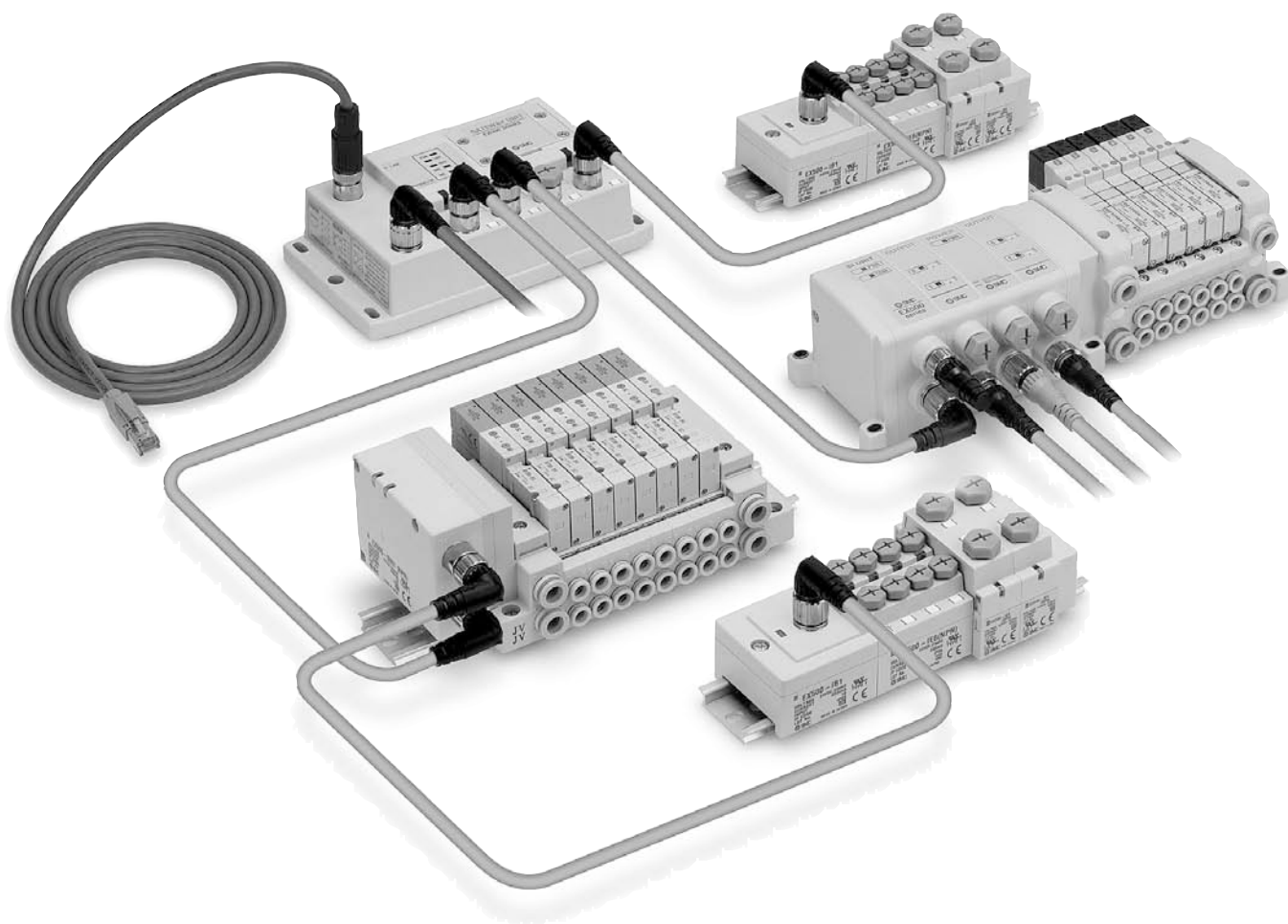


Serial Wiring 5 Port Solenoid Valve for EX500 Series *SV/VQC*

Series	Applicable protocol	Applicable manifold
Decentralized serial wiring EX500	Remote I/O (Rockwell Automation Inc.)	SV1000
	DeviceNet™	2000
		3000
		4000
	PROFIBUS-DP	
	CC-Link	VQC1000
	EtherNet/IP™	2000
		4000

 **EtherNet/IP compatible products are now available.**

- Compatible with DHCP
- Communication speed: 10 Mbps/100 Mbps
- Able to HOLD/CLEAR the output in case of an error occurrence.



Decentralized Serial Wiring for EX500 Series SV



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

How to Order

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

● **Tie-rod Base**

SS5V 1 — W10S A1W D — 05 U

● **Cassette Base**

SS5V 1 — W16S A1W D — 05 U

Series

1	SV1000
2	SV2000

IP65 enclosure specification

SI unit

A1W	Remote I/O (Rockwell Automation Inc.)
A2W	DeviceNet PROFIBUS-DP CC-Link EtherNet/IP
0	Without SI unit

Mounting

Nil	Direct mounting
D	DIN rail mounting (with DIN rail)
D0 (Note)	DIN rail mounting (without DIN rail)
D3	3 stations
...	...
D16	16 stations

(Note) In the case of D0, only DIN rail brackets are attached.

DIN rail length specified

Nil	Standard length
3	3 stations
...	...
16	16 stations

Stations

Symbol	No. of stations	Note
02	2 stations	Double wiring specification
...	...	
08	8 stations	
02	2 stations	Specified layout (Note 2) (Up to 16 solenoids possible.)
...	...	
16	16 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 specification in the manifold specification sheet. (Note that double, 3 position and 4 position valves cannot be used where single solenoid wiring has been specified.)

P, E port position

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 16 stations)

SI/PI/EXII block assembly specification

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.

A, B port size (Metric)

Symbol	A, B port	P, E port	Applicable series
C3	With one-touch fitting for ø3.2	With one-touch fitting for ø8	SV1000
C4	With one-touch fitting for ø4		
C6	With one-touch fitting for ø6		
C4	With one-touch fitting for ø4	With one-touch fitting for ø10	SV2000
C6	With one-touch fitting for ø6		
C8	With one-touch fitting for ø8		
C6	With one-touch fitting for ø6	With one-touch fitting for ø12	SV3000
C8	With one-touch fitting for ø8		
C10	With one-touch fitting for ø10		
C8	With one-touch fitting for ø8	With one-touch fitting for ø12	SV4000
C10	With one-touch fitting for ø10		
C12	With one-touch fitting for ø12		
02	Rc 1/4	Rc 3/8	SV4000
03	Rc 3/8		
02F	G 1/4		
03F	G 3/8	G 3/8	SV4000
M	A, B ports mixed		

A, B port size (Inch)

Symbol	A, B port	P, E port	Applicable series
N1	With one-touch fitting for ø1/8"	With one-touch fitting for ø5/16"	SV1000
N3	With one-touch fitting for ø5/32"		
N7	With one-touch fitting for ø1/4"		
N3	With one-touch fitting for ø5/32"	With one-touch fitting for ø3/8"	SV2000
N7	With one-touch fitting for ø1/4"		
N9	With one-touch fitting for ø5/16"		
N7	With one-touch fitting for ø1/4"	With one-touch fitting for ø3/8"	SV3000
N9	With one-touch fitting for ø5/16"		
N11	With one-touch fitting for ø3/8"		
N9	With one-touch fitting for ø5/16"	With one-touch fitting for ø3/8"	SV4000
N11	With one-touch fitting for ø3/8"		
02N	NPT 1/4		
03N	NPT 3/8	NPT 3/8	SV4000
02T	NPTF 1/4		
03T	NPTF 3/8		
M	A, B ports mixed		

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

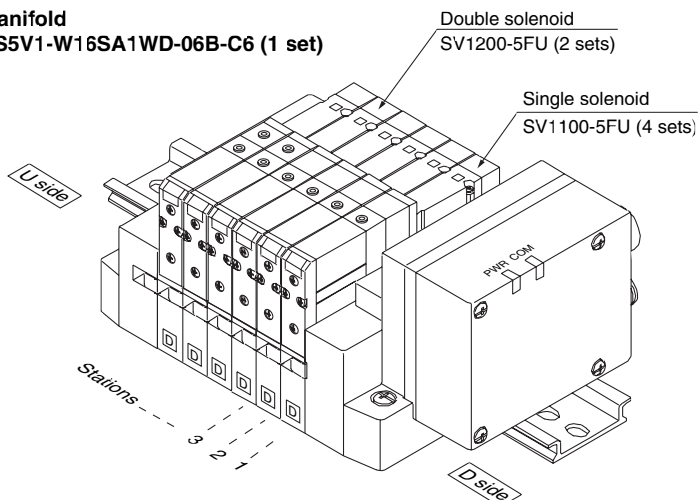
* Port sizes of X, PE port for external pilot specification (R, RS) are ø4 (metric), ø5/32" (inch) for the SV1000/2000 series and ø6 (metric) and ø1/4" (inch) for the SV3000/4000 series.

How to Order Valve Manifold Assembly (Example)

Example (SV1000)

Manifold

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



SS5V1-W16SA1WD-06B-C6 1 set (Manifold base 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.

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

Pilot

Nil	Internal pilot
R	External pilot

* External pilot specification is not applicable 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 the SV1000 series only.

* Back pressure check valve is not applicable for 3 position valve.

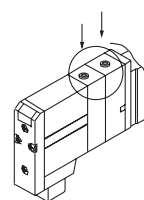
Note



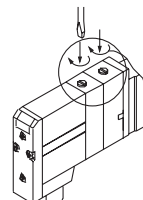
Note Available with manifold block for station additions. Refer to "Best Pneumatics 2004 Vol. 1" catalog.

Manual override

Nil: Non-locking push type



D: Push-turn locking slotted 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, refer to the SV series of "Best Pneumatics 2004 Vol. 1" catalog.
- For details on GW unit and SI unit, refer to the separate technical instruction manual.

