



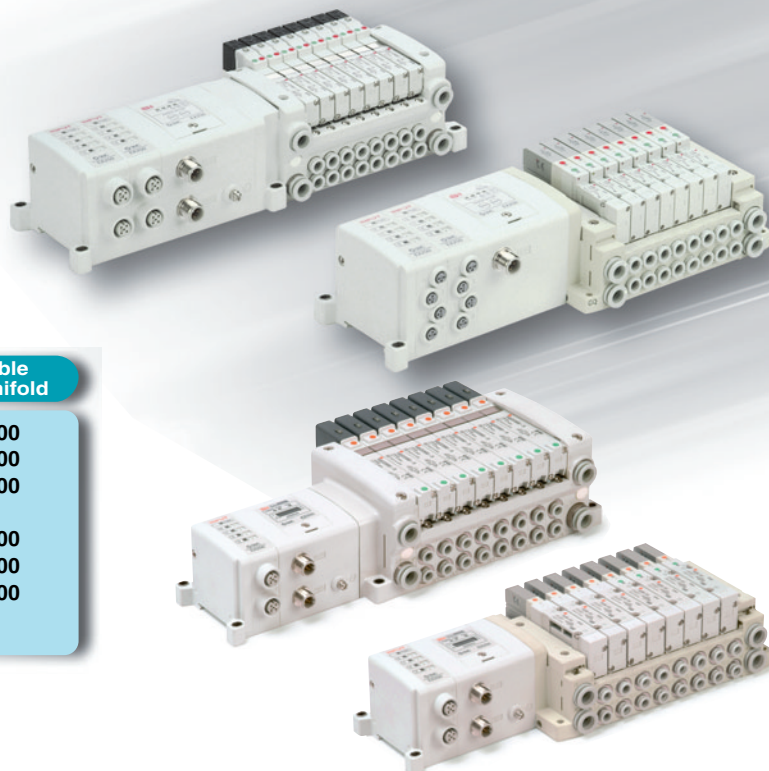
Serial Transmission System

Serial Wiring with Input/Output Unit

Series EX250

● CANopen compatible type is newly added.

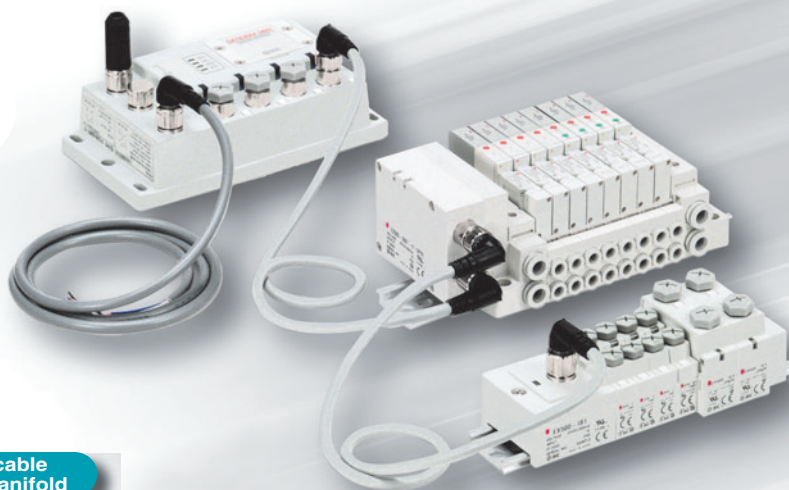
Unit series	Applicable protocol	Applicable valve manifold
Serial Wiring with Input/Output Unit EX250	DeviceNet	SV1000 2000
	PROFIBUS-DP	3000
	CC-Link	VQC1000
	AS-i	2000 4000
	CANopen	



Decentralized Serial wiring

Series EX500

Unit series	Applicable protocol	Applicable valve manifold
Decentralized Serial wiring EX500	Remote I/O (Rockwell Automation)	SV1000 2000
	DeviceNet	3000 4000
	PROFIBUS-DP	VQC1000
	CC-Link	2000 4000



Decentralized Serial Wiring

Series EX500



For details about certified products conforming to international standards, visit us at www.smcworld.com.

How to Order

Gateway (GW) Unit



Input Unit Manifold



EX500 — G DN1

• Communication protocol

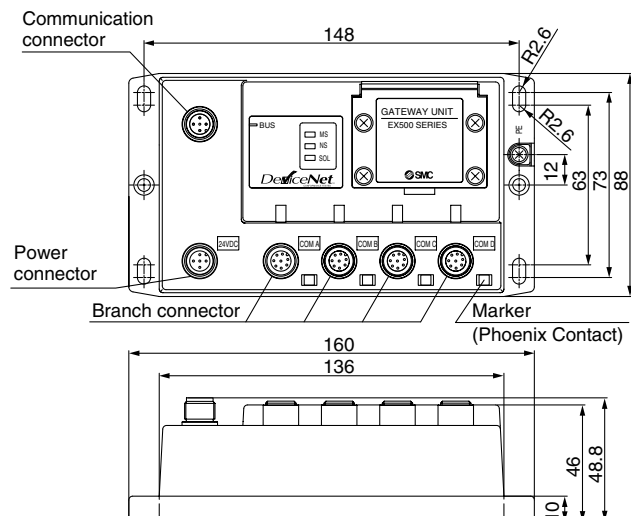
DN1	DeviceNet	AB1-X1	Remote I/O (RIO)
PR1A	PROFIBUS-DP	MJ1	CC-Link

Gateway (GW) Unit Specifications

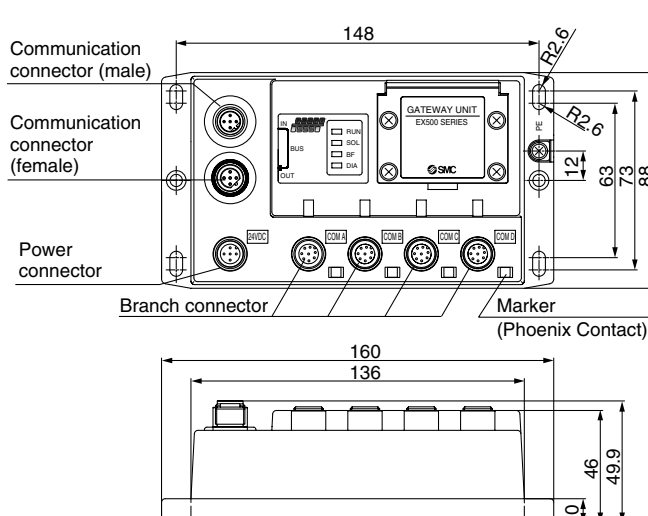
Model	EX500-GAB1-X1	EX500-GDN1	EX500-GPR1A	EX500-GMJ1
Applicable PLC/Communication protocol	Rockwell Automation PLC	DeviceNet Release 2.0	PROFIBUS-DP (EN50170)	CC-Link Ver. 1.10
Communication speed	57.6/115.2/230.4 kbit/sec	125/250/500 kbit/sec	9.6/19.2/45.45/93.75/187.5/500 kbit/sec 1.5/3/6/12 Mbit/sec	156/625 kbit/sec 2.5/5/10 Mbit/sec
Rated voltage	24 VDC			
Power supply voltage range	Input and control unit power supply: 24 VDC ± 10% Solenoid valve power supply: 24 VDC + 10%/–5% (with power drop warning at approx. 20 V)			
	—	Communication power supply for DeviceNet 11 to 25 VDC	—	—
Current consumption	200 mA or less (single GW unit)			
	—	Communication power supply for DeviceNet 50 mA or less	—	—
Number of inputs/outputs	Maximum 64 inputs/64 outputs			
Number of input/output branches	4 branches (16 inputs/16 outputs per branch)			
Branch cable	8 core heavy duty cable			
Branch cable length	5 m or less (total extension 10 m or less)			
Communication connector	M12 connector (8 pins, socket)			
Power connector	M12 connector (5 pins, plug)			
Ambient operating temperature/humidity	+5 to +45°C at 35% to 85% RH (no condensation)			
Enclosure	IP65			
Applicable standard	UL, CSA, CE			
Weight (g)	470			

