

Decentralized Serial Wiring for EX500 Series SV

How to Order

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Tie-rod Base
SS5V 1 — **W 10S** **A1W** **D** — **05** **U**

Cassette Base
SS5V 1 — **W 16S** **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 <small>Note)</small>	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

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)

SUP/EXH block assembly specification

Nil	Internal pilot
S <small>Note)</small>	Internal pilot, Built-in silencer
R	External pilot
RS <small>Note)</small>	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.

Stations

Symbol	No. of stations	Note
02	2 stations	Double wiring specification
:	:	
08	8 stations	
02	2 stations	Specified layout <small>Note 2)</small> (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.)

SI Unit Part No.

Symbol	Protocol type	SI unit part no.
A1W	Remote I/O (Rockwell Automation Inc.)	EX500-S001-X1
A2W	DeviceNet	EX500-S001
	PROFIBUS-DP	
	CC-Link	
	EtherNet/IP	

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	
03	Rc 3/8		
02F	G 1/4		
03F	G 3/8	G 3/8	
M	A, B ports mixed		

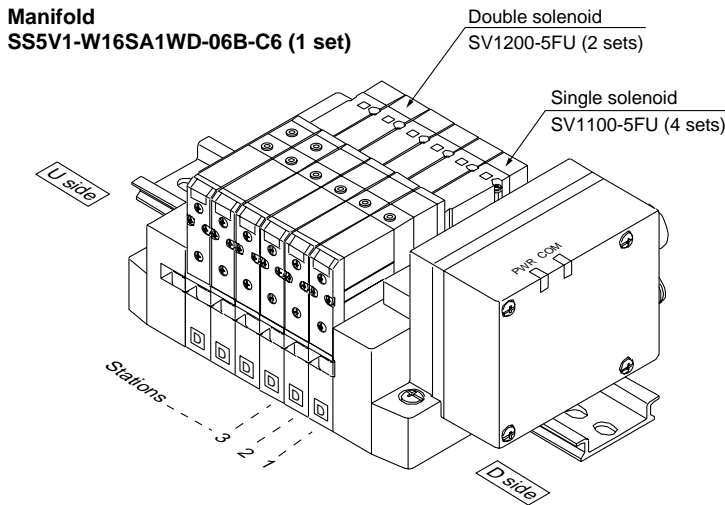
A, B port size (Inch)

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	
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)



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

Note)



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

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.

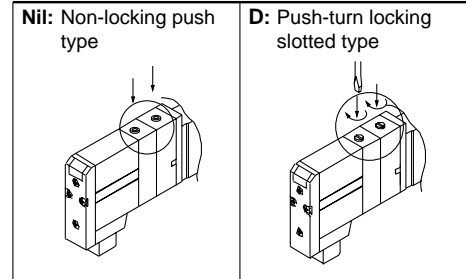
Back pressure check valve

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.

Manual override



Light/surge voltage suppressor

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

Rated voltage

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

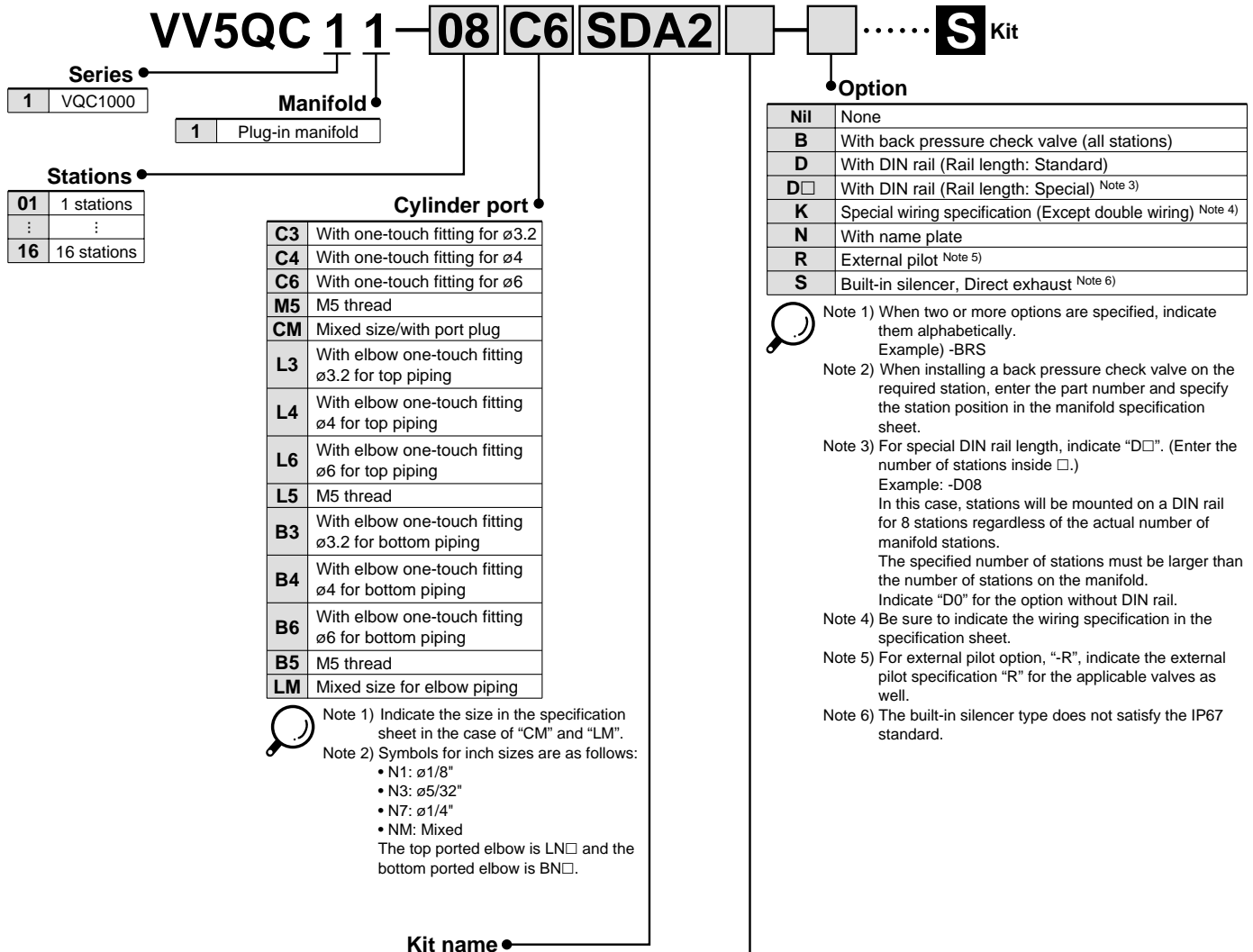
• For solenoid valve specifications and dimensions, refer to the SV series of "Best Pneumatics 2004 Vol. 1" catalog.
 • For details on GW unit and SI unit, refer to the separate technical instruction manual.

