	0.43	2.1	7.3	0.38	2.0	25 or less	27 or less	
		Double	Metal seal	VQC4200	6.2	0.19	1.5	6.9	0.17	1.7	12 or less	12 or less	260
			Rubber seal	VQC4201	7.2	0.43	2.1	7.3	0.38	2.0	15 or less	15 or less	
	3 position	Closed center	Metal seal	VQC4300	5.9	0.23	1.5	6.3	0.18	1.6	45 or less	47 or less	280
			Rubber seal	VQC4301	7.0	0.34	1.9	6.4	0.42	1.9	50 or less	52 or less	
		Exhaust center	Metal seal	VQC4400	6.2	0.18	1.5	6.9	0.17	1.7	45 or less	47 or less	
			Rubber seal	VQC4401	7.0	0.38	1.9	7.3	0.38	2.0	50 or less	52 or less	
		Pressure center	Metal seal	VQC4500	6.2	0.18	1.9	6.4	0.18	1.6	45 or less	47 or less	
			Rubber seal	VQC4501	7.0	0.38	1.9	7.1	0.38	2.0	50 or less	52 or less	
		Perfect	Metal seal	VQC4600	2.7	—	—	3.7	—	—	55 or less	57 or less	500
			Rubber seal	VQC4601	2.8	—	—	3.9	—	—	62 or less	64 or less	

Note 1) Values represented in this column are in the following conditions:
VQC1000: Cylinder port size C6 without a back pressure check valve
VQC2000: Cylinder port size C8 without a back pressure check valve
VQC4000: Cylinder port size Rc 3/8

Note 2) Values represented in this column are based on JIS B 8375-1981 (operating with clean air and a supply pressure of 0.5 MPa. Equipped with light/surge voltage suppressor. Values vary depending on the pressure as well as the air quality.) Values for double types are when the switch is ON.

Standard Specifications

Valve specifications	Valve Configuration			Metal seal	Rubber seal
	Fluid			Air/Inert gas	
	VQC1000/2000	Max. operating pressure		0.7 MPa (High pressure type: 1.0 MPa) Note 4)	
		Min. operating pressure	Single	0.1 MPa	0.15 MPa
			Double	0.1 MPa	
			3 position	0.1 MPa	0.2 MPa
			4 position	—	0.15 MPa
	VQC4000	Max. operating pressure Note 3)		1.0 MPa (0.7 MPa)	
		Min. operating pressure	Single	0.15 MPa	0.2 MPa
			Double	0.15 MPa	
			3 position	0.15 MPa	0.2 MPa
	Proof pressure			1.5 MPa	
	Ambient and fluid temperature			–10 to 50°C Note 1)	
	Lubrication			Not required	
	Manual override			Push type/Locking type (tool required) option	
	Impact resistance/Vibration resistance			150/30 m/s² Note 2)	
	Enclosure			Dust proof (IP67 compliant)	
Electrical specifications	Rated coil voltage			24 VDC	
	Allowable voltage fluctuation			±10% of rated voltage	
	Coil insulation type			Equivalent to B type	
	Power consumption (Current)		24 VDC	1 W DC (42 mA), 0.5 W DC (21 mA)	
			12 VDC	1 W DC (83 mA), 0.5 W DC (42 mA)	

Note 1) Use dry air to prevent condensation at low temperatures.
Note 2) **Impact resistance:** No malfunction resulted from the impact test using a drop impact tester. The test was performed one time each in the axial and right angle directions of the main valve and armature, for both energized and de-energized states.
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000Hz. Test was performed in the axial and right angle directions of the main valve and armature for both energized and de-energized states.
Note 3) Values in ( ) are for the low wattage (0.5 W) specification.
Note 4) Metal seal type only.

Manifold Specifications

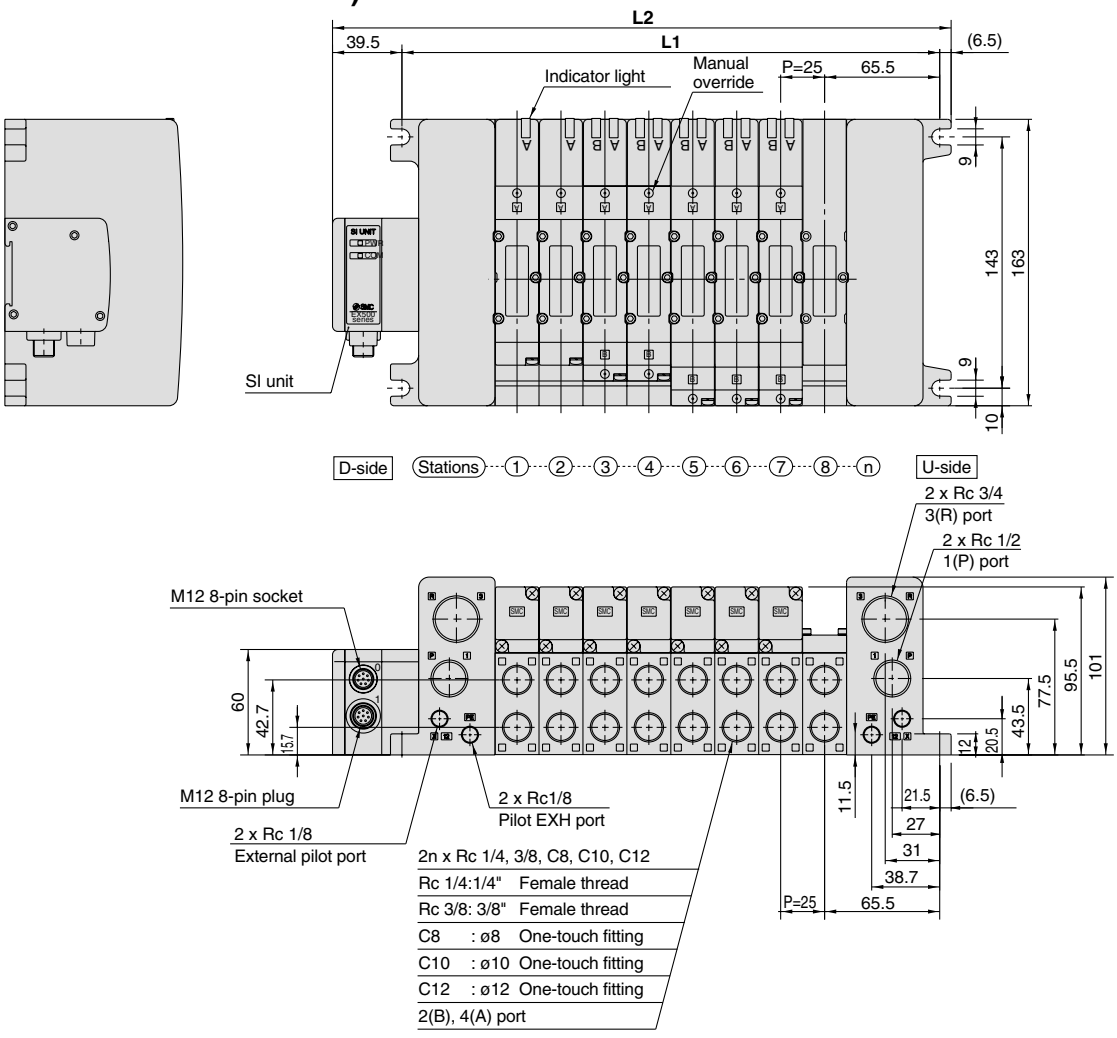
Series	Base model	Connection type	Piping specifications: Port direction	Piping specifications: Port size Note 1) 1, 3 (P, R)	Piping specifications: Port size Note 1) 2, 4 (A, B)	Applicable stations Note 2)	Applicable solenoid valves	5 station mass (g)
VQC1000	**VV5QC11-□□□**	■ F Kit: D-sub connector ■ P Kit: Flat cable ■ T Kit: Terminal block box ■ S Kit: Serial transmission ■ L Kit: Lead wire ■ M Kit: Circular connector	Side	C8 (For ø8) Options Direct outlet with built-in silencer	C3 (For ø3.2) C4 (For ø4) C6 (For ø6) M5 (M5 threads)	(F, L, M and P kits 1 to 12 stations) (T kit 1 to 10 stations)	VQC1□00-5 VQC1□01-5	628 (Single) 759 (Double, 3P)
VQC2000	**VV5QC21-□□□**		Side	C10 (For ø10) Options Direct outlet with built-in silencer Branch type C12 (for ø12)	C4 (For ø4) C6 (For ø6) C8 (For ø8)	(S kit 1 to 8 stations: EX500 1 to 12 stations: EX250)	VQC2□00-5 VQC2□01-5	1051 (Single) 1144 (Double, 3P)
VQC4000	**VV5QC41-□□□**		Side	P: Rc 1/2 R: Rc 3/4	C8 (For ø8) C10 (For ø10) C12 (For ø12) Rc 1/4 Rc 3/8	(F, L, M and P kits 1 to 12 stations) (T kit 1 to 10 stations) (S kit 1 to 12 stations: EX240, EX250 1 to 8 stations: EX500)	VQC4□00-5 VQC4□01-5	4150 • S kit (without unit) • Solenoid mass is not included.
			Bottom		Rc 1/4			

Note 1) One-touch fittings in inch sizes are also available.
Note 2) An optional specification for special wiring is available to increase the maximum number of stations.

S VQC1000/2000/4000

Kit (Serial Transmission Kit) Compatible with EX500 Gateway Type Serial Transmission System IP67 compliant

VV5QC41
S Kit (Serial transmission kit: EX500)



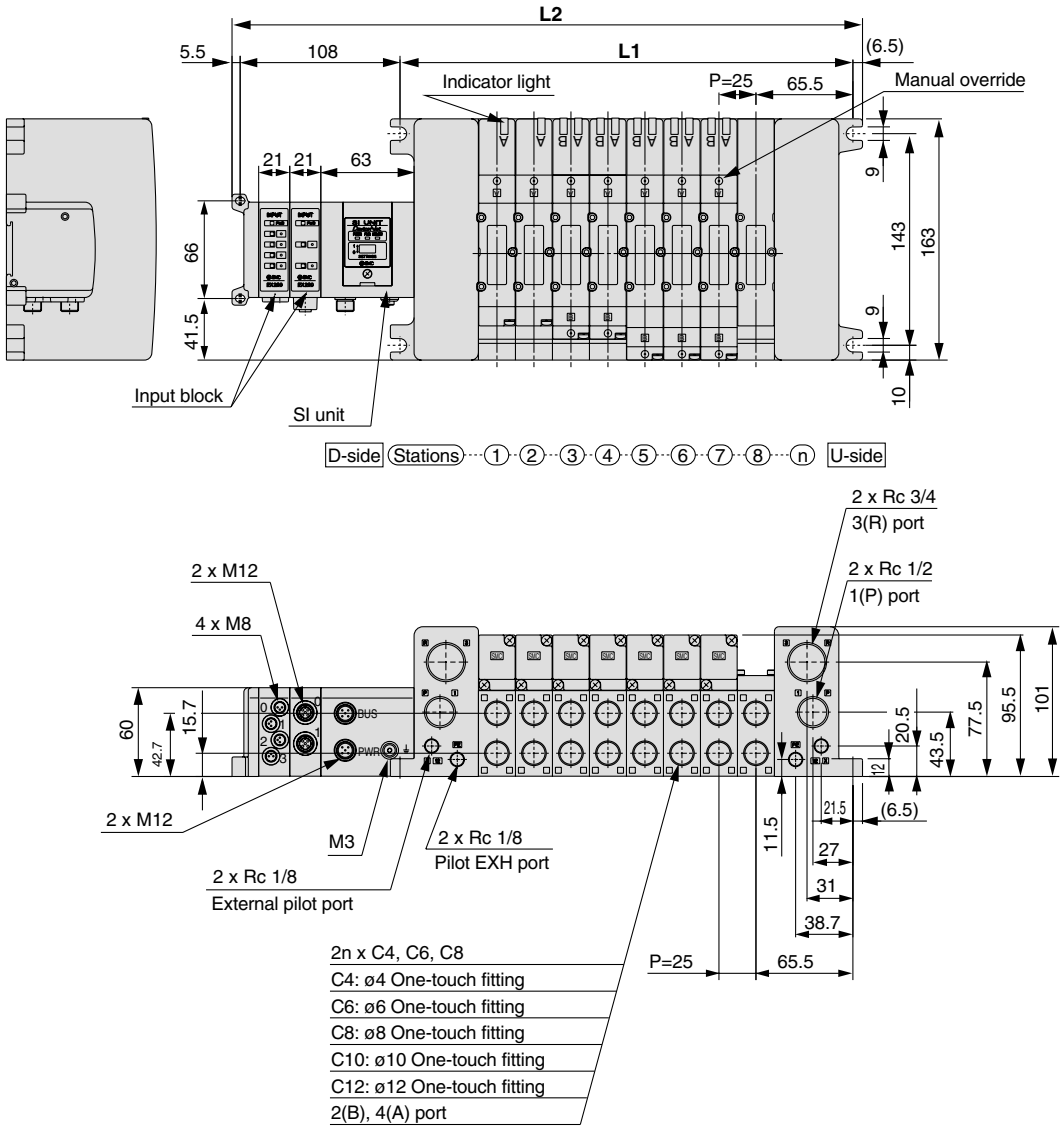
Formulas: L1 = 25n + 106, L2 = 25n + 152 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	177	202	227	252	277	302	327	352	377	402	427	452	477	502	527	552

S VQC1000/2000/4000

Kit (Serial Transmission Kit) Compatible with EX250 Integrated Type (for I/O) Serial Transmission System IP67 compliant

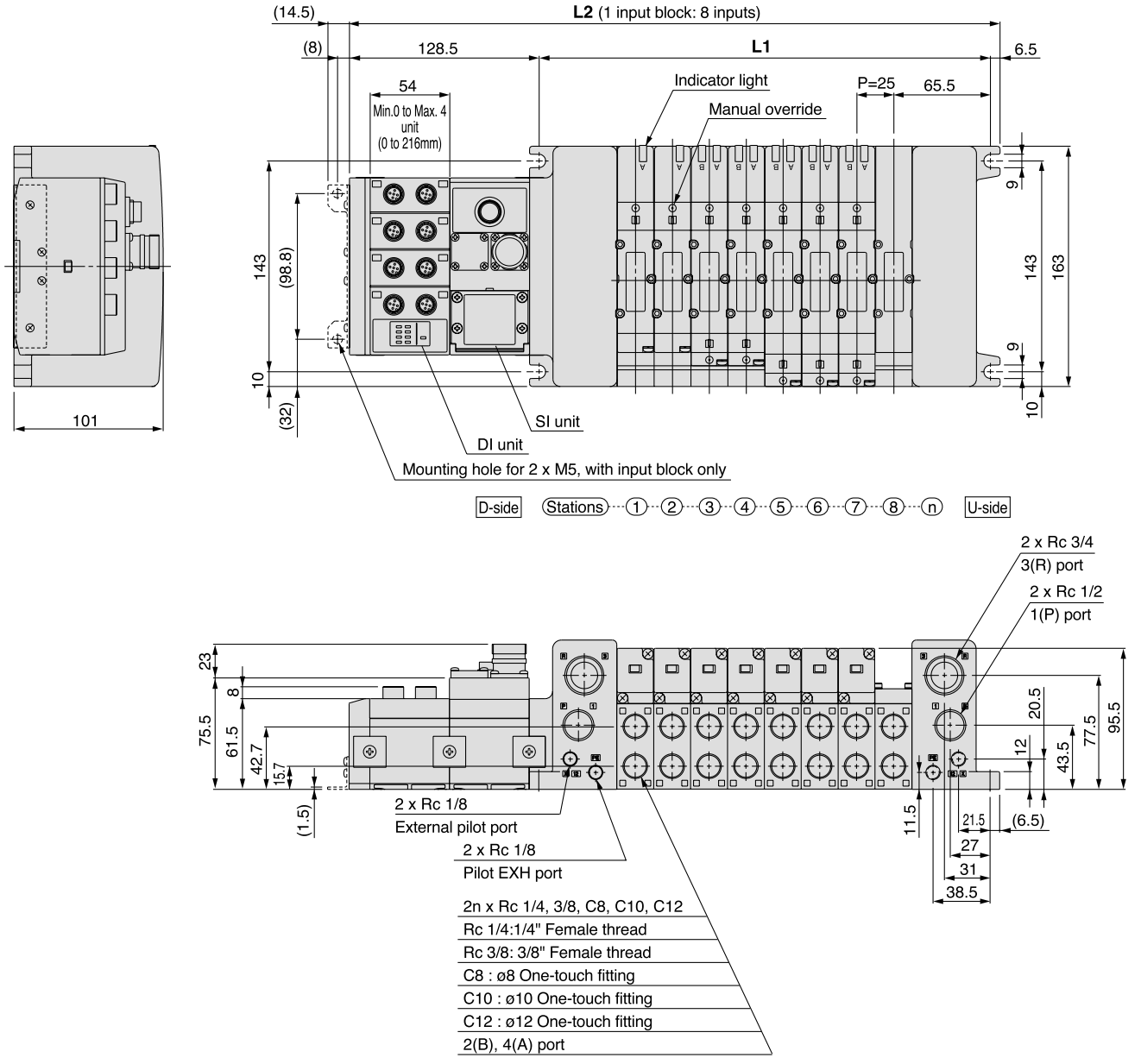
VV5QC41
S Kit
(Serial transmission kit: EX250)



Formulas: L1 = 25n + 106, L2 = 25n + 205 (For one input block. Add 21 mm for each additional input block.) n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	230	255	280	305	330	355	380	405	430	455	480	505	530	555	580	605

VV5QC41
S Kit (Serial transmission kit: EX240)



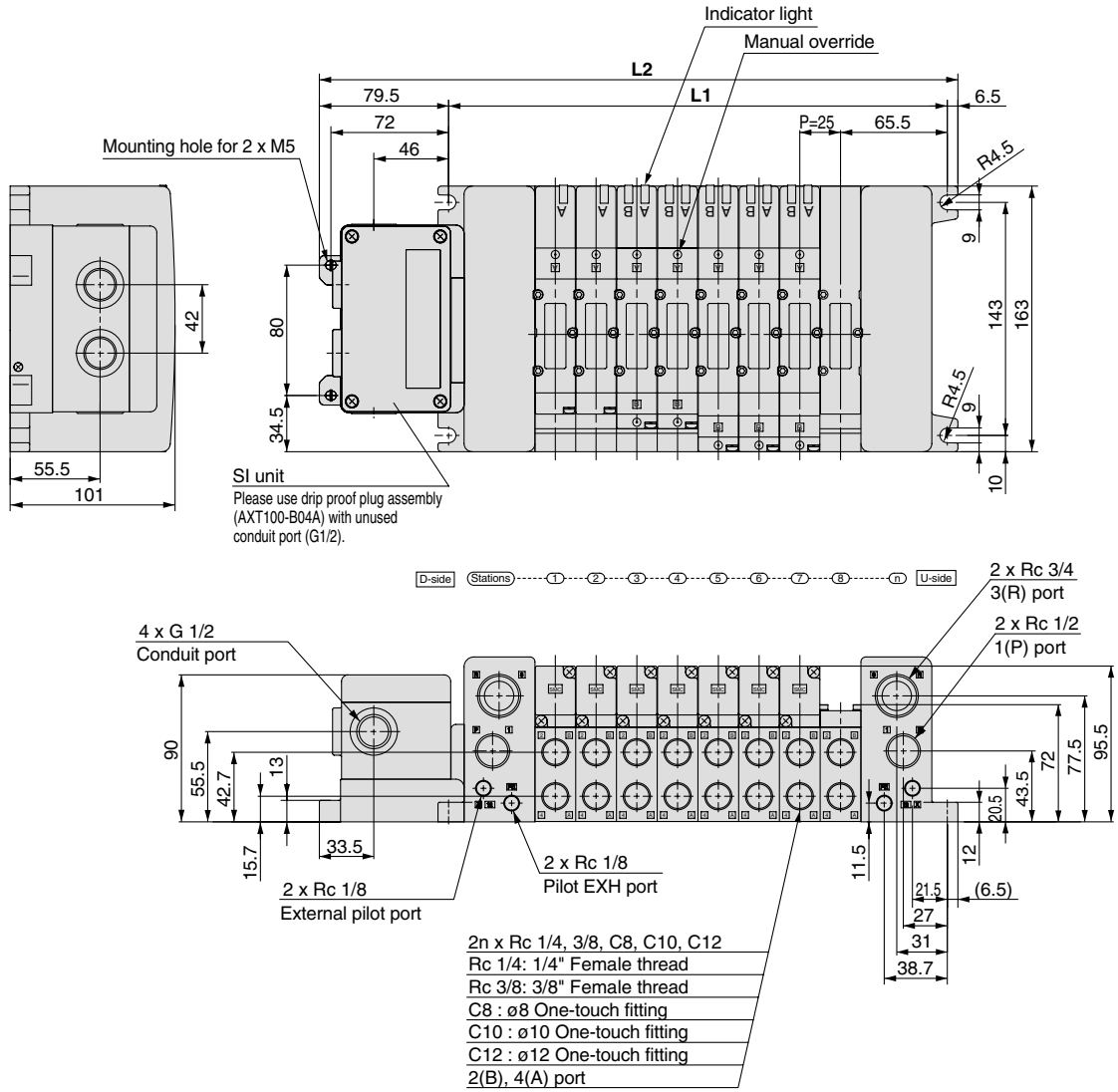
Formulas: L1 = 25n + 106, L2 = 25n + 241 (For 1 input block. For each additional input block, add 54 mm.) n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	266	291	316	341	366	391	416	441	466	491	516	541	566	591	616	641

S VQC1000/2000/4000

Kit (Serial Transmission Kit) Compatible with EX126 Integrated Type (for Output) Serial Transmission System IP67 compliant

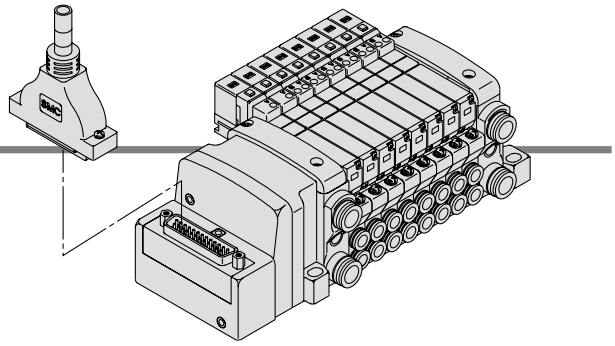
VV5QC41
S Kit (Serial transmission kit: EX126)



Formulas: L1 = 25n + 106, L2 = 25n + 192 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	217	242	267	292	317	342	367	392	417	442	467	492	517	542	567	592

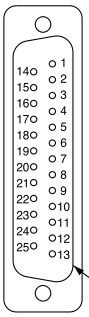
F VQC1000/2000/4000
Kit (D-sub connector kit) IP40 compliant



- **Using our D-sub connector for electrical connections greatly reduces labor, while it also minimizes wiring and saves space.**
- **We use a D-sub connector (25P) that conforms to MIL standards and is therefore widely compatible with many standard commercial models.**
- **Top or side entry for the connector can be changed freely, allowing for changes even after mounting, to meet any changing needs for space.**

Electrical Wiring Specifications

D-sub connector



As the standard electrical wiring specification used is for 12 stations or less, double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.