Dimensions (mm)

EX500-GDN1/DeviceNet

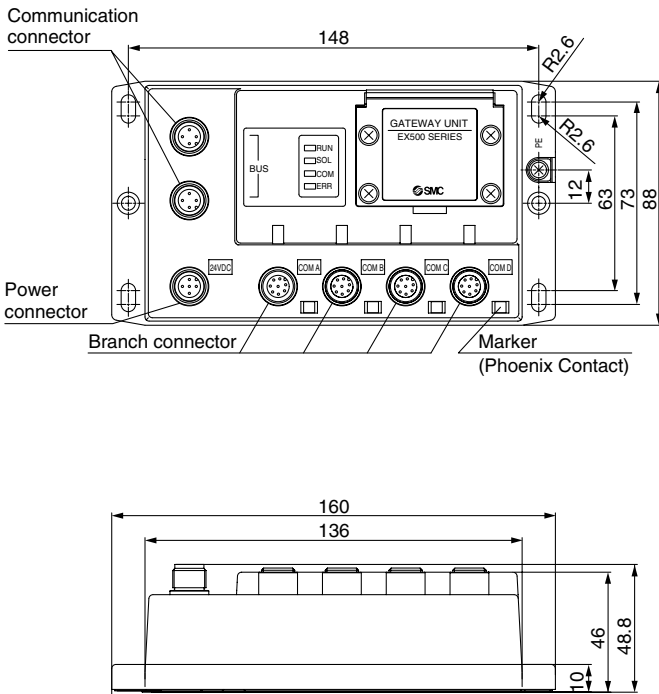


EX500-GPR1A /PROFIBUS-DP

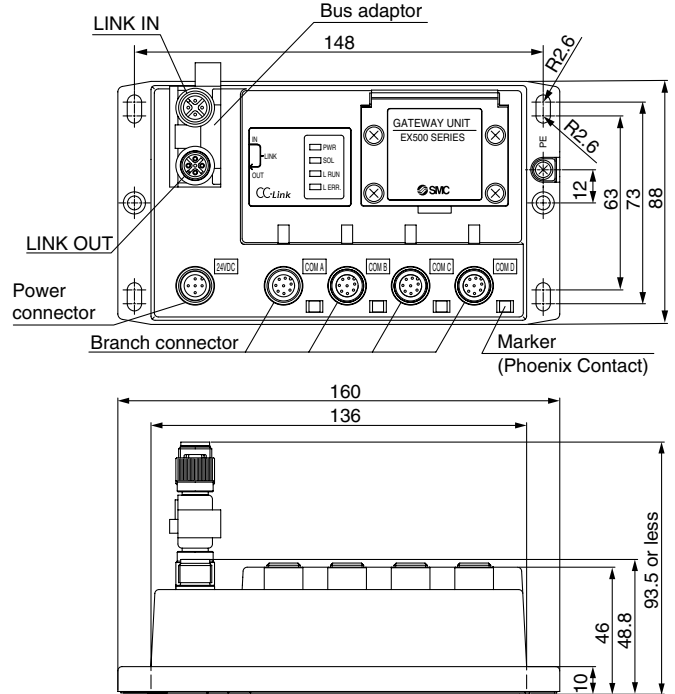


Dimensions (mm)

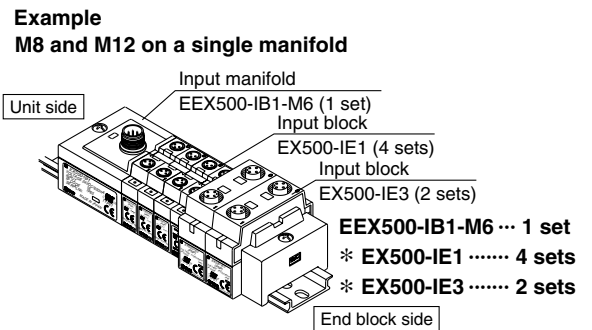
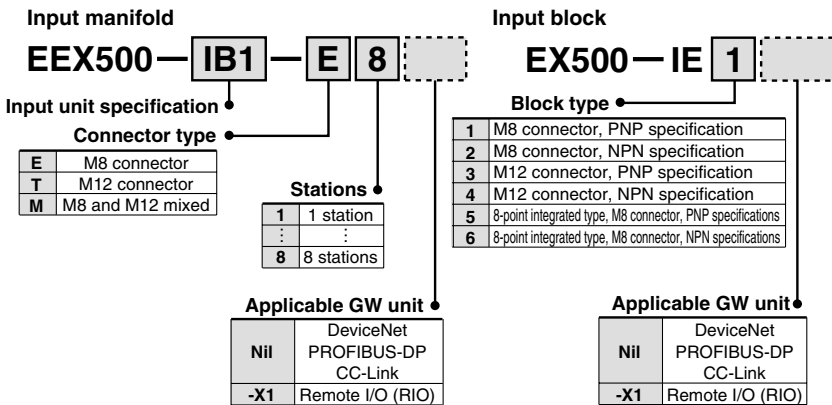
EX500-GAB1-X1/Remote I/O (RIO)



EX500-GMJ1/CC-Link



How to Order



When ordering an input block manifold, enter the [Input manifold part no.] + [Input block part no.] together. The [input block], [end block] and [DIN rail] are included in the input manifold. Refer to How to Order below.

Input Unit Specifications

Connection block	Current source type input block (PNP input block) or Current sink type input block (NPN input block)
Communication connector	M12 connector (8 pins, plug)
Number of connection blocks	Maximum 8 blocks
Block supply voltage	24 VDC
Block supply current	0.65 A maximum
Current consumption	100 mA or less (at rated voltage)
Short circuit protection	Operates at 1ATyp. (power supply cut) GW unit reset by turning power OFF and back ON.
Enclosure	IP65
Weight (g) ^{Note)}	100 (Input unit + end block)

Note) Not including the DIN rail weight.

Input Block Specifications

Applicable sensor	Current source type (PNP output) or Current sink type (NPN output)
Sensor connector	M8 connector (3 pins) or, M12 connector (4 pins)
Number of inputs	2 inputs/8 inputs (M8 only)
Rated voltage	24 VDC
Indication	Green LED
Insulation	None
Sensor supply current	Maximum 30 mA/Sensor
Enclosure	IP65
Weight (g)	[For M8: 20] [For M12: 40] [8 point integrated type, for M8: 55]