Series VQC1000

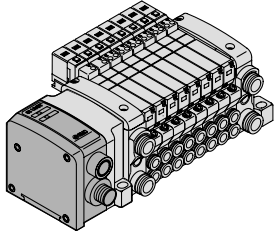
Base Mounted

Plug-in Manifold

How to Order Manifold



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
	DeviceNet	EX500-Q001	EX500-Q101
PROFIBUS-DP			
CC-Link			
SDA2	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) N.C 1 N.C
B Note)	4 position dual 3 port valve (B) N.O 1 N.O
C Note)	4 position dual 3 port valve (C) N.C 1 N.O



Note) Rubber seal type only.

• **Seal**

<input type="checkbox"/> 0	Metal seal
<input type="checkbox"/> 1	Rubber seal

• **Manual override**

<input type="checkbox"/> Nil: Non-locking push type (Tool required)
<input type="checkbox"/> B: Locking type (Tool required)
<input type="checkbox"/> C: Locking type (Manual)
<input type="checkbox"/> D: Slide locking type (Manual)

• **With/Without light and surge voltage suppressor**

Nil Yes

• **Rated voltage**

5 24 VDC

• **Function**

<input type="checkbox"/> Nil	Standard (1 W)
<input type="checkbox"/> K Note 1)	High pressure type (1.0 MPa)
<input type="checkbox"/> N	Negative COM
<input type="checkbox"/> R Note 3)	External pilot
<input type="checkbox"/> 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.)

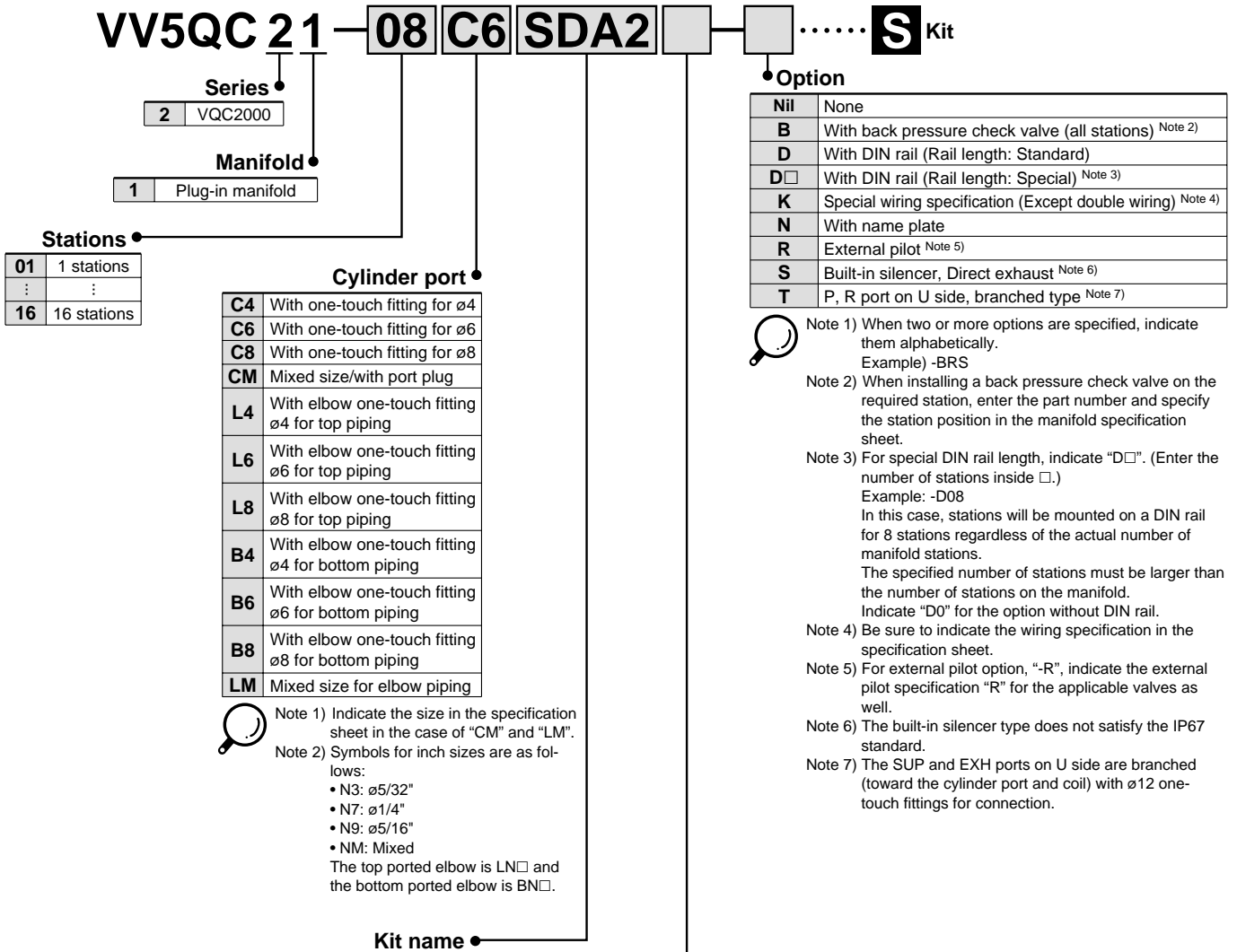
- For solenoid valve specifications and dimensions, refer to the VQC series of "Best Pneumatics 2004 Vol. 2" catalog.
- For SI unit dimensions, refer to page 17.
- For details on SI unit, refer to the separate technical instruction manual.

Series VQC2000

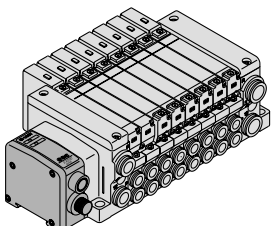
Base Mounted

Plug-in Manifold

How to Order Manifold



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	

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

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		


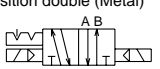
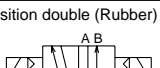
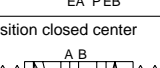
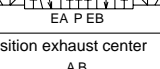
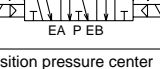

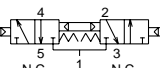
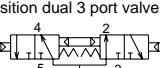
How to Order Valves

VQC 2 1 0 0 **5**

Series ●

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

Type of actuation ●


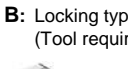


1	2 position single 
2	2 position double (Metal) 
	2 position double (Rubber) 
3	3 position closed center 
	3 position exhaust center 
5	3 position pressure center 
A (Note)	4 position dual 3 port valve (A) 
B (Note)	4 position dual 3 port valve (B) 
C (Note)	4 position dual 3 port valve (C) 

(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) 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

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) <small>Note 2)</small>



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.