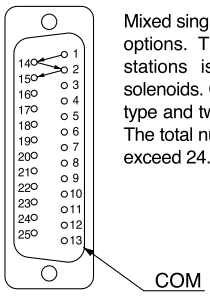
Lead wire colors for D-sub connector assemblies (AXT100-DS25-$^{015}_{030}_{050}$)

		Terminal no.	Polarity		Lead wire color	Dot marking
Station 1	SOL.A	1	(–)	(+)	Black	None
	SOL.B	14	(–)	(+)	Yellow	Black
Station 2	SOL.A	2	(–)	(+)	Brown	None
	SOL.B	15	(–)	(+)	Pink	Black
Station 3	SOL.A	3	(–)	(+)	Red	None
	SOL.B	16	(–)	(+)	Blue	White
Station 4	SOL.A	4	(–)	(+)	Orange	None
	SOL.B	17	(–)	(+)	Purple	None
Station 5	SOL.A	5	(–)	(+)	Yellow	None
	SOL.B	18	(–)	(+)	Gray	None
Station 6	SOL.A	6	(–)	(+)	Pink	None
	SOL.B	19	(–)	(+)	Orange	Black
Station 7	SOL.A	7	(–)	(+)	Blue	None
	SOL.B	20	(–)	(+)	Red	White
Station 8	SOL.A	8	(–)	(+)	Purple	White
	SOL.B	21	(–)	(+)	Brown	White
Station 9	SOL.A	9	(–)	(+)	Gray	Black
	SOL.B	22	(–)	(+)	Pink	Red
Station 10	SOL.A	10	(–)	(+)	White	Black
	SOL.B	23	(–)	(+)	Gray	Red
Station 11	SOL.A	11	(–)	(+)	White	Red
	SOL.B	24	(–)	(+)	Black	White
Station 12	SOL.A	12	(–)	(+)	Yellow	Red
	SOL.B	25	(–)	(+)	White	None
	COM.	13	(+)	(–) Note)	Orange	Red
			Positive COM spec.	**Negative COM spec.**		

Note) When using the negative COM specification for VQC1000/2000, use valves for negative COM.

Special Wiring Specifications (Options)

(For 25P)

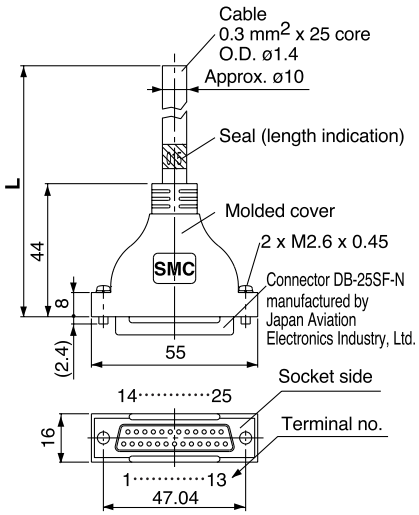


Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

Cable Assembly

AXT100-DS25-$^{015}_{030}_{050}$

(D-sub connector cable assemblies can be ordered with manifolds. Refer to manifold ordering.)



Lead wire colors for D-sub connector cable assembly terminal numbers

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 assemblies

Cable length (**L**)	Part no.	Note
1.5 m	AXT100-DS25-015	Cable 0.3 mm² x 25 cores
3 m	AXT100-DS25-030	
5 m	AXT100-DS25-050	

∗ When using a standard commercial connector, use a type 25P female connector conforming to MIL-C-24308.
∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

Electrical characteristics

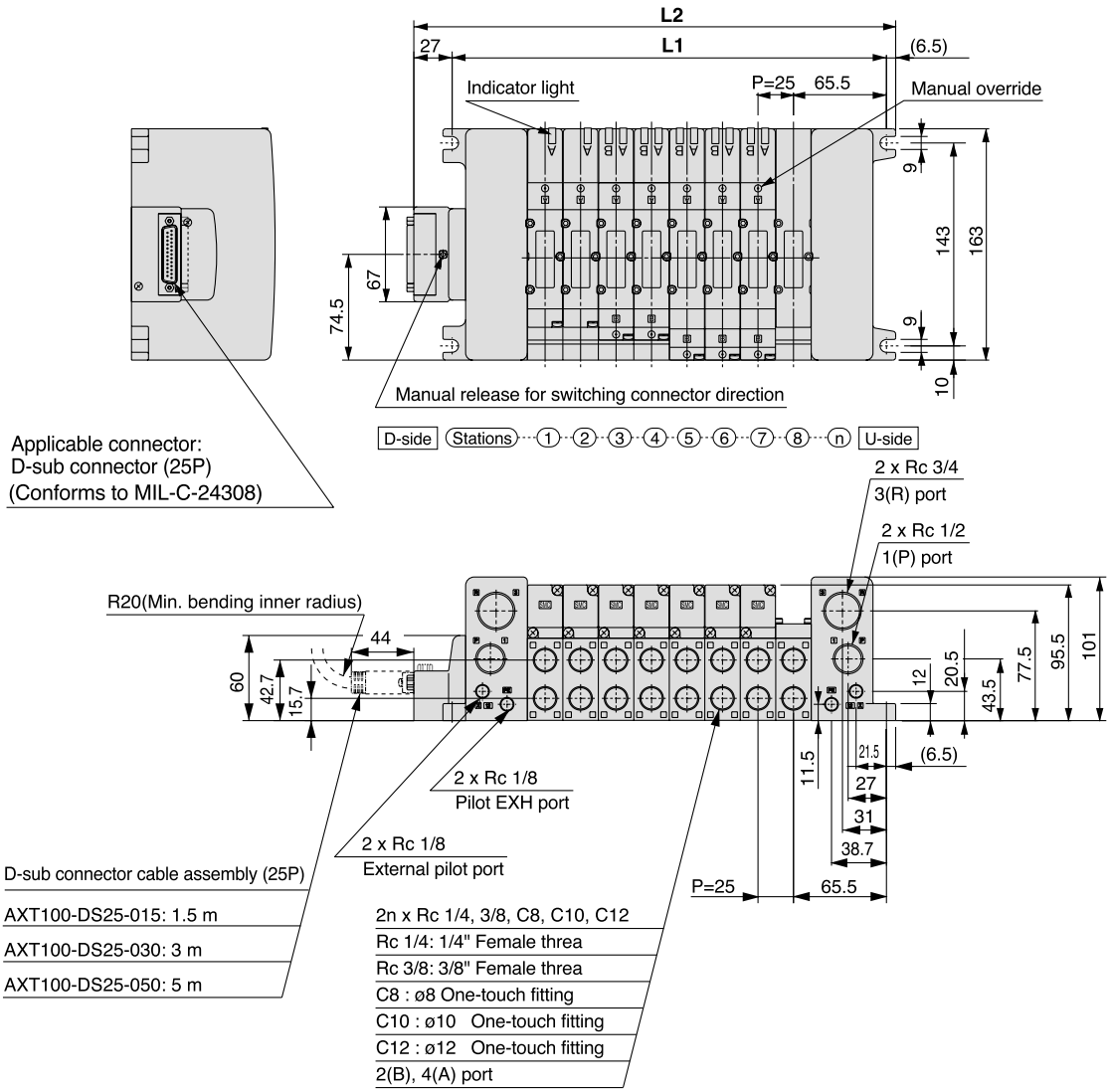
Item	Characteristic
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

Note) The minimum bending radius for D-sub connector cables is 20 mm.

Some connector manufacturers:

- Fujitsu, Ltd.
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.
- HIROSE ELECTRIC CO., LTD.

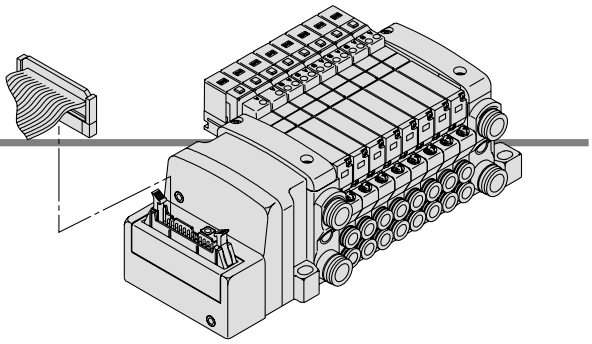
VV5QC41



Formulas: L1 = 25n + 106, L2 = 25n + 139.5 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	164.5	189.5	214.5	239.5	264.5	289.5	314.5	339.5	364.5	389.5	414.5	439.5	464.5	489.5	514.5	539.5

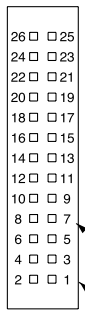
P VQC1000/2000/4000
Kit (Flat ribbon cable kit) IP40 compliant



- **Using our flat ribbon cable for electrical connections greatly reduces labour, while it also minimizes wiring and saves space.**
- **We use flat ribbon cables whose connectors (26P and 20P) conform to MIL standards, and are therefore widely compatible with many standard commercial models.**
- **Top or side entry for the connector can be changed freely, allowing for changes even after mounting, to meet any changing needs for space.**

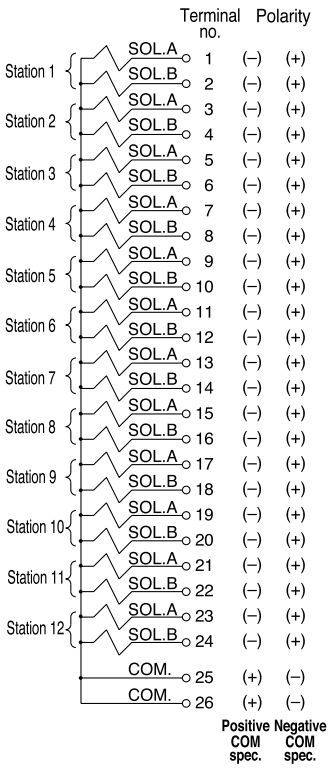
Electrical Wiring Specifications

Flat ribbon cable connector

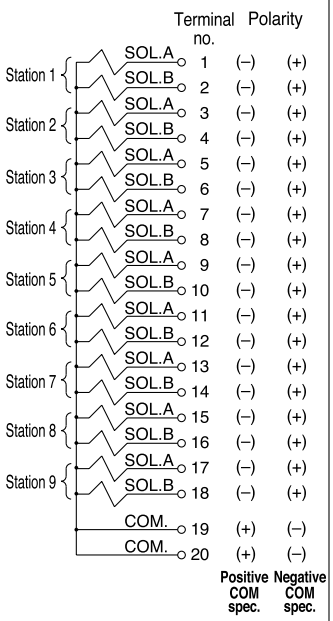


Double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.

<26P>



<20P>

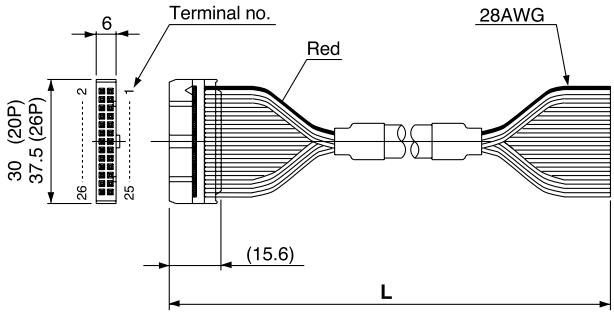


Note) When using the negative COM specification for VQC1000/2000, use valves for negative COM.

Cable Assembly

AXT100-FC $\begin{matrix}20\\26\end{matrix}$ **-** $\begin{matrix}1\\2\\3\end{matrix}$

Type 26P flat ribbon cable connector assemblies can be ordered with manifolds. Refer to manifold ordering.



Flat ribbon cable connector assemblies

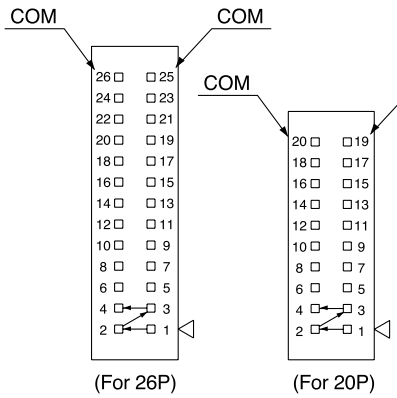
Cable length (**L**)	Part no.	
	26P	20P
1.5 m	AXT100-FC26-1	AXT100-FC20-1
3 m	AXT100-FC26-2	AXT100-FC20-2
5 m	AXT100-FC26-3	AXT100-FC20-3

∗ When using a standard commercial connector, use a type 26P connector conforming to MIL-C-83503 or a type 20P with strain relief.
∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

Connector Manufacturers Example:

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

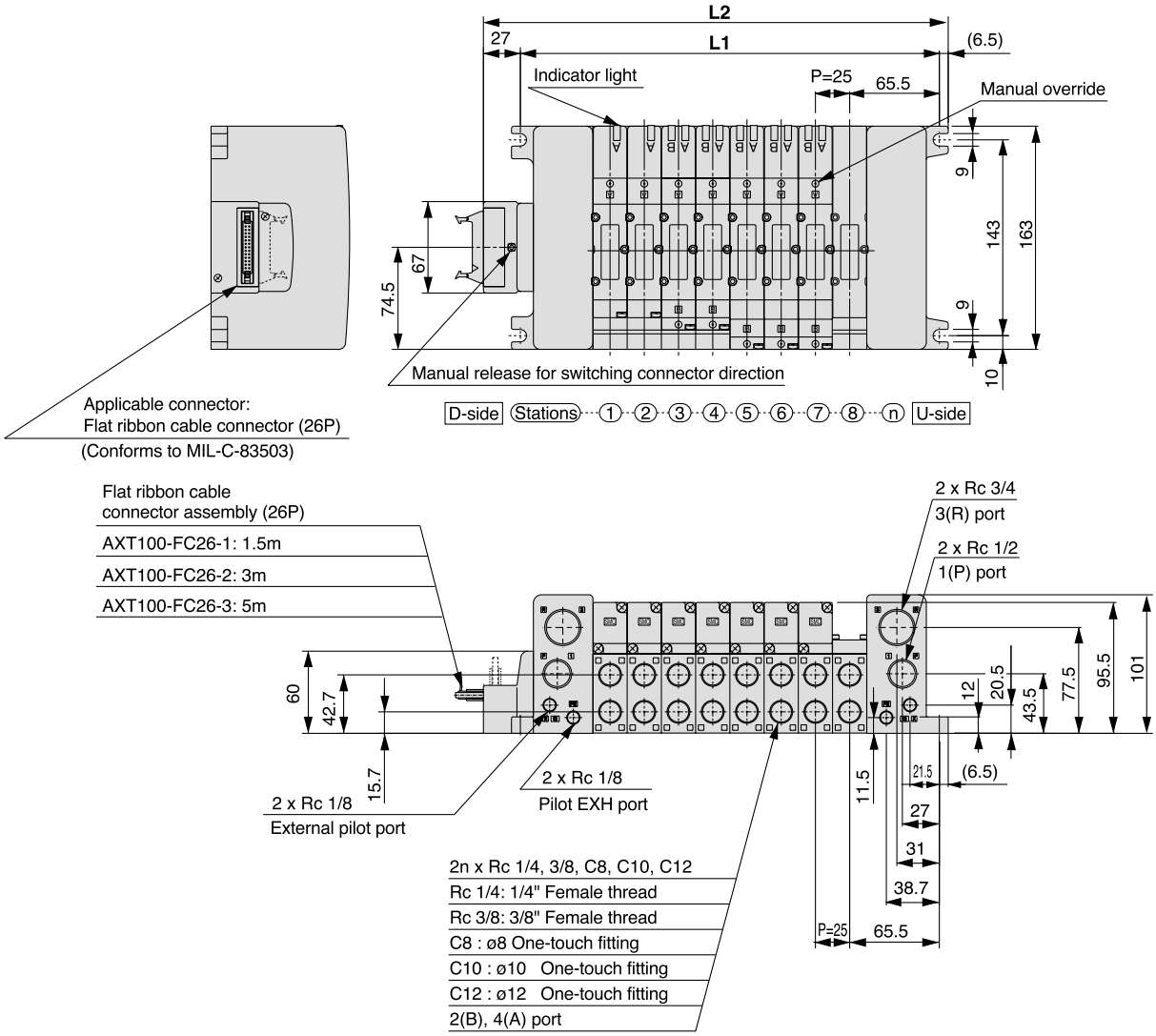
Special Wiring Specifications (Option)



Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

P VQC1000/2000/4000
Kit (Flat ribbon cable kit) IP40 compliant

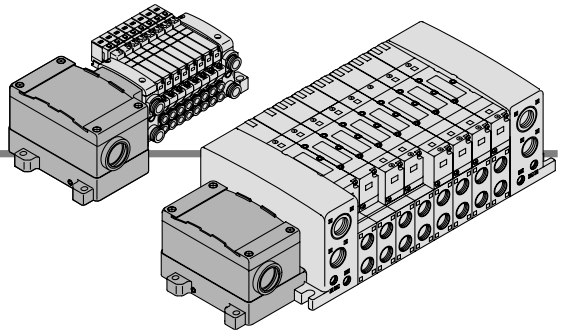
VV5QC41



Formulas: L1 = 25n + 106, L2 = 25n + 139.5 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	164.5	189.5	214.5	239.5	264.5	289.5	314.5	339.5	364.5	389.5	414.5	439.5	464.5	489.5	514.5	539.5

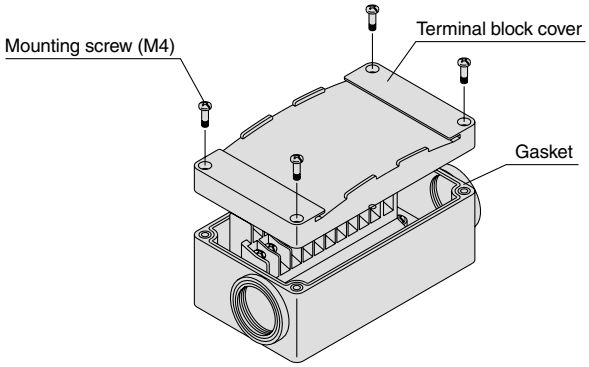
T VQC1000/2000/4000
Kit (Terminal block box kit) IP67 compliant



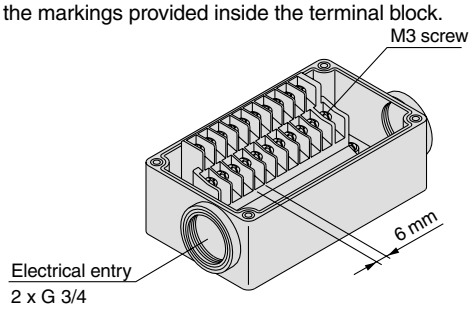
- **This kit has a small terminal block inside a junction box. The provision of a G 3/4 electrical entry allows connection of conduit fittings.**

Terminal Block Connection

Step 1. How to remove terminal block cover
Loosen the 4 mounting screws (M4) and remove the terminal block cover.



Step 2. The diagram below shows the terminal block wiring. All stations are provided with double wiring regardless of the valves which are mounted.
Connect each wire to the power supply side, according to the markings provided inside the terminal block.

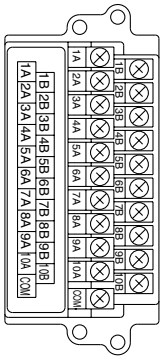


Step 3. How to replace the terminal block cover
Securely tighten the screws to the torque shown in the table below, after confirming that the gasket is installed correctly.

Proper tightening torque (N·m)
0.7 to 1.2

- Applicable crimped terminal: 1.25-3S,1.25Y-3,1.25Y-3N,1.25Y-3.5
- Name plate: VVQ5000-N-T
- Drip proof plug assembly (for G 3/4): AXT100-B06A

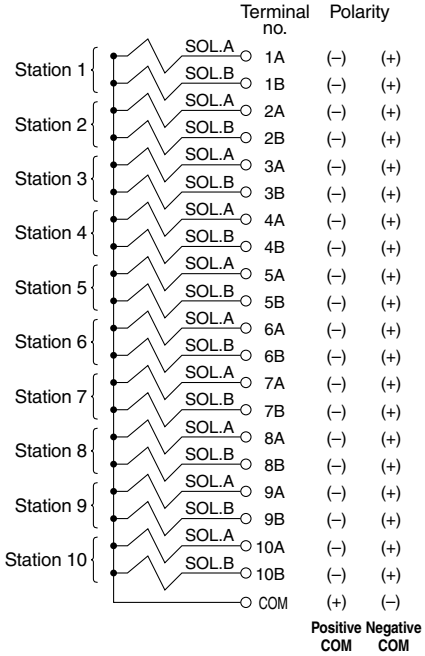
Electrical Wiring Specifications (Conforms to IP67)



The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options.
Mixed single and double wiring are available as options.

Note) When using the negative COM specification for VQC1000/2000, use valves for negative COM.

Standard wiring

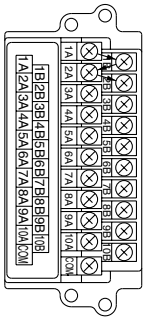


Special Wiring Specifications (Option)

Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 20.

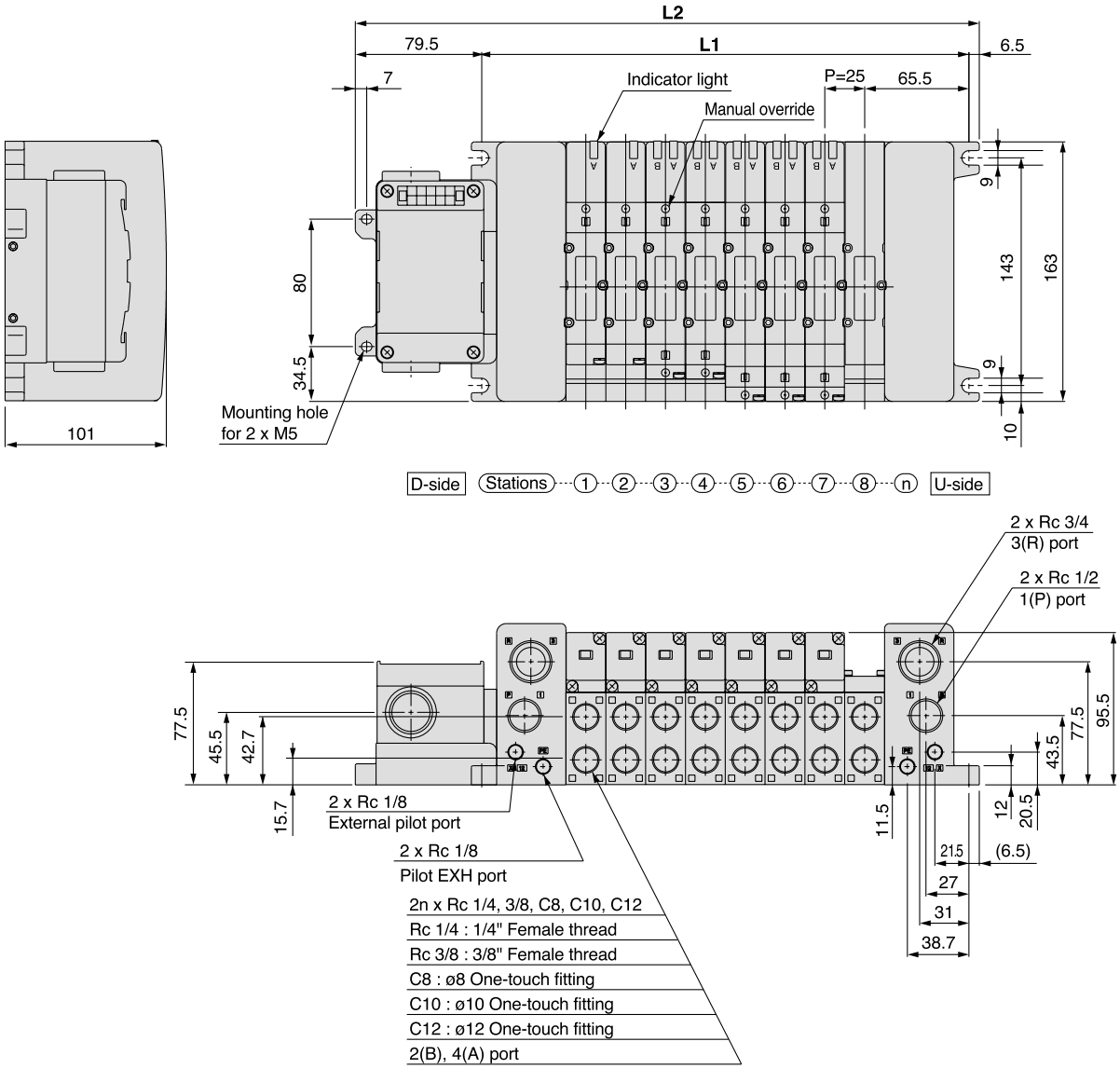
1. How to order
Indicate option symbol "-K" in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet.