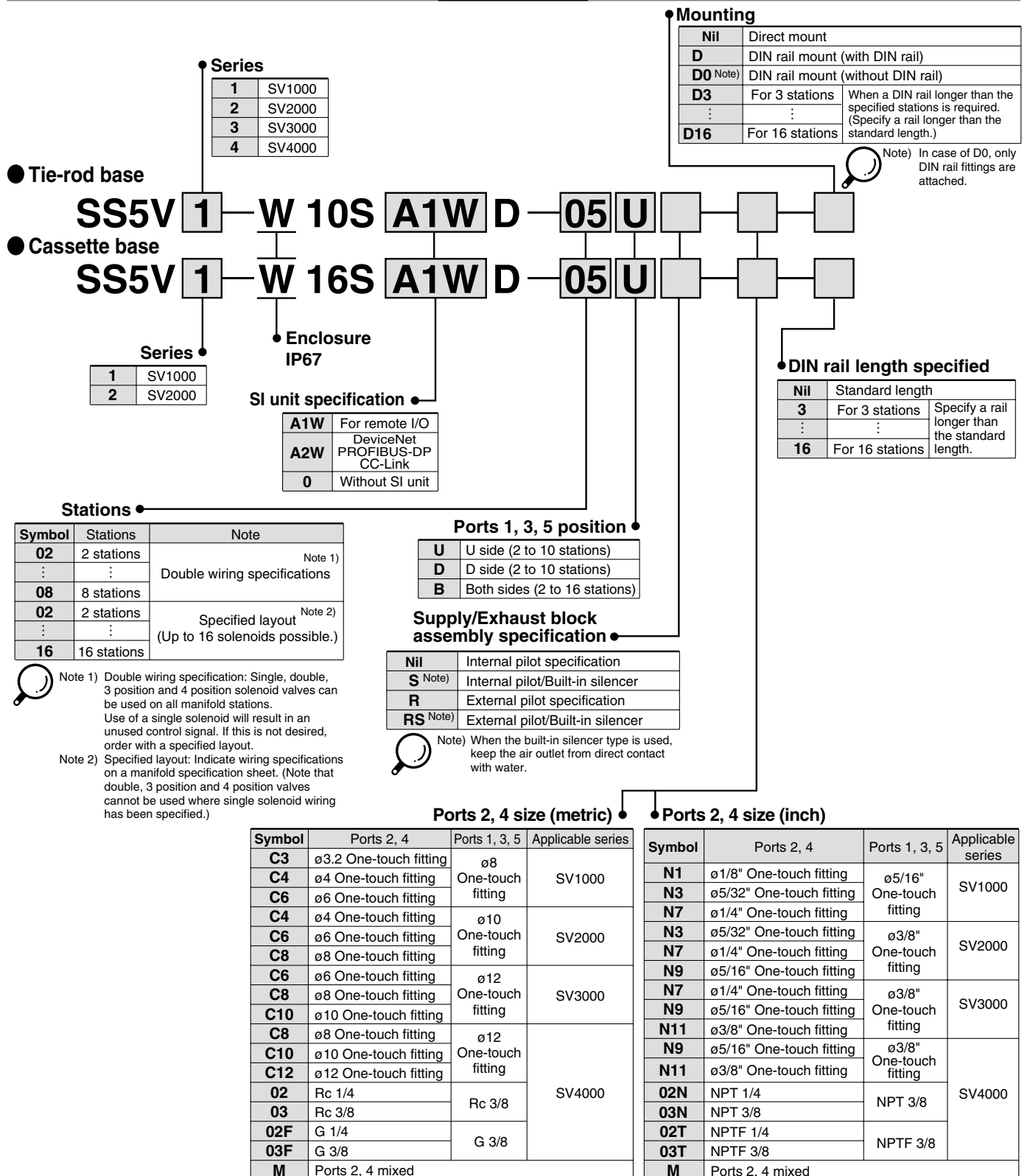
For detailed information, refer to Best Pneumatics Vol. 1 and the technical instruction manual.

For EX500 Decentralized Serial Wiring Series SV



For details about certified products conforming to international standards, visit us at www.smcworld.com.

How to Order



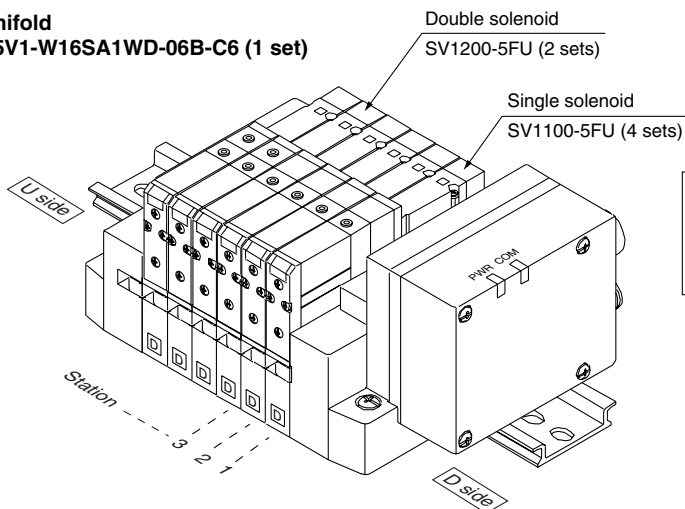
* In case of mixed specification (M), indicate separately on a manifold specification sheet.

* The port size of X and PE ports of the external pilot specification (R, RS) is ø4 (metric) or ø5/32" (inch) for Series SV1000 and 2000, and ø6 (metric) or ø1/4" (inch) for Series SV3000 and 4000.

How to Order Valve Manifold Assembly (Example)

Example (SV1000)

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



SS5V1-W16SA1WD-06B-C6 1 set (manifold part no.)
* SV1100-5FU 4 sets (single solenoid part no.)
* SV1200-5FU 2 sets (double solenoid part no.)

How to Order Solenoid Valves

SV **1** **1** **00** [] [] — **5** **F** [] [] []

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Type of actuation

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

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

Pilot specification

Nil	Internal pilot
R	External pilot

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

Back pressure check valve

Nil	None
K	Built-in

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



Note) Available with manifold block for station addition. Refer to pages 77 and 81 of SV catalog (ES11-81A).

Manual override indicator

Nil: Non-locking push type	D: Slotted locking type

Light and surge voltage suppressor

U	With light and surge voltage suppressor
R	With surge voltage suppressor

Rated voltage

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

• For solenoid valve specifications and dimensions, please refer to SV catalog (ES11-81).
• For details of the gateway unit and SI unit, please refer to the technical instruction manual.

EX250 Serial Wiring with Input/Output Unit

Series SV



For details about certified products conforming to international standards, visit us at www.smcworld.com.

How to Order

● Tie-rod base

SS5V 1 — **W10S1** **QW** [] [] [] **D** — **05** **U** [] [] []

Series

1	SV1000
2	SV2000
3	SV3000

Enclosure IP67

● Mounting

Nil	Direct mount
D	DIN rail mount (with DIN rail)
D0 ^{Note)}	DIN rail mount (without DIN rail)
D3	For 3 stations
:	:
D20	For 20 stations

When a DIN rail longer than the specified stations is required. (Specify a rail longer than the standard length.)

SI unit

QW	DeviceNet
NW	PROFIBUS-DP
VW	CC-Link
TAW	AS-i, 8 in/8 out, 31 slave modes, 2 power supply systems
TBW	AS-i, 4 in/4 out, 31 slave modes, 2 power supply systems
TCW	AS-i, 8 in/8 out, 31 slave modes, 1 power supply system
TDW	AS-i, 4 in/4 out, 31 slave modes, 1 power supply system
YW	CANopen
0	Without SI unit

Input block stations

Nil	None
1	1 station
:	:
8	8 stations

Note) Without SI unit, the symbol is nil. When an AS-i compatible SI unit is used, there is a limit on the maximum number of stations. For details, please refer to page 14.

- Input blocks cannot be mounted without SI unit.
- When the DIN rail is included without SI unit, the DIN rail length will accommodate one SI unit and one input block.

Note) There is a limit on the current supplied from an SI unit of the TCW or TCD specification to an input block or valve. For details, refer to page 14.

Input block type

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

Note) Without SI unit, the symbol is nil.

Input block common specification

Nil	+COM
N	-COM

Stations

Symbol	Stations	Note
02	2 stations	Double wiring specifications ^{Note 1)}
:	:	
16	16 stations	Specified layout ^{Note 2)} (Up to 32 solenoids possible.)
02	2 stations	
:	:	
20	20 stations	

- When an AS-i compatible SI unit is used, the maximum numbers of solenoids are as follows:

TAW, TCW: Maximum 8 solenoids

TBW, TDW: Maximum 4 solenoids

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

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

Ports 1, 3, 5 position

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

Supply/Exhaust block assembly specification

Nil	Internal pilot specification
S ^{Note)}	Internal pilot/Built-in silencer
R	External pilot specification
RS ^{Note)}	External pilot/Built-in silencer

Note) When the built-in silencer type is used, keep the air outlet from direct contact with water.

