EX250 Serial Wiring with Input/Output Unit
Series SV C€

Refer to the SMC website for detailed information on models that meet world standards.

How to Order

● Tie-rod base

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

Series

1	SV1000
2	SV2000
3	SV3000

Enclosure
IP67

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
0	Without SI unit

• 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 15.

Input block stations

Nil	None
1	1 station
:	:
8	8 stations

Note 1) 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 XXX.

Input block type

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

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

Input block common specification

Nil	+COM
N	–COM

Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring specifications Note 1)
:	:	
16	16 stations	
02	2 stations	Specified layout Note 2) Note 3) (Up to 32 solenoids possible.)
:	:	
20	20 stations	

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.)
Note 3) 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

Mounting

Nil	Direct mount	
D	DIN rail mount (with DIN rail)	
D0 Note)	DIN rail mount (without DIN rail)	
D3	For 3 stations	When a DIN rail longer than the specified stations is required. (Specify a rail longer than the standard length.)
:	:	
D20	For 20 stations	

Note) In case of D0, only DIN rail fittings are attached

P, E port 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.

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 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.

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How to Order Valve Manifold Assembly (Example)

Example (SV1000)

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

Double solenoid
SV1200-5FU (3 sets)

Single solenoid
SV1100-5FU (2 sets)

U side

Station

3 2 1

D side

Input block
(M12: 2 inputs, 1 station)
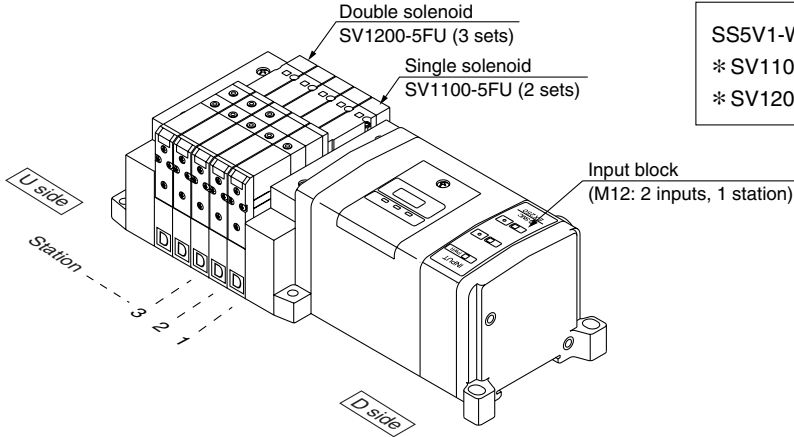
SS5V1-W10S1QW11ND-05B-C6 ········· 1 set (manifold part no.)	
*SV1100-5FU ·········· 2 sets (single solenoid part no.)	
*SV1200-5FU ·········· 3 sets (double solenoid part no.)	

How to Order Solenoid Valves

SV **1** **1** 0 0 ☐ ☐ – 5 F ☐ ☐ – ☐ Note)

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

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.
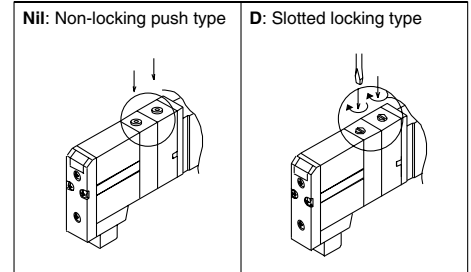
Back pressure check valve

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.

Manual overrideIndicator

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

Light and surge voltage suppressor

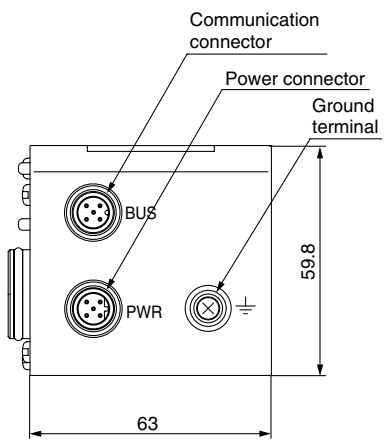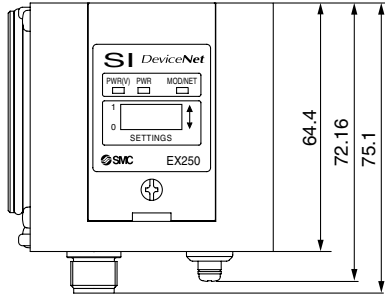| U	With light and surge voltage suppressor
R	With surge voltage suppressor