Series VQC1000

Base Mounted

Plug-in Manifold C €



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

How to Order Manifold

VV5QC 1 1 — 08 C6 SDA2 **S** Kit

Series
1 VQC1000

Manifold
1 Plug-in manifold

Stations

01	1 stations
:	:
16	16 stations

Cylinder port

C3	With one-touch fitting for ø3.2
C4	With one-touch fitting for ø4
C6	With one-touch fitting for ø6
M5	M5 thread
CM	Mixed size/with port plug
L3	With elbow one-touch fitting ø3.2 for top piping
L4	With elbow one-touch fitting ø4 for top piping
L6	With elbow one-touch fitting ø6 for top piping
L5	M5 thread
B3	With elbow one-touch fitting ø3.2 for bottom piping
B4	With elbow one-touch fitting ø4 for bottom piping
B6	With elbow one-touch fitting ø6 for bottom piping
B5	M5 thread
LM	Mixed size for elbow piping

Option

Nil	None
B	With back pressure check valve (all stations)
D	With DIN rail (Rail length: Standard)
D□	With DIN rail (Rail length: Special) ^{Note 3)}
K	Special wiring specification (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 options are specified, indicate them alphabetically.
Example) -BRS
Note 2) When installing a back pressure check valve on the required station, enter the part number and specify the station position in 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) Be sure to indicate the wiring specification in the specification sheet.
Note 5) For external pilot option, "R□" indicate the external pilot specification "P" for the applicable valves as well.
Note 6) The built-in silencer type does not satisfy the IP67 standard.

Kit name

S Kit (Decentralized Serial Wiring Serial Transmission Kit)

SI unit: **EX500** **IP67**

SD0	Without SI unit	1 to 8 stations (16 stations)
SDA1	Remote I/O	
SDA2	DeviceNet	
	PROFIBUS-DP	
	CC-Link EtherNet/IP	

SI unit COM.

SI unit COM.		EX500				
		DeviceNet	PROFIBUS-DP	CC-Link	Remote I/O	EtherNet/IP
Nil	+COM.	○	○	○	○	○
N	-COM.	○	○	○	○	○



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

SI Unit Part No.

Symbol	Protocol type	SI unit part no.	
		+COM.	-COM.
SDA1	Remote I/O (Rockwell Automation Inc.)	EX500-Q001-X1	EX500-Q101-X1
SDA2	DeviceNet	EX500-Q001	EX500-Q101
	PROFIBUS-DP		
	CC-Link		
	EtherNet/IP		

Note) A separate gateway unit and communication cable are required

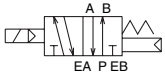
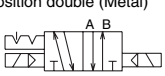
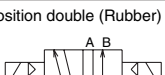
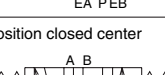
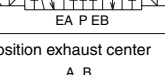
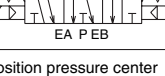
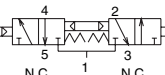
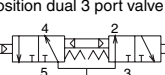
How to Order Valves

VQC 1 1 0 0 **5**

Series

1 VQC1000

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) Rubber seal type only.

Seal

0	Metal seal
1	Rubber seal

Manual override

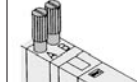
Nil: Non-locking push type (Tool required)



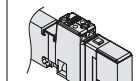
B: Locking type (Tool required)



C: Locking type (Manual)



D: Slide locking type (Manual)



With/Without light and surge voltage suppressor

Nil	Yes
------------	-----

Rated voltage

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

Function

Nil	Standard (1 W)
K (Note 1)	High pressure type (1.0 MPa)
N	Negative COM
R (Note 3)	External pilot
Y (Note 4)	Low wattage type (0.5 W)



Note 1) Meta seal type only.

Note 2) When two or more symbols are specified indicate them alphabetically.

Note 3) It is not applicable to dual 3 port valves.

Note 4) Use a low wattage type for continuous energization (when the total energized time per day is longer than the non-energized time.)

- For solenoid valve specifications and dimensions, refer to the VQC series of "Best Pneumatics 2004 Vol. 2" catalog.
- For SI unit dimensions, refer to page 17.
- For details on SI unit, refer to the separate technical instruction manual.

Series VQC2000

Base Mounted

Plug-in Manifold €



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How to Order Manifold

VV5QC 21 — 08 C6 SDA2 — — — — — S Kit

Series

2 VQC2000

Manifold

1 Plug-in manifold

Stations

01	1 stations
...	...
16	16 stations

Cylinder port

C4	With one-touch fitting for ø4
C6	With one-touch fitting for ø6
C8	With one-touch fitting for ø8
CM	Mixed size/with port plug
L4	With elbow one-touch fitting ø4 for top piping
L6	With elbow one-touch fitting ø6 for top piping
L8	With elbow one-touch fitting ø8 for top piping
B4	With elbow one-touch fitting ø4 for bottom piping
B6	With elbow one-touch fitting ø6 for bottom piping
B8	With elbow one-touch fitting ø8 for bottom piping
LM	Mixed size for elbow piping

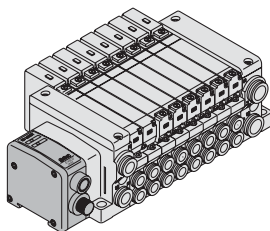


Note 1) Indicate the size in the specification sheet in the case of "CM" and "LM"
 Note 2) Symbols for inch sizes are as follows
 • N3: ø5/32"
 • N7: ø1/4"
 • N9: ø5/16"
 • NM: Mixed
 The top ported elbow is L N□ and the bottom ported elbow is B N□

Kit name

S

Kit (Decentralized Serial Wiring Serial Transmission Kit)



SI unit: EX500

IP67

SD0	Without SI unit	1 to 8 stations (16 stations)
SDA1	Remote I/O	
SDA2	DeviceNet PROFIBUS-DP CC-Link EtherNet/IP	

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 specification (Except double wiring) Note 4)
N	With name plate
R	External pilot Note 5)
S	Built-in silencer, Direct exhaust Note 6)
T	P, R port on U side, branched type Note 7)



Note 1) When two or more options are specified, indicate them alphabetically.

Example) -BRS

Note 2) When installing a back pressure check valve on the required station, enter the part number and specify the station position in 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) Be sure to indicate the wiring specification in the specification sheet

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

Note 6) The built-in silencer type does not satisfy the IP67 standard

Note 7) The SI IP and EXH ports on U side are branched (toward the cylinder port and coil) with ø12 one-touch fittings for connection

SI unit COM.

SI unit COM.		EX500				
		DeviceNet	PROFIBUS-DP	CC-Link	Remote I/O	EtherNet/IP
Nil	+COM.	○	○	○	○	○
N	-COM.	○	○	○	○	○



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

SI Unit Part No.

Symbol	Protocol type	SI unit part no.	
		+COM.	-COM.
SDA1	Remote I/O (Rockwell Automation Inc.)	EX500-Q001-X1	EX500-Q101-X1
SDA2	DeviceNet	EX500-Q001	EX500-Q101
	PROFIBUS-DP		
	CC-Link		
	EtherNet/IP		

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

How to Order Valves

VQC 2 1 0 0 **5**

Series

2 VQC2000

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) Rubber seal type only.

Seal

0	Metal seal
1	Rubber seal

Manual override

Nil: Non-locking push type (Tool required)

B: Locking type (Tool required)

C: Locking type (Manual)

D: Slide locking type (Manual)

With/Without light and surge voltage suppressor

Nil	Yes
------------	-----

Rated voltage

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

Function

Nil	Standard (1 W)
K (Note 1)	High pressure type (1.0 MPa)
N	Negative COM
R (Note 3)	External pilot
Y (Note 4)	Low wattage type (0.5 W)

Note 1) Metal seal type only
Note 2) When two or more symbols are specified, indicate them alphabetically.
Note 3) It is not applicable to dual 3 port valves.
Note 4) Use a low wattage type for continuous energization (when the totaled energized time per day is longer than the non-energized time.)

- For solenoid valve specifications and dimensions, refer to the VQC series of "Best Pneumatics 2004 Vol. 2" catalog.
- For SI unit dimensions, refer to page 17.
- For details on SI unit, refer to the separate technical instruction manual.

Series VQC4000

Base Mounted

Plug-in Manifold €



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How to Order Manifold

VV5QC 4 1 — 16 03 — SDA2 — S Kit

Series

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

Manifold

1	Plug-in manifold
---	------------------

Stations

01	1 stations
...	...
16	16 stations

Cylinder port

C8	With one-touch fitting for ø8
C10	With one-touch fitting for ø10
C12	With one-touch fitting for ø12
02	1/4 female thread
03	3/8 female thread
B	Bottom ported 1/4 female thread
CM	Mixed size



Note 1) Indicate the size in the specification sheet in the case of "CM"

Note 2) Symbols for inch sizes are as follows:

<For one-touch fitting>

- N7 ø1/4"
- N9 ø5/16"
- N11 ø3/8"
- NM Mixed

Port thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Option

Nil	None
K	Special wiring specification (Except double wiring) Note 2)



Note 1) When two or more options are specified, indicate them alphabetically.

Example) -KN

Note 2) Be sure to indicate the wiring specification in the specification sheet.

SI unit COM.

SI unit COM.		EX500				
		DeviceNet	PROFIBUS-DP	CC-Link	Remote I/O	EtherNet/IP
Nil	+COM.	○	○	○	○	○
N	-COM.	○	○	○	○	○

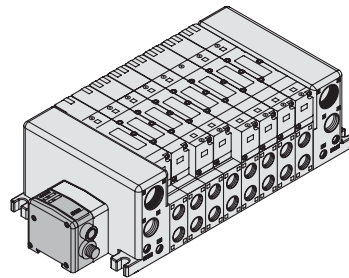


Note) Without SI unit (SD0), the symbol is nil.

Kit name

S

Kit (Decentralized Serial Wiring Serial Transmission Kit)



SI unit: EX500

IP67

SD0A	Without SI unit	1 to 8 stations (16 stations)
SDA1	Remote I/O	
SDA2	DeviceNet	
	PROFIBUS-DP	
	CC-Link	
	EtherNet/IP	

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

SI Unit Part No.