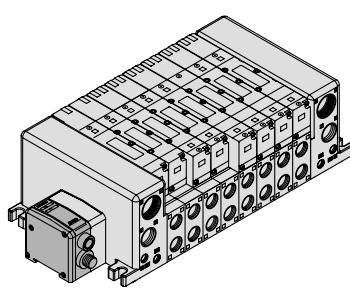
SI unit COM.	EX500				
	DeviceNet	PROFIBUS-DP	CC-Link	Remote I/O	EtherNet/IP
Nil +COM.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
N -COM.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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.

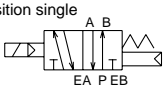

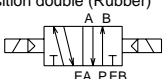
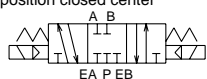
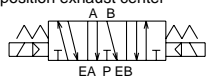
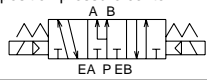
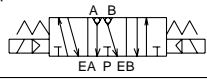
Symbol	Protocol type	SI unit part no.	
		+COM.	-COM.
SDA1	Remote I/O (Rockwell Automation Inc.)	EX500-Q001-X1	EX500-Q101-X1
	DeviceNet	EX500-Q001	EX500-Q101
PROFIBUS-DP			
CC-Link			
EtherNet/IP			

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

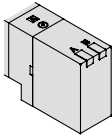
Nil	Standard (1 W)
R	External pilot
Y <small>Note 2)</small>	Low wattage type (0.5 W)

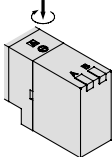
 Note 1) When two or more symbols are specified, indicate them alphabetically.
 Note 2) Use a low wattage type for continuous energization (when the totaled energized time per day is longer than the non-energized time.)

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.)

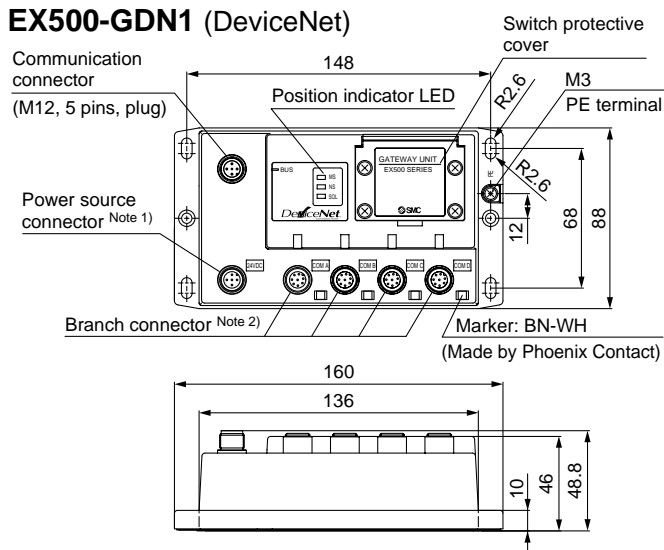
For options, refer to page 18.

GW Unit Specifications

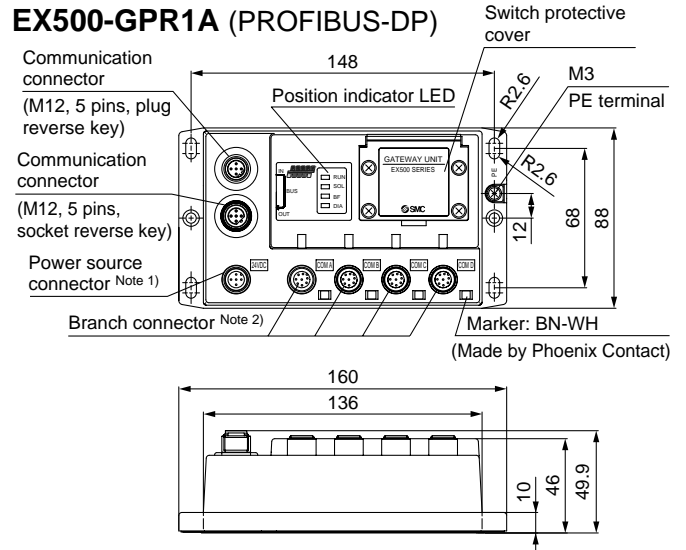
Model		EX500-GDN1	EX500-GPR1A	EX500-GMJ1	EX500-GEN1	EX500-GAB1-X1
Applicable PLC/ Communication protocol		DeviceNet Release2.0	PROFIBUS-DP (IEC61158, IEC61784)	CC-Link Ver.1.10	EtherNet/IP Release1.0	Remote I/O (Rockwell Automation Inc.)
Communication speed		125 k/250 k/ 500 kbit/sec	9.6 k/19.2 k/ 45.45 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 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 MΩ 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)				
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

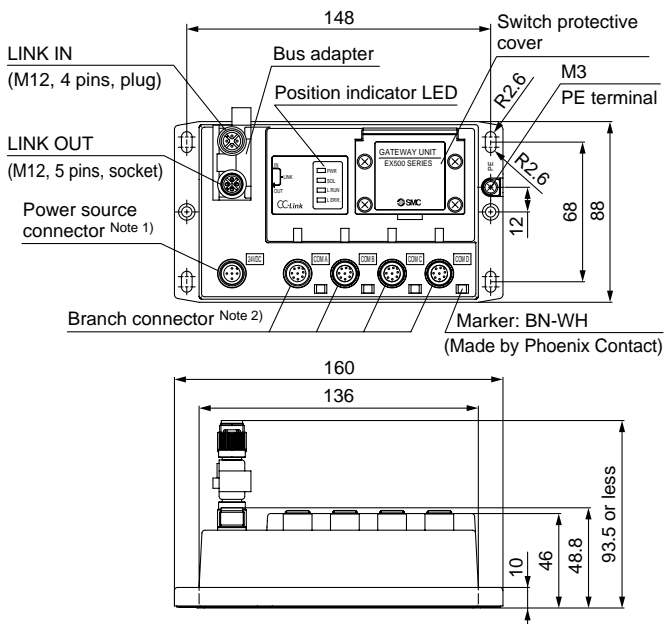
EX500-GDN1 (DeviceNet)



