Serial Transmission System

Serial Wiring with Input/Output Unit

**Series EX250**

- **CANopen compatible type is newly added.**

<table>
<thead>
<tr>
<th>Unit series</th>
<th>Applicable protocol</th>
<th>Applicable valve manifold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Wiring with Input/Output Unit EX250</td>
<td>DeviceNet</td>
<td>SV1000 2000 3000</td>
</tr>
<tr>
<td></td>
<td>PROFIBUS-DP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CC-Link</td>
<td>VQC1000 2000 4000</td>
</tr>
<tr>
<td></td>
<td>AS-i</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CANopen</td>
<td></td>
</tr>
</tbody>
</table>

Decentralized Serial wiring

**Series EX500**

<table>
<thead>
<tr>
<th>Unit series</th>
<th>Applicable protocol</th>
<th>Applicable valve manifold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decentralized Serial wiring EX500</td>
<td>Remote I/O (Rockwell Automation)</td>
<td>SV1000 2000 3000 4000</td>
</tr>
<tr>
<td></td>
<td>DeviceNet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PROFIBUS-DP</td>
<td>VQC1000 2000 4000</td>
</tr>
<tr>
<td></td>
<td>CC-Link</td>
<td></td>
</tr>
</tbody>
</table>
Decentralized Serial Wiring
Series EX500

Gateway (GW) Unit Specifications

How to Order

EX500 — G
DN1

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

Gateway (GW) Unit Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>EX500-GAB1-X1</th>
<th>EX500-GDN1</th>
<th>EX500-GPR1A</th>
<th>EX500-GMJ1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable PLC/ Communication protocol</td>
<td>Rockwell Automation PLC</td>
<td>DeviceNet Release 2.0</td>
<td>PROFIBUS-DP (EN50170)</td>
<td>CC-Link Ver. 1.10</td>
</tr>
<tr>
<td>Rated voltage</td>
<td>24 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply voltage range</td>
<td>Input and control unit power supply: 24 VDC ± 10%</td>
<td>Communication power supply for DeviceNet 11 to 25 VDC</td>
<td>200 mA or less (single GW unit)</td>
<td>Communication power supply for DeviceNet 50 mA or less</td>
</tr>
<tr>
<td>Current consumption</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Number of inputs/outputs</td>
<td>Maximum 64 inputs/64 outputs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of input/ output branches</td>
<td>4 branches (16 inputs/16 outputs per branch)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Branch cable</td>
<td>8 core heavy duty cable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Branch cable length</td>
<td>5 m or less (total extension 10 m or less)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication connector</td>
<td>M12 connector (8 pins, socket)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power connector</td>
<td>M12 connector (5 pins, plug)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient operating temperature/humidity</td>
<td>+5 to +45°C at 35% to 85% RH (no condensation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enclosure</td>
<td>IP65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicable standard</td>
<td>UL, CSA, CE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (g)</td>
<td>470</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dimensions (mm)

EX500-GDN1/DeviceNet

Communication connector
Power connector
Branch connector
Marker (Phoenix Contact)

EX500-GPR1A /PROFIBUS-DP

Communication connector (male)
Communication connector (female)
Power connector
Branch connector
Marker (Phoenix Contact)
Dimensions (mm)

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

Communication connector

Power connector

Branch connector

EX500-GMJ1/CC-Link

LINK IN

Bus adaptor

Power connector

Branch connector

Marker (Phoenix Contact)

How to Order

Input manifold

EEX500–IB1

Input unit specification

Connector type

E M8 connector

T M12 connector

M M8 and M12 mixed

Input block

EX500–IE1

Block type

1 M8 connector, PNP specification
2 M8 connector, NPN specification
3 M12 connector, PNP specification
4 M12 connector, NPN specification
5 8 point integrated type, M8 connector, PNP specification
6 8 point integrated type, M12 connector, NPN specification

Stations

1 1 station
2 8 stations

Applicable GW unit

DeviceNet PROFIBUS-DP CC-Link

EX500-I0-X1

Remote I/O (RIO)

Example M8 and M12 on a single manifold

When ordering an input block manifold, enter the Input manifold part no. + Input block part no. together.

The Input block and DIN rail are included in the input manifold. Refer to How to Order below.