Rated voltage

5	24 VDC

- For solenoid valve specifications and dimensions, please refer to SV catalog (ES11-81).
- Please refer to page 14 for single SI unit dimensions.
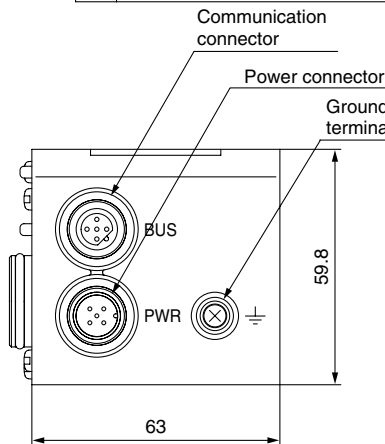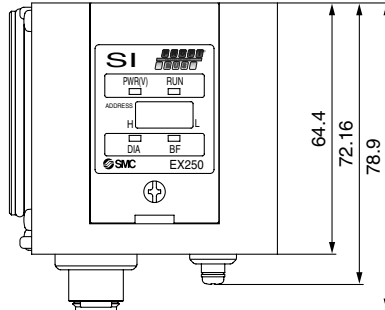- Please refer to the technical instruction manual.
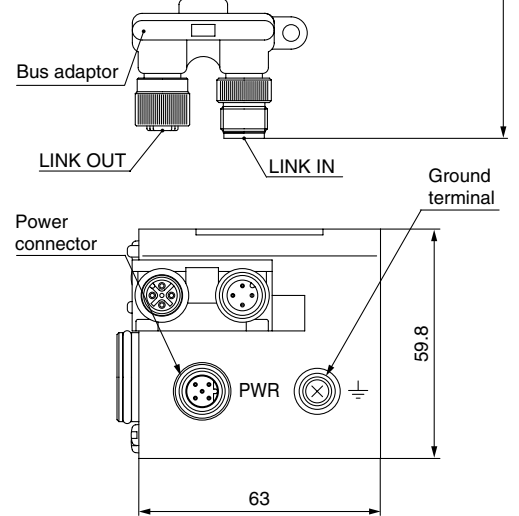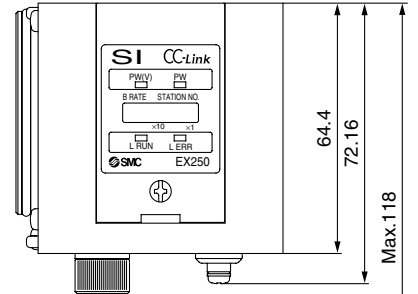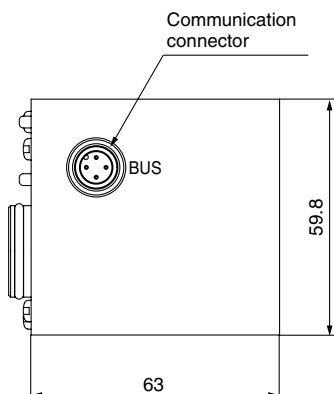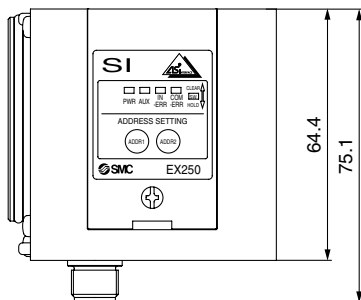
Serial Unit (SI Unit) Dimensions/EX250

DeviceNet

SI *DeviceNet*

PWR(V) PWR   MOD/NET

1
0
SETTINGS

SMC   EX250

64.4
72.16
75.1

Communication connector
Power connector
Ground terminal

BUS

PWR

59.8

63

PROFIBUS-DP

SI

PWR(V)   RUN

ADDRESS
H   L
DIA   BF

SMC   EX250

64.4
72.16
78.9

Communication connector
Power connector
Ground terminal

BUS

PWR

59.8

63

CC-Link

SI CC-*Link*

PW(V)   PW
B RATE   STATION NO.
×10   ×1
L RUN   L ERR

SMC   EX250

64.4
72.16
Max.118

Bus adaptor

LINK OUT   LINK IN

Power connector
Ground terminal

PWR

59.8

63

AS-i

1 power supply system

SI

PWR AUX   IN   COM   CLEAR
-ERR -ERR   HOLD

ADDRESS SETTING
ADDR1 ADDR2

SMC   EX250

64.4
75.1

Communication connector

BUS

59.8

63

2 power supply system

SI

PWR AUX   IN   COM   CLEAR
-ERR -ERR   HOLD

ADDRESS SETTING
ADDR1 ADDR2

SMC   EX250

64.4
72.16
75.1

Communication connector
Power supply connector for output equipment
Ground terminal

BUS

PWR

59.8

63

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⚠ Specific Product Precautions

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

When one 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 [W] ÷ 24 [V] × 4 [pcs.] = 84 [mA] (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 [mA] – 84 [mA] = 36 [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

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