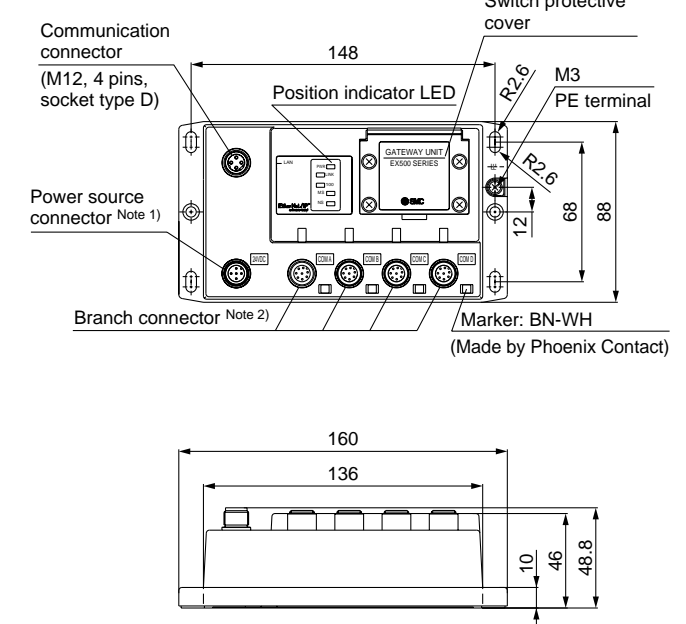
EX500-GPR1A (PROFIBUS-DP)



EX500-GMJ1 (CC-Link)

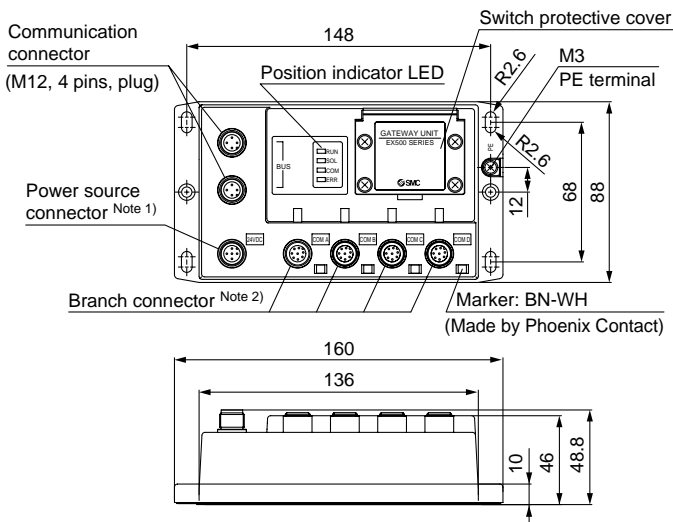


EX500-GEN1 (EtherNet/IP)



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)

Series EX500

Input Unit Manifold



How to Order Input Manifold

EEX500-IB1-E 8

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.)

How to Order Input Block

EX500-IE 1

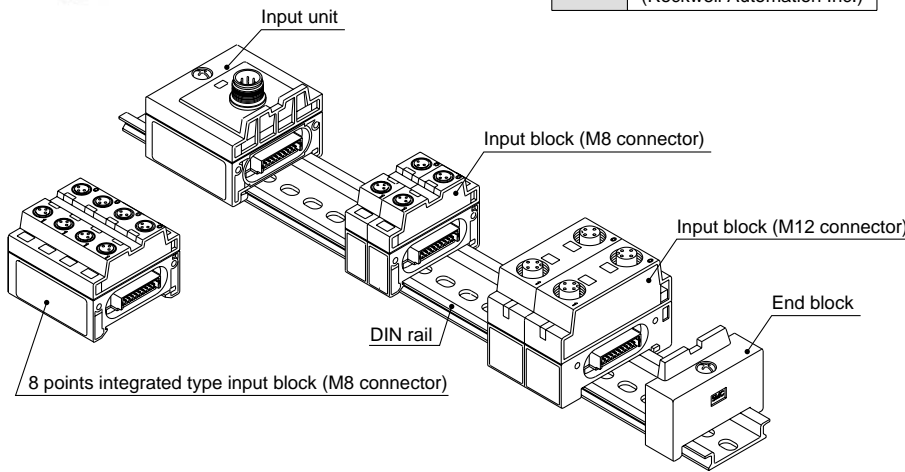
Block type

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.)

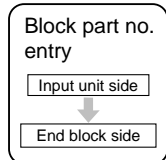
For options, refer to page 18.



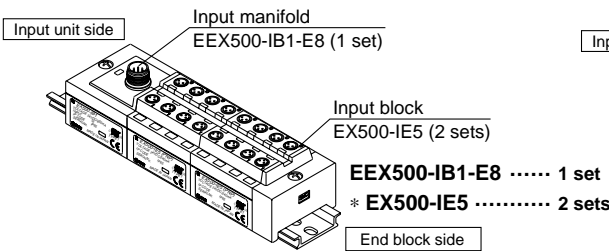
How to Order Input Unit Manifold [Ordering Example]

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

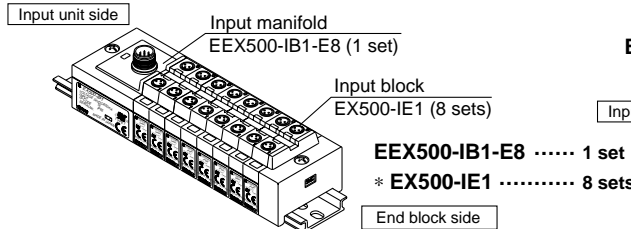
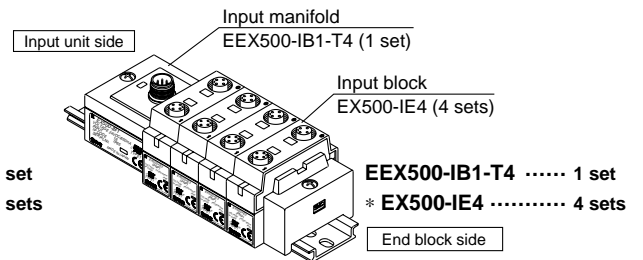
The **Input unit**, **End block** and **DIN rail** are included in the input manifold. Refer to the indications below.



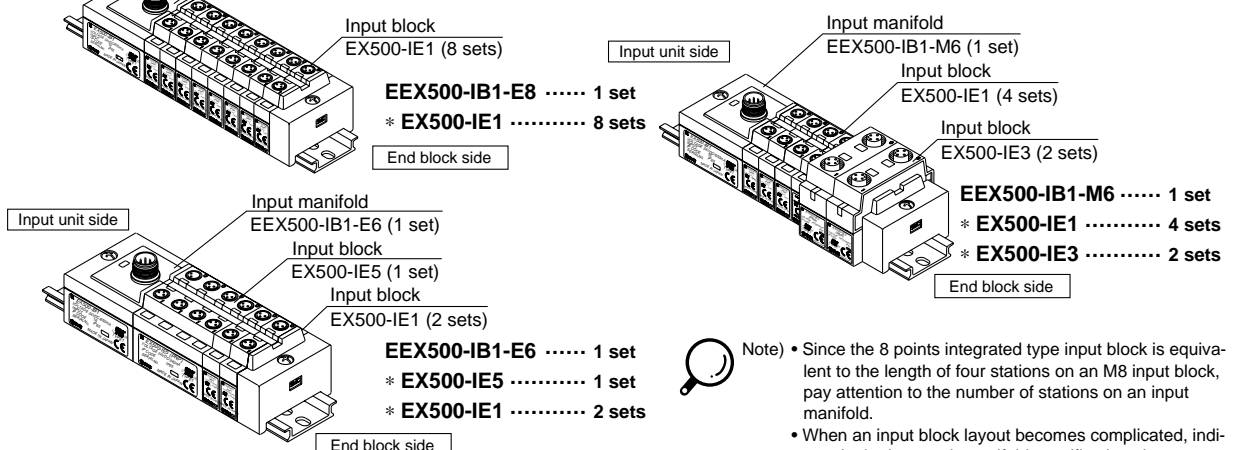
Example 1) M8 input block only



Example 2) M12 input block only



Example 3) M8, M12 mixed



Note) • Since the 8 points integrated type input block is equivalent to the length of four stations on an M8 input block, pay attention to the number of stations on an input manifold.
• When an input block layout becomes complicated, indicate in the input unit manifold specification sheet.