2. Wiring specifications
Connector terminal numbers are connected from solenoid station 1 on the A side in the order indicated by the arrows without skipping any terminal numbers.



T VQC1000/2000/4000
Kit (Terminal block box kit) IP67 compliant

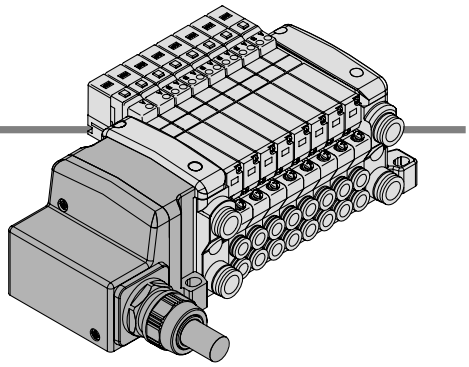
VV5QC41



Formulas: L1 = 25n + 106, L2 = 25n + 192 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	217	242	267	292	317	342	367	392	417	442	467	492	517	542	567	592

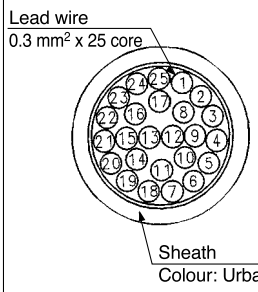
L VQC1000/2000/4000
Kit (Lead wire kit) IP67 compliant



- **Direct electrical entry type.**
- **IP67 enclosure is available with use of cables with sheath and waterproof connectors.**

Electrical Wiring Specifications

Lead wire specifications



As the standard electrical wiring specification used is for 12 stations or less, double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.

		Terminal no.	Polarity		Lead wire colour	Dot marking
Station 1	SOL.A	1	(–)	(+)	Black	None
	SOL.B	14	(–)	(+)	Yellow	Black
Station 2	SOL.A	2	(–)	(+)	Brown	None
	SOL.B	15	(–)	(+)	Pink	Black
Station 3	SOL.A	3	(–)	(+)	Red	None
	SOL.B	16	(–)	(+)	Blue	White
Station 4	SOL.A	4	(–)	(+)	Orange	None
	SOL.B	17	(–)	(+)	Purple	None
Station 5	SOL.A	5	(–)	(+)	Yellow	None
	SOL.B	18	(–)	(+)	Grey	None
Station 6	SOL.A	6	(–)	(+)	Pink	None
	SOL.B	19	(–)	(+)	Orange	Black
Station 7	SOL.A	7	(–)	(+)	Blue	None
	SOL.B	20	(–)	(+)	Red	White
Station 8	SOL.A	8	(–)	(+)	Purple	White
	SOL.B	21	(–)	(+)	Brown	White
Station 9	SOL.A	9	(–)	(+)	Grey	Black
	SOL.B	22	(–)	(+)	Pink	Red
Station 10	SOL.A	10	(–)	(+)	White	Black
	SOL.B	23	(–)	(+)	Grey	Red
Station 11	SOL.A	11	(–)	(+)	White	Red
	SOL.B	24	(–)	(+)	Black	White
Station 12	SOL.A	12	(–)	(+)	Yellow	Red
	SOL.B	25	(–)	(+)	White	None
	COM.	13	(+)	(–) Note)	Orange	Red
			Positive COM spec.	**Negative COM spec.**		

Note) When using the negative COM. specification for VQC1000/2000, use valves for negative COM.

Lead wire length

VV5QC11−08 C6 LD 0

Lead wire length

0	0.6 m
1	1.5 m
2	3.0 m

Electrical characteristics

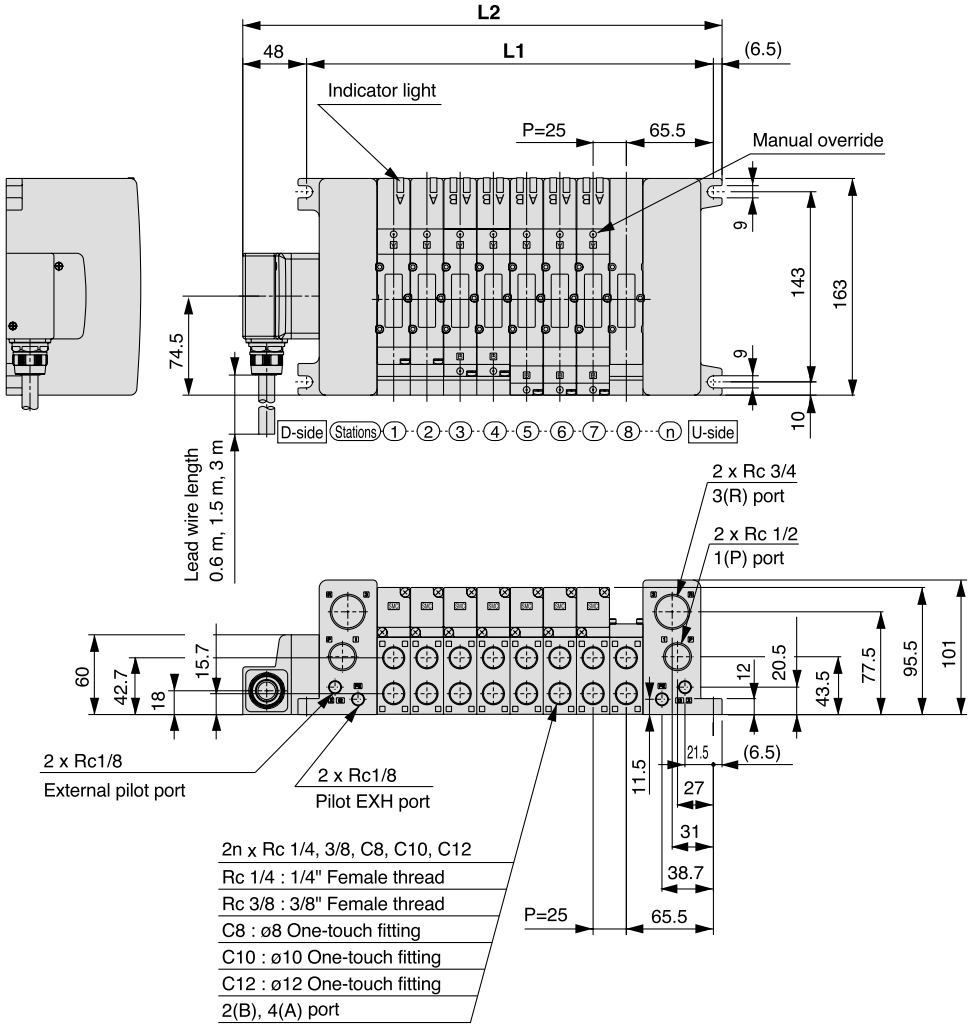
Item	Characteristic
Conductor resistance Ω/km, 20°C	65 or less
Withstand pressure V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

Note) Cannot be used for transfer wiring.
The minimum bending radius for cables is 20 mm.

Special Wiring Specifications (Option)

Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

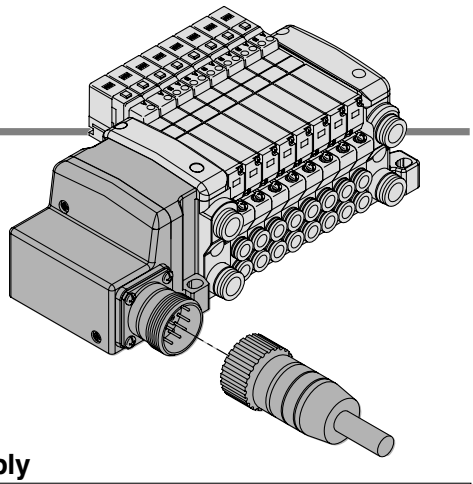
VV5QC41



Formulas: L1 = 25n + 106, L2 = 25n + 160.5 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	185.5	210.5	235.5	260.5	285.5	310.5	335.5	360.5	385.5	410.5	435.5	460.5	485.5	510.5	535.5	560.5

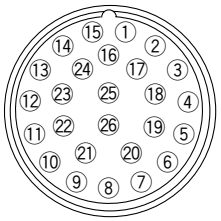
M VQC1000/2000/4000
Kit (Circular connector kit) IP67 compliant



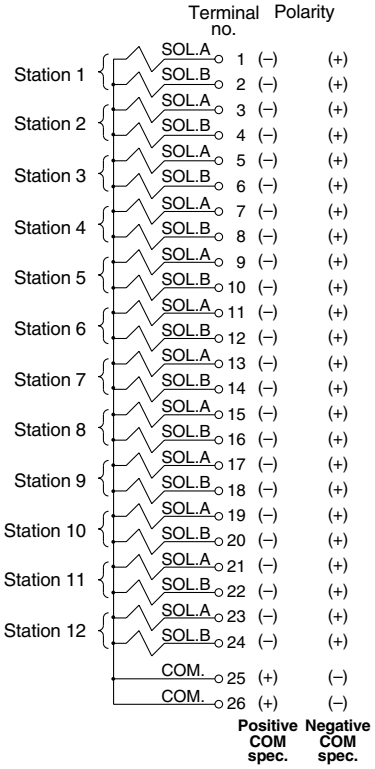
- **Use of circular connectors helps streamline wiring procedure to save labor.**
- **IP67 enclosure is available with use of waterproof multiple connectors.**

Electrical Wiring Specifications

Multiple connector



Double wiring(connected to SOL.A and SOL.B) is used for the internal wiring of each staion regardless of valve and option types. Mixed single and double wiring are available as options. Refer to special wiring specifications(options) below.



Note) When using the negative COM specification for VQC1000/2000, use valves for negative COM.

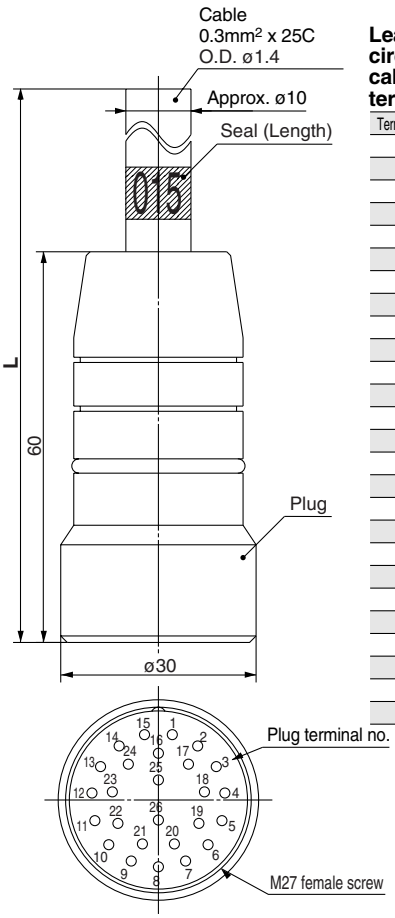
Special Wiring Specifications (Option)

Mixed single and double wiring are available as an option. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

Cable Assembly

AXT100-MC26- 015 / 030 / 050

(Type 26P circular connector cable assemblies can be ordered with manifolds. Refer to manifolds ordering.)



Lead wire colors for circular connector cable assembly terminal numbers

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
26	White	None

Electric characteristics

Item	Property
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

Note) The minimum bending radius of the multiple connector cable is 20 mm.

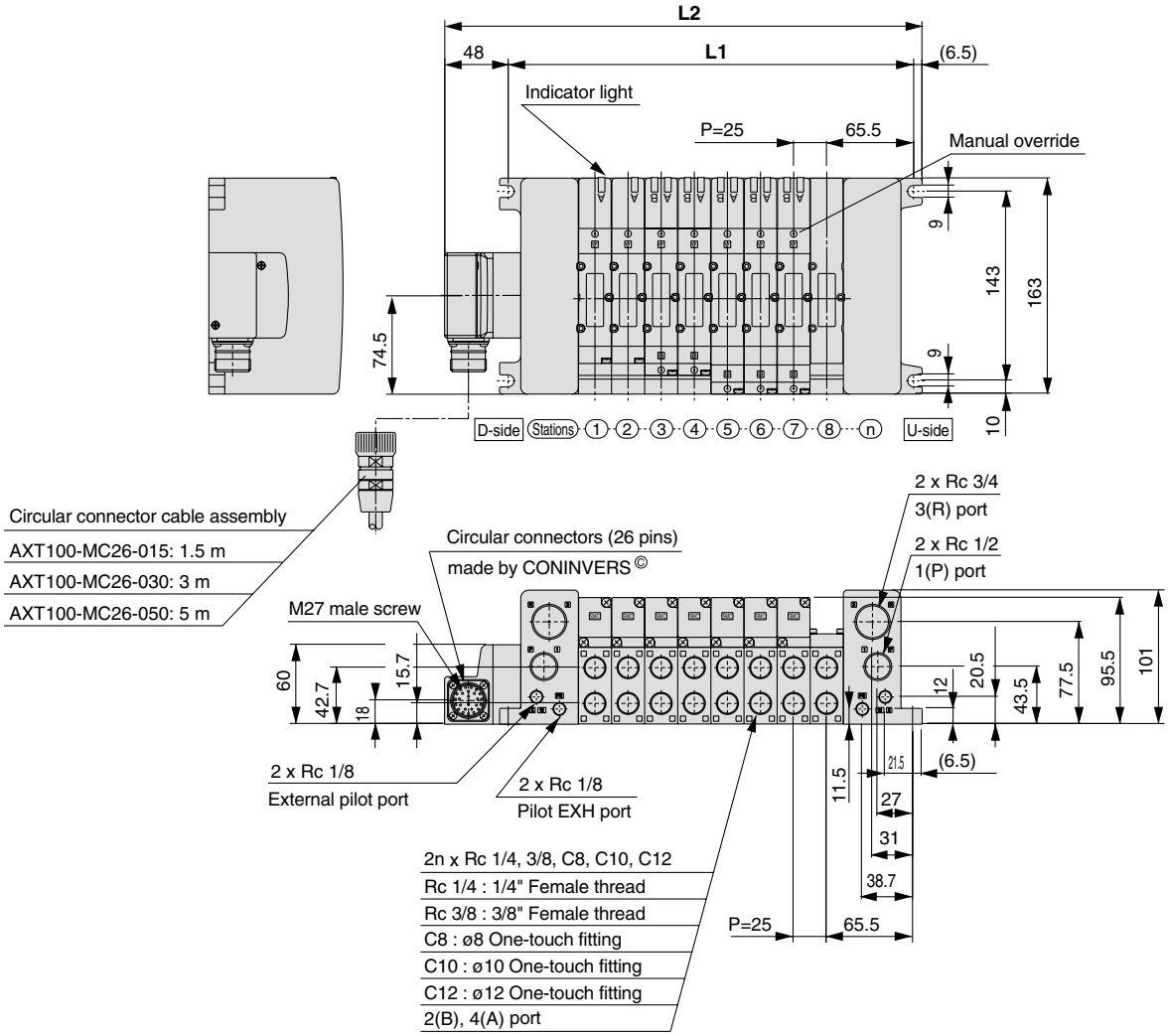
Circular connector cable assemblies

Cable length (L)	Assembly no.
	26P
1.5 m	AXT100-MC26-015
3 m	AXT100-MC26-030
5 m	AXT100-MC26-050

∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

M VQC1000/2000/4000
Kit (Circular connector kit) IP67 compliant

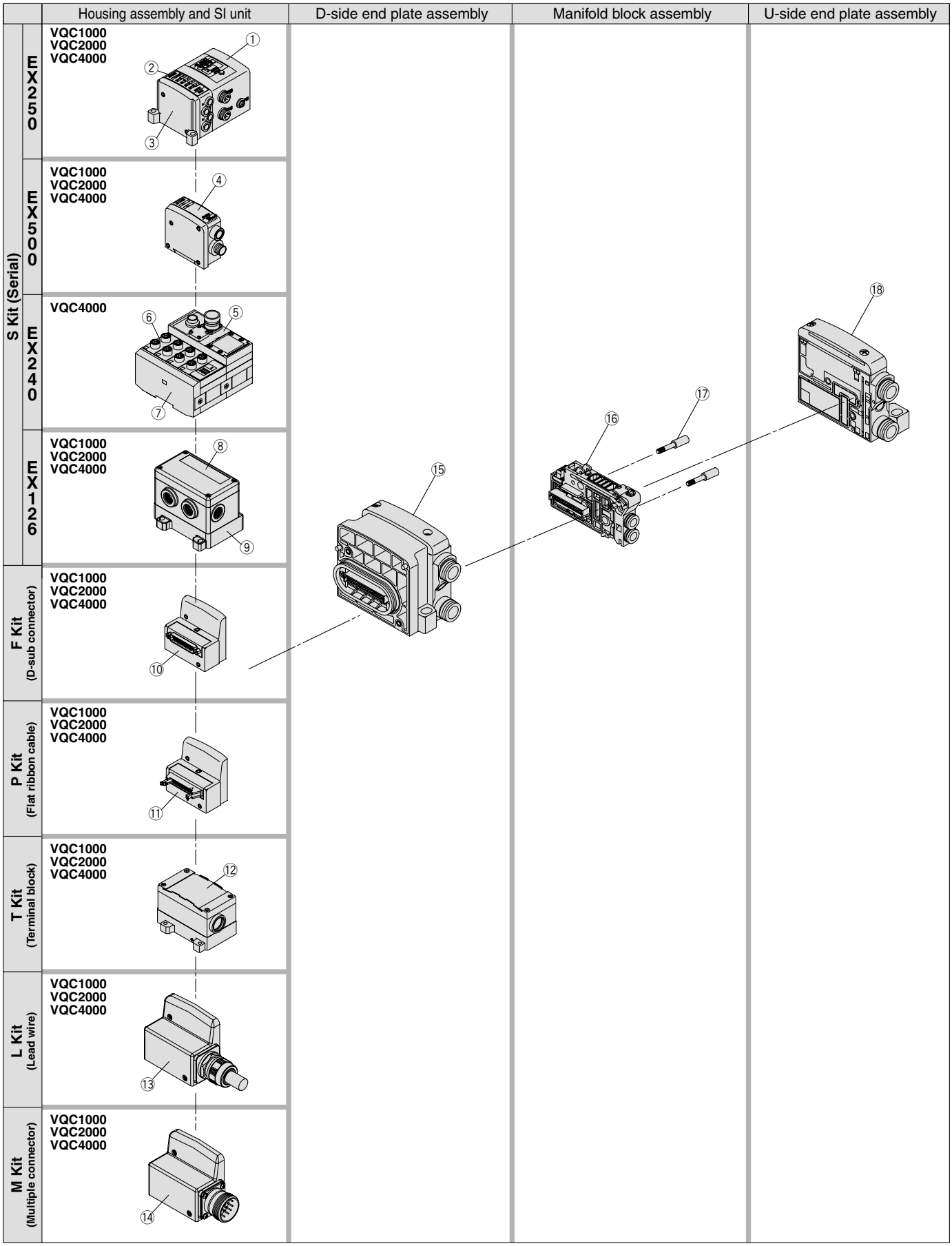
VV5QC41



Formulas: L1 = 25n + 106, L2 = 25n + 150.5 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	185.5	210.5	235.5	260.5	285.5	310.5	335.5	360.5	385.5	410.5	435.5	460.5	485.5	510.5	535.5	560.5

Exploded View of Manifold



Manifold Assembly Part No.

Housing Assembly and SI Unit/Input Block

No.	Description	Part no.	Note	Applicable model		
				VQC1000	VQC2000	VQC4000
1	SI unit	EX250-SPR1	PROFIBUS DP (– COM.)	●	●	●
		EX250-SMJ2	CC-Link (+ COM.)	●	●	●
		EX250-SAS3	As-i, 8 in/out, 31 slave modes, 2 power supply systems (– COM.)	●	●	●
		EX250-SAS5	As-i, 4 in/out, 31 slave modes, 2 power supply systems (– COM.)	●	●	●
		EX250-SAS7	As-i, 8 in/out, 31 slave modes, 1 power supply systems (– COM.)	●	●	●
		EX250-SAS9	As-i, 4 in/out, 31 slave modes, 1 power supply systems (– COM.)	●	●	●
		EX250-SCA1A	CANopen (– COM.)	●	●	●
		EX250-SCN1	ControlNet (– COM.)	●	●	●
		EX250-SDN1	DeviceNet (– COM.)	●	●	●
		EX250-SEN1	EtherNet/IP (– COM.)	●	●	●
2	Input block	EX250-IE1	M12, 2 inputs	●	●	●
		EX250-IE2	M12, 4 inputs	●	●	●
		EX250-IE3	M8, 4 inputs	●	●	●
3	End plate assembly	EX250-EA1	Standard	●	●	●
		EX250-EA2	DIN rail mounting	●	●	–
4	SI unit	EX500-Q001	DeviceNet (+ COM.)	●	●	●
		EX500-Q101	DeviceNet (– COM.)	●	●	●
5	SI unit	EX240-SDN2	DeviceNet (+ COM.)	–	–	●
		EX240-SPR1	PROFIBUS DP (– COM.)	–	–	●
6	DI unit	EX240-IE1	M12, 8 inputs	–	–	●
7	End bowl assembly	EX240-EA2	DI unit with manifold	–	–	●
		EX240-EA4	DI unit without manifold			
8	SI unit	EX126D-SMJ1	CC-Link (+ COM.)	●	●	●
9	Terminal plate	VVQC1000-74A-2	For EX126 SI unit mounting	●	●	●
10	D-sub connector housing assembly	VVQC1000-F25-1	F kit, 25 pins	●	●	●
11	Flat ribbon cable housing assembly	VVQC1000-P26-1	P kit, 26 pins	●	●	●
		VVQC1000-P20-1	P kit, 20 pins			
12	Terminal block box housing assembly	VVQC1000-T0-1	T kit	●	●	●
13	Lead wire housing assembly	VVQC1000-L25-0-1	L kit with 0.6 m lead wire	●	●	●
		VVQC1000-L25-1-1	L kit with 1.5 m lead wire			
		VVQC1000-L25-2-1	L kit with 3.0 m lead wire			
14	Multiple connector housing assembly	VVQC1000-M26-1	M kit 26 pins	●	●	●

Manifold Assembly Part No.

D-side end plate assembly

⑮ D-side end plate assembly part no.