Ports 2, 4 size (metric)

Ports 2, 4 size (inch)

Symbol	Ports 2, 4	Ports 1, 3, 5	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	Ports 2, 4 mixed		

Symbol	Ports 2, 4	Ports 1, 3, 5	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	Ports 2, 4 mixed		

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

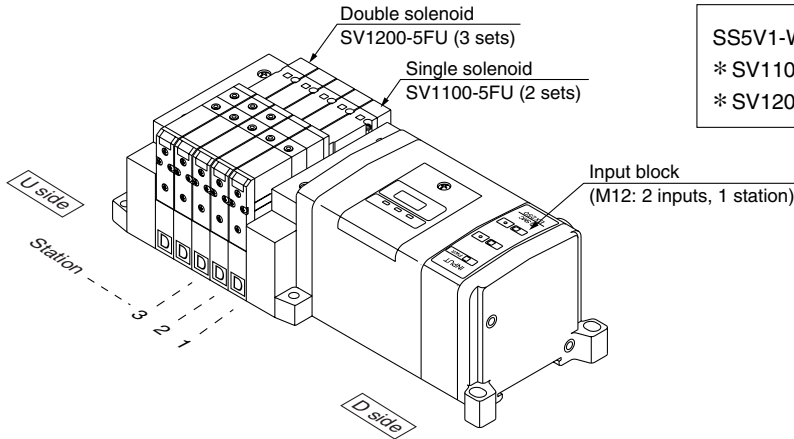
* The port size of X and PE ports of the external pilot specification (R, RS) is ø4 (metric) or ø5/32" (inch) for Series SV1000 and 2000, and ø6 (metric) or ø1/4" (inch) for Series SV3000.

How to Order Valve Manifold Assembly (Example)

Example (SV1000)

Manifold

SS5V1-W10S1QW11ND-05B-C6 (1 set)



SS5V1-W10S1QW11ND-05B-C6 1 set (manifold part no.)
 * SV1100-5FU 2 sets (single solenoid part no.)
 * SV1200-5FU 3 sets (double solenoid part no.)

How to Order Solenoid Valves

SV 1 1 0 0 [] [] — 5 F [] [] []

Series ●

1	SV1000
2	SV2000
3	SV3000

Type of actuation ●

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

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

Pilot specification ●

Nil	Internal pilot
R	External pilot

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

Back pressure check valve ●

Nil	None
K	Built-in

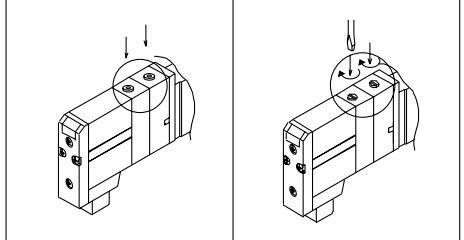
* Built-in back pressure check valve type is applicable to series SV1000 only.
 * Back pressure check valve is not available for 3 position closed center and 3 position pressure center.



Note) Available with manifold block for station addition. Refer to page 81 of SV catalog (ES11-81A).

● Manual override indicator

Nil: Non-locking push type D: Slotted locking type



● Light/Surge voltage suppressor

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

● Rated voltage

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

- For solenoid valve specifications and dimensions, please refer to SV catalog (ES11-81).
- Please refer to page 13 for single SI unit dimensions.
- Please refer to the technical instruction manual.

Series VQC1000

Base mounted

Plug-in Unit



For details about certified products conforming to international standards, visit us at www.smcworld.com.

How to Order Manifold

VV5QC 1 1 — 08 C6 SDQ [] [] [] [] — B S kit

Series

1	VQC1000
---	---------

Manifold

1	Plug-in unit
---	--------------

Stations

01	1 station
⋮	⋮

The maximum number of stations differs depending on the electrical entry.

Ports 2, 4 size (metric)

Symbol	Ports 2, 4	Ports 1, 3, 5
C3	ø3.2 One-touch fitting	ø8 One-touch fitting
C4	ø4 One-touch fitting	
C6	ø6 One-touch fitting	
M5	M5 threads	
CM	Mixed size/with port plug	
L3	Top ported elbow ø3.2 One-touch fitting	
L4	Top ported elbow ø4 One-touch fitting	
L6	Top ported elbow ø6 One-touch fitting	
L5	M5 threads	
B3	Bottom ported elbow ø3.2 One-touch fitting	
B4	Bottom ported elbow ø4 One-touch fitting	
B6	Bottom ported elbow ø6 One-touch fitting	
B5	M5 threads	
LM	Mixed size for elbow piping	

Ports 2, 4 size (inch)

Symbol	Ports 2, 4	Ports 1, 3, 5
N1	ø1/8" One-touch fitting	ø5/16" One-touch fitting
N3	ø5/32" One-touch fitting	
N7	ø1/4" One-touch fitting	
NM	Mixed	
LN1	Top ported elbow ø1/8" One-touch fitting	
LN3	Top ported elbow ø5/32" One-touch fitting	
LN7	Top ported elbow ø1/4" One-touch fitting	
BN1	Bottom ported elbow ø1/8" One-touch fitting	
BN3	Bottom ported elbow ø5/32" One-touch fitting	
BN7	Bottom ported elbow ø1/4" One-touch fitting	
LNM	Mixed size for elbow piping	

Note) Indicate the size in the specification sheet in the case of CM, LM.

Option ^{Note 1)}

Nil	None
B	All stations with back pressure check valve ^{Note 2)}
D	With DIN rail (rail length: standard)
D□	With DIN rail (rail length: special) ^{Note 3)}
K	Special wiring specifications (except for double wiring) ^{Note 4)}
N	With name plate
R	External pilot ^{Note 5)}
S	Direct exhaust with built-in silencer ^{Note 6)}



- Note 1) When specifying more than one option, enter symbols in alphabetical order. Example: -BRS
 Note 2) When using the back pressure check valve for the necessary stations only, enter the back pressure check valve part no. and indicate the number of manifold stations in the 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.
 Indicate "-D0" for the option without DIN rail.
 Note 4) Be sure to indicate the wiring specifications in the specification sheet.
 Note 5) For external pilot option, "-R", indicate the external pilot specification "R" for the applicable valves as well.
 Note 6) The built-in silencer type does not satisfy the IP67 standard.

Input block COM. (Fill out for I/O unit only)

Nil	PNP (+) or without SI unit/input block (SD0)
N	NPN (-)

Input block type (Fill out for I/O unit only)

Nil	Without input block
1	M12: 2 inputs
2	M12: 4 inputs
3	M8: 4 inputs (3-pin)

Number of input blocks (Fill out for I/O unit only)

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

Note) When an AS-i compatible S kit is used, there is a limit on the maximum number of stations.
 For details, please refer to page 14.

Kit type (Refer to page 9 for details of the kit.)

SI unit COM.

SI unit COM.	EX250					EX500			
	DeviceNet	PROFIBUS-DP	CC-Link	AS-i	CANopen	DeviceNet	PROFIBUS-DP	CC-Link	Remote I/O
Nil +COM.	—	—	○	—	—	○	○	○	○
N -COM.	○	○	—	○	○	○	○	○	○



Note) Leave the box blank for the SI unit COM without input block (SD0).

How to Order Valve

VQC 1 1 0 0 5

Series

1 VQC1000

Light/Surge voltage suppressor

Nil With

Manual override

Nil: Non-locking push type (Slotted)

B: Locking type (Slotted)

C: Locking type (Manual)

D: Slide locking type (Manual)

Type of actuation

1	2 position single 	A <small>Note 1)</small>	4 position dual 3 port valve (A)
2	2 position double (metal) 	B <small>Note 1)</small>	4 position dual 3 port valve (B)
	2 position double (rubber) 	C <small>Note 1)</small>	4 position dual 3 port valve (C)
3	3 position closed center 	<small>Note 1)</small> For rubber seal type only.	
4	3 position exhaust center 		
5	3 position pressure center 		

Coil voltage

5 24 VDC

Seal

0 Metal seal

1 Rubber seal

Function Note 1)

Nil	Standard type (1 W)
K <small>Note 2)</small>	High voltage type (1.0 MPa)
N	Negative COM
R <small>Note 3)</small>	External pilot
Y <small>Note 4)</small>	Low wattage type (0.5 W)

Note 1) When specifying more than one option, enter symbols in alphabetical order.