Symbol	Protocol type	SI unit part no.	
		+COM.	-COM.
SDA1	Remote I/O (Rockwell Automation Inc.)	EX500-Q001-X1	EX500-Q101-X1
SDA2	DeviceNet	EX500-Q001	EX500-Q101
	PROFIBUS-DP		
	CC-Link		
	EtherNet/IP		

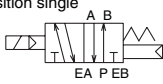
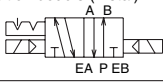
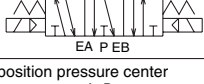
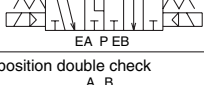
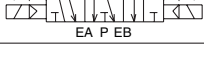
How to Order Valves

VQC 4 1 0 0 **5**

Series

4 VQC4000

Type of actuation

1	2 position single  EA P EB
2	2 position double (Metal)  EA P EB
	2 position double (Rubber)  EA P EB
3	3 position closed center  EA P EB
4	3 position exhaust center  EA P EB
5	3 position pressure center  EA P EB
6	3 position double check  EA P EB

With/Without light and surge voltage suppressor

Nil	Yes
E	Without light, with surge voltage suppressor

Rated voltage

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

Function

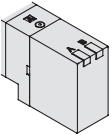
Nil	Standard (1 W)
R	External pilot
Y Note 2)	Low wattage type (0.5 W)

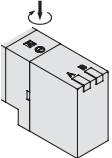
Note 1) When two or more symbols are specified, indicate them alphabetically.
Note 2) Use a low wattage type for continuous energization (when the total energized time per day is longer than the non-energized time.)

Seal

0	Metal seal
1	Rubber seal

Manual override

Nil: Non-locking push type (Tool required)


B: Locking type (Tool required)


• For solenoid valve specifications and dimensions, refer to the VQC series of "Best Pneumatics 2004 Vol. 2" catalog.
• For SI unit dimensions, refer to page 17.
• For details on SI unit, refer to the separate technical instruction manual.

Gateway System Serial Transmission System

Series EX500

Decentralized serial wiring

- Valve manifold and input unit manifold can be connected around the GW unit.
- Compatible with various protocols by replacing the GW unit.

Inputs/Outputs number

- Compatible with 64-digital-outputs (16 points x 4 branches) and 64-digital-inputs (16 points x 4 branches).

Enclosure

- GW unit, Input unit manifold: IP65
- Valve manifold including SI unit: IP67

How to Order GW Unit

GW Unit



EX500 G **DN1**

Communication protocol

DN1	DeviceNet
PR1A	PROFIBUS-DP
MJ1	CC-Link
EN1	EtherNet/IP
AB1-X1	Remote I/O (Rockwell Automation Inc.)

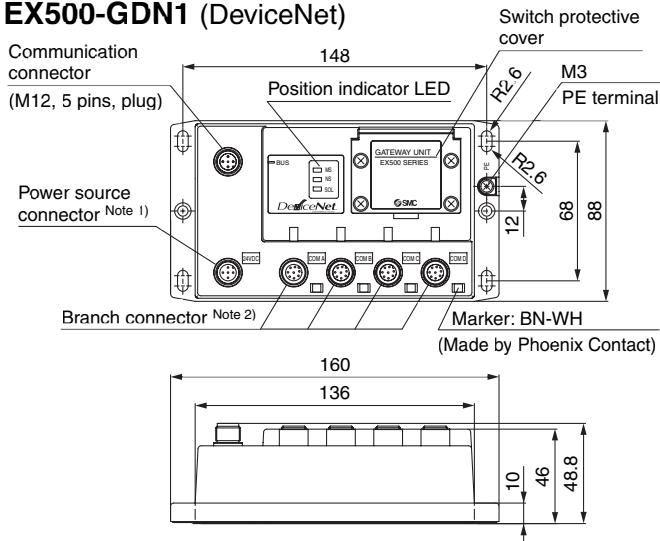
For options, refer to page 18.

GW Unit Specifications

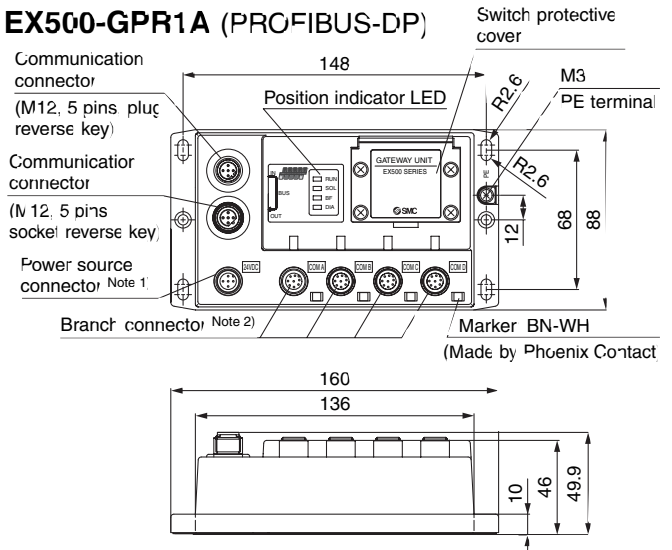
Model		EX500-GDN1	EX500-GPR1A	EX500-GMJ1	EX500-GEN1	EX500-GAB1-X1
Applicable PLC/ Communication protocol		DeviceNet Release2.0	PROFIBUS-DP (IEC61158, IEC61784)	CC-Link Ver.1.10	EtherNet/IP Release1.0	Remote I/O (Rockwell Automation Inc.)
Communication speed		125 k/250 k/ 500 kbit/sec	9.6 k/19.2 k/ 45.45 k/93.75 k/ 187.5 k/500 kbit/sec 1.5 M/3 M/ 6 M/12 Mbit/sec	156 k/625 kbit/sec 2.5 M/5 M/ 10 Mbit/sec	10 M/100 Mbit/sec	57.6 k/115.2 k/ 230.4 kbit/sec
Power supply for input and internal control	Power supply voltage	21.6 to 26.4 VDC				
	Internal current consumption	200 mA or less (GW unit)				
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	50 mA or less	—			
Input	Number of inputs	64 points (16 points x 4 branches)				
	Connection input device	The EX500 series input unit manifold (connection from communication port A to D)				
	Supply voltage	24 VDC				
	Supply current	Max. 2.8 A (Max. 0.7 A per branch)				
Output	Number of outputs	64 points (16 points x 4 branches)				
	Connection output device	The EX500 series manifold including SI unit (connection from communication port A to D)				
	Supply voltage	24 VDC				
	Supply current	Max. 3.0 A				
Branch cable length		5 m or less between connected devices (total extension 10 m or less)				
Environmental resistance	Enclosure	IP65				
	Operating temperature range	Operating: 5 to 45C Stored: -25 to 70C (with no freezing and condensation)				
	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)				
	Withstand voltage	1000 VAC for 1 min. between whole charging part and case				
	Insulation resistance	2 M or more (500 VDC Mega) between whole charging part and case				
	Vibration resistance	10 to 150 Hz with a 0.7 mm amplitude or 50 m/s ² in each X, Y, Z direction for 2 hrs (De-energized)				
	Impact resistance	150 m/s ² in each X, Y, Z direction, 3 times (De-energized)				
Standard		CE marking (CSA)				
Weight		470 g				
Accessory: Waterproof cap (for M12 connector socket)		EX500-AWTS (4 pcs.)	EX500-AWTS (5 pcs.)	EX500-AWTS (4 pcs.)	EX500-AWTS (5 pcs.)	EX500-AWTS (4 pcs.)

GW Unit Dimensions / Parts Description

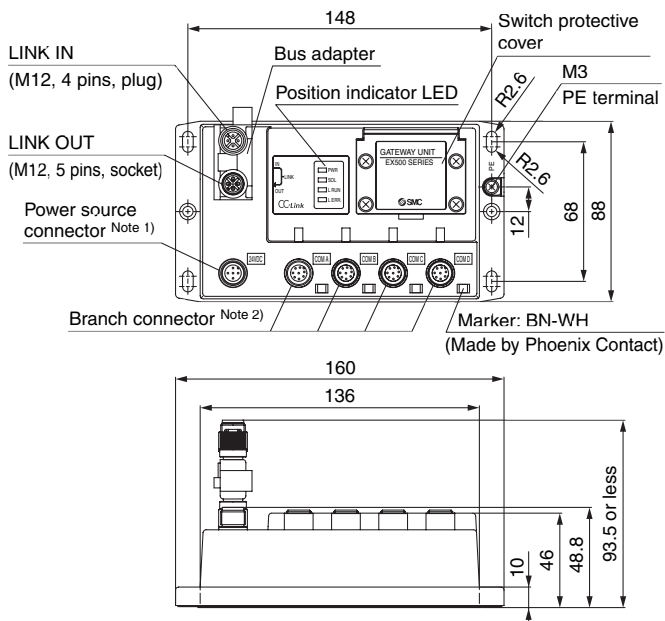
EX500-GDN1 (DeviceNet)



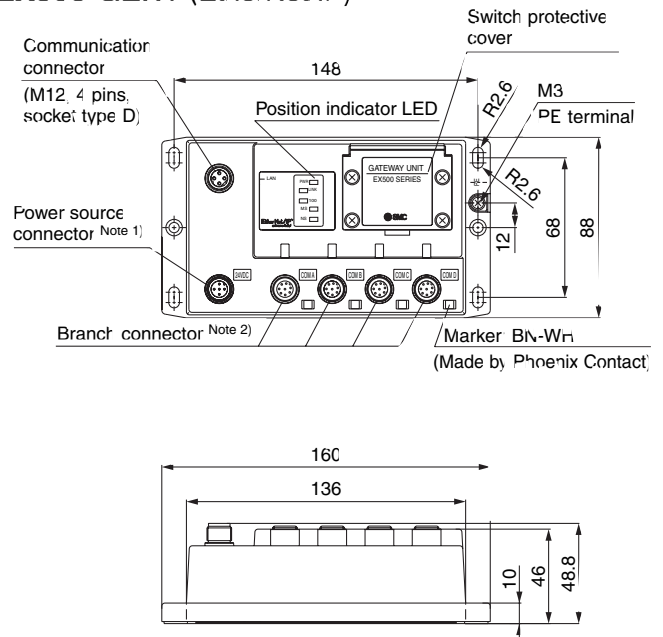
EX500-GPR1A (PROFIBUS-DP)



EX500-GMJ1 (CC-Link)

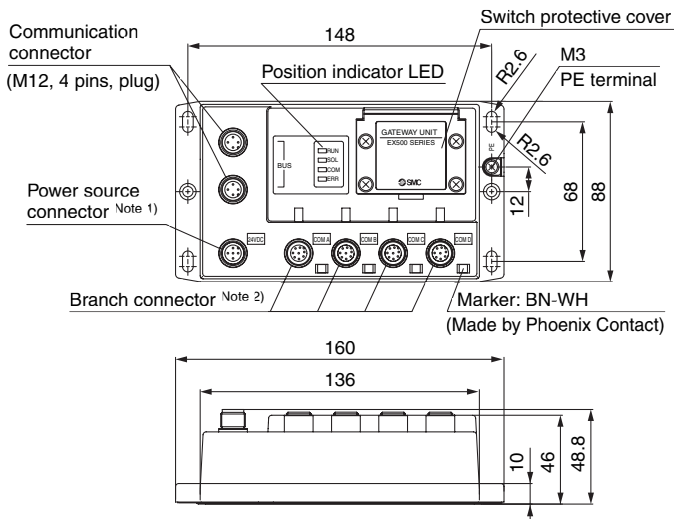


EX500-GEN1 (EtherNet/IP)



EX500-GAB1-X1

(Remote I/O (Rockwell Automation Inc.))