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 MΩ 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)

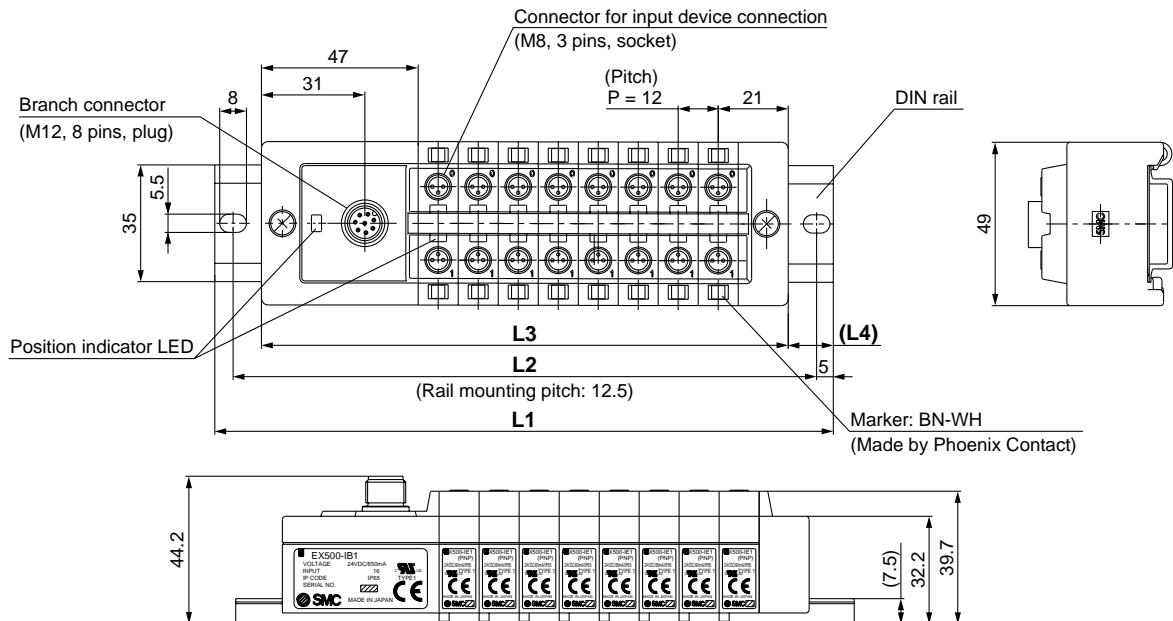
Input Block Specifications

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	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 MΩ 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		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

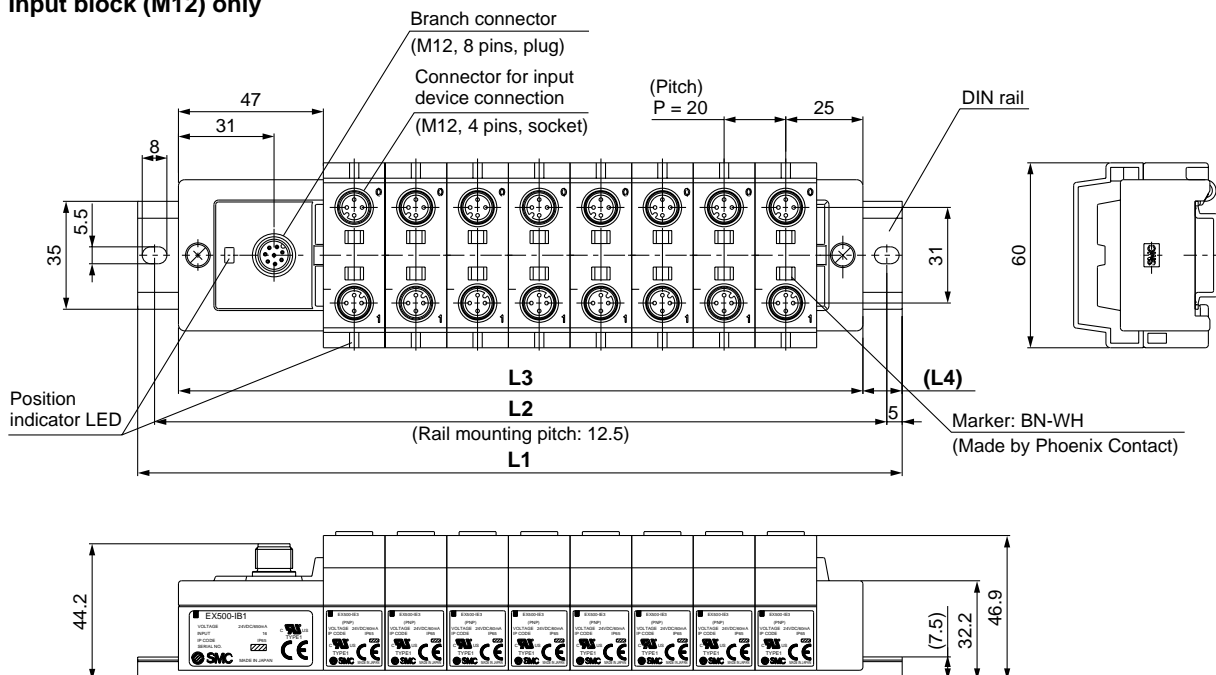
Input Unit Manifold Dimensions / Parts Description