VQC1000/2000

VVQC 1 000-3A-1 - □ - □

Series

1	VQC1000
2	VQC2000

Port size

Symbol	VQC1000	VQC2000
C8	●	
C10		●
N9	●	
N11		●

Option

Nil	Centralized exhaust
R	External pilot
S	Direct exhaust outlet with built-in silencer

VQC4000

VVQC4000-3A - 1 □

Kit type

1	S (EX240) kit
2	F, P, T, S (EX250) kit
3	L, M, S (EX500) kit

Thread type

Nil	Rc
F	G
T	NPT/NPTF

U-side end plate assembly

⑱ U-side end plate assembly part no.

VQC1000/2000

VVQC 1 000-2A - 1 - C8 - □

Series

1	VQC1000
2	VQC2000

Supply/Exhaust port entry direction

1	Cylinder port side
2 Note)	Branch type

Note) VQC2000 only

Port size

Symbol	VQC1000	VQC2000
C8	●	
C10		●
C12		●
N9	●	
N11		●
N13		●

Option

Nil	Centralized exhaust
R	External pilot
S	Direct exhaust outlet with built-in silencer

VQC4000

VVQC4000-2A– 1 □

Thread type

Nil	Rc
F	G
T	NPT/NPTF

Manifold block assembly

⑯ Manifold block assembly part no.

VVQC 1 000-1A - D - C6 - □ - □

Wiring specifications

D	Double wiring
S	Single wiring

Series

1	VQC1000
2	VQC2000
4	VQC4000

Note) Tie-rods (2 pcs.) for additional stations included.

Option

Nil	None
B Note)	With back pressure check valve

Note) Except VQC4000.

Thread type Note)

Nil	Rc
F	G
T	NPT/NPTF

Note) VQC 4000 thread port only

Port size

Symbol	Port size	VQC1000	VQC2000	VQC4000
C3	For ø3.2 One-touch fitting	●		
C4	For ø4 One-touch fitting	●	●	
C6	For ø6	●	●	
C8	For ø8		●	●
C10	For ø10			●
C12	For ø12			●
N1	For ø1/8"	●		
N3	For ø5/32"	●	●	
N7	For ø1/4"	●	●	●
N9	For ø5/16"		●	●
N11	For ø3/8"			●
M5	For M5 thread	●		
02	Rc 1/4"			●
03	Rc 3/8"			●
B	Rc 1/4" bottom ported			●

Replacement parts

Pilot valve assembly

VQC1000	VQ111 ⛣ W-□-1	Single type
VQC2000	VQ131 ⛣ W-□-1	Double type
VQC4000	VQZ111P(Y)-□ Note 3)	

Note 1) (H): 1.5 W, (Y): 0.5 W
Note 2) □: Coil rated voltage Ex.) 24 VDC: 5
Note 3) This model no. does not include an indicator light subplate. If it is required, please order it separately.

⑰ Tie-rod assembly part no. (2 units)

VQC1000	VVQC1000-TR-□
VQC2000	VVQC2000-TR-□
VQC4000	VVQC4000-TR-□

Note 1) Please order when reducing the number of manifold stations. When increasing the number of stations, additional orders are not required since they are included in the manifold block assembly.
Note 2) □: Number of stations, 02 to 24 (VQC4000: 02 to 16)

Series VQC
Specific Product Precautions 1

Be sure to read this 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.

Manual Override

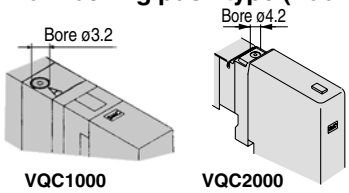
⚠ Warning

Since connected equipment will operate when the manual override is activated, confirm that conditions are safe prior to activation.

The non-locking push type (tool required) is standard, and the slotted locking type (tool required) is optional.

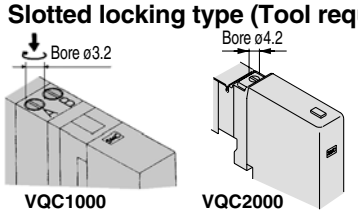
■VQC1000/2000

Non-locking push type (Tool required)



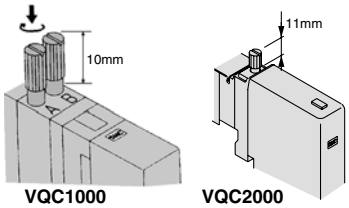
Push down the manual override button with a small screwdriver, etc., until it stops.
The manual override will return when released.

Slotted locking type (Tool required) <Option>



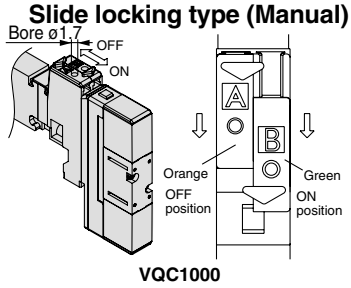
Push down the manual override button with a small flat head screwdriver until it stops, and turn it clockwise 90° to lock it. Turn it counter-clockwise to release it.

Locking type (Manual) <Option>



Push down the manual override button with a small flat head screwdriver or with your finger until it stops, and turn it clockwise 90° to lock it. Turn it counterclockwise to release it.

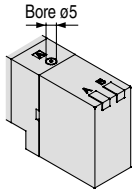
Slide locking type (Manual) <Option>



Slide the manual override button with a small flat head screwdriver or with your finger until it stops at the pilot valve side (ON side) to lock it. Slide it to the fitting side (OFF side) to release it. It can also be used as a push type using a screwdriver, etc., of ø1.7 or less.

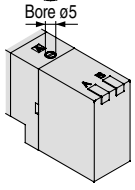
■VQC4000

Push type (Tool required)

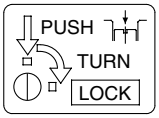


Push down the manual override button with a small screwdriver until it stops.
The manual override will return when released.

Locking type (Tool required) <Optional>

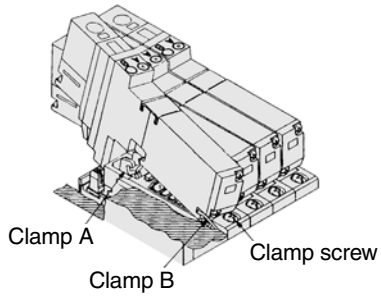


Push down the manual override button with a small flat head screwdriver until it stops, and turn it clockwise 90° to lock it. Turn it counter-clockwise to release it.



Solenoid Valve Removal and Mounting (VQC1000/2000)

⚠ Caution



Removal steps

1. Loosen the clamp screws until they turn freely. (The screws do not come out.)
2. Remove the solenoid valve from clamp B by lifting the coil side of the valve while pushing on the screw top.
   If pushing down on the screw is difficult, you can alternately press down on the valve gently in the area near the manual override.

Mounting steps

1. Push the clamp screws. Clamp A opens. Now insert the end plate hook of the valve into clamp B from an angle.
2. Push the valve down into place. (When you release the screws, the valve will be locked into clamp A.)
3. Tighten the clamp screws with a tightening torque of 0.25 to 0.35 N·m for VQC1000 and 0.5 to 0.7 N·m for VQC2000.

⚠Caution

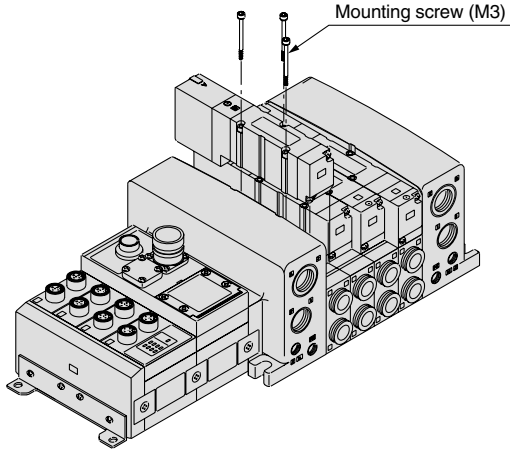
Do not let foreign matter stick on the seal side of the gasket and solenoid, as this will cause air leakage.

Valve Mounting (VQC4000)

⚠ Caution

After confirming that the gasket is installed correctly, securely tighten the mounting screws according to the tightening torque shown below.

Proper tightening torque (N·m)
0.8 to 1.2



Series VQC
Specific Product Precautions 2

Be sure to read this 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.

Replacing One-touch Fittings

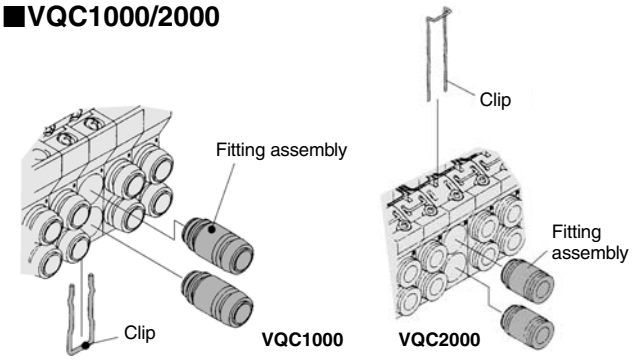
⚠ Caution

Cylinder port fittings are available in cassette type and can be replaced easily.

Fittings are secured with a retaining clip that is inserted from the top side of the valve. After removing the valve, remove the clip with a flat head screw driver to replace the fittings.

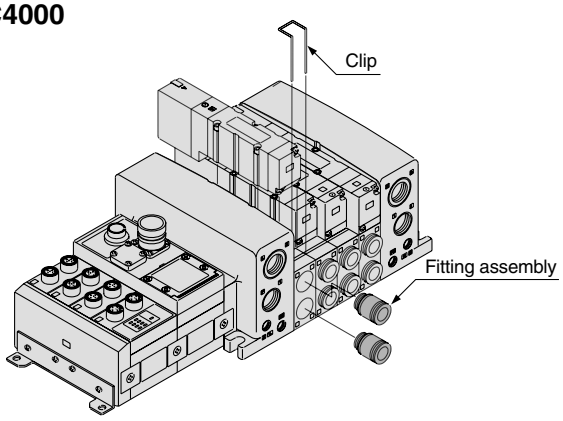
To mount a fitting, insert the fitting assembly until it stops and reinsert the retaining clip to its designated position.

■VQC1000/2000



Applicable tube O.D.	Fitting assembly part no.	
	VQC1000	**VQC2000**
ø3.2	VVQ1000-50A-C3	—
ø4	VVQ1000-50A-C4	VVQ1000-51A-C4
ø6	VVQ1000-50A-C6	VVQ1000-51A-C6
ø8	—	VVQ1000-51A-C8
M5	VVQ1000-50A-M5	—
ø1/8"	VVQ1000-50A-N1	—
ø5/32"	VVQ1000-50A-N3	VVQ1000-51A-N3
ø1/4"	VVQ1000-50A-N7	VVQ1000-51A-N7
ø5/16"	—	VVQ1000-51A-N9

■VQC4000



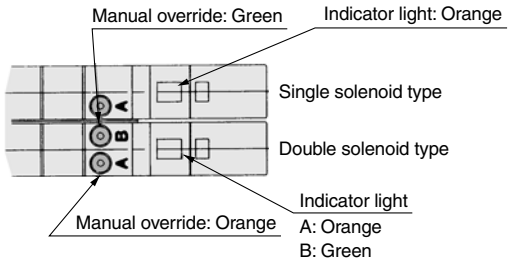
Applicable tube O.D.	Fitting assembly part no.
	VQC4000
ø8	VVQ4000-50B-C8
ø10	VVQ4000-50B-C10
ø12	VVQ4000-50B-C12
ø1/4"	VVQ4000-50B-N7
ø5/16"	VVQ4000-50B-N9
ø3/8"	VVQ4000-50B-N11

Light/Surge Voltage Suppressor (VQC1000/2000)

⚠ Caution

Indicator lights are all positioned on one side for both single solenoid and double solenoid type valves.

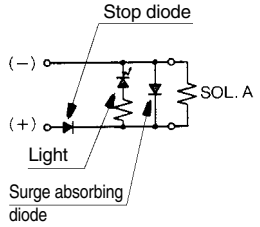
For double solenoid type, 2 colours that are same as the manual override are used to indicate the energization of A-side or B-side.



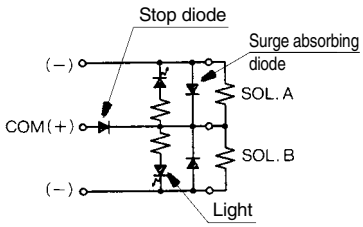
(For VQC1000)

DC circuit

Single solenoid type



Double solenoid type

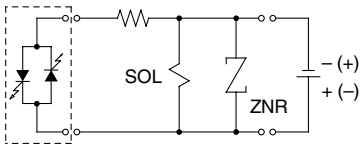


Note 1) A-side energized: Light (orange) ON
B-side energized: Light (green) ON
With miswiring prevention mechanism (stop diode)
With surge absorbing mechanism (surge absorbing diode) mechanism

Note 2) Coil surge voltage generated when OFF is about -40V. Please contact SMC separately for further suppression of the coil surge voltage.

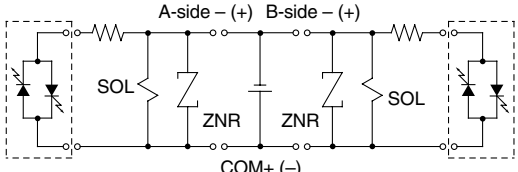
Internal Wiring Specifications (VQC4000)

⚠ Caution



Light circuit assembly (orange)

DC: Single



A-side light circuit assembly (orange)

DC: Double

B-side light circuit assembly (green)

Note) Coil surge voltage generated when OFF is about -60V. Please contact SMC separately for further suppression of the coil surge voltage.

How to Calculate the Flow Rate

Refer to Front matters 44 to 47.

Series VQC
Specific Product Precautions 3

Be sure to read this 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/EX240/EX126 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 explosive environments, in the presence of inflammable gases, or in corrosive environments. This can cause injury or fire.

3. Work such as transporting, installing, piping, wiring, operation, control and maintenance should be performed by knowledgable and qualified personnel only. As handling involves the risk of a danger of electrocution, injury or fire.

4. Install an external emergency stop circuit that can promptly stop operation and shut off the power supply.

5. Do not modify these products. Modifications done to these products carry the risk of injury and damage.

⚠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.

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.

4. Do not touch connector terminals or internal circuit elements when current is being sup-plied. There is a danger of malfunction, damage to the unit or electrocution if connector terminals or internal circuit elements are touched when current is being supplied.

Be sure that the power supply is OFF when adding or removing manifold valves or input blocks 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 materials from getting inside these products. This can cause fire, failure or malfunction.

7. Give consideration to the operating environment depending on the type of enclosure being used.

To achieve IP65 and 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. Provide a cover or other protection for applications in which there is constant exposure to water.

8. Use the proper tightening torques.

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
- 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.

11. Since these products are components whose end usage is obtained 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, otherwise it may 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) with the following ratings:

No-load voltage (V peak)	Max. current rating
0 to 20 [V]	5.0
Over 20 [V] and up to 30 [V]	$\frac{100}{\text{Peak voltage value}}$

(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.

Cable Safety Instructions

⚠Caution

1. Avoid miswiring, as 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 a malfunction.

3. Check wiring insulation, as defective insulation can cause damage to the unit when excessive voltage or current is applied.

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.

5 Port Solenoid Valve

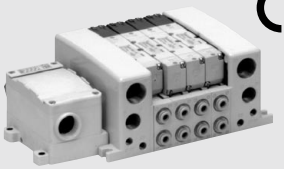
Series VQC4000

Metal Seal **Rubber Seal**

Compact and large flow

Type (Series)	Manifold pitch (mm)	Flow characteristics Note)						Applicable cylinder size (mm)
		Metal seal			Rubber seal			
		C[dm³/(s·bar)]	b	Cv	C[dm³/(s·bar)]	b	Cv	
VQC4000	25	6.9	0.17	1.7	7.3	0.38	2.0	to ø140

Note) Flow characteristics: 2 position single, 4/2 → 5/3 (A/B → R1/R2)



IP67 enclosure compatible Dusttight and immersible type

(Based on IEC60529) (For kits S, T, L and M)

Outstanding response times and long service life

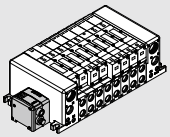
(Metal seal: Single type with light/surge voltage suppressor)

VQC4100: 17 ms ±3 ms; 100 million cycles

Connector type manifold

- The use of multi-pin connectors to replace wiring inside manifold blocks provides flexibility when adding stations or changing manifold configuration.
- All kits use multi-pin connectors, so switching from the F kit (D-sub connector) to the S kit (serial transmission) can be done simply by changing the kit section.

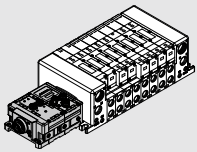
Accommodates gateway-type serial wiring



- Gateway unit types include DeviceNet, PROFIBUS DP, CC-Link, and EtherNet/IP.
- Because just one gateway unit controls up to 4 branch lines, it offers much more freedom in choosing valve mounting locations in comparison to other serial units.
- Manifolds and input blocks can be mounted near the actuator, allowing for use of short air piping or electric wiring.
- The package wiring with connector cable reduces the potential for incorrect wiring and improves wiring efficiency.
- A single cable from the gateway provides both signal and power to each branch, thus eliminating the need for separate power connections for each manifold valve and input block.
- The input block also employs a multi-pin connector so that the number of stations can be changed easily, as with the manifold.

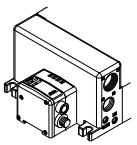
Applicable to EX600 (Input/Output) serial transmission system (Fieldbus system)

- Available for DeviceNet™, PROFIBUS DP, CC-Link, EtherNet/IP™ and EtherCAT Fieldbus protocols
- **Max. 9 units Note) can be connected in any order.**
  The unit to connect input device such as an auto switch, pressure switch and flow switch, and the unit to connect output device such as a solenoid valve, relay and indicator light can be connected in any order.
  Note) Except SI unit
- **Analogue Input Unit can be connected with analogue input device.**
  As well as a Digital (switch) Input/Output Unit, a unit applicable to analogue signal is provided, and can be connected with various device for control.
- **Self-diagnosis function**
  It is possible to ascertain the maintenance period and identify the parts that require maintenance, by an input (sensor) open circuit detecting function and an input/output signal of ON/OFF counter function. Also, the monitoring of input/output signal and the setting of parameters can be performed with a Handheld Terminal.



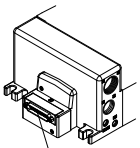
A wide variety of prepackaged wiring configurations

S Kit (Serial transmission)



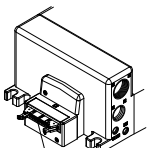
Protective enclosure conforms to IP 67

F Kit (D-sub connector)



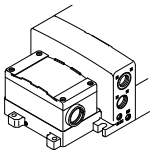
25 pins

P Kit (Flat ribbon cable)



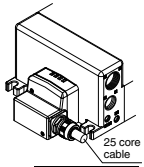
26 pins, 20 pins

T Kit (Terminal block box)



Protective enclosure conforms to IP 67

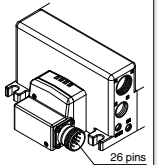
L Kit (Lead wire)



25 core cable

Protective enclosure conforms to IP 67

M Kit (Circular connector)



26 pins

Protective enclosure conforms to IP 67

- Our six standard wiring packages bring a world of ease to wiring and maintenance work, while the protective enclosures of four of them conform to IP67 standards.
- The S Kit is compatible with a combined I/O unit. (Not applicable to Gateway unit)

Series VQC4000
Base Mounted: Variations

			Sonic Conductance C[dm³/(s·bar)] (Values: CYL → EXH 4/2 → 5/3)		Applicable bore size	S Kit — Serial transmission				
			Single/Double	3 position (Closed center)		Compatible network • DeviceNet™ • PROFIBUS DP • CC-Link • EtherNet/IP™ • EtherCAT — I/O	Gateway application — Compatible network • DeviceNet™ • PROFIBUS DP • EtherNet/IP™ — Decentralized Serial Wiring	Compatible network • DeviceNet™ • PROFIBUS DP • CC-Link • EtherCAT • PROFINET — Output	Compatible network • DeviceNet™ • PROFIBUS DP • CC-Link • AS-Interface • CANopen • EtherNet/IP™ — I/O	Compatible network • CC-Link — Output
						Gateway application requires a gateway unit and communication cable separately. Please contact SMC for more details.				
						Serial unit: EX600 IP67 compliant	Serial unit: EX500 IP67 compliant	Serial unit: EX260 IP40 compliant IP67 compliant	Serial unit: EX250 IP67 compliant	Serial unit: EX126 IP67 compliant
Series VQC4000	Metal seal	VQC4□00	6.9	6.3	to ø140	○	○	○	○	○
	Rubber seal	VQC4□01	7.3	6.4						

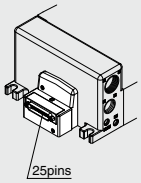
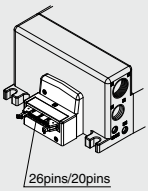
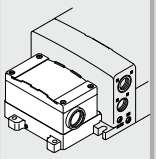
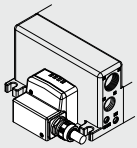
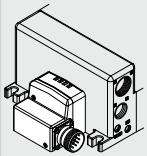
Cylinder Average Speed

This chart is provided as guidelines only.
For performance under various conditions, use SMC's Model Selection Program before making a judgment.

Series	Average speed (mm/s)	Bore size													
		Series CJ2 Pressure 0.5 MPa Load ratio 50% Stroke 60 mm			Series CM2 Pressure 0.5 MPa Load ratio 50% Stroke 300 mm				Series MB, CA2 Pressure 0.5 MPa Load ratio 50% Stroke 500 mm					Series CS1/CS2 Pressure 0.5 MPa Load ratio 50% Stroke 1000 mm		
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160
VQC4000	800															
	700															
	600															
	500															
	400															
	300															
	200															
	100															
	0															

Vertically upward
Horizontal

∗ Values at extension of a directly coupled cylinder when meter-out speed controllers are used with the needle full open.
∗ The average speed of the cylinder is obtained by dividing the stroke by the total stroke time.
∗ The load ratio is obtained by the following formula: ((Load mass x 9.8)/Theoretical output) x 100%

	F Kit	**P** Kit	**T** Kit	**L** Kit	**M** Kit	Port size	
	D-sub connector	**Flat ribbon cable**	**Terminal block box**	**Electrical entry**	**Circular connector**		
	D-sub connector Compatible with D-sub connector that complies with MIL standard.  25pins	**Flat ribbon cable** Compatible with flat ribbon cable connector that complies with MIL standard.  26pins/20pins	**Terminal block box** **(Terminal blocks)** Terminals are concentrated in compact clusters within the terminal block box.  **IP67 compliant**	**Lead wire** IP67 enclosure with use of multiple wire cable with sheath and waterproof connector  **IP67 compliant**	**Circular connector** IP67 enclosure with use of waterproof multiple connector  **IP67 compliant**	**SUP EXH port** **1, 3 (P, R)**	**Cylinder port** **2, 4 (A, B)**
	○	○	○	○	○	<SUP port> Rc 1/2 (NPT, NPTF, G) <EXH port> Rc 3/4 (NPT, NPTF, G)	C8 (For ø8) C10 (For ø10) C12 (For ø12) N7 (ø1/4") N9 (ø5/16") N11 (ø3/8") Rc 1/4 Rc 3/8 Rc 1/4 (Bottom ported) (NPT, NPTF, G)

Conditions

Base mounted		Series CJ2	Series CM2	Series MB, CA2	Series CS1/CS2
VQC4000	Tube x Length	T0604 x 1 m	T1075 x 1 m	T1209 x 1 m	
	Speed controller	AS3001F-06	AS4001F-10	AS4001F-12	
	Silencer	AN40-04			AN40-04

Conditions (With SGP (Stainless steel gas piping))

Body ported		Series MB, CA2	Series CS1/CS2
VQC4000	Tube x Length	SGP10A x 1 m	
	Speed controller	AS420-03	
	Silencer	AN40-04	

Base Mounted

Plug-in Unit

Series VQC4000 CE

How to Order Manifold

VV5QC 4 1 – 08 02 ☐ TD0 ——— ☐ ···· F · L · M · P · T Kit

❶ ❷ ❸ ❹ ⓫

VV5QC 4 1 – 16 02 ☐ SDQW ☐ ☐ ☐ ☐ ☐ ☐ – ☐ ···· S Kit

Series VQC4000

Base mounted plug-in

Enter EX600-compliant Enter only for S kit ········· ❺ ··········· ❻ ❼

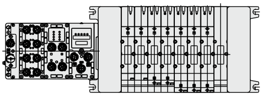
❽ ··· ❾ ··· ❿ ······ Enter EX250-compliant Enter only for S kit

❶ Stations

01	1 station
⋮	⋮
16	16 stations

The minimum or maximum number of stations differs depending on the electrical entry. (Refer to ④)

Note) In the case of compatibility with the S kit/As Interface Athe maximum number of solenoids is as shown below, so please be careful of the number of stations.
8 in/8 out: Maximum 8 solenoids
4 in/4 out: Maximum 4 solenoids



∗ Stations are counted from station 1 on the D-side.