Input Unit Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>EEX500-IE3-24VDC/60mA/IP65 MADE IN JAPAN</th>
<th>EEX500-IE1-24VDC/60mA/IP65 MADE IN JAPAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable sensor</td>
<td>DeviceNet PROFIBUS-DP CC-Link</td>
<td>DeviceNet PROFIBUS-DP CC-Link</td>
</tr>
<tr>
<td>Connector type</td>
<td>M8 connector, PNP specification</td>
<td>M8 connector, PNP specification</td>
</tr>
<tr>
<td>Number of inputs</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Rated voltage</td>
<td>24 VDC</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Current consumption</td>
<td>0.65 A maximum</td>
<td>0.65 A maximum</td>
</tr>
<tr>
<td>Block supply voltage</td>
<td>24 VDC</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Block supply current</td>
<td>0.65 A maximum</td>
<td>0.65 A maximum</td>
</tr>
<tr>
<td>Short circuit protection</td>
<td>Operates at 1ATyp. (power supply cut)</td>
<td>Operates at 1ATyp. (power supply cut)</td>
</tr>
<tr>
<td>Enclosure</td>
<td>IP65</td>
<td>IP65</td>
</tr>
<tr>
<td>Weight (g) Note</td>
<td>100 (Input unit + end block)</td>
<td>100 (Input unit + end block)</td>
</tr>
</tbody>
</table>

For detailed information, refer to Best Pneumatics Vol. 1 and the technical instruction manual.
For EX500 Decentralized Serial Wiring

Series SV

How to Order

Mounting

<table>
<thead>
<tr>
<th>Series</th>
<th>Tie-rod base</th>
<th>Cassette base</th>
<th>Enclosure IP67</th>
<th>SI unit specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SS5V W 10S A1W D 05 U</td>
<td>SS5V W 16S A1W D 05 U</td>
<td>nil</td>
<td>A1W For remote I/O, A2W for PROFIBUS-DP/CC-Link</td>
</tr>
</tbody>
</table>

Stations

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Stations</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>2 stations</td>
<td>Note 1) Double wiring specifications</td>
</tr>
<tr>
<td>08</td>
<td>8 stations</td>
<td>Specified layout (Up to 16 solenoids possible.)</td>
</tr>
<tr>
<td>02</td>
<td>2 stations</td>
<td>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.)</td>
</tr>
<tr>
<td>16</td>
<td>16 stations</td>
<td></td>
</tr>
</tbody>
</table>

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.)

Supply/Exhaust block assembly specification

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Ports 1, 3, 5</th>
<th>Ports 2, 4</th>
<th>Applicable series</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3</td>
<td>Ø3.2 One-touch fitting</td>
<td>Ø8 One-touch fitting</td>
<td>SV1000</td>
</tr>
<tr>
<td>C4</td>
<td>Ø4 One-touch fitting</td>
<td>Ø10 One-touch fitting</td>
<td>SV2000</td>
</tr>
<tr>
<td>C6</td>
<td>Ø6 One-touch fitting</td>
<td>Ø12 One-touch fitting</td>
<td>SV3000</td>
</tr>
<tr>
<td>C8</td>
<td>Ø8 One-touch fitting</td>
<td>Ø12 One-touch fitting</td>
<td>SV4000</td>
</tr>
<tr>
<td>C10</td>
<td>Ø10 One-touch fitting</td>
<td>Ø12 One-touch fitting</td>
<td></td>
</tr>
<tr>
<td>C12</td>
<td>Ø12 One-touch fitting</td>
<td>Ø12 One-touch fitting</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Rc 1/4</td>
<td>Rc 3/8</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Rc 3/8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>02F</td>
<td>G 1/4</td>
<td>G 3/8</td>
<td></td>
</tr>
<tr>
<td>03F</td>
<td>G 3/8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
<td></td>
<td>Ports 2, 4 mixed</td>
</tr>
</tbody>
</table>

Note: 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.