Note 2) For metal seal type only.

Note 3) Not applicable for dual 3-port valve.

Note 4) If the valve is to operate continuously or if it is to have power applied to it for more than a total of 12 hours per day, choose the low wattage type.

Kit type

S

Kit

(Decentralized wiring type serial kit)

Serial unit: **EX500**

IP67 protection

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

SD0	Serial kit without SI unit	1 to 8 stations
SDA1	Serial kit for Remote I/O	(16 stations)
SDA2	Serial kit for DeviceNet/PROFIBUS-DP/CC-Link	

S

Kit

(I/O serial kit)

Serial unit: **EX250**

IP67 protection

SD0	Without SI unit	1 to 12 stations
SDQ	DeviceNet	(24 stations)
SDN	PROFIBUS-DP	
SDV	CC-Link	
SDTA	AS-i, 8 in/8 out, 31 slave modes, 2 power supply systems	1 to 4 stations (8 stations)
SDTB	AS-i, 4 in/4 out, 31 slave modes, 2 power supply systems	1 to 2 stations (4 stations)
SDTC <small>Note)</small>	AS-i, 8 in/8 out, 31 slave modes, 1 power supply system	1 to 4 stations (8 stations)
SDTD <small>Note)</small>	AS-i, 4 in/4 out, 31 slave modes, 1 power supply system	1 to 2 stations (4 stations)
SDY	CANopen	1 to 12 stations (24 stations)

Note) There is a limit on the current supplied from an SI unit of the SDTC or SDTD specification to an input block or valve. For details, refer to page 14.

- For the solenoid valve specifications and dimensions, please refer to VQC catalog (ES11-80).
- Please refer to page 13 for Series EX250 single SI unit dimensions.
- For details of the Series EX250 SI unit, please refer to the technical instruction manual.

8

Series VQC2000

Base mounted

Plug-in Unit



For details about certified products conforming to international standards, visit us at www.smcworld.com.

How to Order Manifold

VV5QC 2 1 — 08 C6 SDQ [] [] [] [] — B S kit

Series

2	VQC2000
---	---------

Manifold

1	Plug-in unit
---	--------------

Stations

01	1 station
⋮	⋮

The maximum number of stations differs depending on the electrical entry.

Ports 2, 4 size (metric)

Symbol	Ports 2, 4	Ports 1, 3, 5
C4	ø4 One-touch fitting	ø10 One-touch fitting
C6	ø6 One-touch fitting	
C8	ø8 One-touch fitting	
CM	Mixed size/with port plug	
L4	Top ported elbow ø4 One-touch fitting	
L6	Top ported elbow ø6 One-touch fitting	
L8	Top ported elbow ø8 One-touch fitting	
B4	Bottom ported elbow ø4 One-touch fitting	
B6	Bottom ported elbow ø6 One-touch fitting	
B8	Bottom ported elbow ø8 One-touch fitting	
LM	Mixed size for elbow piping	

Ports 2, 4 size (inch)

Symbol	Ports 2, 4	Ports 1, 3, 5
N3	ø5/32" One-touch fitting	ø3/8" One-touch fitting
N7	ø1/4" One-touch fitting	
N9	ø5/16" One-touch fitting	
NM	Mixed	
LN3	Top ported elbow ø5/32" One-touch fitting	
LN7	Top ported elbow ø1/4" One-touch fitting	
LN9	Top ported elbow ø5/16" One-touch fitting	
BN3	Bottom ported elbow ø5/32" One-touch fitting	
BN7	Bottom ported elbow ø1/4" One-touch fitting	
BN9	Bottom ported elbow ø5/16" One-touch fitting	
LNM	Mixed size for elbow piping	

Note) Indicate the size in the specification sheet in the case of CM, LM.

Kit type
(Refer to page 10 for details of the kit.)

SI unit COM.	EX250					EX500			
	DeviceNet	PROFIBUS-DP	CC-Link	AS-i	CANopen	DeviceNet	PROFIBUS-DP	CC-Link	Remote I/O
Nil	+COM.	—	—	—	—	○	○	○	○
N	-COM.	○	○	—	○	○	○	○	○

Note) Leave the box blank for the SI unit COM without input block (SD0).

Option Note 1)

Nil	None
B	All stations with back pressure check valve <small>Note 2)</small>
D	With DIN rail (rail length: standard)
D□	With DIN rail (rail length: special) <small>Note 3)</small>
K	Special wiring specifications (except for double wiring) <small>Note 4)</small>
N	With name plate
R	External pilot <small>Note 5)</small>
S	Built-in silencer, direct exhaust <small>Note 6)</small>
T	Branched U side P, R ports <small>Note 7)</small>

- Note 1) When specifying more than one option, enter symbols in alphabetical order. Example: -BRS
- Note 2) When using the back pressure check valve for the necessary stations only, enter the back pressure check valve part no. and indicate the number of manifold stations in the 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. Indicate "-D0" for the option without DIN rail.
- Note 4) Be sure to indicate the wiring specifications in the specification sheet.
- Note 5) For external pilot option, "-R", indicate the external pilot specification "R" for the applicable valves as well.
- Note 6) The built-in silencer type does not satisfy the IP67 standard.
- Note 7) The supply and exhaust ports on U side are branched (to the cylinder port side and coil side). A One-touch fitting for ø12 is attached to each port.

Input block COM.
(Fill out for I/O unit only)

Nil	PNP (+) or without SI unit/input block (SD0)
N	NPN (-)

Input block type
(Fill out for I/O unit only)

Nil	Without input block
1	M12: 2 inputs
2	M12: 4 inputs
3	M8: 4 inputs (3-pin)

Number of input blocks
(Fill out for I/O unit only)

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

Note) When an AS-i compatible S kit is used, there is a limit on the maximum number of stations. For details, please refer to page 14.

How to Order Valve

VQC 2 1 0 0 5

Series

2 VQC2000

Type of actuation

1	2 position single 	Note) A 4 position dual 3 port valve (A)
2	2 position double (metal) 	Note) B 4 position dual 3 port valve (B)
2	2 position double (rubber) 	Note) C 4 position dual 3 port valve (C)
3	3 position closed center 	Note) For rubber seal type only.
4	3 position exhaust center 	
5	3 position pressure center 	

Manual override

Nil: Non-locking push type (Slotted)

B: Locking type (Slotted)

C: Locking type (Manual)

D: Slide locking type (Manual)

Light/Surge voltage suppressor

Nil With

Coil voltage

5 24 VDC

Seal

0 Metal seal

1 Rubber seal

Function Note 1)

Nil	Standard type (1 W)
K <small>Note 2)</small>	High voltage type (1.0 MPa)
N	Negative COM
R <small>Note 3)</small>	External pilot
Y <small>Note 4)</small>	Low wattage type (0.5 W)

Note 1) When specifying more than one option, enter symbols in alphabetical order.

Note 2) For metal seal type only.

Note 3) Not applicable for dual 3-port valve.

Note 4) In case the total energized time in 24 hours is longer than the total de-energized time, please choose the low wattage type.