Note 1) Power supply connector specification

(M12, 5 pins, plug)

Note 2) Branch connector specification

(M12, 8 pins, socket)

How to Order Input Unit Manifold

How to Order Input Block

Input Unit Manifold

EEX500—IB1—E 8

EX500 IE 1

Connector type

E	M8 connector
T	M12 connector
M	M8, M12 mixed

Stations

1	1 station
:	:
8	8 stations

Applicable GW unit

Nil	DeviceNet, PROFIBUS-DP CC-Link, EtherNet/IP
-X1	Remote I/O (Rockwell Automation Inc.)

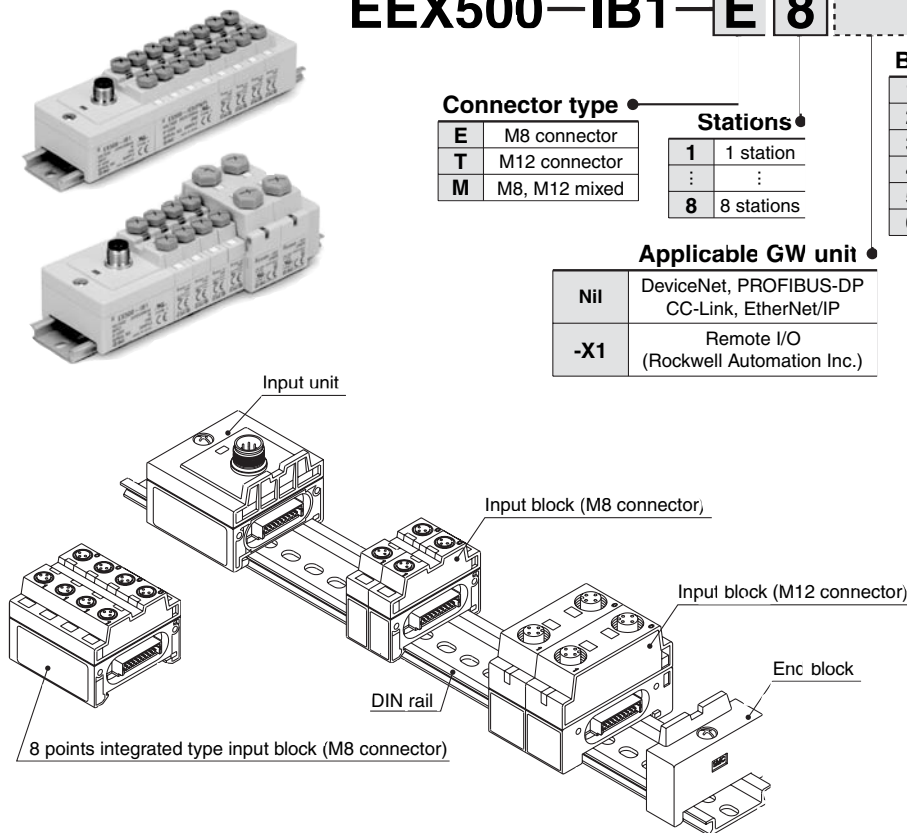
Block type

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

Applicable GW unit

Nil	DeviceNet, PROFIBUS-DP CC-Link, EtherNet/IP
-X1	Remote I/O (Rockwell Automation Inc.)

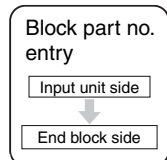
For options, refer to page 18.



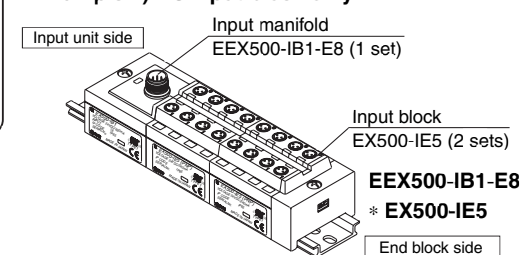
How to Order Input Unit Manifold [Ordering Example]

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

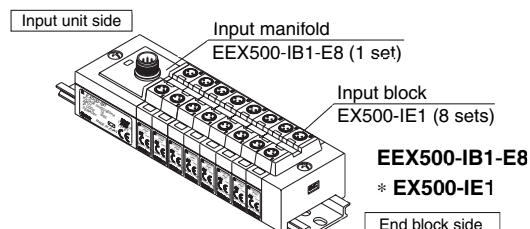
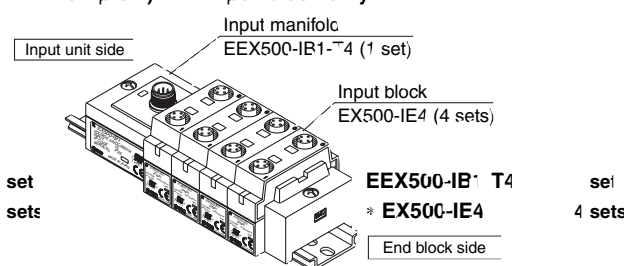
The **Input unit**, **End block** and **DIN rail** are included in the input manifold. Refer to the indications below.



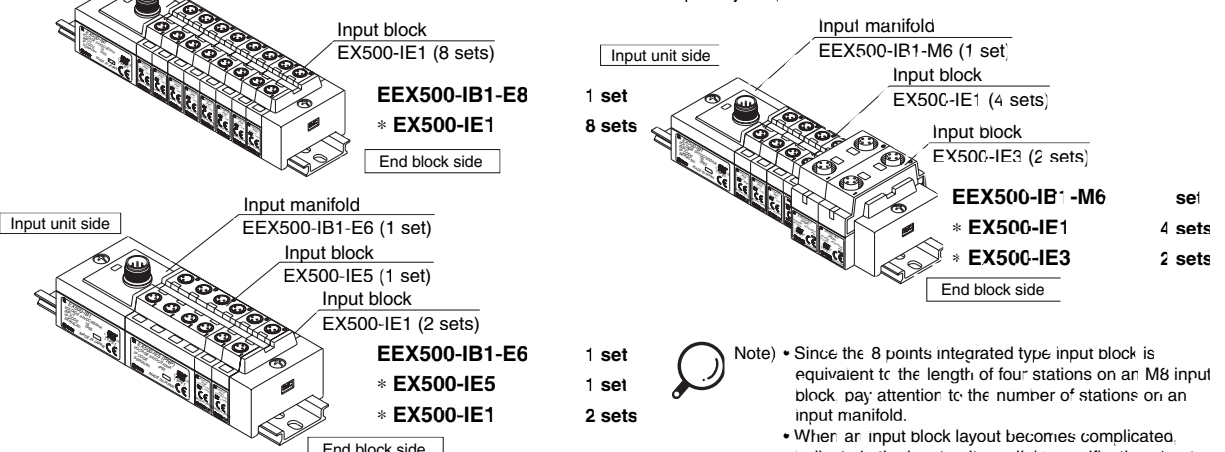
Example 1) M8 input block only



Example 2) M12 input block only



Example 3) M8, M12 mixed



Input Unit Specifications

Model		EX500-IB1 (-X1)
Internal current consumption		100 mA or less
Input specification	Number of inputs	16 points
	Connection block	The EX500 series input block (possible to be positioned with others)
	Connection block stations	2-input, input block: Max. 8 stations 8-input, input block: Max. 2 stations
Environmental resistance	Enclosure	IP65
	Operating temperature range	Operating: 5 to 45°C Stored: -25 to 70°C (with no freezing and condensation)
	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)
	Withstand voltage	1000 VAC for 1 min. between whole charging part and case
	Insulation resistance	2 M or more (500 VDC Mega) between whole charging part and case
	Vibration resistance	10 to 150 Hz with a 0.7 mm amplitude or 50 m/s ² in each X, Y, Z direction for 2 hrs (De-energized)
	Impact resistance	150 m/s ² in each X, Y, Z direction, 3 times (De-energized)
Standard		CE marking, UL (CSA)
Weight		100 g (Input unit + End block)