❷ Cylinder port size

C8	With ø8 One-touch fitting
C10	With ø10 One-touch fitting
C12	With ø12 One-touch fitting
02	Rc 1/4 Note)
03	Rc 3/8 Note)
B	Bottom ported Rc 1/4 Note)
CM	Mixed

Note) Besides Rc, also compatible with G, NPT/NPTF. Part number displayed is as shown below.

❸ Thread type

Nil	Rc
F	G
T	NPT/NPTF

❺ End plate type

(Enter EX600-compliant S kit only.)

Nil	Without 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.

❻ SI unit output polarity

SI unit output polarity		EX250 integrated-type (for I/O) serial transmission system					
		DeviceNet™	PROFIBUS DP	CC-Link	AS-Interface	CANopen	EtherNet/IP™
Nil	+ COM	—	—	○	—	—	—
N	– COM	○	○	—	○	○	○

SI unit output polarity		EX260 integrated-type (for output) serial transmission system					
		DeviceNet™	PROFIBUS DP	CC-Link	EtherCAT	PROFINET	EtherNet/IP™
Nil	+ COM	○	○	○	○	○	○
N	– COM	○	○	○	○	○	○

SI unit output polarity		EX500 gateway-type serial transmission system		
		DeviceNet™	PROFIBUS DP	EtherNet/IP™
Nil	+ COM	○	○	○
N	– COM	○	○	○

SI unit output polarity		EX600 integrated-type (for I/O) serial transmission system (Fieldbus system)				
		DeviceNet™	PROFIBUS DP	CC-Link	EtherNet/IP™	EtherCAT
Nil	+ COM	○	○	○	○	○
N	– COM	○	○	○	○	○

Note) Leave the box blank for the SI unit COM without SI unit (SDO☐).

❼ I/O unit stations

(Enter EX600-compliant S kit only.)

Nil	None
1	With 1 input block
⋮	⋮
9	With 9 input blocks

Note 1) Without SI unit, the symbol is nil.
Note 2) SI unit is not included in I/O unit stations.
Note 3) When I/O unit is selected, it is shipped separately, and assembled by customer. Refer to the attached operation manual for mounting method.
Note 4) Refer to page 1250 for details of the enclosure.

❽ Number of input blocks

(Enter only for S kit compliant with EX250)

Symbol	No. of blocks
Nil	Without SI unit (SD0)
0	Without input block
1	With 1 input block
⋮	⋮
4	With 4 input blocks
⋮	⋮
8	With 8 input blocks

❾ Number of input blocks

(Enter only for S kit compliant with EX250)

Nil	Without input block
1	M12, 2 inputs
2	M12, 4 inputs
3	M8, 4 inputs

❿ Input block COM

(Enter only for S kit compliant with EX250)

Nil	PNP sensor input or without input block
N	NPN sensor input

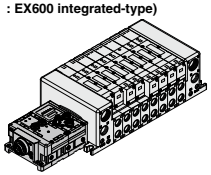
⓫ Option

Nil	None
K	Special wiring specifications (except for double wiring)
N	With name plate (available for T kit only)

❹ Kit Designation/Electrical Entry/Cable Length

∗ Numbers in parentheses represent the maximum number of solenoids in the case of mixed single and double wiring. The total number of solenoids determines the maximum number of stations. When ordering mixed wiring, please add the option symbol "-K".

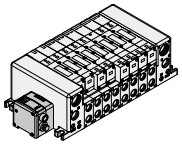
S Kit (Serial transmission kit (Fieldbus system) : EX600 integrated-type)



SI unit: **EX600** IP67 compliant

SD60	Serial kit without SI unit	1 to 16 stations (24)
SD6Q	Serial kit for DeviceNet™	
SD6N	Serial kit for PROFIBUS-DP	
SD6V	Serial kit for CC-LINK	
SD6ZE	EtherNet/IP	
SD6D	EtherCAT	

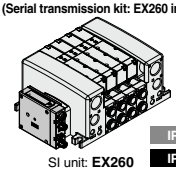
S Kit (Serial transmission kit: EX500 gateway-type)



SI unit: **EX500** IP67 compliant

SD0A	Serial kit without SI unit	1 to 16 stations (16)
SDA2	Device Net™, PROFIBUS DP, EtherNet/IP	

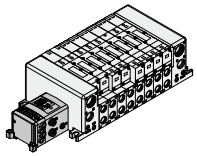
S Kit (Serial transmission kit: EX260 integrated-type (I/O))



IP40 compliant
SI unit: **EX260** IP67 compliant

Symbol	Protocol	Number of outputs	Communication connector	Stations
SD0A	Serial kit without SI unit			1 to 16 stations (24)
SQA	DeviceNet™	32	M12	
SQB		16		1 to 16 stations (16)
SNA	PROFIBUS DP	32	M12	1 to 16 stations (24)
SNB		16		1 to 16 stations (16)
SNC		32	D-sub[Note 2]	1 to 16 stations (24)
SND		16		1 to 16 stations (16)
SVA	CC-Link	32	M12	1 to 16 stations (24)
SVB		16		1 to 16 stations (16)
SDA	EtherCAT	32	M12	1 to 16 stations (24)
SDB		16		1 to 16 stations (16)
SFA	PROFINET	32	M12	1 to 16 stations (24)
SFB		16		1 to 16 stations (16)
SEA	EtherNet/IP™	32	M12	1 to 16 stations (24)
SEB		16		1 to 16 stations (16)

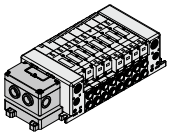
S Kit (Serial transmission kit: EX250 integrated-type (for I/O))



SI unit: **EX250** IP67 compliant

SD0	Serial kit without SI unit	1 to 16 stations (24)
SDQ	Serial kit for DeviceNet™	
SDN	Serial kit for PROFIBUS-DP	
SDV	Serial kit for CC-LINK	
SDTA	AS-i, 8 in/out, 31 slave modes, 2 power supply systems	1 to 8 stations (8)
SDTB	AS-i, 4 in/out, 31 slave modes, 2 power supply systems	1 to 4 stations (4)
SDTC Note 1)	AS-i, 8 in/out, 31 slave modes, 1 power supply systems	1 to 8 stations (8)
SDTD Note 1)	AS-i, 4 in/out, 31 slave modes, 1 power supply systems	1 to 4 stations (4)
SDY	For CANopen	1 to 16 stations (24)
SDZEN	For EtherNet/IP	

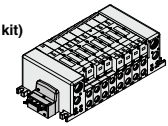
S Kit (Serial transmission kit: EX126 integrated-type (for output))



SI unit: **EX126** IP67 compliant

SDVB	Serial kit for CC-LINK	1 to 16 stations (16)

P Kit (Flat ribbon cable kit)

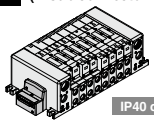


IP40 compliant

Note) For a 20P flat ribbon cable, the cable assembly must be ordered separately.

PD0	Flat ribbon cable kit (26P) without cable	1 to 16 stations (24)
PD1	Flat ribbon cable kit (26P) with 1.5 m cable	
PD2	Flat ribbon cable kit (26P) with 3.0 m cable	
PD3	Flat ribbon cable kit (26P) with 5.0 m cable	
PDC	Flat ribbon cable kit (20P) without cable (1)	1 to 16 stations (18)

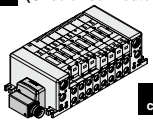
F Kit (D-sub connector kit)



IP40 compliant

FD0	D-sub connector kit (25P) without cable	1 to 16 stations (24)
FD1	D-sub connector kit (25P) with 1.5 m cable	
FD2	D-sub connector kit (25P) with 3.0 m cable	
FD3	D-sub connector kit (25P) with 5.0 m cable	

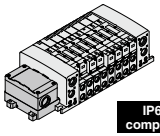
M Kit (Circular connector kit)



IP67 compliant

MD0	Circular connector kit (26P) without cable	1 to 16 stations (24)
MD1	Circular connector kit (26P) with 1.5 m cable	
MD2	Circular connector kit (26P) with 3.0 m cable	
MD3	Circular connector kit (26P) with 5.0 m cable	

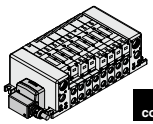
T Kit (Terminal block box kit)



IP67 compliant

TD0	Terminal block box kit	1 to 16 stations (20)

L Kit (Lead wire kit)



IP67 compliant

LD0	Lead wire kit (25 core) 0.6 m lead wire	1 to 16 stations (24)
LD1	Lead wire kit (25 core) 1.5 m lead wire	
LD2	Lead wire kit (25 core) 3.0 m lead wire	

∗ The maximum number of solenoids displayed in parentheses is applied to the special wiring specification (Option "-K").

Note 1) When selecting SI units with SDTC or SDTD specifications, there are limits to the supply current from the SI unit to the input block or valve. Refer to page 2077 for details.

Note 2) When selecting D-sub S kit specifications only, IP40 is compatible. (All other SI units are IP67 compliant.)

Note 3) For the SI unit part no., refer to page 1222.

How to Order Valves

VQC 4 1 0 0 □ – 5 □ □

Series VQC4000 (A) (B) (C) (D) (E) (F)

(A) Type of actuation

1	2 position single (A) (B) 4 2 5 1 3 (R1) (P) (R2)	**4**	3 position exhaust center (A) (B) 4 2 5 1 3 (R1) (P) (R2)
2	2 position double (metal) (A) (B) 4 2 5 1 3 (R1) (P) (R2)	**5**	3 position pressure center (A) (B) 4 2 5 1 3 (R1) (P) (R2)
	2 position double (rubber) (A) (B) 4 2 5 1 3 (R1) (P) (R2)	**6**	3 position perfect (A) (B) 4 2 5 1 3 (R1) (P) (R2)
3	3 position closed center (A) (B) 4 2 5 1 3 (R1) (P) (R2)		

(B) Seal type

0	Metal seal
1	Rubber seal

(C) Function

Nil	Standard type (1 W)
R	External pilot
Y	Low wattage type (0.5 W)

Note 1) When specifying more than one option, enter symbols in alphabetical order.
Note 2) Please select when you expect to energize the unit for extended periods of time. Refer to page 3 for details.

(D) Coil voltage

5	24 VDC Note)
6	12 VDC

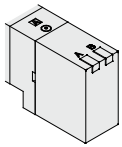
Note) S kit is only available for 24 VDC.

(E) Light/Surge voltage suppressor

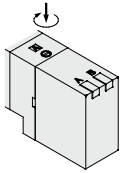
Nil	With
E	Without light, with surge voltage supressor

(F) Manual override

Nil: Non-locking push type (Tool required)



B: Locking type (Tool required)



SI unit Part No. Table

EX600

Symbol	Protocol type	Serial unit No.		Page
		– COM. (PNP)	+ COM. (NPN)	
SD6Q	DeviceNet™	EX600-SDN1A	EX600-SDN2A	P.1243
SD6N	PROFIBUS DP	EX600-SMJ1	EX600-SMJ2	
SD6V	CC-Link	EX600-SPR1A	EX600-SPR2A	
SD6ZE	EtherNet/IP™	EX600-SEN1	EX600-SEN2	
SD6D	EtherCAT	EX600-SEC1	EX600-SEC2	

EX260

Symbol	Protocol type	Number of outputs	Serial unit No.		Communication connector	Page
			– COM. (PNP)	+ COM. (NPN)		
SQA	DeviceNet™	32	EX260-SDN1	EX260-SDN2	M12	P.1243
SQB		16	EX260-SDN3	EX260-SDN4		
SNA	PROFIBUS DP	32	EX260-SPR1	EX260-SPR2		
SNB		16	EX260-SPR3	EX260-SPR4		
SNC		32	EX260-SPR5	EX260-SPR6	D-sub	
SND		16	EX260-SPR7	EX260-SPR8		
SVA	CC-Link	32	EX260-SMJ1	EX260-SMJ2	M12	
SVB		16	EX260-SMJ3	EX260-SMJ4		
SDA	EtherCAT	32	EX260-SEC1	EX260-SEC2	M12	
SDB		16	EX260-SEC3	EX260-SEC4		
SFA	PROFINET	32	EX260-SPN1	EX260-SPN2	M12	
SFB		16	EX260-SPN3	EX260-SPN4		
SEA	EtherNet/IP™	32	EX260-SEN1	EX260-SEN2	M12	
SEB		16	EX260-SEN3	EX260-SEN4		

EX126

Symbol	Protocol type	Serial unit No.	Page
SDVB	CC-Link (+ COM.) (NPN)	EX126D-SMJ1	P.1244

EX500

Symbol	Protocol type	Serial unit No.		Page
		+ COM. (NPN)	– COM. (PNP)	
SDA2	DeviceNet™	EX500-Q001	EX500-Q101	P.1243
	PROFIBUS DP			
	EtherNet/IP™			

EX250

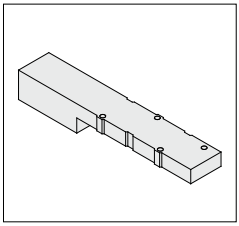
Symbol	Protocol type	Serial unit No.	Page
SDQ	DeviceNet™ (– COM.) (PNP)	EX250-SDN1	P.1244
SDN	PROFIBUS DP (– COM.) (PNP)	EX250-SPR1	
SDV	CC-Link (+ COM.) (NPN)	EX250-SMJ2	
SDTA	AS-Interface (– COM.) (PNP), (8 in/8 out, 31 slave modes, 2 power supply systems)	EX250-SAS3	
SDTB	AS-Interface (– COM.) (PNP), (4 in/4 out, 31 slave modes, 2 power supply systems)	EX250-SAS5	
SDTC	AS-Interface (– COM.) (PNP), (8 in/8 out, 31 slave modes, 1 power supply systems)	EX250-SAS7	
SDTD	AS-Interface (– COM.) (PNP), (4 in/4 out, 31 slave modes, 1 power supply systems)	EX250-SAS9	
SDY	CANopen (– COM.) (PNP)	EX250-SCA1A	
SDZEN	EtherNet/IP™ (– COM.) (PNP)	EX250-SEN1	

Refer to page 2087 and Operation Manual, for details on the EX600 integrated-type (I/O).
Refer to pages 2111, 2074, and 2055 and Operation Manual for details on the EX500 gateway-type serial transmission system, EX250 integrated-type (I/O) serial transmission system and EX126 integrated-type (for output) serial transmission system respectively.
For details about EX260 integrated type (for output), refer to page 2063 and Operation Manual. Please download the Operation Manual via SMC's website, http://www.smcworld.com

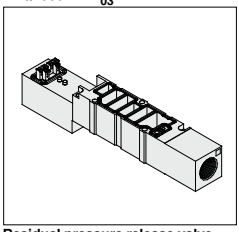
Manifold Options

Refer to the catalog of series VQ4000 for further information of options.

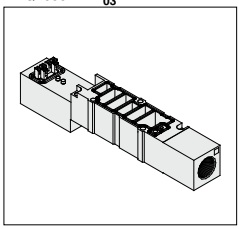
Blanking plate assembly
VVQ4000-10A-1



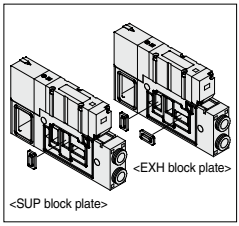
Individual SUP spacer
VVQ4000-P-1- $^{02}_{03}$



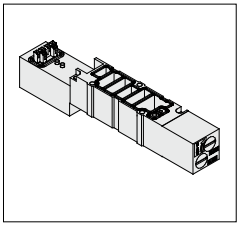
Individual EXH spacer
VVQ4000-R-1- $^{02}_{03}$



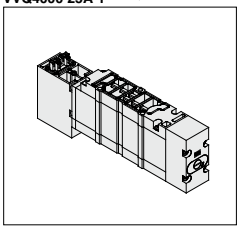
SUP/EXH block plate
VVQ4000-16A



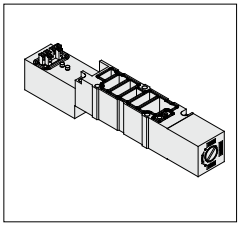
Throttle valve spacer
VVQ4000-20A-1



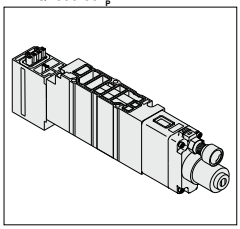
Residual pressure release valve perfect spacer
VVQ4000-25A-1 Note 1)



SUP stop valve spacer
VVQ4000-37A-1



Interface regulator
ARBQ4000-00- $^{B}_{P}$**-1**

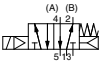


Note 1) Perfect spacers with residual pressure release valve cannot be combined with external pilot specifications.

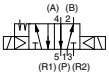
Series VQC4000 Base Mounted
Plug-in Unit

Symbol

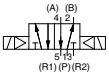
2 position single



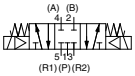
2 position double (metal)



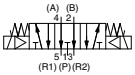
2 position double (rubber)



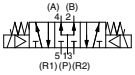
3 position closed center



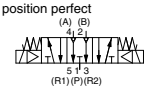
3 position exhaust center



3 position pressure center



3 position perfect



Model

Series	No. of solenoids		Model		Flow characteristics 1 → 4, 2 (P → A, B) C[dm³/(s·bar)]	b	Cv	Flow characteristics 4, 2 → 5, 3 (A, B → R1, R2) C[dm³/(s·bar)]	b	Cv	Response time (ms) Note 2) Standard: 1 W	Response time (ms) Note 2) Low wattage	Weight (g)
VQC4000	2 position	Single	Metal seal	VQC4100	6.2	0.19	1.5	6.9	0.17	1.7	20 or less	22 or less	230
			Rubber seal	VQC4101	7.2	0.43	2.1	7.3	0.38	2.0	25 or less	27 or less	
		Double	Metal seal	VQC4200	6.2	0.19	1.5	6.9	0.17	1.7	12 or less	12 or less	260
			Rubber seal	VQC4201	7.2	0.43	2.1	7.3	0.38	2.0	15 or less	15 or less	
	3 position	Closed center	Metal seal	VQC4300	5.9	0.23	1.5	6.3	0.18	1.6	45 or less	47 or less	280
			Rubber seal	VQC4301	7.0	0.34	1.9	6.4	0.42	1.9	50 or less	52 or less	
		Exhaust center	Metal seal	VQC4400	6.2	0.18	1.5	6.9	0.17	1.7	45 or less	47 or less	
			Rubber seal	VQC4401	7.0	0.38	1.9	7.3	0.38	2.0	50 or less	52 or less	
		Pressure center	Metal seal	VQC4500	6.2	0.18	1.9	6.4	0.18	1.6	45 or less	47 or less	
			Rubber seal	VQC4501	7.0	0.38	1.9	7.1	0.38	2.0	50 or less	52 or less	
		Perfect	Metal seal	VQC4600	2.7	—	—	3.7	—	—	55 or less	57 or less	500
			Rubber seal	VQC4601	2.8	—	—	3.9	—	—	62 or less	64 or less	

Note 1) VQC4000: Cylinder port size Rc 3/8

Note 2) Values represented in this column are based on JIS B 8375-1981 (operating with clean air and a supply pressure of 0.5 MPa. Equipped with light/surge voltage suppressor. Values vary depending on the pressure as well as the air quality.) Values for double types are when the switch is ON.

Standard Specifications

Valve specifications	Valve Configuration		Metal seal	Rubber seal
	Fluid		Air/Inert gas	
	Max. operating pressure Note 3)		1.0 MPa (0.7 MPa)	
	Min. operating pressure	Single	0.15 MPa	0.2 MPa
		Double	0.15 MPa	
		3 position	0.15 MPa	0.2 MPa
	Proof pressure		1.5 MPa	
	Ambient and fluid temperature		–10 to 50°C Note 1)	
	Lubrication		Not required	
	Manual override		Push type/Locking type (tool required) option	
	Impact/Vibration resistance		150/30 m/s² Note 2)	
	Enclosure		Dust proof (IP67 compliant)	
Electrical specifications	Rated coil voltage		24 VDC	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Equivalent to B type	
	Power consumption (Current)	24 VDC	1 W DC (42 mA), 0.5 W DC (21 mA)	
		12 VDC	1 W DC (83 mA), 0.5 W DC (42 mA)	

Note 1) Use dry air to prevent condensation at low temperatures.

Note 2) **Impact resistance:** No malfunction resulted from the impact test using a drop impact tester. The test was performed one time each in the axial and right angle directions of the main valve and armature, for both energized and de-energized states.

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000Hz. Test was performed in the axial and right angle directions of the main valve and armature for both energized and de-energized states.

Note 3) Values in ( ) are for the low wattage (0.5 W) specification.

Manifold Specifications

Series	Base model	Connection type	Piping specifications: Port direction	Piping specifications: Port size Note 1) 1, 3 (P, R)	Piping specifications: Port size Note 1) 2, 4 (A, B)	Applicable stations Note 2)	Applicable solenoid valves	5 station weight (g)
VQC4000	VV5QC41-□□□	■ F Kit: D-sub connector ■ P Kit: Flat cable ■ T Kit: Terminal block box ■ S Kit: Serial transmission ■ L Kit: Lead wire ■ M Kit: Circular connector	Side	P: Rc 1/2 R: Rc 3/4	C8 (For ø8) C10 (For ø10) C12 (For ø12) Rc 1/4 Rc 3/8	(F, L, M and P kits 1 to 16 stations) (T kit 1 to 16 stations) (S kit 1 to 16 stations: EX250 1 to 16 stations: EX500)	VQC4□00-5 VQC4□01-5	4150 • S kit (without unit) • Solenoid weight is not included.
			Bottom		Rc 1/4			

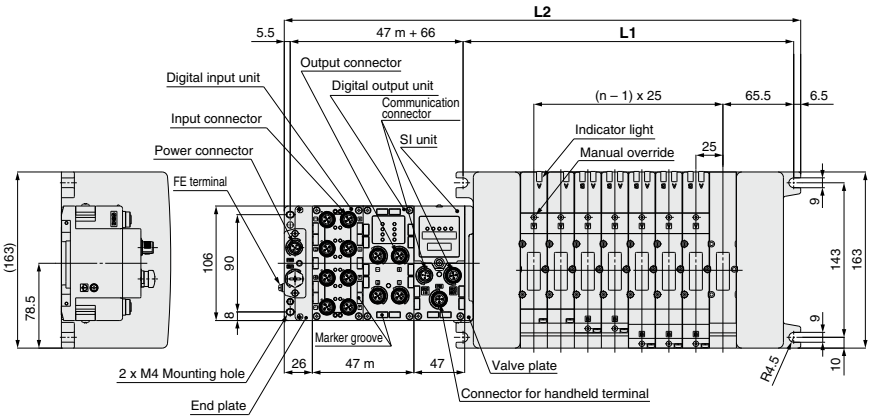
Note 1) One-touch fittings in inch sizes are also available.