Kit type

S Kit
(Decentralized wiring type serial kit)

Serial unit: **EX500** **IP67 protection**

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

SD0	Serial kit without SI unit	1 to 8 stations
SDA1	Serial kit for Remote I/O	16 stations
SDA2	Serial kit for DeviceNet/PROFIBUS-DP/CC-Link	

S Kit
(I/O serial kit)

Serial unit: **EX250** **IP67 protection**

SD0	Without SI unit	1 to 12 stations (24 stations)
SDQ	DeviceNet	
SDN	PROFIBUS-DP	
SDV	CC-Link	
SDTA	AS-i, 8 in/8 out, 31 slave modes, 2 power supply systems	1 to 4 stations (8 stations)
SDTB	AS-i, 4 in/4 out, 31 slave modes, 2 power supply systems	1 to 2 stations (4 stations)
SDTC <small>Note)</small>	AS-i, 8 in/8 out, 31 slave modes, 1 power supply system	1 to 4 stations (8 stations)
SDTD <small>Note)</small>	AS-i, 4 in/4 out, 31 slave modes, 1 power supply system	1 to 2 stations (4 stations)
SDY	CANopen	1 to 12 stations (24 stations)

Note) There is a limit on the current supplied from an SI unit of the SDTC or SDTD specification to an input block or valve. For details, refer to page 14.

- For the solenoid valve specifications and dimensions, please refer to VQC catalog (ES11-80).
- Please refer to page 13 for Series EX250 single SI unit dimensions.
- For details of the Series EX250 SI unit, please refer to the technical instruction manual.

Series VQC4000

Base mounted

Plug-in Unit



For details about certified products conforming to international standards, visit us at www.smcworld.com.

How to Order Manifold

VV5QC 4 1 - 16 03 SDQ **S** kit

Series

4	VQC4000
---	---------

Manifold

1	Plug-in unit
---	--------------

Stations

01	1 station
⋮	⋮

The maximum number of stations differs depending on the electrical entry.

Ports 2, 4 size (metric)

Symbol	Ports 2, 4	Ports 1, 3, 5
C8	ø8 One-touch fitting	1: 1/2 3, 5: 3/4
C10	ø10 One-touch fitting	
C12	ø12 One-touch fitting	
02	1/4	
03	3/8	
B	Bottom ported Rc 1/4	
CM	Mixed	

Ports 2, 4 size (inch)

Symbol	Ports 2, 4	Ports 1, 3, 5
N7	ø1/4" One-touch fitting	1: 1/2 3, 5: 3/4
N9	ø5/16" One-touch fitting	
N11	ø3/8" One-touch fitting	
NM	Mixed	

Note) Indicate the size in the specification sheet in the case of CM.

Thread type

Nil	Rc
F	G
T	NPT/NPTF

Option Note 1)

Nil	None
K	Special wiring specifications (except for double wiring) <small>Note 2)</small>

Note 1) When specifying more than one option, enter symbols in alphabetical order. Example: -KN
Note 2) Be sure to indicate the wiring specifications in the specification order sheet.

Input block COM.
(Fill out for I/O unit only)

Nil	PNP (+) or without SI unit/input block(SD0)
N	NPN (-)

Input block type
(Fill out for I/O unit only)

Nil	Without input block
1	M12: 2 inputs
2	M12: 4 inputs
3	M8: 4 inputs (3-pin)

Input block
(Fill out for I/O unit only)

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

Note) When an AS-i compatible S kit is used, there is a limit on the maximum number of stations. For details, please refer to page 14.

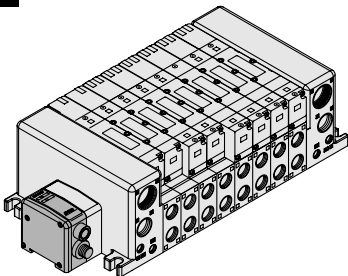
SI unit COM.

SI unit COM.	EX250					EX500			
	DeviceNet	PROFIBUS-DP	CC-Link	AS-i	CANopen	DeviceNet	PROFIBUS-DP	CC-Link	Remote I/O
Nil +COM.	—	—	○	—	—	○	○	○	○
N -COM.	○	○	—	○	○	○	○	○	○

Note) Leave the box blank for the SI unit COM without input block (SD0).

Kit type

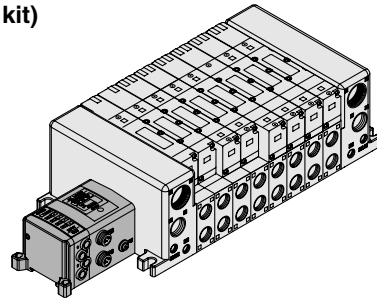
S Kit
(Decentralized wiring type serial kit)



Serial unit: EX500

IP67 protection

S Kit
(I/O serial kit)



Serial unit: EX250

IP67 protection

Symbol	Description	Stations	Symbol	Description	Stations	Symbol	Description	Stations
SD0A	Serial kit without SI unit	1 to 8 stations (16 stations)	SD0	Without SI unit	1 to 12 stations (24 stations)	SDTA	AS-i, 8 in/8 out, 31 slave modes, 2 power supply systems	1 to 4 stations (8 stations)
SDA1	Serial kit for Remote I/O		SDQ	DeviceNet		SDTB	AS-i, 4 in/4 out, 31 slave modes, 2 power supply systems	1 to 2 stations (4 stations)
SDA2	Serial kit for DeviceNet/PROFIBUS-DP/CC-Link		SDN	PROFIBUS-DP		SDTC <small>Note)</small>	AS-i, 8 in/8 out, 31 slave modes, 1 power supply system	1 to 4 stations (8 stations)
			SDV	CC-Link	SDTD <small>Note)</small>	AS-i, 4 in/4 out, 31 slave modes, 1 power supply system	1 to 2 stations (4 stations)	
			SDY	CANopen				

Note) There is a limit on the current supplied from an SI unit of the SDTC or SDTD specification to an input block or valve. For details, refer to page 14.


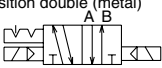
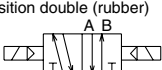
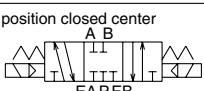
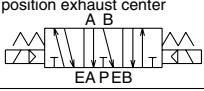
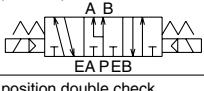

How to Order Valve

VQC 4 1 0 0 - 5

Series

4 VQC4000

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 

Light/Surge voltage suppressor

Nil	With
E	Without light/surge voltage suppressor

Coil voltage

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

Function Note 1)

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

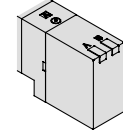


Note 1) When specifying more than one option, enter symbols in alphabetical order.

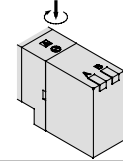
Note 2) In case the total energized time in 24 hours is longer than the total de-energized time, please choose the low wattage type.

Manual override

Nil: Non-locking push type (Slotted)



B: Locking type (Slotted)

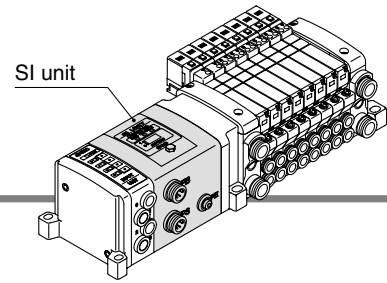


Seal

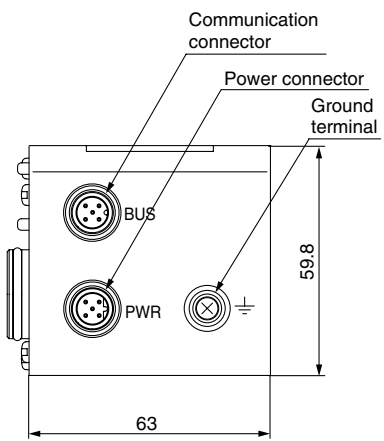
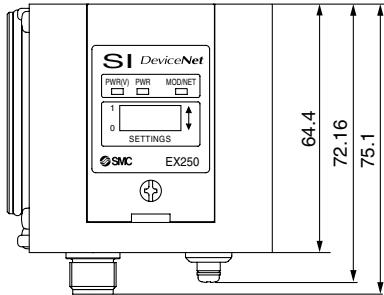
0	Metal seal
1	Rubber seal

- For the solenoid valve specifications and dimensions, please refer to VQC catalog (ES11-80).
- Please refer to page 13 for Series EX250 single SI unit dimensions.
- For details of the Series EX250 SI unit, please refer to the technical instruction manual.