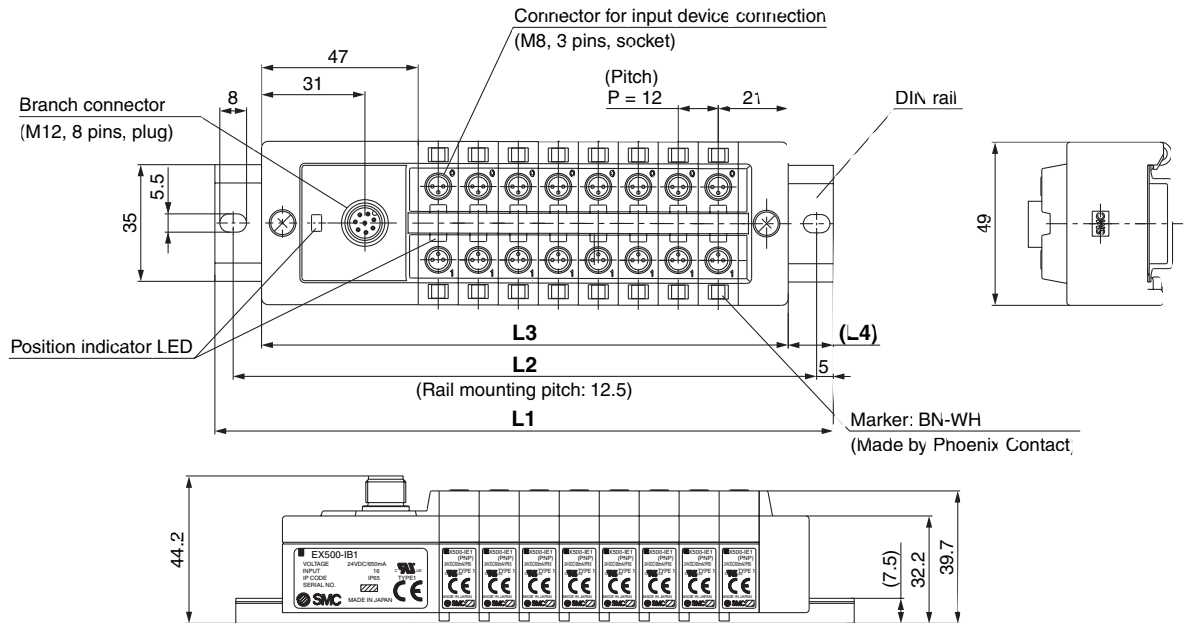
Input Block Specifications

Model		EX500-IE1 (-X1)	EX500-IE2 (-X1)	EX500-IE3 (-X1)	EX500-IE4 (-X1)	EX500-IE5 (-X1)	EX500-IE6 (-X1)
Input specification	Input type	PNP input	NPN input	PNP input	NPN input	PNP input	NPN input
	Number of inputs	2 points				8 points	
	Input device supply voltage	24 VDC					
	Input device supply current	Max. 480 mA/Input unit manifold					
	Rated input current	Approx. 5 mA					
	Display	Green LED (Lights when power is turned ON.)					
	Connector on the input device side	M8 connector (3 pins, plug)		M12 connector (4 pins, plug)		M8 connector (3 pins, plug)	
Environmental resistance	Operating temperature range	IP65					
	Operating humidity range	Operating: 5 to 45C Stored: -25 to 70C (with no freezing and condensation)					
	Withstand voltage	Operating, Stored: 35 to 85%RH (with no condensation)					
	Insulation resistance	1000 VAC for 1 min. between whole charging part and case					
	Vibration resistance	2 M or more (500 VDC Mega) between whole charging part and case					
	Impact resistance	10 to 150 Hz with a 0.7 mm amplitude or 50 m/s ² in each X, Y, Z direction for 2 hrs (De-energized)					
		150 m/s ² , in each X, Y, Z direction, 3 times (De-energized)					
Standard		CE marking, UL (CSA)					
Weight		20 g		40 g		55 g	
Accessory: Waterproof cap	(for M8 connector socket)	EX500-AWES (2 pcs.)		—		EX500-AWES (8 pcs.)	
	(for M12 connector socket)	—		EX500-AWTS (2 pcs.)		—	

Series EX500

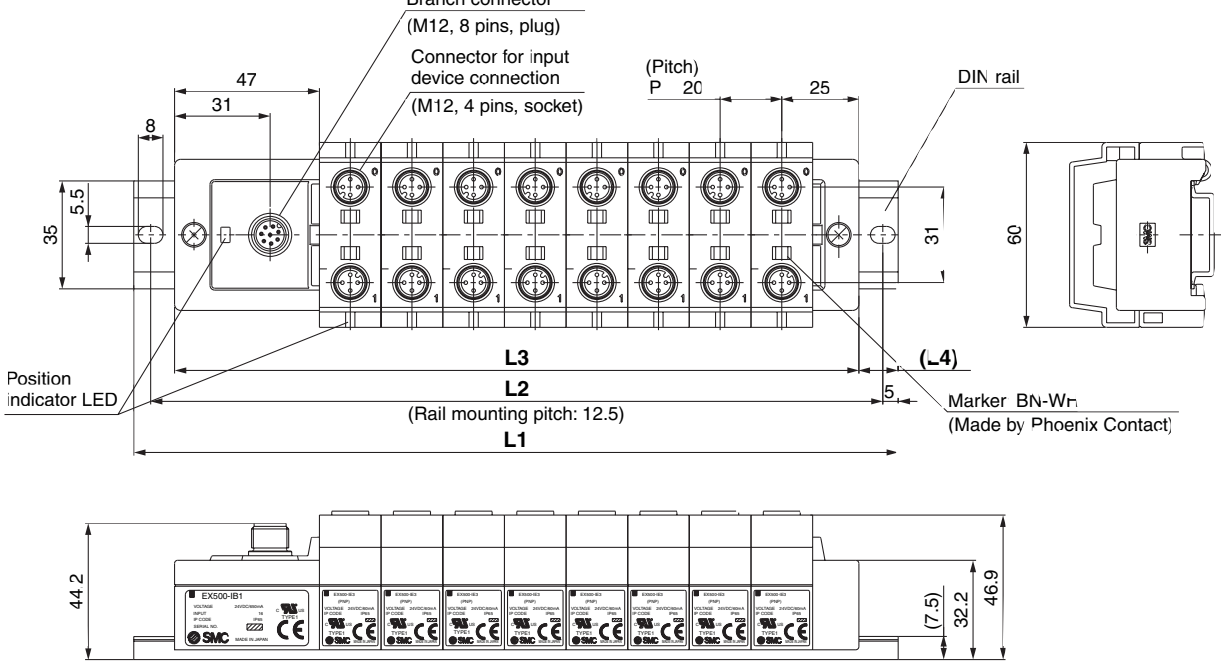
Input Unit Manifold Dimensions / Parts Description

Input block (M8) only



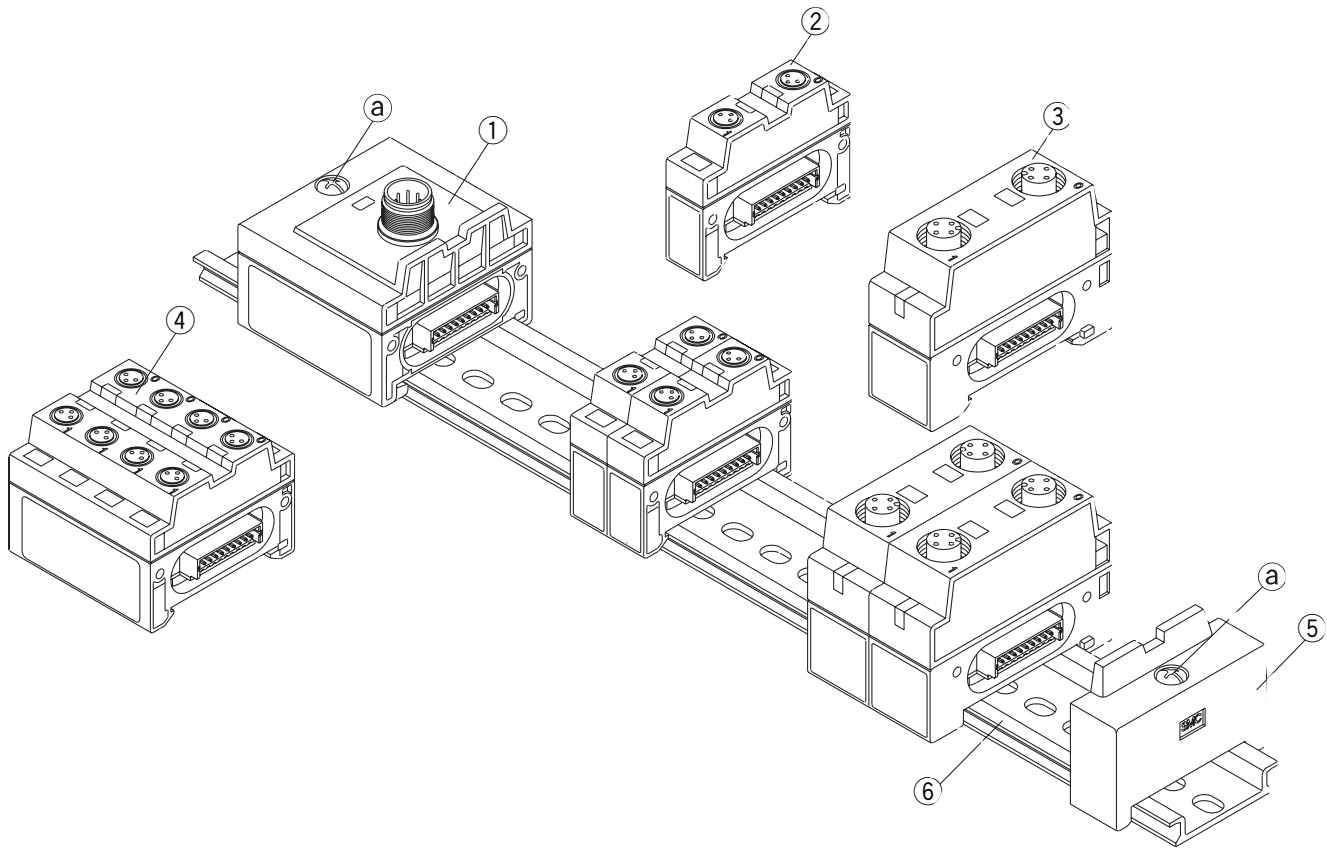
Stations	1	2	3	4	5	6	7	8
Rail length L1	98	110.5	123	135.5	148	160.5	173	185.5
Mounting pitch L2	87.5	100	112.5	125	137.5	150	162.5	175
Manifold length L3	74	86	98	110	122	134	146	158
L4	12	12	12.5	12.5	13	13	13.5	13.5

Input block (M12) only



Stations	1	2	3	4	5	6	7	8
Rail length L1	110.5	123	148	173	185.5	210.5	223	248
Mounting pitch L2	100	112.5	137.5	162.5	175	200	212.5	237.5
Manifold length L3	82	102	122	142	162	182	202	222
L4	12	12	12.5	12.5	13	13	13.5	13.5

Input Unit Manifold Exploded View



Parts List

No.	Description	Part no.		Note
		For standard	For RIO	
1	Input unit	EX500-IB1	EX500-IB1-X1	
2	Input block (M8 connector)	EX500-IE□	EX500-IE□-X1	PNP specification ... □: 1, NPN specification ... □: 2
3	Input block (M12 connector)	EX500-IE□	EX500-IE□-X1	PNP specification ... □: 3, NPN specification ... □: 4
4	8 points integrated type input block (M8 connector)	EX500-IE□	EX500-IE□-X1	PNP specification ... □: 5, NPN specification ... □: 6
5	End block	EX500-EB1		
6	DIN rail	VZ1000-11-1-□		□: No. based on L dimension (Refer to the table below.)