DIN rail length specified

<table>
<thead>
<tr>
<th>Nil Standard length</th>
<th>3 For 3 stations</th>
<th>16 For 16 stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Internal pilot specification</td>
<td>Internal pilot/ Built-in silencer</td>
</tr>
<tr>
<td>S</td>
<td>External pilot specification</td>
<td>External pilot/ Built-in silencer</td>
</tr>
<tr>
<td>R</td>
<td>Note) When the built-in silencer type is used keep the air outlet from direct contact with water.</td>
<td></td>
</tr>
</tbody>
</table>

D0 5 U10S

D16 For 16 stations

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

For EX500 Decentralized Serial Wiring

Series SV

Mounting

<table>
<thead>
<tr>
<th>Series</th>
<th>Tie-rod base</th>
<th>Cassette base</th>
<th>Enclosure IP67</th>
<th>SI unit specification</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>SS5V W 10S A1W D 05 U</td>
<td>SS5V W 16S A1W D 05 U</td>
<td>nil</td>
<td>A1W For remote I/O, A2W for PROFIBUS-DP/CC-Link</td>
</tr>
</tbody>
</table>

Stations

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Stations</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>2 stations</td>
<td>Note 1) Double wiring specifications</td>
</tr>
<tr>
<td>08</td>
<td>8 stations</td>
<td>Specified layout (Up to 16 solenoids possible.)</td>
</tr>
<tr>
<td>02</td>
<td>2 stations</td>
<td>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.)</td>
</tr>
<tr>
<td>16</td>
<td>16 stations</td>
<td></td>
</tr>
</tbody>
</table>

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.)

Supply/Exhaust block assembly specification

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Ports 1, 3, 5</th>
<th>Ports 2, 4</th>
<th>Applicable series</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3</td>
<td>Ø3.2 One-touch fitting</td>
<td>Ø8 One-touch fitting</td>
<td>SV1000</td>
</tr>
<tr>
<td>C4</td>
<td>Ø4 One-touch fitting</td>
<td>Ø10 One-touch fitting</td>
<td>SV2000</td>
</tr>
<tr>
<td>C6</td>
<td>Ø6 One-touch fitting</td>
<td>Ø12 One-touch fitting</td>
<td>SV3000</td>
</tr>
<tr>
<td>C8</td>
<td>Ø8 One-touch fitting</td>
<td>Ø12 One-touch fitting</td>
<td>SV4000</td>
</tr>
<tr>
<td>C10</td>
<td>Ø10 One-touch fitting</td>
<td>Ø12 One-touch fitting</td>
<td></td>
</tr>
<tr>
<td>C12</td>
<td>Ø12 One-touch fitting</td>
<td>Ø12 One-touch fitting</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Rc 1/4</td>
<td>Rc 3/8</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Rc 3/8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>02F</td>
<td>G 1/4</td>
<td>G 3/8</td>
<td></td>
</tr>
<tr>
<td>03F</td>
<td>G 3/8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
<td></td>
<td>Ports 2, 4 mixed</td>
</tr>
</tbody>
</table>

Note: 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.

D0 5 U10S

D16 For 16 stations

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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 0 0 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.

Pilot specification

<table>
<thead>
<tr>
<th></th>
<th>Internal pilot</th>
<th>External pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Back pressure check valve

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Built-in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 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 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.

Note) Available with manifold block for station addition. Refer to pages 77 and 81 of SV catalog (ES11-81A).
EX250 Serial Wiring with Input/Output Unit

Series SV

How to Order

**Tie-rod base**

- SS5V
- W10S1
- QW
- D
- 05U
- Enclosure
- IP67

**SI unit**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>DW</td>
<td>1 SV1000</td>
</tr>
<tr>
<td>TDW</td>
<td>2 SV2000</td>
</tr>
<tr>
<td>TBW</td>
<td>3 SV3000</td>
</tr>
</tbody>
</table>

**Input block stations**

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

**Input block common specification**

- Nil: +COM
- N: -COM

**Stations**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Stations</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>2 stations</td>
<td>Double wiring specifications</td>
</tr>
<tr>
<td>16</td>
<td>16 stations</td>
<td>Specified layout (Up to 32 solenoids possible.)</td>
</tr>
<tr>
<td>02</td>
<td>2 stations</td>
<td>Specified layout (Up to 32 solenoids possible.)</td>
</tr>
<tr>
<td>20</td>
<td>20 stations</td>
<td>Specified layout (Up to 32 solenoids possible.)</td>
</tr>
</tbody>
</table>