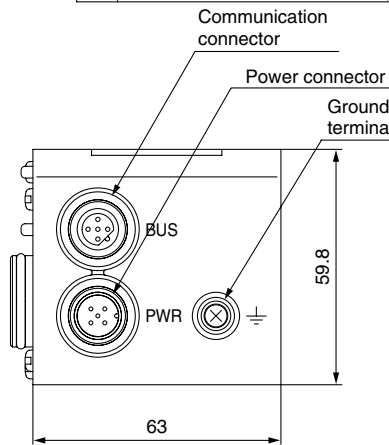
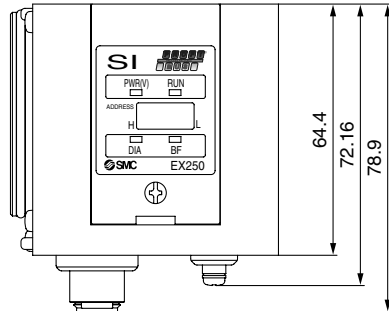
Serial Unit (SI Unit) Dimensions/EX250



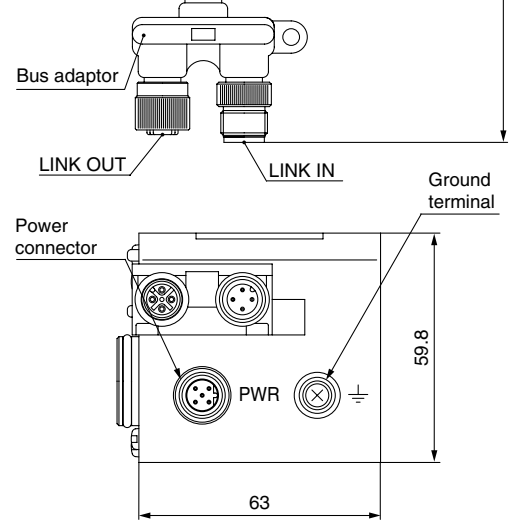
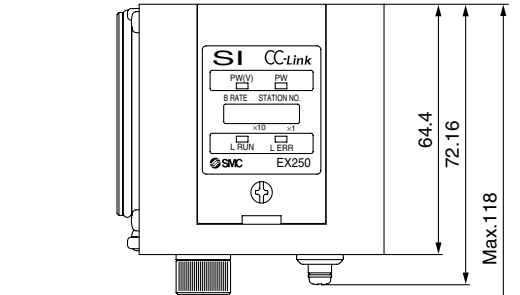
DeviceNet



PROFIBUS-DP

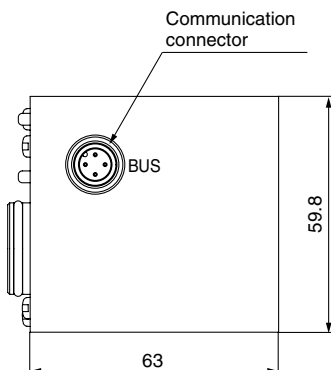
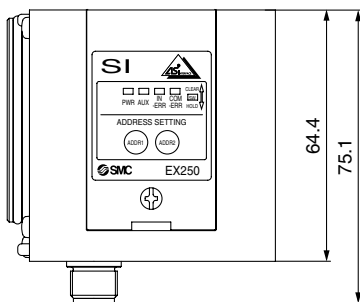


CC-Link

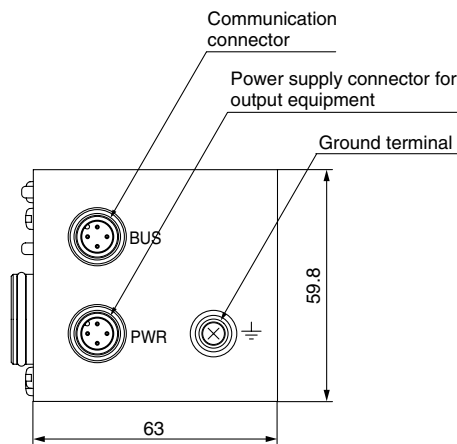
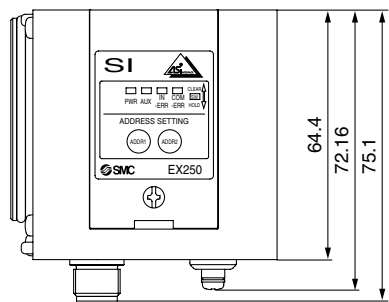


AS-i

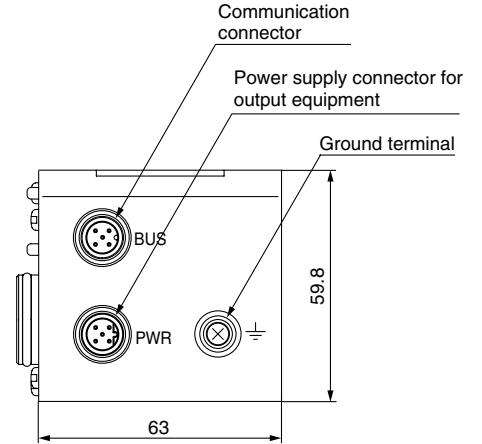
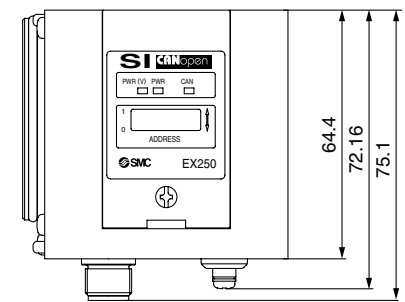
1 power supply system



2 power supply system



CANopen



⚠ Specific Product Precautions

Be sure to read before handling. Please consult SMC for applications outside the specifications.

When 1 AS-i power supply system is used

⚠ Caution

	TCW	SDTC	TDW	SDTD
Power supply voltage	Supplied from AS-i circuit, 26.5 to 31.6 VDC ^{Note 1)}			
Current consumption ^{Note 2)}	Max. 100 mA		Max. 65 mA	
Input/output specification	Number of inputs	8		4
	Number of outputs	8		4
	Valve supply voltage	24 VDC ± 10%		
	Possible supply current ^{Note 3)}	Max. 240 mA		Max. 120 mA

Note 1) For communication power supply, use a power supply dedicated to AS-i. For details, please refer to instruction manuals provided by the respective manufacturers.

Note 2) Current consumption of SI unit internal power supply

Note 3) The AS-i circuit provides current to the internal parts of the SI unit and all connected equipment. Since there is a limit on the possible supply current to all connected equipment, select the equipment connected to the input block, such as sensors and valves, to stay within the possible supply current.