How to add input block stations

- Loosen the screws (a) (2 places) that hold the end block.
- Separate the blocks at the locations where stations are to be added.
- Attach the additional blocks to the DIN rail, and connect the blocks so that they fit together securely.
- While holding the blocks together so that there are no gaps between them, secure them to the DIN rail by tightening the screws (a).
Note: Be sure to tighten the round head combination screw with the prescribed tightening torque.

DIN Rail L Dimensions [mm]

Stations		M8 input block (m)								Connector type For E (m = 1 to 8)		No.	L dimension	No.	L dimension
M12 input block (n)	0	0	1	2	3	4	5	6	7	8		0	98	7	185.5
	1	1	2	3	4	5	6	7	8			1	110.5	8	198
	2	2	3	4	5	6	7	8				2	123	9	210.5
	3	3	4	5	6	7	8					3	135.5	10	223
	4	4	5	6	7	8						4	148	11	235.5
	5	5	6	7	8							5	160.5	12	248
	6	6	7	8								6	173		
	7	7	8												
	8	8													

Stations		M8 input block (m)								Connector type For M (m + n = 2 to 8)		Connector type For T (n = 1 to 8)	
M12 input block (n)	0	0	1	2	3	4	5	6	7	8			
	1	1	2	3	4	5	6	7	8				
	2	2	3	4	5	6	7	8					
	3	3	4	5	6	7	8						
	4	4	5	6	7	8							
	5	5	6	7	8								
	6	6	7	8									
	7	7	8										
	8	8											

How to Order SI Unit

SI Unit

Applicable solenoid valve:
SV series

EX500 S001

Applicable GW unit

Nil	DeviceNet, PROFIBUS-DP CC-Link, EtherNet/IP
-X1	Remote I/O (Rockwell Automation Inc.)

Applicable solenoid valve: SV series

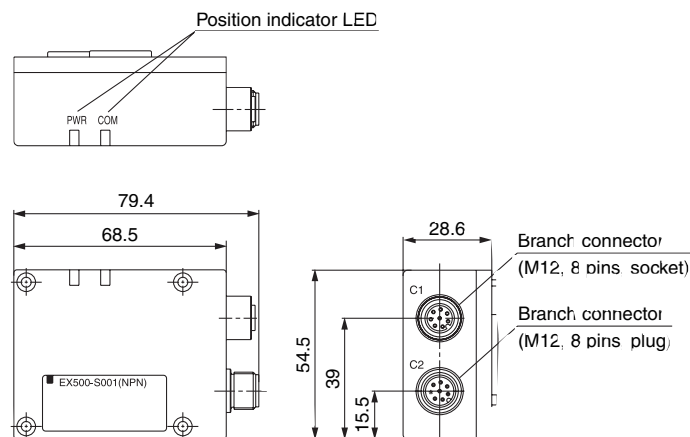
For options, refer to page 18.

SI Unit Specifications (SV)

Model		EX500-S001 (-X1)
Internal current consumption		100 mA or less
Output specification	Number of outputs	16 points
	Connection block	Solenoid valve (single, double) Relay output module (1 output, 2 outputs)
	Connection block stations	Double solenoid valve, relay output module (2 outputs): Max. 8 stations Single solenoid valve, relay output module (1 output): Max. 16 stations
	Connection block supply current	Max. 0.65 A
Environmental resistance	Enclosure	IP67
	Operating temperature range	Operating: 5 to 45°C Stored: -25 to 70°C (with no freezing and condensation)
	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)
	Withstand voltage	1000 VAC for 1 min. between whole charging part and case
	Insulation resistance	2 M or more (500 VDC Mega) between whole charging part and case
	Vibration resistance	10 to 150 Hz with a 0.7 mm amplitude or 50 m/s ² in each X, Y, Z direction for 2 hrs (De-energized)
Impact resistance		150 m/s ² in each X, Y, Z direction, 3 times (De-energized)
Standard		CE marking, UL (CSA)
Weight		115 g
Accessory: Waterproof cap (for M12 connector socket)		EX500-AWTS (1 pc.)

SI Unit Dimensions / Parts Description

EX500-S001 (-X1)



SI Unit

Applicable solenoid valve:
VQC series

How to Order SI Unit

EX500

Applicable solenoid valve:
VQC series

SI unit COM.

0	+COM.
1	-COM.

Applicable GW unit

Nil	DeviceNet, PROFIBUS-DP CC-Link, EtherNet/IP
-X1	Remote I/O (Rockwell Automation Inc.)

SI unit type

1	For without EX9 output block
2	For EX9 output block mounting

Note) "2" is unavailable for Remote I/O
(Rockwell Automation Inc.)

For options, refer to page 18.

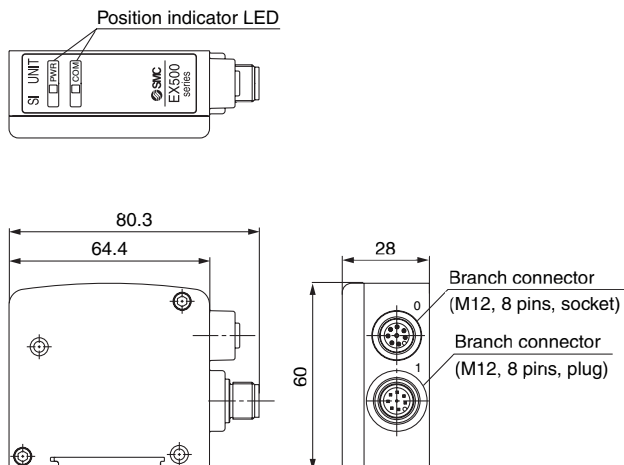
SI Unit Specifications (VQC)

Model		EX500-Q001 (-X1)	EX500-Q101 (-X1)	EX500-Q002	EX500-Q102
Internal current consumption		100 mA or less			
Output specification	Number of outputs	16 points			
	Output type	NPN output (sink type)	PNP output (source type)	NPN output (sink type)	PNP output (source type)
	Connection block	+COM. Solenoid valve (single, double)	–COM. Solenoid valve (single, double)	+COM. ^{Note)} Output block, power block Solenoid valve (single, double)	–COM. ^{Note)} Output block, power block Solenoid valve (single, double)
	Connection block stations	Double solenoid valve: Max. 8 stations Single solenoid valve: Max. 16 stations		Double solenoid valve, output block: Max. 8 stations Single solenoid valve: Max. 16 stations * Power block is not included.	
	Connection block supply current	Max. 0.75 A			
Environmental resistance	Enclosure	IP67			
	Operating temperature range	Operating: 5 to 45C Stored: –25 to 70C (with no freezing and condensation)			
	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)			
	Withstand voltage	1000 VAC for 1 min. between whole charging part and case			
	Insulation resistance	2 M or more (500 VDC Mega) between whole charging part and case			
	Vibration resistance	10 to 150 Hz with a 0.7 mm amplitude or 50 m/s ² in each X, Y, Z direction for 2 hrs (De-energized)			
	Impact resistance	150 m/s ² in each X, Y, Z direction, 3 times (De-energized)			
Standard		CE marking, UL (CSA)			
Weight		105 g			
Accessory: Waterproof cap (for M12 connector socket)		EX500-AWTS (1 pc.)			

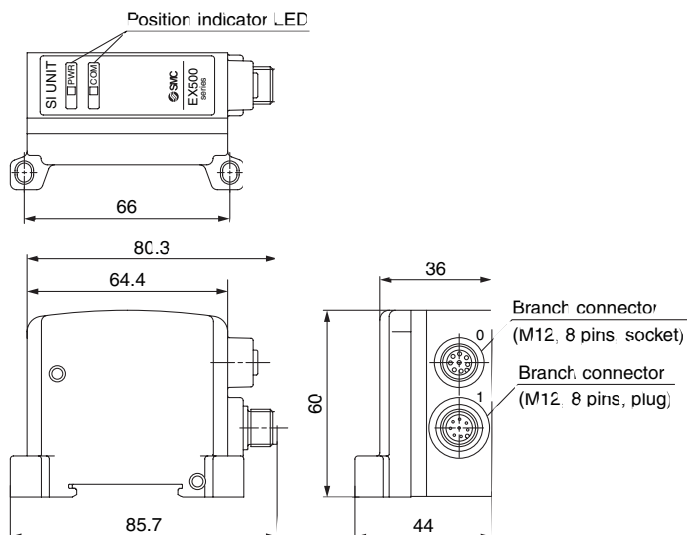
Note) For details of output block and power block, refer to page 21.