**Mounting**

- Nil: Direct mount
- D: DIN rail mount (with DIN rail)
- D0: DIN rail mount (without DIN rail)
- D3: For 3 stations
- D20: For 20 stations

**Input block type**

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

**Port size**

- Ports 2, 4 (metric)
- Ports 1, 3, 5 (inch)

**Supply/Exhaust block assembly specification**

- Nil: Internal pilot/Built-in silencer
- S: External pilot/Built-in silencer
- R: Internal pilot/Built-in silencer

**Ports 2, 4 size (metric)**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Ports 2, 4</th>
<th>Ports 1, 3, 5</th>
<th>Applicable series</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3</td>
<td>a1/2 One-touch fitting</td>
<td>e8 One-touch fitting</td>
<td>SV1000</td>
</tr>
<tr>
<td>C4</td>
<td>a4 One-touch fitting</td>
<td>e10 One-touch fitting</td>
<td>SV2000</td>
</tr>
<tr>
<td>C6</td>
<td>a6 One-touch fitting</td>
<td>e12 One-touch fitting</td>
<td>SV3000</td>
</tr>
</tbody>
</table>

**Ports 2, 4 size (inch)**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Ports 2, 4</th>
<th>Ports 1, 3, 5</th>
<th>Applicable series</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1</td>
<td>ø1/8&quot; One-touch fitting</td>
<td>ø5/16&quot; One-touch fitting</td>
<td>SV1000</td>
</tr>
<tr>
<td>N3</td>
<td>ø3/32&quot; One-touch fitting</td>
<td>ø3/8&quot; One-touch fitting</td>
<td>SV2000</td>
</tr>
<tr>
<td>N7</td>
<td>ø1/4&quot; One-touch fitting</td>
<td>ø3/32&quot; One-touch fitting</td>
<td>SV3000</td>
</tr>
<tr>
<td>N9</td>
<td>ø3/32&quot; One-touch fitting</td>
<td>ø3/8&quot; One-touch fitting</td>
<td>SV3000</td>
</tr>
</tbody>
</table>

**How to Order**

For details about certified products conforming to international standards, visit us at www.smcworld.com.
How to Order Valve Manifold Assembly (Example)

Example (SV1000)

Manifold
SSSV1-W10S1QW11ND-05B-C6 (1 set)

How to Order Solenoid Valves

SV 1 1 00 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.

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.

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.
How to Order Manifold

**Series VQC1000**

**Base mounted Plug-in Unit**

For details about certified products conforming to international standards, visit us at [www.smcworld.com](http://www.smcworld.com).

**How to Order Manifold**

**VV5QC 1 108 C6 SDQ B S kit**

**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)

**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

**SI unit COM.**

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.

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

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

**Type of actuation**
1. 2 position single
   - A: 4 position dual 3 port valve (A)
2. 2 position double (metal)
   - B: 4 position dual 3 port valve (B)
3. 2 position double (rubber)
   - C: 4 position dual 3 port valve (C)
4. 3 position closed center
5. 3 position exhaust center
6. 3 position pressure center

**Function**
- 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.

**Seal**
- 0 Metal seal
- 1 Rubber seal

**Coil voltage**
- 5 24 VDC

**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

**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

**Kit type**
- SD0 Serial kit without SI unit
- SDA1 Serial kit for Remote I/O
- SDA2 Serial kit for DeviceNet/PROFIBUS-DP/CC-Link
- SD0 Without SI unit
- SDQ DeviceNet
- SDN PROFIBUS-DP
- SDV CC-Link
- SDTA ASI, 8 in/8 out, 31 slave modes, 2 power supply systems
- SDB ASI, 4 in/4 out, 31 slave modes, 2 power supply systems
- SDC ASI, 8 in/8 out, 31 slave modes, 1 power supply system
- SDD ASI, 4 in/4 out, 31 slave modes, 1 power supply system
- SDY CANopen

**Serial unit**
- EX500

**Serial unit**
- EX250

**Note**
- For rubber seal type only.
- A separate gateway unit and communication cable are required.

**Note**
- A separate gateway unit and communication cable are required.

**Note**
- There is a limit on the current supplied from an SI unit of the SDTC or SSTD 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.
For details about certified products conforming to international standards, visit us at www.smcwold.com.
## How to Order Valve