Input block (M8) only



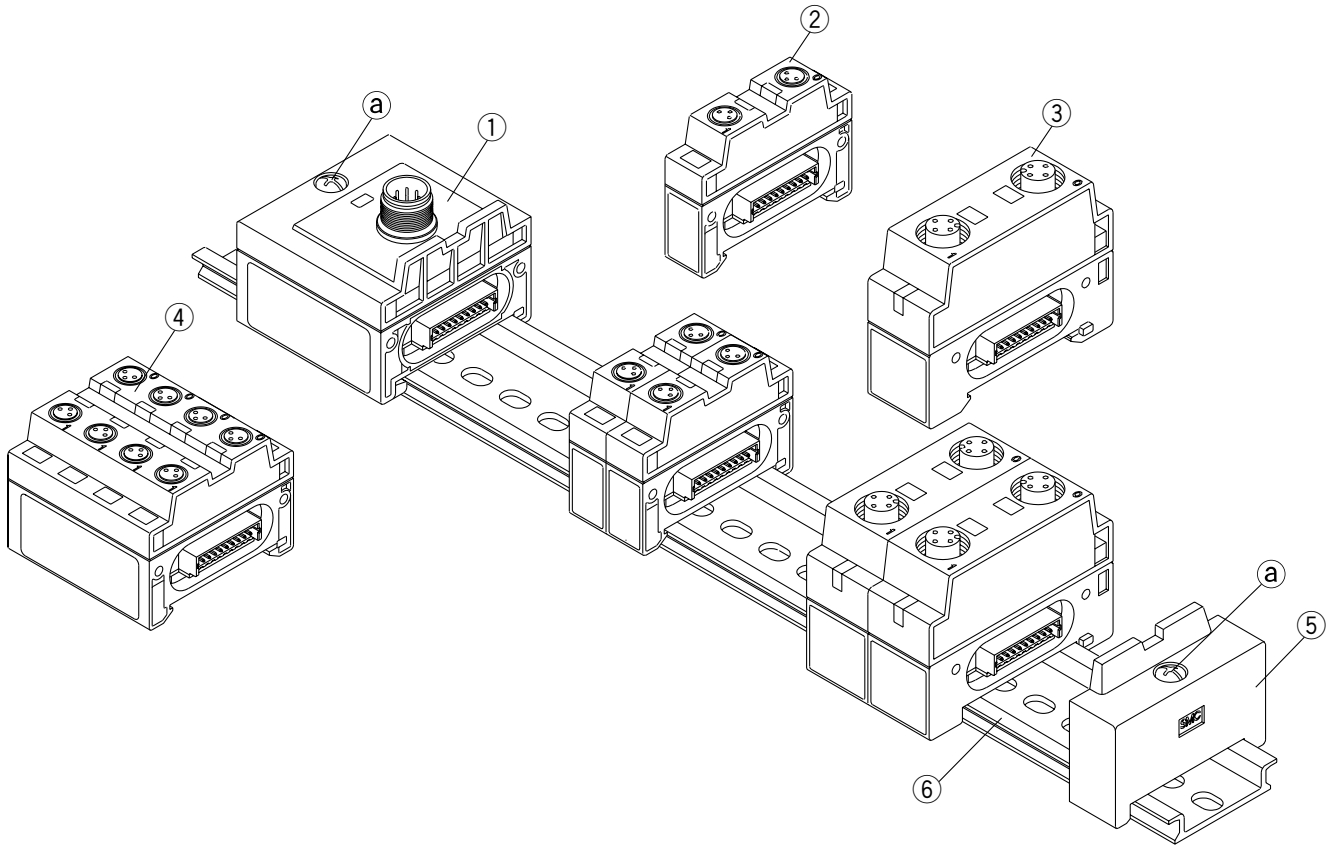
	(mm)							
Stations	1	2	3	4	5	6	7	8
Rail length L1	98	110.5	123	135.5	148	160.5	173	185.5
Mounting pitch L2	87.5	100	112.5	125	137.5	150	162.5	175
Manifold length L3	74	86	98	110	122	134	146	158
L4	12	12	12.5	12.5	13	13	13.5	13.5

Input block (M12) only



	(mm)							
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

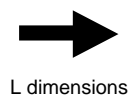
- 1 Loosen the screws (a) (2 places) that hold the end block.
- 2 Separate the blocks at the locations where stations are to be added.
- 3 Attach the additional blocks to the DIN rail, and connect the blocks so that they fit together securely.
- 4 While holding the blocks together so that there are no 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)								
	0	1	2	3	4	5	6	7	8
M12 input block (n)	0	1	2	3	4	5	6	7	8
	1	2	3	4	5	6	7	8	
	2	3	4	5	6	7	8		
	3	4	5	6	7	8	9		
	4	5	6	7	8	9	10		
	5	6	7	8	9	10			
	6	7	8	9	10				
	7	8	9	10					
	8	9	10						

Connector type
For M (m + n = 2 to 8)

Connector type
For E (m = 1 to 8)



No.	L dimension	No.	L dimension
0	98	7	185.5
1	110.5	8	198
2	123	9	210.5
3	135.5	10	223
4	148	11	235.5
5	160.5	12	248
6	173		

Connector type
For T (n = 1 to 8)

Series EX500

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

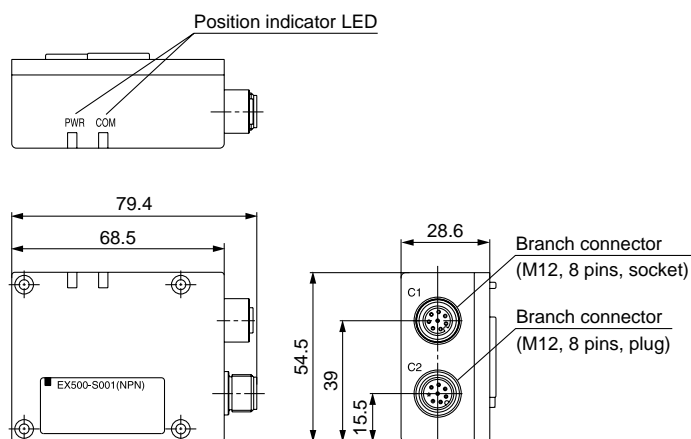
For options, refer to page 18.

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 MΩ 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-Q001

Applicable solenoid valve:
VQC series

SI unit COM.

0	+COM.
1	-COM.

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.)

Applicable GW unit

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

For options, refer to page 18.

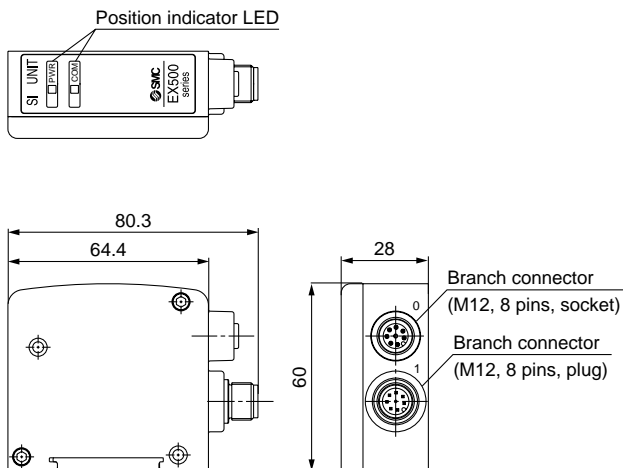
SI Unit Specifications (VQC)

Model	EX500-Q001 (-X1)	EX500-Q101 (-X1)	EX500-Q002	EX500-Q102
Internal current consumption	100 mA or less			
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. <small>Note)</small> Output block, power block Solenoid valve (single, double)	-COM. <small>Note)</small> 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 <small>* Power block is not included.</small>	
Connection block supply current	Max. 0.75 A			
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 MΩ 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.)			