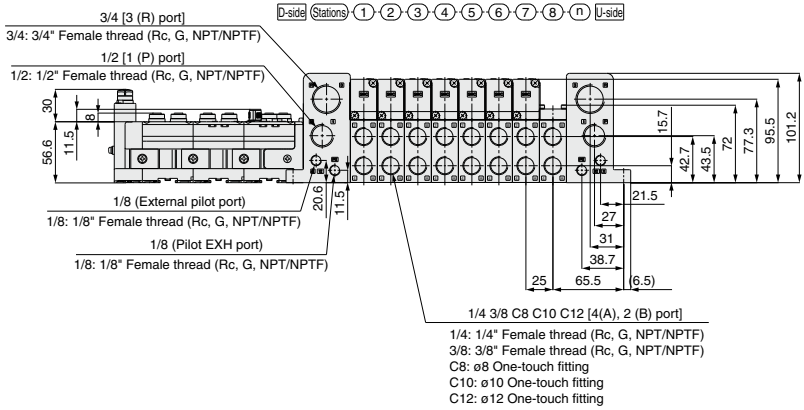
Note 2) An optional specification for special wiring is available to increase the maximum number of stations.

S VQC4000

kit (Serial transmission): For EX600 Integrated-type (I/O) Serial Transmission System IP67 compliant

VV5QC41
S Kit (Serial transmission kit: EX250)
Power supply with M12 connector





Formulas
L1 = 25n + 106
L2 = 25n + 184
L2 dimension: Without I/O unit For additional I/O unit, add 47 mm.
m: I/O unit stations

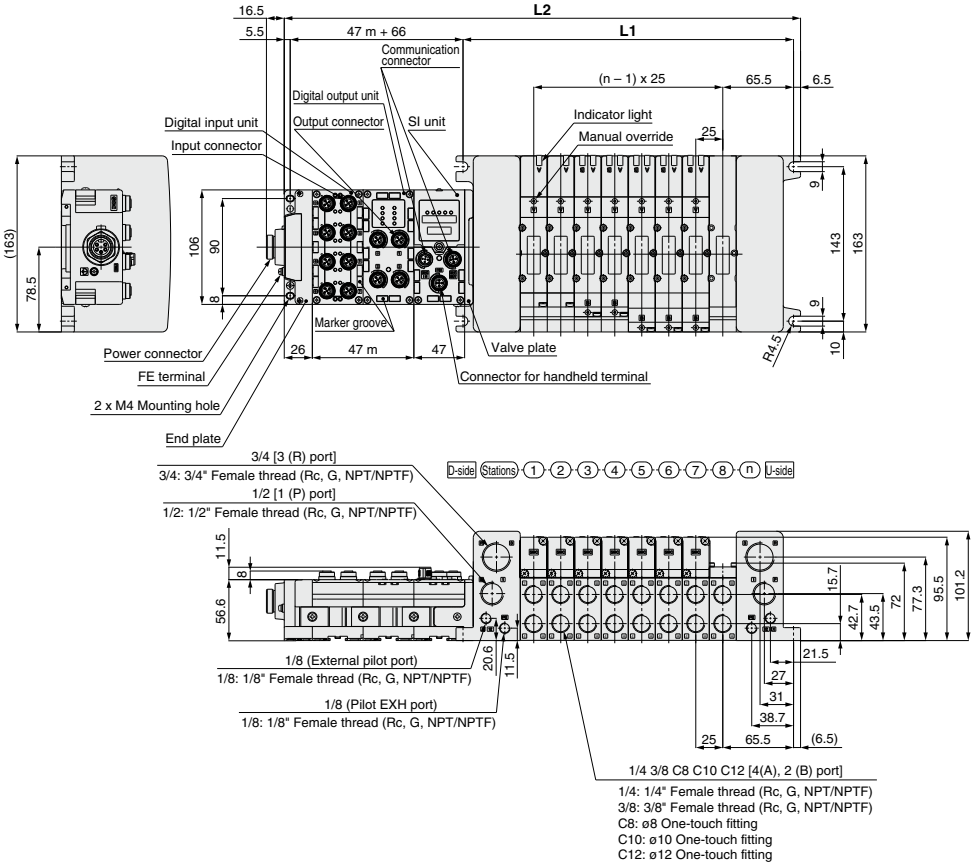
Dimensions n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	209	234	259	284	309	334	359	384	409	434	459	484	509	534	559	584

S *VQC4000*

kit (Serial transmission): For EX600 Integrated-type (I/O) Serial Transmission System **IP67 compliant**

VV5QC41
S Kit (Serial transmission kit: EX600)
Power supply with M12 connector



Formulas
L1 = 25n + 106
L2 = 25n + 184
L2 dimension: Without I/O unit For additional I/O unit, add 47 mm.
m: I/O unit stations

Dimensions

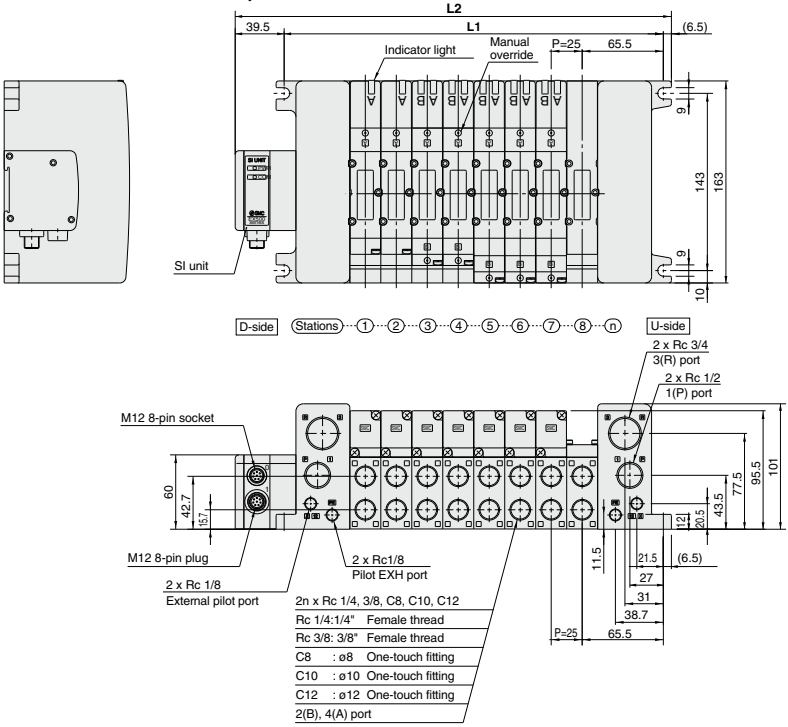
n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	209	234	259	284	309	334	359	384	409	434	459	484	509	534	559	584

S *VQC4000*

kit (Serial transmission kit): For EX500 Gateway-type Serial Transmission System **IP67 compliant**

VV5QC41
S Kit (Serial transmission kit: EX500)



Formulas: L1 = 25n + 106, L2 = 25n + 152 n: Stations (Maximum 16 stations)

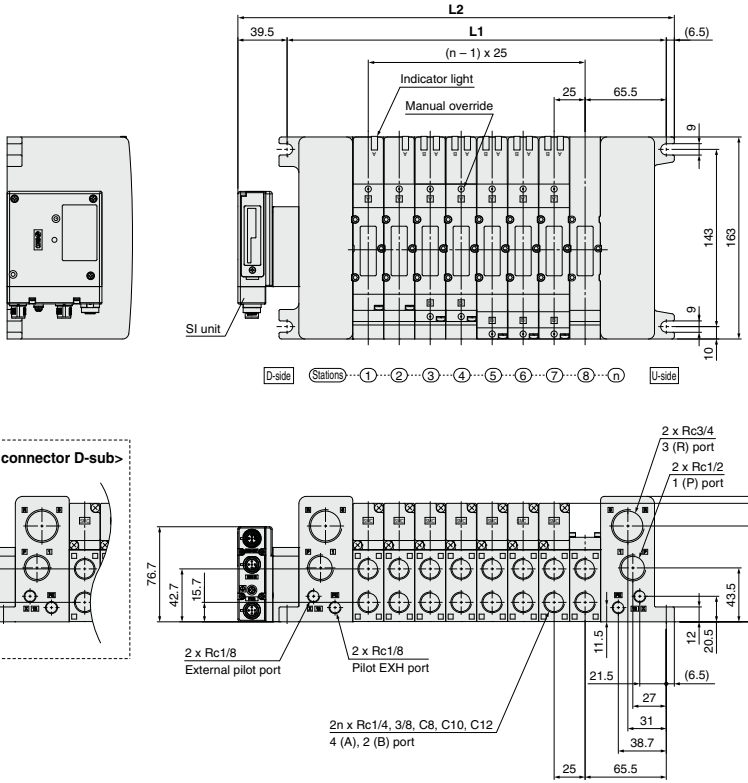
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	177	202	227	252	277	302	327	352	377	402	427	452	477	502	527	552

S *VQC4000*

kit (Serial transmission): For EX260 Integrated-type (I/O) Serial Transmission System

IP40 compliant
IP67 compliant

VV5QC41
S Kit (Serial transmission kit: EX260)



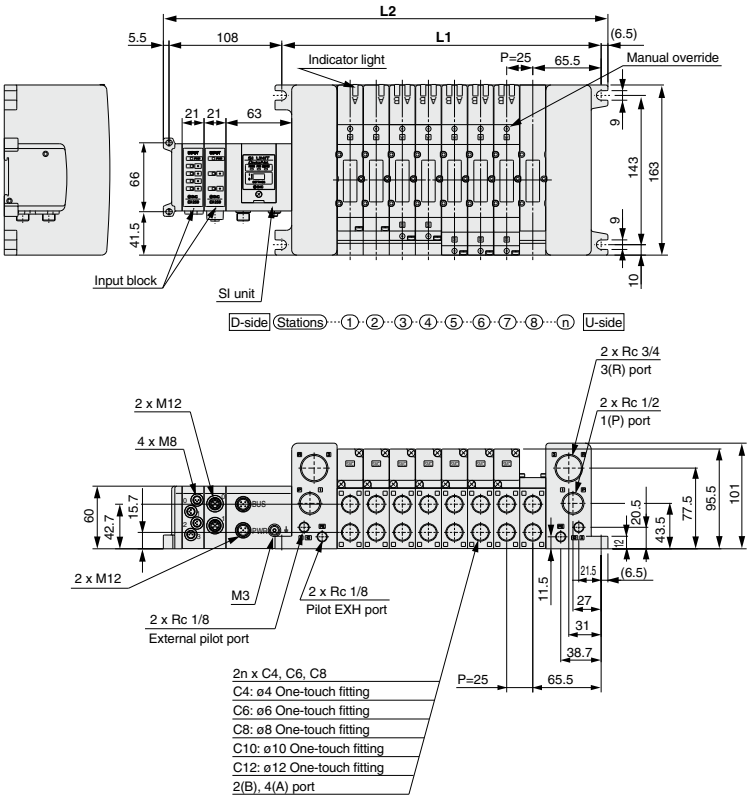
n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	177	202	227	252	277	302	327	352	377	402	427	452	477	502	527	552

S VQC4000

kit (Serial transmission kit): For EX250 Integrated-type (I/O) Serial Transmission System IP67 compliant

VV5QC41
S Kit
(Serial transmission kit: EX250)



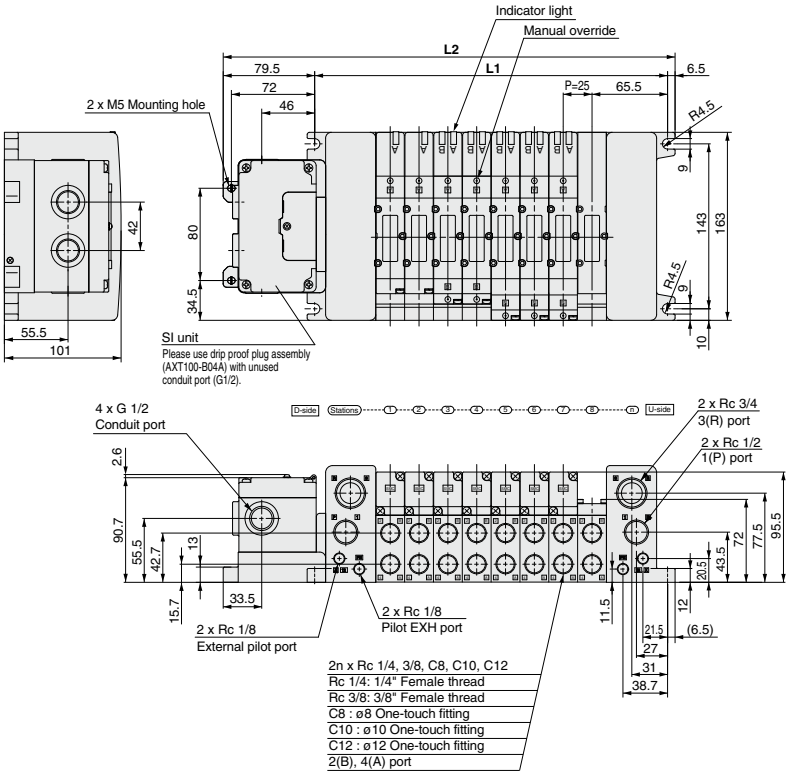
Formulas: L1 = 25n + 106, L2 = 25n + 205 (For one input block. Add 21 mm for each additional input block.) n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	230	255	280	305	330	355	380	405	430	455	480	505	530	555	580	605

S *VQC4000*

kit (Serial transmission kit): For EX126 Integrated-type (Output) Serial Transmission System **IP67 compliant**

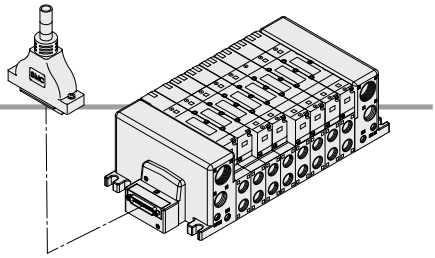
VV5QC41
S Kit (Serial transmission kit: EX126)



Formulas: L1 = 25n + 106, L2 = 25n + 192 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	217	242	267	292	317	342	367	392	417	442	467	492	517	542	567	592

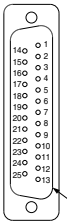
F *VQC4000*
kit (D-sub connector kit) IP40 compliant



- **Using our D-sub connector for electrical connections greatly reduces labor, while it also minimizes wiring and saves space.**
- **We use a D-sub connector (25P) that conforms to MIL standards and is therefore widely compatible with many standard commercial models.**
- **Top or side entry for the connector can be changed freely, allowing for changes even after mounting, to meet any changing needs for space.**

Electrical Wiring Specifications

D-sub connector



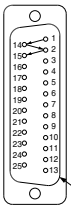
As the standard electrical wiring specification used is for 12 stations or less, double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.

Lead wire colors for D-sub connector assemblies (AXT100-DS25-$^{015}_{030}_{050}$)

Standard wiring	Terminal no.	Lead wire color	Dot marking
Station 1 SOL.A	1	Black	None
Station 1 SOL.B	14	Yellow	Black
Station 2 SOL.A	2	Brown	None
Station 2 SOL.B	15	Pink	Black
Station 3 SOL.A	3	Red	None
Station 3 SOL.B	16	Blue	White
Station 4 SOL.A	4	Orange	None
Station 4 SOL.B	17	Purple	None
Station 5 SOL.A	5	Yellow	None
Station 5 SOL.B	18	Gray	None
Station 6 SOL.A	6	Pink	None
Station 6 SOL.B	19	Orange	Black
Station 7 SOL.A	7	Blue	None
Station 7 SOL.B	20	Red	White
Station 8 SOL.A	8	Purple	White
Station 8 SOL.B	21	Brown	White
Station 9 SOL.A	9	Gray	Black
Station 9 SOL.B	22	Pink	Red
Station 10 SOL.A	10	White	Black
Station 10 SOL.B	23	Gray	Red
Station 11 SOL.A	11	White	Red
Station 11 SOL.B	24	Black	White
Station 12 SOL.A	12	Yellow	Red
Station 12 SOL.B	25	White	None
COM.	13	Orange	Red

Special Wiring Specifications (Options)

(For 25P)

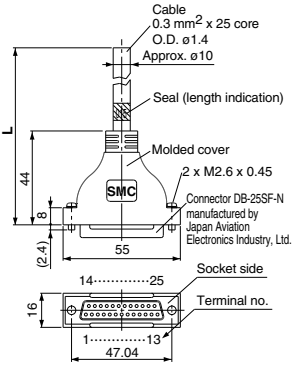


Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

Cable Assembly

AXT100-DS25-$^{015}_{030}_{050}$

D-sub connector cable assemblies can be ordered with manifolds. Refer to manifold ordering.



D-sub connector cable assemblies

Cable length (**L**)	Part no.	Note
1.5 m	AXT100-DS25-015	Cable 0.3 mm² x 25 cores
3 m	AXT100-DS25-030	
5 m	AXT100-DS25-050	

∗ When using a standard commercial connector, use a type 25P female connector conforming to MIL-C-24308.
∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

Lead wire colors for D-sub connector cable assembly terminal numbers

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

Electrical characteristics

Item	Characteristic
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

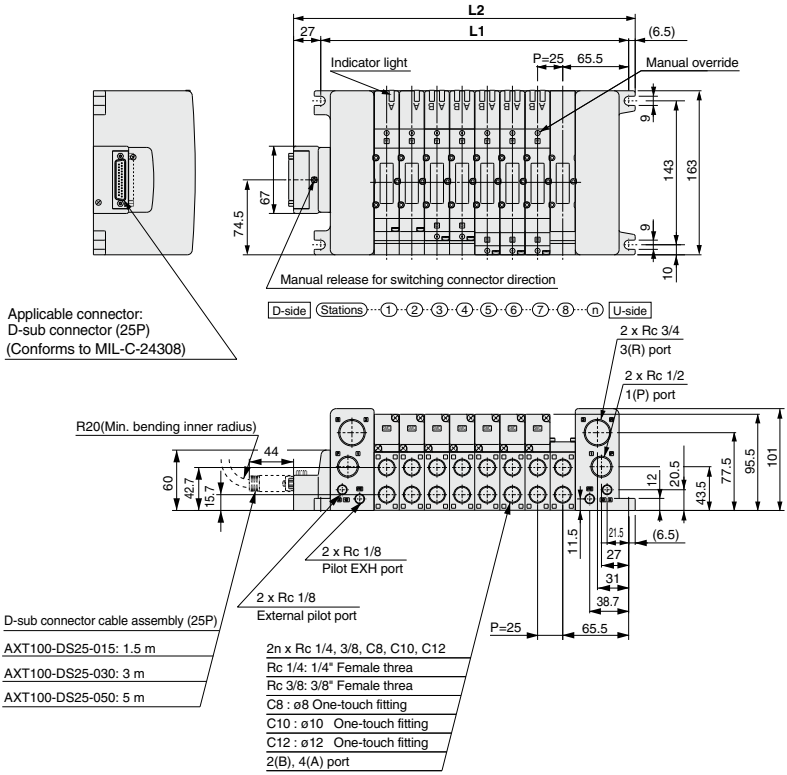
Note) The minimum bending radius for D-sub connector cables is 20 mm.

Some connector manufacturers:

- Fujitsu, Ltd.
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.
- HIROSE ELECTRIC CO., LTD.

F VQC4000
kit (D-sub connector kit) IP40 compliant

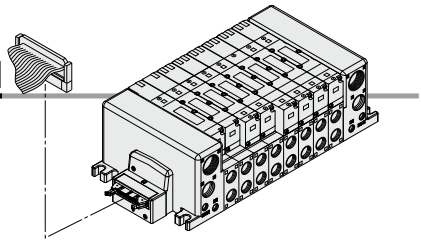
VV5QC41



Formulas: L1 = 25n + 106, L2 = 25n + 139.5 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	164.5	189.5	214.5	239.5	264.5	289.5	314.5	339.5	364.5	389.5	414.5	439.5	464.5	489.5	514.5	539.5

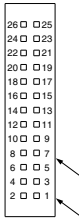
P *VQC4000*
kit (Flat ribbon cable kit) IP40 compliant



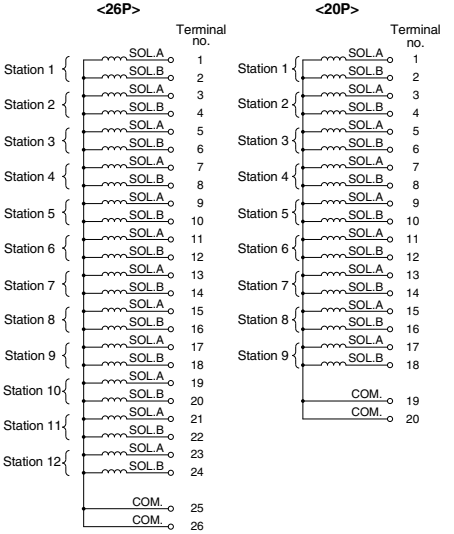
- **Using our flat ribbon cable for electrical connections greatly reduces labour, while it also minimizes wiring and saves space.**
- **We use flat ribbon cables whose connectors (26P and 20P) conform to MIL standards, and are therefore widely compatible with many standard commercial models.**
- **Top or side entry for the connector can be changed freely, allowing for changes even after mounting, to meet any changing needs for space.**

Electrical Wiring Specifications

Flat ribbon cable connector



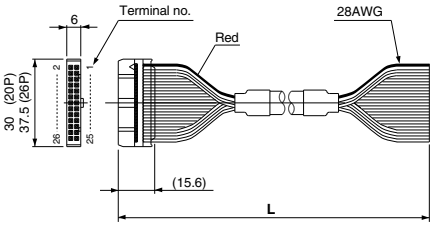
Double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.



Cable Assembly

AXT100-FC $\begin{matrix}20\\26\end{matrix}$ **-** $\begin{matrix}1\\2\\3\end{matrix}$

Type 26P flat ribbon cable connector assemblies can be ordered with manifolds. Refer to manifold ordering.



Flat ribbon cable connector assemblies

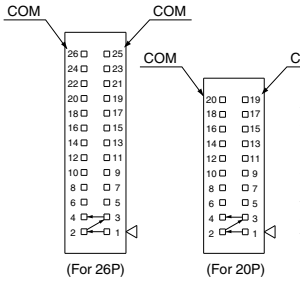
Cable length (**L**)	Part no.	
	26P	20P
1.5 m	AXT100-FC26-1	AXT100-FC20-1
3 m	AXT100-FC26-2	AXT100-FC20-2
5 m	AXT100-FC26-3	AXT100-FC20-3

∗ When using a standard commercial connector, use a type 26P connector conforming to MIL-C-83503 or a type 20P with strain relief.
∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

Connector Manufacturers Example:

· Hirose Electric CO., Ltd.
· Sumitomo/3M Limited
· Fujitsu, Ltd.
· Japan Aviation Electronics Industry, Ltd.
· J.S.T. Mfg. Co., Ltd.
· Oki Electric Cable Co., Ltd.