### VQC 2 1 0 0 5

#### Type of actuation

<table>
<thead>
<tr>
<th>Series</th>
<th>VQC2000</th>
</tr>
</thead>
</table>

#### Manual override

- Nil: Non-locking push type (Slotted)
- B: Locking type (Slotted)
- C: Locking type (Manual)

#### Light/Surge voltage suppressor

- Nil: With

#### Coil voltage

- 24 VDC

#### Function (Note 1)

- Nil: Standard type (1 W)
- K: High voltage type (1.0 MPa)
- N: Negative COM
- R: External pilot
- Y: Low wattage type (0.5 W)

#### Seal

- 0: Metal seal
- 1: Rubber seal

#### Note

1) When specifying more than one option, enter symbols in alphabetical order.
2) For metal seal type only.
3) Not applicable for dual 3-port valve.
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

**S** Kit
- (I/O serial kit)

- Serial unit: EX250

### Kit type

<table>
<thead>
<tr>
<th>Kit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD0</td>
<td>Serial kit without SI unit</td>
</tr>
<tr>
<td>SDA1</td>
<td>Serial kit for Remote I/O</td>
</tr>
<tr>
<td>SDA2</td>
<td>Serial kit for DeviceNet/PROFIBUS-DP/CC-Link</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Kit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDA</td>
<td>Serial kit without SI unit</td>
</tr>
<tr>
<td>SDB</td>
<td>DeviceNet</td>
</tr>
<tr>
<td>SDN</td>
<td>PROFIBUS-DP</td>
</tr>
<tr>
<td>SDV</td>
<td>CC-Link</td>
</tr>
<tr>
<td>SDTA</td>
<td>AS-i, 8 in/8 out, 31 slave modes, 2 power supply systems</td>
</tr>
<tr>
<td>SDTB</td>
<td>AS-i, 4 in/4 out, 31 slave modes, 2 power supply systems</td>
</tr>
<tr>
<td>SDTC</td>
<td>AS-i, 8 in/8 out, 31 slave modes, 1 power supply system</td>
</tr>
<tr>
<td>SDTD</td>
<td>AS-i, 4 in/4 out, 31 slave modes, 1 power supply system</td>
</tr>
<tr>
<td>SDY</td>
<td>CANopen</td>
</tr>
</tbody>
</table>

#### 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**

**How to Order Manifold**

**VV5QC 4 1 - 16 03 SDQ**

**Series**

- **4**: VQC4000

**Manifold**

- 1: Plug-in unit

**Stations**

- 01: 1 station

**Ports 2, 4 size (metric)**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Ports 2, 4</th>
<th>Ports 1, 3, 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>C8</td>
<td>ø8 One-touch fitting</td>
<td>1: 1/2</td>
</tr>
<tr>
<td>C10</td>
<td>ø10 One-touch fitting</td>
<td>1: 1/2</td>
</tr>
<tr>
<td>C12</td>
<td>ø12 One-touch fitting</td>
<td>3, 5, 3/4</td>
</tr>
<tr>
<td>02</td>
<td>1/4</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>3/8</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Bottom ported Rc 1/4</td>
<td></td>
</tr>
<tr>
<td>CM</td>
<td>Mixed</td>
<td></td>
</tr>
</tbody>
</table>

**Ports 2, 4 size (inch)**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Ports 2, 4</th>
<th>Ports 1, 3, 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>N7</td>
<td>1/4&quot; One-touch fitting</td>
<td>1: 1/2</td>
</tr>
<tr>
<td>N9</td>
<td>ø5/16&quot; One-touch fitting</td>
<td>3, 5, 3/4</td>
</tr>
<tr>
<td>N11</td>
<td>ø3/8&quot; One-touch fitting</td>
<td></td>
</tr>
<tr>
<td>NM</td>
<td>Mixed</td>
<td></td>
</tr>
</tbody>
</table>

**Thread type**

- Nil
- Rc
- F
- G
- T
- NPT/NPTF

**Kit type**

- **S** Kit
  - (Decentralized wiring type serial kit)

**Input block COM.**

(Fill out for I/O unit only)