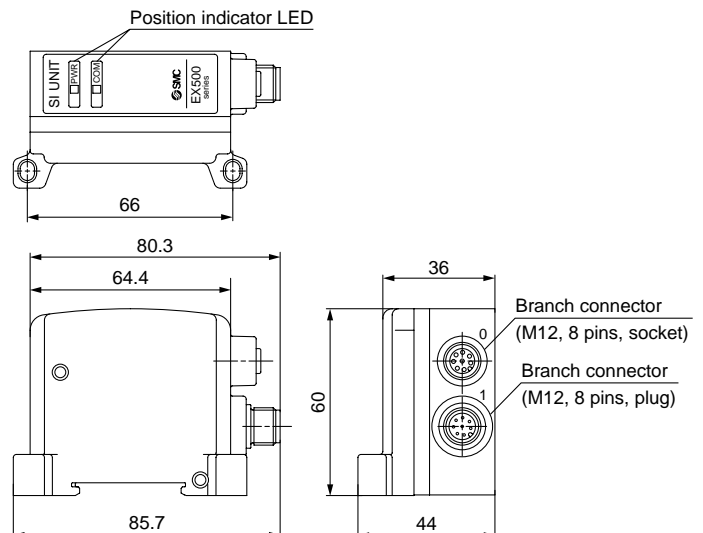
Note) For details of output block and power block, refer to page 21.

SI Unit Dimensions / Parts Description

EX500-Q□01 (-X1)

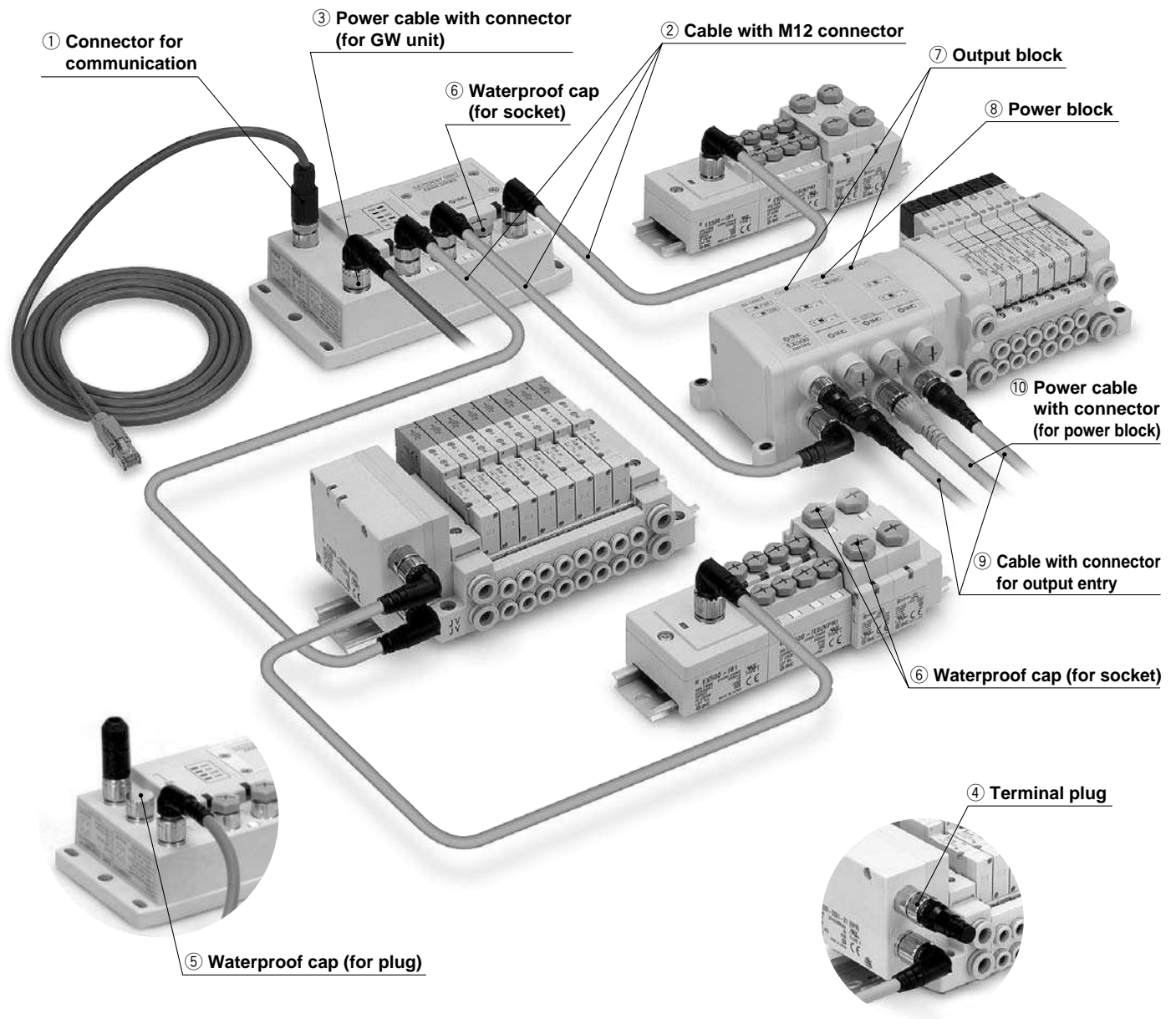


EX500-Q□02



Series EX500

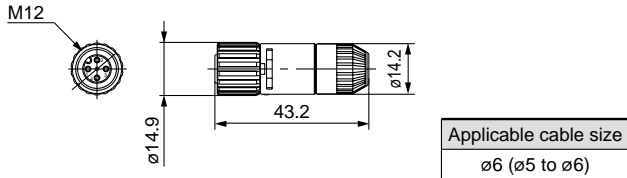
Options



① Communication connector

For Remote I/O type GW unit

EX500-AC000-AB

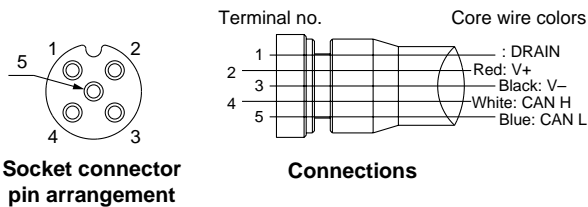
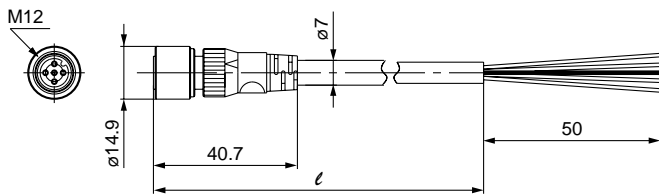