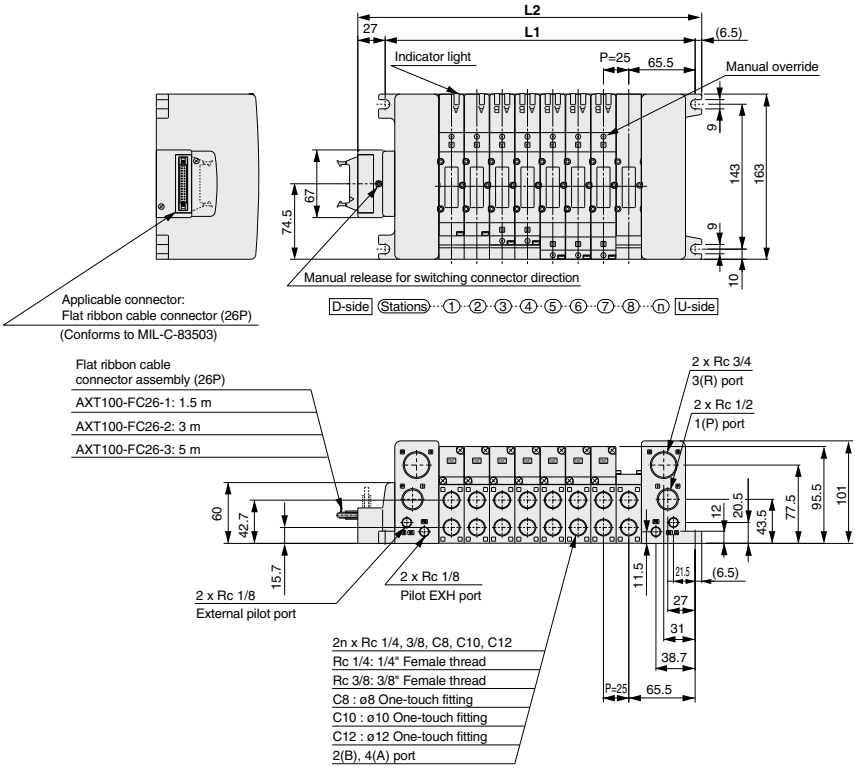
Special Wiring Specifications (Option)



Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

P VQC4000
kit (Flat ribbon cable kit) IP40 compliant

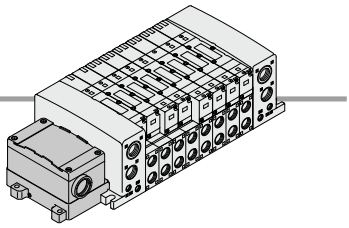
VV5QC41



Formulas: L1 = 25n + 106, L2 = 25n + 139.5 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	164.5	189.5	214.5	239.5	264.5	289.5	314.5	339.5	364.5	389.5	414.5	439.5	464.5	489.5	514.5	539.5

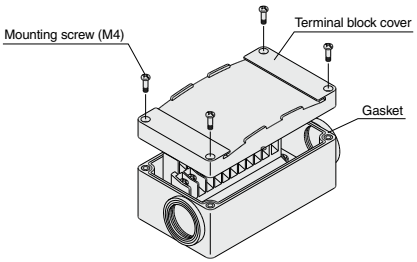
T VQC4000
kit (Terminal block box kit) IP67 compliant



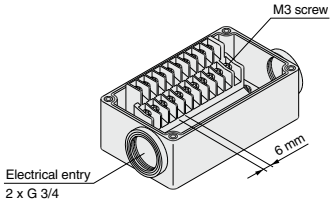
- **This kit has a small terminal block inside a junction box. The provision of a G 3/4 electrical entry allows connection of conduit fittings.**

Terminal Block Connection

Step 1. How to remove terminal block cover
Loosen the 4 mounting screws (M4) and remove the terminal block cover.



Step 2. The diagram below shows the terminal block wiring.
All stations are provided with double wiring regardless of the valves which are mounted.
Connect each wire to the power supply side, according to the markings provided inside the terminal block.

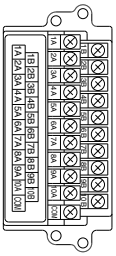


Step 3. How to replace the terminal block cover
Securely tighten the screws to the torque shown in the table below, after confirming that the gasket is installed correctly.

Proper tightening torque (N·m)
0.7 to 1.2

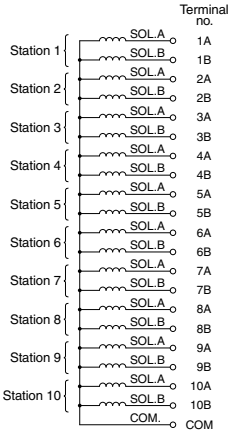
- Applicable crimped terminal: 1.25-3S,1.25Y-3,1.25Y-3N,1.25Y-3.5
- Name plate: VVQ5000-N-T
- Drip proof plug assembly (for G 3/4): AXT100-B06A

Electrical Wiring Specifications (Conforms to IP67)



The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options.
Mixed single and double wiring are available as options.

Standard wiring

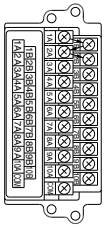


Special Wiring Specifications (Option)

Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 20.

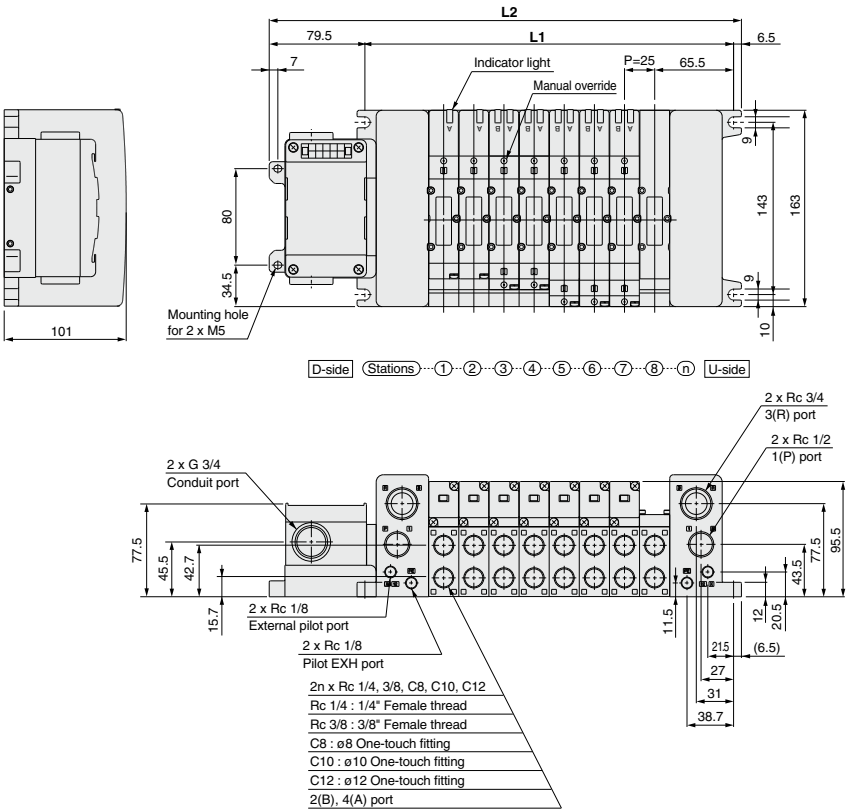
1. How to order
Indicate option symbol "-K" in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet.

2. Wiring specifications
Connector terminal numbers are connected from solenoid station 1 on the A side in the order indicated by the arrows without skipping any terminal numbers.



T VQC4000
kit (Terminal block box kit) IP67 compliant

VV5QC41

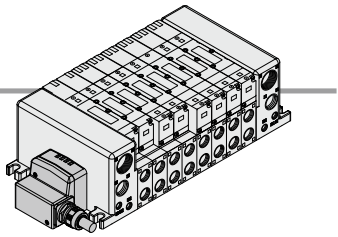


Formulas: L1 = 25n + 106, L2 = 25n + 192 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	217	242	267	292	317	342	367	392	417	442	467	492	517	542	567	592

L *VQC4000*

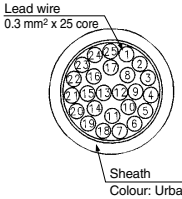
kit (Lead wire kit) **IP67 compliant**



- **Direct electrical entry type.**
- **IP67 enclosure is available with use of cables with sheath and waterproof connectors.**

Electrical Wiring Specifications

Lead wire specifications



As the standard electrical wiring specification used is for 12 stations or less, double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.

		Terminal no.	Lead wire colour	Dot marking
Station 1	SOL.A	1	Black	None
	SOL.B	14	Yellow	Black
Station 2	SOL.A	2	Brown	None
	SOL.B	15	Pink	Black
Station 3	SOL.A	3	Red	None
	SOL.B	16	Blue	White
Station 4	SOL.A	4	Orange	None
	SOL.B	17	Purple	None
Station 5	SOL.A	5	Yellow	None
	SOL.B	18	Grey	None
Station 6	SOL.A	6	Pink	None
	SOL.B	19	Orange	Black
Station 7	SOL.A	7	Blue	None
	SOL.B	20	Red	White
Station 8	SOL.A	8	Purple	White
	SOL.B	21	Brown	White
Station 9	SOL.A	9	Grey	Black
	SOL.B	22	Pink	Red
Station 10	SOL.A	10	White	Black
	SOL.B	23	Grey	Red
Station 11	SOL.A	11	White	Red
	SOL.B	24	Black	White
Station 12	SOL.A	12	Yellow	Red
	SOL.B	25	White	None
	COM.	13	Orange	Red

Lead wire length

VV5QC41−08 C12 LD [0]

Lead wire length

0	0.6 m
1	1.5 m
2	3.0 m

Electrical characteristics

Item	Characteristic
Conductor resistance Ω/km, 20°C	65 or less
Withstand pressure V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

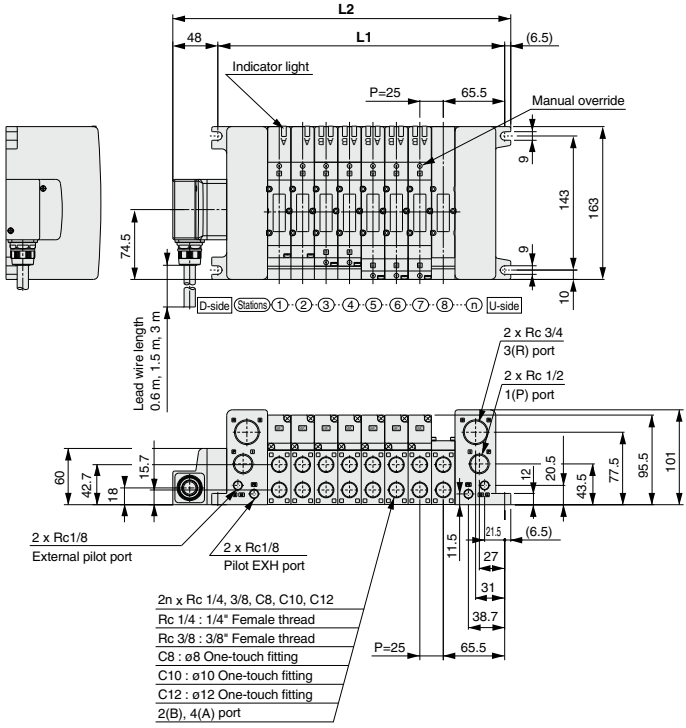
Note) Cannot be used for transfer wiring.
The minimum bending radius for cables is 20 mm.

Special Wiring Specifications (Option)

Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

L *VQC4000*
kit (Lead wire kit) IP67 compliant

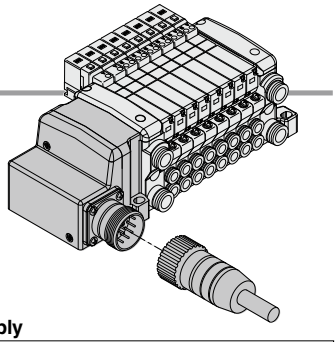
VV5QC41



Formulas: L1 = 25n + 106, L2 = 25n + 160.5 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	185.5	210.5	235.5	260.5	285.5	310.5	335.5	360.5	385.5	410.5	435.5	460.5	485.5	510.5	535.5	560.5

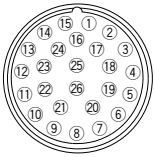
M VQC4000
kit (Circular connector kit) IP67 compliant



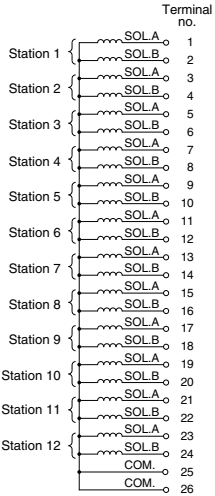
- **Use of circular connectors helps streamline wiring procedure to save labor.**
- **IP67 enclosure is available with use of waterproof multiple connectors.**

Electrical Wiring Specifications

Multiple connector



Double wiring(connected to SOL.A and SOL.B) is used for the internal wiring of each staion regardless of valve and option types. Mixed single and double wiring are available as options. Refer to special wiring specifications(options) below.



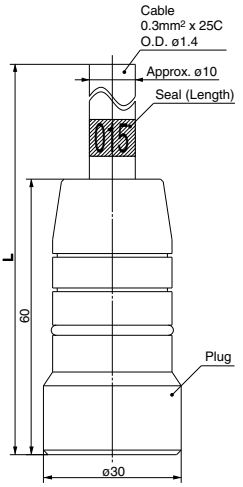
Special Wiring Specifications (Option)

Mixed single and double wiring are available as an option. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

Cable Assembly

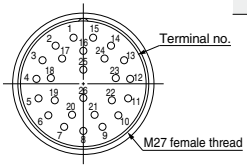
AXT100-MC26- 015 / 030 / 050

(Type 26P circular connector cable assemblies can be ordered with manifolds. Refer to manifolds ordering.)



Lead wire colors for circular connector cable assembly terminal numbers

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
26	White	None



Electric characteristics

Item	Property
Conductor resistance Ω/km, 20 C	65 or less
Voltage limit V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20 C	5 or more

Note) The minimum bending radius of the multiple connector cable is 20 mm.

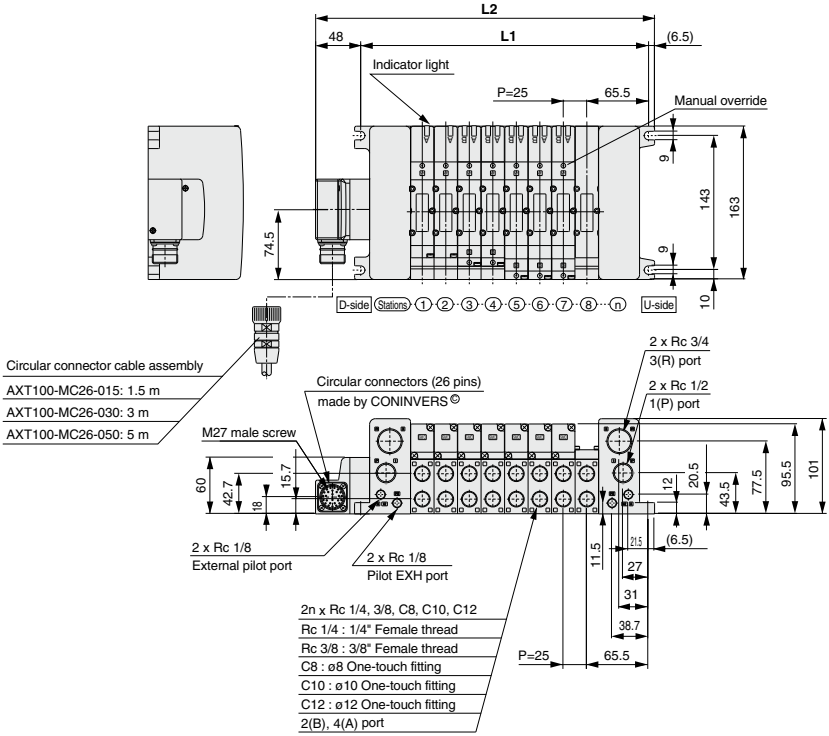
Circular connector cable assemblies

Cable length (**L**)	Assembly no.
	26P
1.5 m	AXT100-MC26-015
3 m	AXT100-MC26-030
5 m	AXT100-MC26-050

∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

M *VQC4000*
kit (Circular connector kit) IP67 compliant

VV5QC41

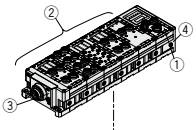
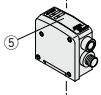
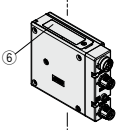
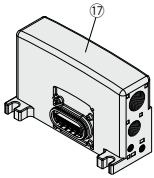
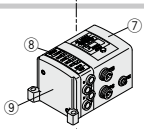
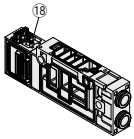
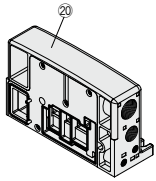
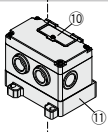
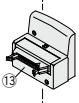
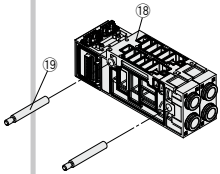
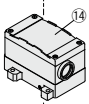
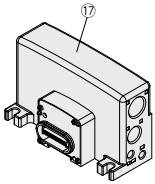
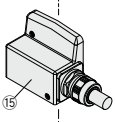
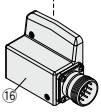


Formulas: L1 = 25n + 106, L2 = 25n + 150.5 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	185.5	210.5	235.5	260.5	285.5	310.5	335.5	360.5	385.5	410.5	435.5	460.5	485.5	510.5	535.5	560.5

Series *VQC4000*

Exploded View of Manifold

	Housing assembly and SI unit	D-side end plate assembly	Manifold block assembly	U-side end plate assembly
S Kit (Serial) EX600				
S Kit (Serial) EX500				
S Kit (Serial) EX260		Corresponding kit S(EX600, EX250, EX126).F.P.T 		
S Kit (Serial) EX250				
S Kit (Serial) EX126				
F Kit (D-sub connector)				
P Kit (Flat ribbon cable)				
T Kit S Kit (Serial) (Terminal block)				
L Kit (Lead wire)		Corresponding kit S(EX500, EX260).L.M		
M Kit (Multiple connector)				

Note) There are two kinds of manifold blocks available, 2 stations integrated type and 1 station type. 2 stations integrated type is used for even stations while 2 stations integrated type and 1 station type are combined for odd stations.

D side ..... U side

1.....2.....3.....4.....5.....6.....

5 stations (Odd number) | 2 stations | 2 stations | 1 station |

6 stations (Even number) | 2 stations | 2 stations | 2 stations |

Manifold Assembly Part No.

Housing Assembly and SI Unit/Input Block

No.	Description	Part no.	Note
1	SI unit	EX600-SDN1A	DeviceNet™ PNP (Negative common)
		EX600-SDN2A	DeviceNet™ NPN (Positive common)
		EX600-SMJ1	CC-Link PNP (Negative common)
		EX600-SMJ2	CC-Link NPN (Positive common)
		EX600-SPR1A	PROFIBUS DP (Negative common)
		EX600-SPR2A	PROFIBUS DP (Positive common)
		EX600-SEN1	EtherNet/IP™ (Negative common)
		EX600-SEN2	EtherNet/IP™ (Positive common)
		EX600-SEC1	EtherCAT PNP (Negative common)
		EX600-SEC2	EtherCAT NPN (Positive common)
2	Digital Input Unit	EX600-DXNB	NPN input, M12 connector, 5 pins (4 pcs.), 8 inputs
		EX600-DXPB	PNP input, M12 connector, 5 pins (4 pcs.), 8 inputs
		EX600-DXNC	NPN input, M8 connector, 3 pins (8 pcs.), 8 inputs
		EX600-DXNC1	NPN input, M8 connector, 3 pins (8 pcs.), 8 inputs, with open circuit detection
		EX600-DXPC	PNP input, M8 connector, 3 pins (8 pcs.), 8 inputs
		EX600-DXPC1	PNP input, M8 connector, 3 pins (8 pcs.), 8 inputs, with open circuit detection
		EX600-DXND	NPN input, M12 connector, 5 pins (8 pcs.), 16 inputs
		EX600-DXPD	PNP input, M12 connector, 5 pins (8 pcs.), 16 inputs
		EX600-DXNE	NPN input, D-sub connector, 25 pins, 16 inputs
		EX600-DXPE	PNP input, D-sub connector, 25 pins, 16 inputs
		EX600-DXNF	NPN input, Spring type terminal box, 32 pins, 16 inputs
		EX600-DXPF	PNP input, Spring type terminal box, 32 pins, 16 inputs
	Digital Output Unit	EX600-DYNB	NPN output, M12 connector, 5 pins (4 pcs.), 8 outputs
		EX600-DYPB	PNP output, M12 connector, 5 pins (4 pcs.), 8 outputs
		EX600-DYNE	NPN output, D-sub connector, 25 pins, 16 outputs
		EX600-DYPE	PNP output, D-sub connector, 25 pins, 16 outputs
		EX600-DYNF	NPN output, Spring type terminal box, 32 pins, 16 outputs
		EX600-DYPF	NPN output, Spring type terminal box, 32 pins, 16 outputs
	Digital Input/Output	EX600-DMNE	NPN input/output, D-sub connector, 25 pins, 8 inputs/outputs
		EX600-DMPE	PNP input/output, D-sub connector, 25 pins, 8 inputs/outputs
		EX600-DMNF	NPN input/output, Spring type terminal box, 32 pins, 8 inputs/outputs
		EX600-DMPF	PNP input/output, Spring type terminal box, 32 pins, 8 inputs/outputs
	Analog Input Unit	EX600-AXA	M12 connector, 5 pins (2 pcs.), 2-channel input
	Analog Output Unit	EX600-AYA	M12 connector, 5 pins (2 pcs.), 2-channel output
	Analog Input/Output Unit	EX600-AMB	M12 connector, 5 pins (4 pcs.), 2-channel inputs/outputs
3	End plate	EX600-ED2	M12 connector, 5 pins, Max. supply current 2 A
		EX600-ED2-2	M12 connector, 5 pins, Max. supply current 2 A, with DIN rail mounting bracket
		EX600-ED3	7/8 inch connector, 5 pins, Max. supply current 8 A
		EX600-ED3-2	7/8 inch connector, 5 pins, Max. supply current 8 A, with DIN rail mounting bracket
4	Valve Plate	EX600-ZMV1	Enclosed parts: round head screws (M4 x 6) 2 pcs., round head screws (M3 x 8) 4 pcs.
5	SI unit	EX500-Q001	EX500 NPN (Positive common)
		EX500-Q101	EX500 PNP (Negative common)
6	SI unit	EX260-SDN1	DeviceNet™, M12 connector, 32 outputs PNP (Negative common)
		EX260-SDN2	DeviceNet™, M12 connector, 32 outputs NPN (Positive common)
		EX260-SDN3	DeviceNet™, M12 connector, 16 outputs PNP (Negative common)
		EX260-SDN4	DeviceNet™, M12 connector, 16 outputs NPN (Positive common)
		EX260-SRP1	PROFIBUS DP, M12 connector, 32 outputs PNP (Negative common)
		EX260-SRP2	PROFIBUS DP, M12 connector, 32 outputs NPN (Positive common)
		EX260-SRP3	PROFIBUS DP, M12 connector, 16 outputs PNP (Negative common)
		EX260-SRP4	PROFIBUS DP, M12 connector, 16 outputs NPN (Positive common)
		EX260-SRP5	PROFIBUS DP, D-sub connector, 32 outputs PNP (Negative common)
		EX260-SRP6	PROFIBUS DP, D-sub connector, 32 outputs NPN (Positive common)
		EX260-SRP7	PROFIBUS DP, D-sub connector, 16 outputs PNP (Negative common)
		EX260-SRP8	PROFIBUS DP, D-sub connector, 16 outputs NPN (Positive common)
		EX260-SMJ1	CC-Link, M12 connector, 32 outputs PNP (Negative common)
		EX260-SMJ2	CC-Link, M12 connector, 32 outputs NPN (Positive common)
		EX260-SMJ3	CC-Link, M12 connector, 16 outputs PNP (Negative common)
		EX260-SMJ4	CC-Link, M12 connector, 16 outputs NPN (Positive common)
		EX260-SEC1	EtherCAT, M12 connector, 32 outputs PNP (Negative common)
		EX260-SEC2	EtherCAT, M12 connector, 32 outputs NPN (Positive common)
		EX260-SEC3	EtherCAT, M12 connector, 16 outputs PNP (Negative common)
		EX260-SEC4	EtherCAT, M12 connector, 16 outputs NPN (Positive common)
		EX260-SPN1	PROFINET, M12 connector, 32 outputs PNP (Negative common)
		EX260-SPN2	PROFINET, M12 connector, 32 outputs NPN (Positive common)
		EX260-SPN3	PROFINET, M12 connector, 16 outputs PNP (Negative common)
		EX260-SPN4	PROFINET, M12 connector, 16 outputs NPN (Positive common)
		EX260-SEN1	EtherNet/IP™, 32 outputs PNP (Negative common)
		EX260-SEN2	EtherNet/IP™, 32 outputs NPN (Positive common)
		EX260-SEN3	EtherNet/IP™, 16 outputs PNP (Negative common)
		EX260-SEN4	EtherNet/IP™, 16 outputs NPN (Positive common)

Manifold Assembly Part No.