SI Unit Dimensions / Parts Description

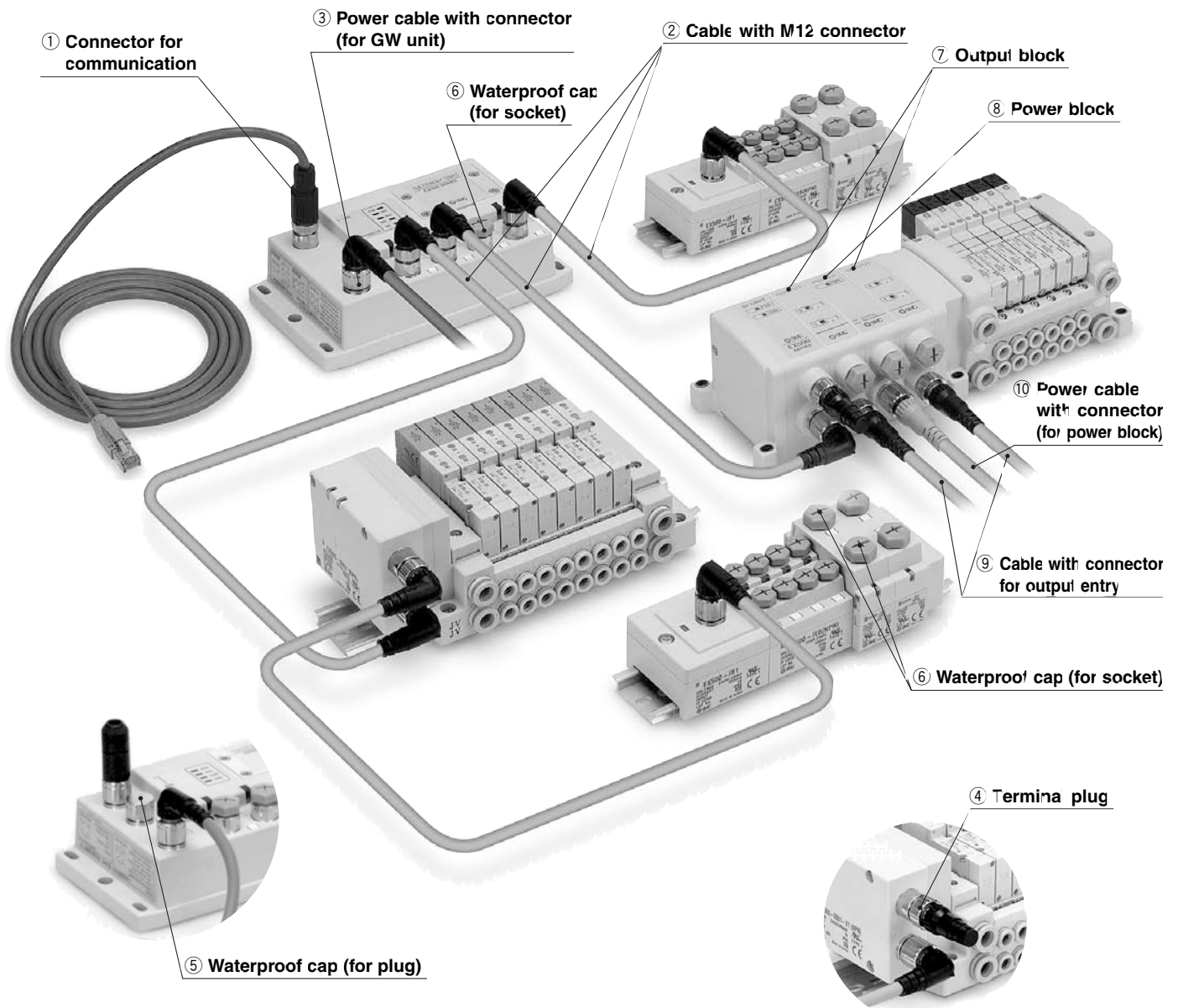
EX500-Q□01 (-X1)



EX500-Q□02



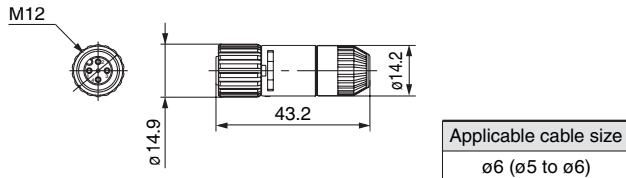
Options



① Communication connector

For Remote I/O type GW unit

EX500—AC000 AB

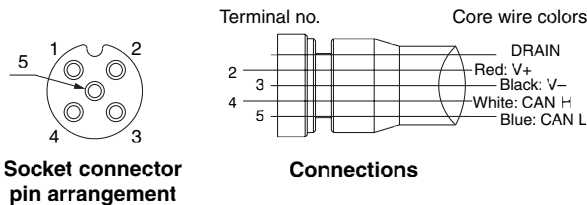
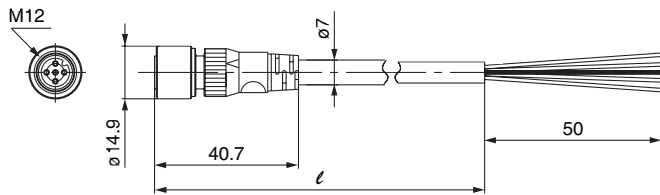


For DeviceNet type GW unit

EX500—AC 050—DN

Cable length (ℓ)

010	1000 [mm]
050	5000 [mm]



For EtherNet/IP type GW unit

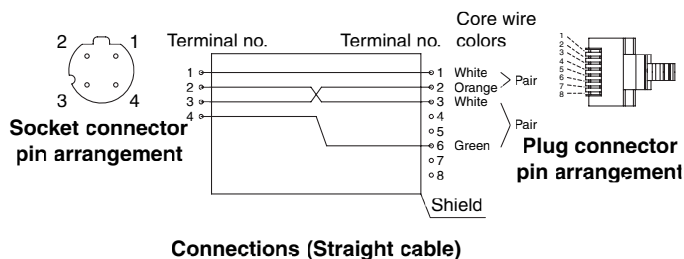
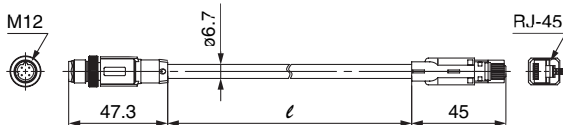
EX9—AC 020 EN—PSRJ

Cable length (ℓ)

020	2000 [mm]
-----	-----------

Connector specification

PSRJ M12 plug (straight) ↔ RJ-45 connector



② Cable with M12 connector

EX500—AC 030—SSPS

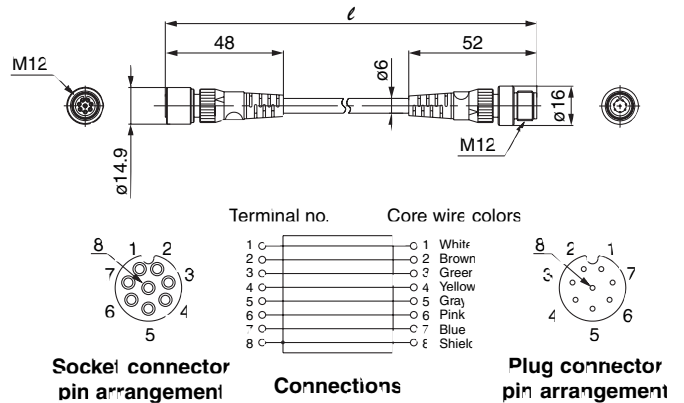
Cable length (ℓ)

003	300 [mm]
005	500 [mm]
010	1000 [mm]
030	3000 [mm]
050	5000 [mm]

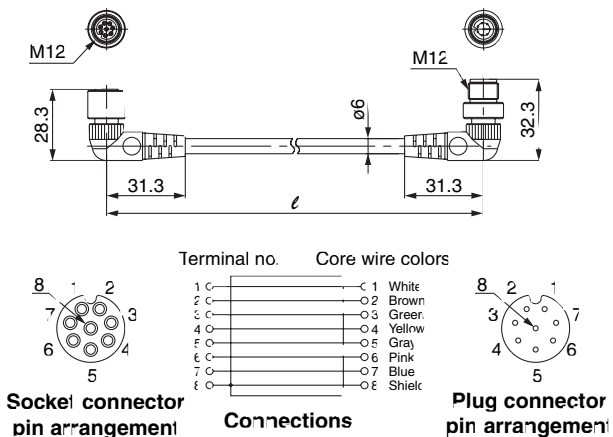
Connector specification

SSPS	Socket side: Straight, Plug side: Straight
SAPA	Socket side: Angle, Plug side: Angle

Straight connector type



Angle connector type



Series EX500

Options

③ Power cable with connector (for GW unit)

EX500 AP050-S

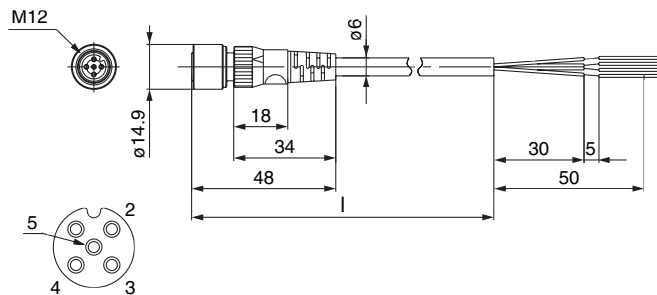
Cable length (L)

010	1000 [mm]
050	5000 [mm]

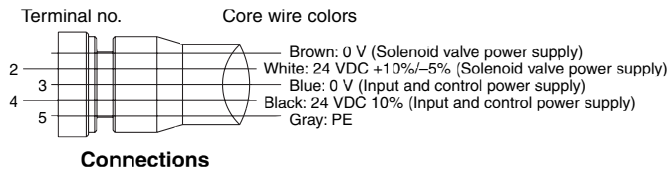
Connector specification

S	Straight
A	Angle

Straight connector type

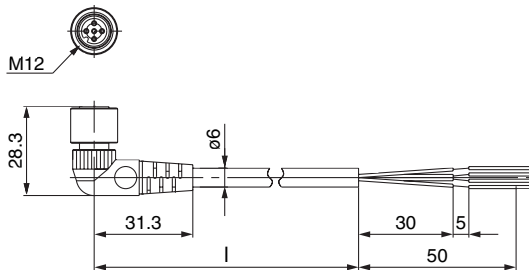


Socket connector pin arrangement

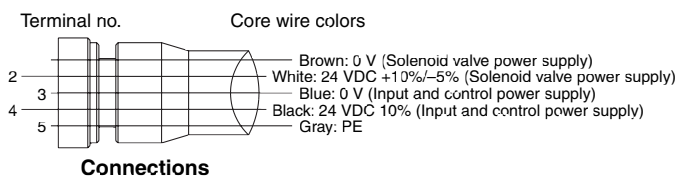


Connections

Angle connector type



Socket connector pin arrangement



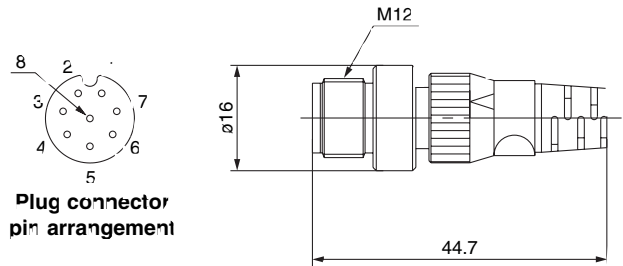
Connections

④ Terminal plug

This is used where an input manifold (input unit/input block) is not being used.

(If a terminal plug is not used, the GW unit is COM. LED will not light up.)