Example) When SDTD type is used

Valve: VQC1100NY - 5 (low wattage type of 0.5 W) × 4 pcs.

$$0.5 \text{ [W]} \div 24 \text{ [V]} \times 4 \text{ [pcs.]} = 84 \text{ [mA]} \text{ (4 outputs simultaneously ON)}$$

The maximum possible supply current of SDTD is 120 mA. Therefore, the possible supply current to the sensor connected to the input block is

$$120 \text{ [mA]} - 84 \text{ [mA]} = 36 \text{ [mA]}.$$

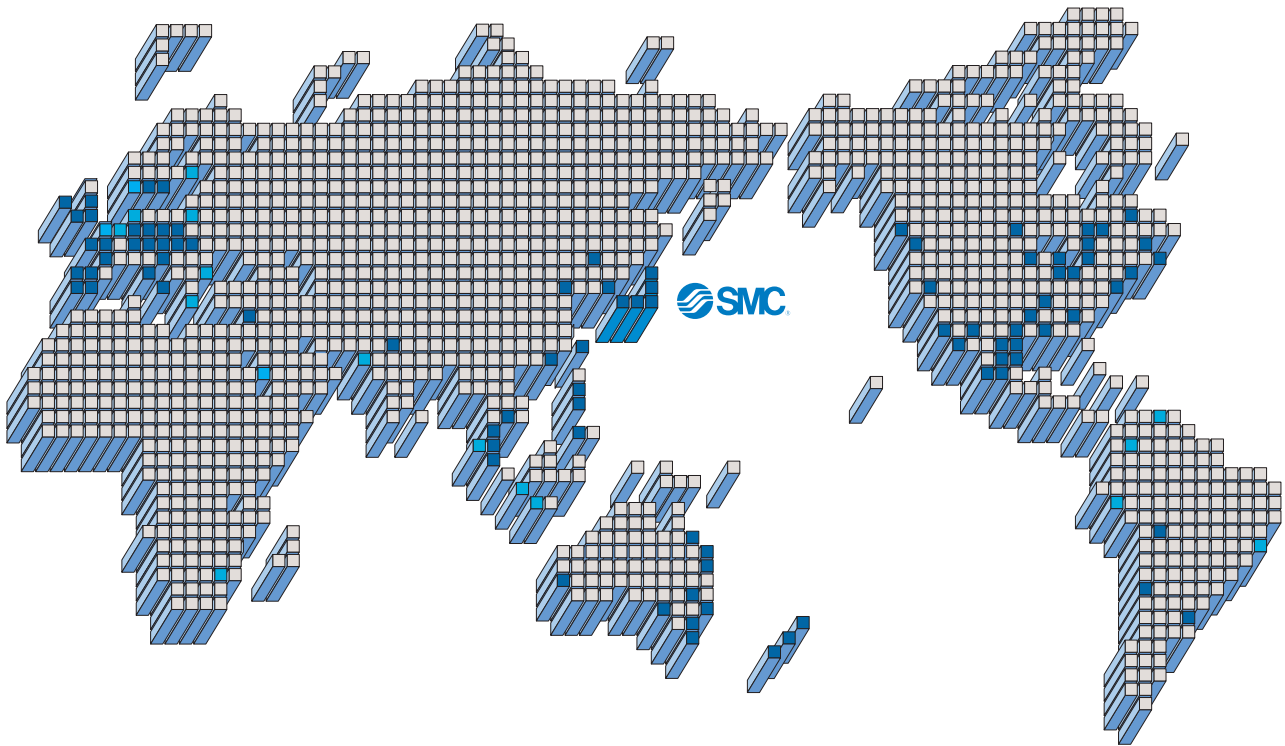
Use of low wattage type valves by minimizing the maximum number of simultaneous outputs, and low current consumption sensors (2 wire sensor, etc.) connected to the input block is recommended.

Maximum number of AS-i compatible input blocks

SI unit specification			Input block type		Maximum number of input blocks
SV	TAW	AS-i, 8 in/8 out, 31 slave modes, 2 power supply systems	1	M12: 2 inputs	4 stations
			2	M12: 4 inputs	2 stations
			3	M8: 4 inputs	2 stations
	TBW	AS-i, 4 in/4 out, 31 slave modes, 2 power supply systems	1	M12: 2 inputs	2 stations
			2	M12: 4 inputs	1 station
			3	M8: 4 inputs	1 station
	TCW	AS-i, 8 in/8 out, 31 slave modes, 1 power supply system	1	M12: 2 inputs	4 stations
			2	M12: 4 inputs	2 stations
			3	M8: 4 inputs	2 stations
	TDW	AS-i, 4 in/4 out, 31 slave modes, 1 power supply system	1	M12: 2 inputs	2 stations
			2	M12: 4 inputs	1 station
			3	M8: 4 inputs	1 station
VQC	SDTA	AS-i, 8 in/8 out, 31 slave modes, 2 power supply systems	1	M12: 2 inputs	4 stations
			2	M12: 4 inputs	2 stations
			3	M8: 4 inputs	2 stations
	SDTB	AS-i, 4 in/4 out, 31 slave modes, 2 power supply systems	1	M12: 2 inputs	2 stations
			2	M12: 4 inputs	1 station
			3	M8: 4 inputs	1 station
	SDTC	AS-i, 8 in/8 out, 31 slave modes, 1 power supply system	1	M12: 2 inputs	4 stations
			2	M12: 4 inputs	2 stations
			3	M8: 4 inputs	2 stations
	SDTD	AS-i, 4 in/4 out, 31 slave modes, 1 power supply system	1	M12: 2 inputs	2 stations
			2	M12: 4 inputs	1 station
			3	M8: 4 inputs	1 station



SMC'S GLOBAL MANUFACTURING, DISTRIBUTION AND SERVICE NETWORK



EUROPE

AUSTRIA

SMC Pneumatik GmbH

CZECH

SMC Industrial Automation CZ s.r.o.

DENMARK

SMC Pneumatik A/S

FINLAND

SMC Pneumatiikka Oy

FRANCE

SMC Pneumatique SA

GERMANY

SMC Pneumatik GmbH

HUNGARY

SMC Ipari Automatizálási Kft.

IRELAND

SMC Pneumatics (Ireland) Ltd.

ITALY

SMC Italia S.p.A.

LATVIA

SMC Pnuematics Latvia SIA

NETHERLANDS

SMC Pneumatics BV.

NORWAY

SMC Pneumatics Norway A/S

POLAND

SMC Industrial Automation Polska Sp.z.o.o.

ROMANIA

SMC Romania s.r.l.

RUSSIA

SMC Pneumatik LLC.

SLOVAKIA

SMC Priemyselna Automatizacia, s.r.o.

SLOVENIA

SMC Industrijska Avtomatika d.o.o.

SPAIN/PORTUGAL

SMC España, S.A.

SWEDEN

SMC Pneumatics Sweden AB

SWITZERLAND

SMC Pneumatik AG.

UK

SMC Pneumatics (U.K.) Ltd.

ASIA

CHINA

SMC (China) Co., Ltd.

HONG KONG

SMC Pneumatics (Hong kong) Ltd.

INDIA

SMC Pneumatics (India) Pvt. Ltd.

INDONESIA

PT. SMC Pneumatics Indonesia

MALAYSIA

Pneumatics (S.E.A.) Sdn. Bhd.

PHILIPPINES

SHOKETSU-SMC Corporation

SINGAPORE

SMC Pneumatics (S.E.A.) Pte. Ltd.

SOUTH KOREA

SMC Pneumatics Korea Co., Ltd.

TAIWAN

SMC Pneumatics (Taiwan) Co., Ltd.

THAILAND

SMC Thailand Ltd.

NORTH AMERICA

CANADA

SMC Pneumatics (Canada) Ltd.

MEXICO

SMC Corporation (Mexico) S.A. de C.V.

USA

SMC Corporation of America

SOUTH AMERICA

ARGENTINA

SMC Argentina S.A.

BOLIVIA

SMC Pneumatics Bolivia S.R.L.

BRAZIL

SMC Pneumaticos Do Brazil Ltda.

CHILE

SMC Pneumatics (Chile) S.A.

VENEZUELA

SMC Neumatica Venezuela S.A.

OCEANIA

AUSTRALIA

SMC Pneumatics (Australia) Pty. Ltd.

NEW ZEALAND

SMC Pneumatics (N.Z.) Ltd.

SMC Corporation

1-16-4 Shimbashi, Minato-ku, Tokyo 105-8659 JAPAN

Tel: 03-3502-2740 Fax: 03-3508-2480

URL <http://www.smcworld.com>

© 2004 SMC CORPORATION All Rights Reserved

1st printing March, 2004 D-YG P-120 (YG)

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

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

Printed in Japan.