- Nil
- Without SI unit/input block (SD0)
- K: special wiring specifications (except for double wiring) Note 2
- 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)
- With input block
- With 1 input block
- With 8 input blocks

**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

#### Type of actuation

<table>
<thead>
<tr>
<th></th>
<th>2 position single</th>
<th>2 position double (metal)</th>
<th>2 position double (rubber)</th>
<th>3 position closed center</th>
<th>3 position exhaust center</th>
<th>3 position pressure center</th>
<th>3 position double check</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Seal

<table>
<thead>
<tr>
<th></th>
<th>Metal seal</th>
<th>Rubber seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Manual override

- Light/Surge voltage suppressor
  - Nil: Non-locking push type (Slotted)
  - With: Locking type (Slotted)

- Coil voltage
  - 5 24 VDC

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

#### 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.
**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

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

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**

<table>
<thead>
<tr>
<th>SI unit specification</th>
<th>Input block type</th>
<th>Maximum number of input blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAW AS-i, 8 in/8 out, 31 slave modes, 2 power supply systems</td>
<td>1 M12: 2 inputs</td>
<td>4 stations</td>
</tr>
<tr>
<td></td>
<td>2 M12: 4 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td></td>
<td>3 M8: 4 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td></td>
<td>1 M12: 2 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td></td>
<td>2 M12: 4 inputs</td>
<td>1 station</td>
</tr>
<tr>
<td></td>
<td>3 M8: 4 inputs</td>
<td>1 station</td>
</tr>
<tr>
<td>TBW AS-i, 4 in/4 out, 31 slave modes, 2 power supply systems</td>
<td>1 M12: 2 inputs</td>
<td>4 stations</td>
</tr>
<tr>
<td></td>
<td>2 M12: 4 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td></td>
<td>3 M8: 4 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td></td>
<td>1 M12: 2 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td></td>
<td>2 M12: 4 inputs</td>
<td>1 station</td>
</tr>
<tr>
<td></td>
<td>3 M8: 4 inputs</td>
<td>1 station</td>
</tr>
<tr>
<td>TCW AS-i, 8 in/8 out, 31 slave modes, 1 power supply system</td>
<td>1 M12: 2 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td></td>
<td>2 M12: 4 inputs</td>
<td>1 station</td>
</tr>
<tr>
<td></td>
<td>3 M8: 4 inputs</td>
<td>1 station</td>
</tr>
<tr>
<td>SDTA AS-i, 8 in/8 out, 31 slave modes, 2 power supply systems</td>
<td>1 M12: 2 inputs</td>
<td>4 stations</td>
</tr>
<tr>
<td></td>
<td>2 M12: 4 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td></td>
<td>3 M8: 4 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td>SDTB AS-i, 4 in/4 out, 31 slave modes, 2 power supply systems</td>
<td>1 M12: 2 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td></td>
<td>2 M12: 4 inputs</td>
<td>1 station</td>
</tr>
<tr>
<td></td>
<td>3 M8: 4 inputs</td>
<td>1 station</td>
</tr>
<tr>
<td>SDTC AS-i, 8 in/8 out, 31 slave modes, 1 power supply system</td>
<td>1 M12: 2 inputs</td>
<td>4 stations</td>
</tr>
<tr>
<td></td>
<td>2 M12: 4 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td></td>
<td>3 M8: 4 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td>SDTD AS-i, 4 in/4 out, 31 slave modes, 1 power supply system</td>
<td>1 M12: 2 inputs</td>
<td>2 stations</td>
</tr>
<tr>
<td></td>
<td>2 M12: 4 inputs</td>
<td>1 station</td>
</tr>
<tr>
<td></td>
<td>3 M8: 4 inputs</td>
<td>1 station</td>
</tr>
</tbody>
</table>
SLOVAKIA
SMC Priemyselná Automatizáciá, 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

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 Pneumatics Do Brazil Ltda.

CHILE
SMC Pneumatics (Chile) S.A.

VENIZUELA
SMC Neumatica Venezuela S.A.

OCEANIA

AUSTRALIA
SMC Pneumatics (Australia) Pty. Ltd.

NEW ZEALAND
SMC Pneumatics (N.Z.) Ltd.