EX500 AC000 S



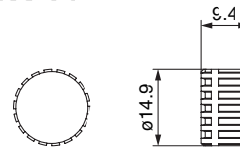
Plug connector pin arrangement

⑤ Waterproof cap: M12 connector (for plug)

Use this on ports that are not being used for an M12 connector (plug). Use of this waterproof cap maintains the integrity of the IP65 enclosure.

Note) Tighten the waterproof cap with the prescribed tightening torque. (For M12: 0.1 N·m)

EX500 AWTP



⑥ Waterproof cap: M8, M12 connector (for socket) / Accessory

Use this on ports that are not being used for M8 and M12 connectors (socket).

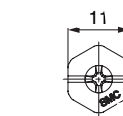
Use of this waterproof cap maintains the integrity of the IP65 enclosure. (Included with each unit.)

Note) Tighten the waterproof cap with the prescribed tightening torque. (For M8: 0.05 N·m, For M12: 0.1 N·m)

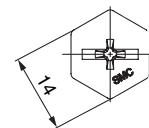
EX500 AW

Connector type

ES	M8 connector (for socket), 10 pcs.
TS	M12 connector (for socket), 10 pcs.



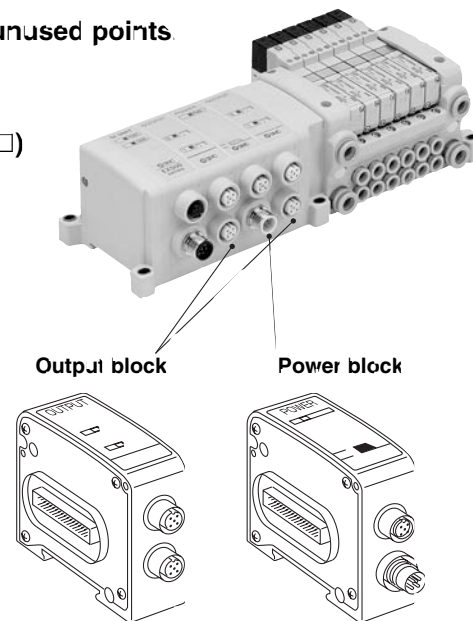
M8 connector (for socket)



M12 connector (for socket)

⑦ Output block / ⑧ Power block

- Features:**
- Able to retrofit to the valve manifold, using the unused points.
 - 2-output / 1-output block (M12 connector)
 - + common / - common are standardized.
 - Able to drive by max. 0.5 A per point. (EX9-OEP□)



How to Order Output Block

EX9 OET1

•Output specification

1	PNP output (-COM.)
2	NPN output (+COM.)

•Power supply type

T	Internal power supply method (for low-wattage load)
P	Integrated power supply method (for high-wattage load) ^{Note)}

Note) Required to connect with a power block.

How to Order Power Block

EX9 PE1

Option/Part No.

Description	Part no.	Note
Waterproof cap	EX500-AWTS	Refer to page 20. When ordering separately: 10 pcs.
Power cable with connector	EX9-AC□-1	Refer to page 23, Order separately.

SI Unit Part No.

SI unit part no.	Output	Applicable model
EX500-Q002	+COM.	EX9-OET2, EX9-OEP2
EX500-Q102	-COM.	EX9-OET1, EX9-OEP1

Option/Part No.

Description	Part no.	Applicable model		Note
		OET□	OEP□	
Waterproof cap	EX500-AWTS	○	○	Refer to page 20. Order separately: 10 pcs.
Cable with connector for output entry	EX9-AC□-7	○	○	Refer to page 23. Order separately.
Power block	EX9-PE1		○	Refer to page 21. Order separately.

Series EX500

Options

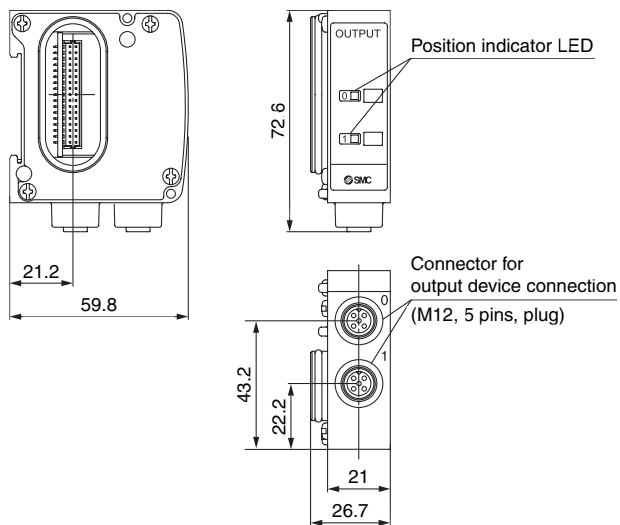
Output Block Specifications

Model		EX9-OET1	EX9-OET2	EX9-OEP1	EX9-OEP2
Output connector		M12 connector (5 pins)			
Internal crrent consumption		40 mA or less			
Output specification	Output type	PNP output (–COM.)	NPN output (+COM.)	PNP output (–COM.)	NPN output (+COM.)
	Number of outputs	2 points			
	Power supply method	Internal power supply method		Integrated power supply method (Power block: supplied from EX9-PE1)	
	Output device supply voltage	24 VDC			
	Output device supply current	Max. 42 mA/point (1.0 W/point)		Max. 0.5 A/point (12 W/point)	
	Display	Yellow LED (Lights when power is turned ON.)			
	Connector on the output device side	M12 connector (5 pins, plug)			
Environmental resistance	Enclosure	IP67			
	Operating temperature range	Operating: 5 to 45C Stored: –25 to 70C (with no freezing and condensation)			
	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)			
	Withstand voltage	1500 VAC for 1 min. between whole charging part and case			
	Insulation resistance	10 M or more (500 VDC Mega) between whole charging part and case			
	Vibration resistance	10 to 150 Hz with a 0.7 mm amplitude or 50 m/s ² in each X, Y, Z direction for 2 hrs (De-energized)			
	Impact resistance	100 m/s ² in each X, Y, Z direction, 3 times (De-energized)			
Standard		CE marking, UL (CSA)			
Weight		120 g			

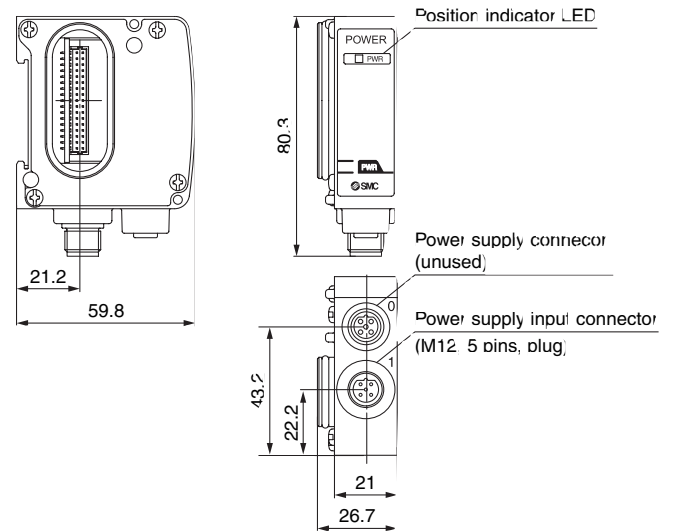
Power Block Specifications

Model		EX9-PE1
Connection block		Output block (for high-wattage load)
Connection block stations		Output block: Max. 8 stations
Power supply for output and internal control	Power supply voltage	22.8 to 26.4 VDC
	Internal power consumption	20 mA or less
Supply current		Max. 3.1 A (When using with 3.0 to 3.1 A, the ambient temperature should not exceed 40°C, and do not bundle the cable.)
Environmental resistance	Enclosure	IP67
	Operating temperature range	Operating: 5 to 45°C Stored: –25 to 70°C (with no freezing and condensation)
	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)
	Withstand voltage	1500 VAC for 1 min. between whole charging part and case
	Insulation resistance	10 M or more (500 VDC Mega) between whole charging part and case
	Vibration resistance	10 to 150 Hz with a 0.7 mm amplitude or 50 m/s ² in each X, Y, Z direction for 2 hrs (De-energized)
	Impact resistance	100 m/s ² in each X, Y, Z direction, 3 times (De-energized)
Standard		CE marking, UL (CSA)
Weight		120 g
Accessory: Waterproof cap (for M12 connector socket)		EX500-AWTS (1 pc.)

Output Block Dimension



Power Block Dimension



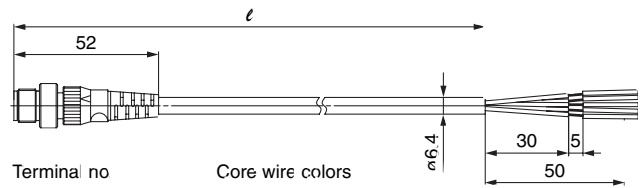
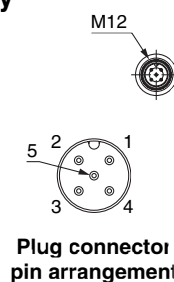
We sell this product individually. Please place an order separately.
You are requested to connect it to an SI unit and a valve manifold.
When using the output block only (valve manifold is unused.), place an order for an end plate (⑪ EX9-EA03) separately for connection.
Refer to the separate technical instruction manual for connection, wiring, installation, optional goods and cable, etc.

⑨ Cable with connector for output entry

EX9 AC 030-7

Cable length (ℓ)

010	1000 [mm]
030	3000 [mm]



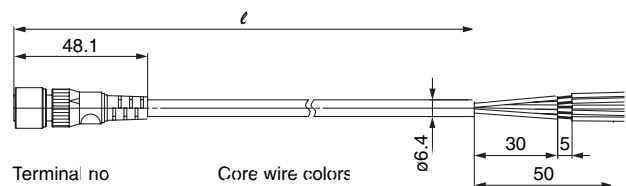
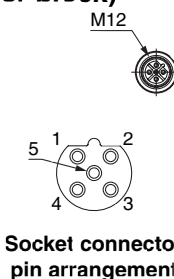
Connections

⑩ Power cable with connector (for power block)

EX9 AC 050-1

Cable length (ℓ)

010	1000 [mm]
030	3000 [mm]
050	5000 [mm]



Connections

⑪ End plate

EX9 EA03