Housing Assembly and SI Unit/Input Block

No.	Description	Part no.	Note
7	SI Unit	EX250-SPR1	PROFIBUS DP PNP (Negative common)
		EX250-SMJ2	CC-LinkNPN (Positive common)
		EX250-SAS3	AS-Interface, 8 in/8 out, 31 slave modes, 2 power supply systems PNP (Negative common)
		EX250-SAS5	AS-Interface, 4 in/4 out, 31 slave modes, 2 power supply systems PNP (Negative common)
		EX250-SAS7	AS-Interface, 8 in/8 out, 31 slave modes, 1 power supply system PNP (Negative common)
		EX250-SAS9	AS-Interface, 4 in/4 out, 31 slave modes, 1 power supply system PNP (Negative common)
		EX250-SCA1A	CANopen PNP (Negative common)
		EX250-SDN1	DeviceNet™ PNP (Negative common)
		EX250-SEN1	EtherNet/IP™ PNP (Negative common)
8	Input block	EX250-IE1	M12, 2 inputs
		EX250-IE2	M12, 4 inputs
		EX250-IE3	M8, 4 inputs
9	End plate assembly	EX250-EA1	Direct mounting
		EX250-EA2	DIN rail mounting
10	SI unit	EX126D-SMJ1	CC-Link NPN (Positive common)
11	Terminal plate	VVQC1000-74A-2	For EX126 SI unit mounting
12	D-sub connector housing assembly	VVQC1000-F25-1	F kit, 25 pins
13	Flat ribbon cable housing assembly	VVQC1000-P26-1	P kit, 26 pins
		VVQC1000-P20-1	P kit, 20 pins
14	Terminal block box housing assembly	VVQC1000-T0-1	T kit
15	Lead wire housing assembly	VVQC1000-L25-0-1	L kit with 0.6 m lead wire
		VVQC1000-L25-1-1	L kit with 1.5 m lead wire
		VVQC1000-L25-2-1	L kit with 3.0 m lead wire
16	Multiple connector housing assembly	VVQC1000-M26-1	M kit 26 pins

Manifold Assembly Part No.

D-side end plate assembly

⑰**D-side end plate assembly part no.**

VVQC4000-3A-2 □

Thread type

Nil	Rc
F	G
T	NPT/NPTF

Kit type

2	F, P, T, S (EX126, EX250, EX600) kit
3	L, M, S (EX260, EX500) kit

U-side end plate assembly

⑳**U-side end plate assembly part no.**

VVQC4000-2A– 1 □

Thread type

Nil	Rc
F	G
T	NPT/NPTF

Manifold block assembly

⑱**Manifold block assembly part no.**

VVQC4000-1 A-D-C6 □

Type

A	For 1 station
C	For 2 stations Note 2)

Note 1) Tie-rods (2 pcs.) for additional stations included.
Note 2) Bottom ported type is available only for 1 station.

Wiring Specifications

D	Double wiring
S	Single wiring

Thread type (Thread port only)

Nil	Rc
F	G
T	NPT/NPTF

Port size

Symbol	Port size
C8	For ø8
C10	For ø10
C12	For ø12
N7	For ø1/4"
N9	For ø5/16"
N11	For ø3/8"
02	Rc 1/4"
03	Rc 3/8"
B	Rc 1/4" bottom ported

Replacement parts

Pilot valve assembly

VQC4000	VQZ111P□-□-□ A: A side (Indicator light: Orange) B: B side (Indicator light: Green) E: Without indicator light (In common for A side and B side) 5: 24 VDC 6: 12 VDC Nil: standard (1 W) Y : Low wattage (0.5 W)

⑲**Tie-rod assembly part no. (2 units)**

VQC4000	VVQC4000-TR-□

Note 1) Please order when reducing the number of manifold stations. When increasing the number of stations, additional orders are not required since they are included in the manifold block assembly.
Note 2) Number of stations, 02 to 16

Specific Product Precautions 1

Be sure to read this before handling. Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

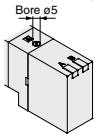
Manual Override

⚠Warning

Since connected equipment will operate when the manual override is activated, confirm that conditions are safe prior to activation.
Push type (tool required) is standard, and locking type (tool required) is optional.

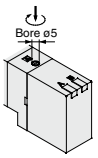
■VQC4000

Push type (Tool required)

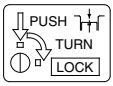


Push down the manual override button with a small screwdriver, etc., until it stops.
The manual override will return when released.

Locking type (Tool required)
<Option>



Push down the manual override button with a small flat head screwdriver or with your finger until it stops, and turn it clockwise 90° to lock it.
Turn it counterclockwise to release it.

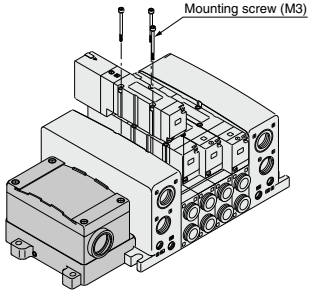


Valve Mounting

⚠Caution

After confirming that the gasket is installed correctly, securely tighten the mounting screws according to the tightening torque shown below.

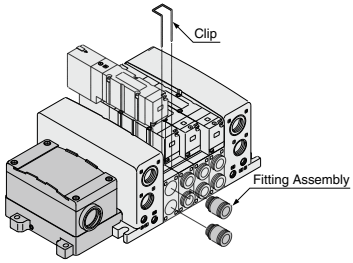
Proper tightening torque (N·m)
0.8 to 1.2



Replacing One-touch Fittings

⚠Caution

Cylinder port fittings are available in cassette type and can be replaced easily. Fittings are secured with a retaining clip that is inserted from the top side of the valve. After removing the valve,remove the clip with a flat head screw driver to replace the fittings. To mount a fitting, insert the fitting assembly until it stops and reinsert the retaining clip to its designated position.



Applicable tube O.D.	Fitting assembly part no.
	VQC4000
ø8	VVQ4000-50B-C8
ø10	VVQ4000-50B-C10
ø12	VVQ4000-50B-C12
ø1/4"	VVQ4000-50B-N7
ø5/16"	VVQ4000-50B-N9
ø3/8"	VVQ4000-50B-N11

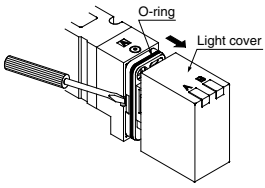
Installation and Removal of Light Cover

⚠Caution

Installation/Removal of light cover

● **Removal**
Open the cover by inserting a small flat head screwdriver into the slot on the side of the pilot assembly (see drawing below), lift the cover out about 1 mm and then pull off. If it is pulled off at an angle, the pilot valve may be damaged or the protective O-ring may be scratched.

● **Installation**
Place the cover straight over the pilot assenmbly so that the pilot valve is not touched,and push it until the cover hook locks without twisting the protective O-ring. (When pushed in, the hook opens and locks automatically.)



Specific Product Precautions 2

Be sure to read this before handling. Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

Replacement of Pilot Valve

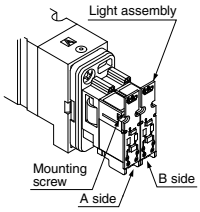
⚠ Caution

● **Removal**

1) Remove the mounting screw that holds the pilot valve using a small screwdriver.

● **Installation**

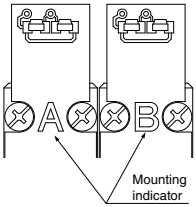
1) After confirming the gasket is correctly placed under the valve, securely tighten the bolts with the proper torque shown in the table below.



∗ Refer to page 1245 for pilot valve assembly part number.

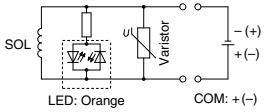
Proper tightening torque (N·m)
0.1 to 0.13

Note) The light circuit boards: A side is orange and the B side is green. It must be mounted on the pilot valve in accordance with the mounting indicators.

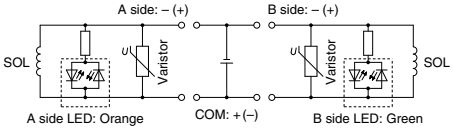


Internal Wiring Specifications

⚠ Caution



DC: Single



DC: Double

Note) Coil surge voltage generated when OFF is about -60V. Please contact SMC separately for further suppression of the coil surge voltage.

How to Calculate the Flow Rate

Refer to front matters 42 to 45.

Series VQC4000
Specific Product Precautions 3

Be sure to read this before handling. Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

Serial Wiring EX500/EX260/EX250/EX126 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 explosive environments, in the presence of inflammable gases, or in corrosive environments. This can cause injury or fire.**
3. **Work such as transporting, installing, piping, wiring, operation, control and maintenance should be performed by knowledgeable and qualified personnel only. As handling involves the risk of a danger of electrocution, injury or fire.**
4. **Install an external emergency stop circuit that can promptly stop operation and shut off the power supply.**
5. **Do not modify these products. Modifications done to these products carry the risk of injury and damage.**

⚠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.**
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.**
4. **Do not touch connector terminals or internal circuit elements when current is being supplied. There is a danger of malfunction, damage to the unit or electrocution if connector terminals or internal circuit elements are touched when current is being supplied.**
   Be sure that the power supply is OFF when adding or removing manifold valves or input blocks 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 materials from getting inside these products. This can cause fire, failure or malfunction.**
7. **Give consideration to the operating environment depending on the type of enclosure being used.**
   To achieve 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. Provide a cover or other protection for applications in which there is constant exposure to water.
8. **Use the proper tightening torques.**
   There is a possibility of damaging threads if tightening exceeds the tightening torque range.
9. **Provide adequate protection when operating in locations such as the following:**
   · Where noise is generated by static electricity
   · Where there is a strong electric field
   · Where there is a danger of exposure to radiation
   · When in close proximity to power supply lines

⚠Caution

10. **When these products are installed in equipment, provide adequate protection against noise by using noise filters.**
11. **Since these products are components whose end usage is obtained 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, otherwise it may be impossible to guarantee safety due to unexpected malfunction or erroneous operation.**
14. **Take great care since the SI unit side surface of the EX260-SPN□ may become hot, causing burn hazard.**
15. **Do not use in places where there are cyclic temperature changes.**
    In case that the cyclic temperature is beyond normal temperature changes, the inside product unit is likely to be adversely effected.
16. **Do not use in direct sunlight.**
    Do not use in direct sunlight. It may cause malfunction or damage.
17. **Do not use in places where there is radiated heat around it.**
    Such a place is likely to cause malfunction.

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). When it is UL compliant, use a class 2 power supply unit in accordance with UL1310 for a combined direct current power supply.**
2. **Select the proper type of enclosure according to the environment of operation.**
   IP65/67 protection class is achieved when the following conditions are met.
   1) The units are connected properly with wiring cable for power supply, communication connector, and cable with M12 connector.
   2) Suitable mounting of each unit and manifold valve.
   3) Be sure to mount a seal cap on any unused connectors.
   If using in an environment that is exposed to water splashes, please take measures such as using a cover.
   For IP40 protection class, do not use in atmospheres with corrosive gas, chemicals, sea water, water, steam, or where there is direct contact with any of these.
   When EX260-SPR5/6/7/8 are connected, the enclosure of the manifold should be IP40.

Cable Safety Instructions

⚠Caution

1. **Avoid miswiring, as 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 a malfunction.**
3. **Check wiring insulation, as defective insulation can cause damage to the unit when excessive voltage or current is applied.**
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.**

Series VQC4000
Specific Product Precautions 4

Be sure to read before handling. Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valves Precautions.

EX600 Precautions

Design/Selection

⚠Warning

1. Use this product within the specification range.

Using beyond the specified specifications range can cause fire, malfunction, or damage to the system.
Confirm the specifications when operating.

2. When using for an interlock circuit:

- **Provide a multiple interlock system which is operated by another system (such as mechanical protection function).**
- **Perform an inspection to check that it is working properly.**

This may cause possible injury due to malfunction.

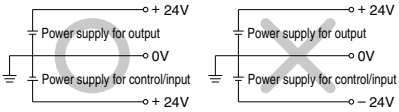
⚠Caution

1. When it is UL compliant, use a class 2 power supply unit in accordance with UL1310 for a combined direct current power supply.

2. Use this product within the specified voltage range.

Using beyond the specified voltage range is likely to cause the units and connecting devices to be damaged or to malfunction.

3. The power supply for the unit should be 0 V as the standard for both power supply for output as well as power supply for control/input.



4. Do not install a unit in a place where it can be used as a foothold.

Applying any excessive load such as stepping on the unit by mistake or placing a foot on it, will cause it to break.

5. Keep the surrounding space free for maintenance.

When designing a system, take into consideration the amount of free space needed for performing maintenance.

6. Do not remove the name plate.

Improper maintenance or incorrect use of operation manual can cause failure and malfunction.
Also, there is a risk of losing conformity with safety standards.

7. Beware of inrush current when the power supply is turned on.

Some connected loads can apply an initial charge current which will trigger the over current protection function, causing the unit to malfunction.

Mounting

⚠Caution

1. When handling and assembling units:

- **Do not touch the sharp metal parts of the connector or plug.**
- **Do not apply excessive force to the unit.**

The connecting portions of the unit are firmly joined with seals.

- **When joining units, take care not to get fingers caught between units.**

Injury can result.

Mounting

⚠Caution

2. Do not drop, bump, or apply excessive impact.

Otherwise, the unit can become damaged, malfunction, or fail to function.

3. Observe the tightening torque range.

Tightening outside of the allowable torque range will likely damage the product.

IP67 protection class cannot be guaranteed if the screws are not tightened to the specified torque.

4. When lifting a large size manifold solenoid valve unit, take care to avoid causing stress to the valve connection joint.

The connection parts of the unit may be damaged.

Because the unit may be heavy, carrying and installation should be performed by more than one operator to avoid strain or injury.

5. When placing a manifold, mount it on a flat surface.

Torsion in the whole manifold can lead to trouble such as air leakage or defective insulation.

Wiring

⚠Caution

1. Confirm grounding to maintain the safety of the reduced wiring system and for anti-noise performance.

Provide a specific grounding as close to the unit as possible to minimize the distance to grounding.

2. Avoid repeatedly bending or stretching the cable and applying a heavy object or force to it.

Wiring applying repeated bending and tensile stress to the cable can break the circuit.

3. Avoid miswiring.

If miswired, there is a danger of malfunction or damage to the reduced wiring system.

4. Do not wire while energizing the product.

There is a danger of malfunction or damage to the reduced wiring system or input/output equipment.

5. Avoid wiring the power line and high-pressure line in parallel.

Noise or surge produced by signal line resulting from the power line or high pressure line could cause malfunction.

Wiring of the reduced wiring system or input/output device and the power line or high-pressure line should be separated from each other.

6. Confirm the wiring insulation.

Defective insulation (contact with other circuits, improper insulation between terminals, etc.) may cause damage to the reduced wiring system or input/output device due to excessive voltage or current.

Series VQC4000
Specific Product Precautions 5

Be sure to read before handling. Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valves Precautions.

EX600 Precautions

Wiring

⚠Caution

7. When a reduced wiring system is installed in machinery/equipment, provide adequate protection against noise by using noise filters, etc.

Noise in signal lines may cause malfunction.

8. When connecting wires of input/output device or handheld terminal, prevent water, solvent or oil from entering inside from the connecter section.

This can cause damage, equipment failure, or malfunction.

9. Avoid wiring patterns in which excessive stress is applied to the connector.

This may cause malfunction or damage to the unit due to contact failure.

Operating Environment

⚠Warning

1. Do not use in an atmosphere containing an inflammable gas or explosive gas.

Use in such an atmosphere is likely to cause a fire or explosion. This system is not explosion-proof.

⚠Caution

1. Select the proper type of enclosure according to the environment of operation.

IP65/67 protection class is achieved when the following conditions are met.

1) The units are connected properly with wiring cable for power supply, communication connector, and cable with M12 connector.
2) Suitable mounting of each unit and manifold valve.
3) Be sure to mount a seal cap on any unused connectors.

If using in an environment that is exposed to water splashes, please take measures such as using a cover.

For IP40 protection class, do not use in atmospheres with corrosive gas, chemicals, sea water, water, steam, or where there is direct contact with any of these.

When EX600-D□□E or EX600-D□□F are connected, the enclosure of the manifold should be IP40.

Also, the Handheld Terminal confirms to IP20, so prevent foreign matter from entering inside, and water, solvent or oil from coming in direct contact with it.

2. Provide adequate protection when operating in locations such as follows.

Failure to do so may cause damage or malfunction.

The effect of countermeasures should be checked in individual equipment and machine.

1) Where noise is generated by static electricity, etc.
2) Where there is a strong electric field
3) Where there is a danger of exposure to radiation
4) When in close proximity to power supply lines

Operating Environment

⚠Caution

3. Do not use in an environment where oil and chemicals are used.

Operating in environments with coolants, cleaning solvents, various oils or chemicals may cause adverse effects (damage, malfunction) to the unit even in a short period of time.

4. Do not use in an environment where the product could be exposed to corrosive gas or liquid.

This may damage the unit and cause it to malfunction.

5. Do not use in locations with sources of surge generation.

Installation of the unit in an area around the equipment (electromagnetic lifters, high frequency induction furnaces, welding machine, motors etc.), which generates the large surge voltage could cause to deteriorate an internal circuitry element of the unit or result in damage. Implement countermeasures against the surge from the generating source, and avoid touching the lines with each other.

6. Use the product type that has an integrated surge absorption element when directly driving a load which generates surge voltage by relay, solenoid valves or lamp.

When a surge generating load is directly driven, the unit may be damaged.

7. The product is CE marked, but not immune to lightning strikes. Take measures against lightning strikes in your system.

8. Keep dust, wire scraps and other extraneous material from getting inside the product.

This may cause malfunction or damage.

9. Mount the unit in such locations, where no vibration or shock is affected.

This may cause malfunction or damage.

10. Do not use in places where there are cyclic temperature changes.

In case that the cyclic temperature is beyond normal temperature changes, the internal unit is likely to be adversely effected.

11. Do not use in direct sunlight.

Do not use in direct sunlight. It may cause malfunction or damage.

12. Use this product within the specified ambient temperature range.

This may cause malfunction.

13. Do not use in places where there is radiated heat around it.

Such a place is likely to cause malfunction.

Specific Product Precautions 6

Be sure to read before handling. Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valves Precautions.

EX600 Precautions

Adjustment/Operation

⚠Warning

1. Do not perform operation or setting with wet hands.

There is a risk of electrical shock.

<Handheld Terminal>

2. Do not apply pressure to the LCD display.

There is a possibility of the crack of LCD display and injuring.

3. The forced input/output function is used to change the signal status forcibly. When operating this function, be sure to check the safety of the surroundings and installation.

Otherwise, injury or equipment damage could result.

4. Incorrect setting of parameters can cause malfunction. Be sure to check the settings before use.

This may cause injury or equipment damage.

⚠Caution

1. Use a watchmaker's screwdriver with thin blade for the setting of each switch of the SI unit.
When setting the switch, do not touch other unrelated parts.

This may cause parts damage or malfunction due to a short circuit.

2. Provide adequate setting for the operating conditions.

Failure to do so could result in malfunction.
Refer to the operation manual for setting of the switches.

3. For the details of programming and address setting, refer to the manual from the PLC manufacturer.

The content of programming related to protocol is designed by the manufacturer of the PLC used.

<Handheld Terminal>

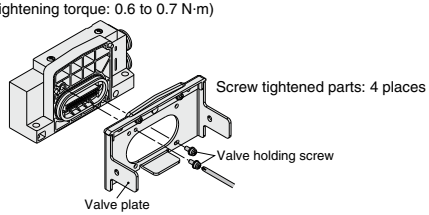
4. Do not press the setting buttons with a sharp pointed object.

This may cause damage or malfunction.

5. Do not apply excessive load and impact to the setting buttons.

This may cause damage, equipment failure or malfunction.

When the order does not include the SI unit, the valve plate to connect the manifold and SI unit is not mounted. Use attached valve fixing screws and mount the valve plate.
(Tightening torque: 0.6 to 0.7 N·m)



Maintenance

⚠Warning

1. Do not disassemble, modify (including circuit board replacement) or repair this product.

Such actions are likely to cause injuries or breakage.

2. When an inspection is performed,

- **Turn off the power supply.**
- **Stop the air supply, exhaust the residual pressure in piping and verify that the air is released before performing maintenance work.**

Unexpected malfunction of system components and injury can result.

⚠Caution

1. When handling and replacing the unit:

- **Do not touch the sharp metal parts of the connector or plug.**
- **Do not apply excessive force to the unit.**

The connecting portions of the unit are firmly joined with seals.

- **When joining units, take care not to get fingers caught between units.**

Injury can result.

2. Perform periodic inspection.

Unexpected malfunction in the system composition devices is likely to occur due to malfunction of machinery or equipment.

3. After maintenance, make sure to perform an appropriate functionality inspection.

In cases of abnormality such as faulty operation, stop operation. Unexpected malfunction in the system composition devices is likely to occur.

4. Do not use benzene and thinner for cleaning units.

Damage to the surface or erasure of the display can result.
Wipe off any stains with a soft cloth.
If the stain is persistent, wipe off with a cloth soaked in a dilute solution of neutral detergent and wrung out tightly, and then finish with a dry cloth.

Other

⚠Caution

1. For precautions and product specific precautions for manifold solenoid valves, refer to the catalog that includes each product series.