For DeviceNet type GW unit

EX500-AC050-DN

Cable length (l)

010	1000 [mm]
050	5000 [mm]



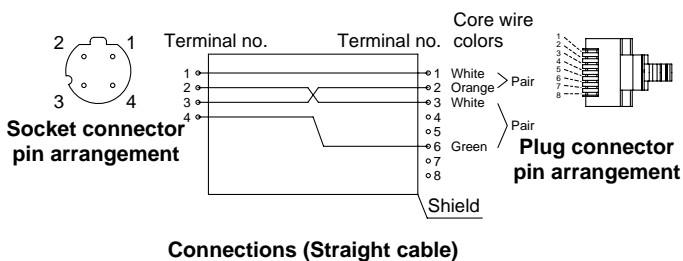
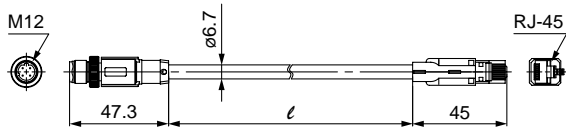
For EtherNet/IP type GW unit

EX9-AC020EN-PSRJ

Cable length (l)

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

Connector specification
PSRJ M12 plug (straight) ⇔ RJ-45 connector



② Cable with M12 connector

EX500-AC030-SSPS

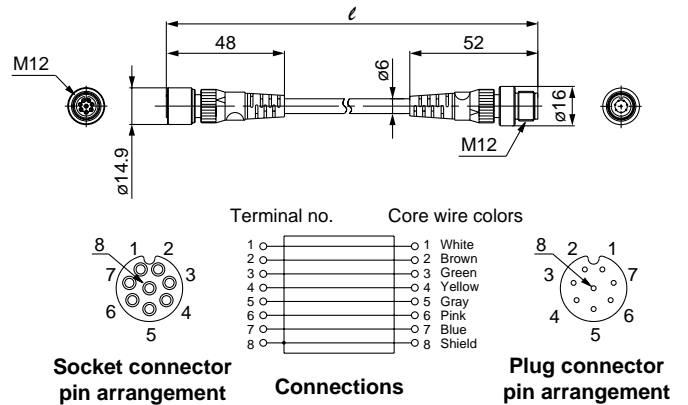
Cable length (l)

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

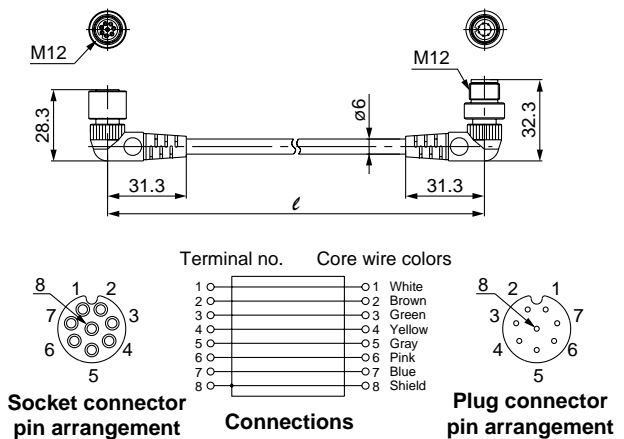
Connector specification

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

Straight connector type



Angle connector type



Series EX500

Options

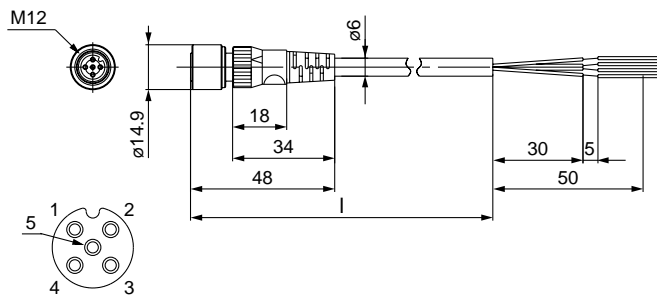
③ Power cable with connector (for GW unit)

EX500—AP 050—S

Cable length (ℓ)	
010	1000 [mm]
050	5000 [mm]

Connector specification	
S	Straight
A	Angle

Straight connector type

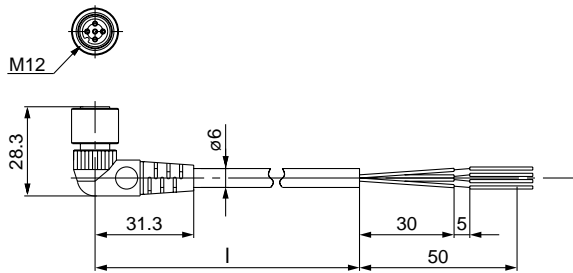


Socket connector pin arrangement

Terminal no.	Core wire colors
1	Brown: 0 V (Solenoid valve power supply)
2	White: 24 VDC +10%/−5% (Solenoid valve power supply)
3	Blue: 0 V (Input and control power supply)
4	Black: 24 VDC ±10% (Input and control power supply)
5	Gray: PE

Connections

Angle connector type



Socket connector pin arrangement

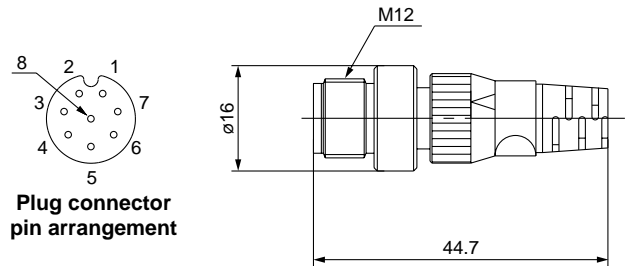
Terminal no.	Core wire colors
1	Brown: 0 V (Solenoid valve power supply)
2	White: 24 VDC +10%/−5% (Solenoid valve power supply)
3	Blue: 0 V (Input and control power supply)
4	Black: 24 VDC ±10% (Input and control power supply)
5	Gray: PE

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



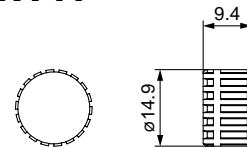
Plug connector pin arrangement

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).

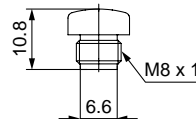
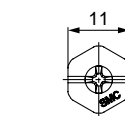
Use of this waterproof cap maintains the integrity of the IP65 enclosure. (Included with each unit.)

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

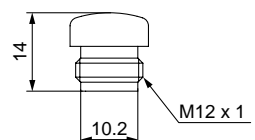
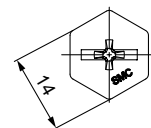
EX500—AW

Connector type

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



M8 connector (for socket)

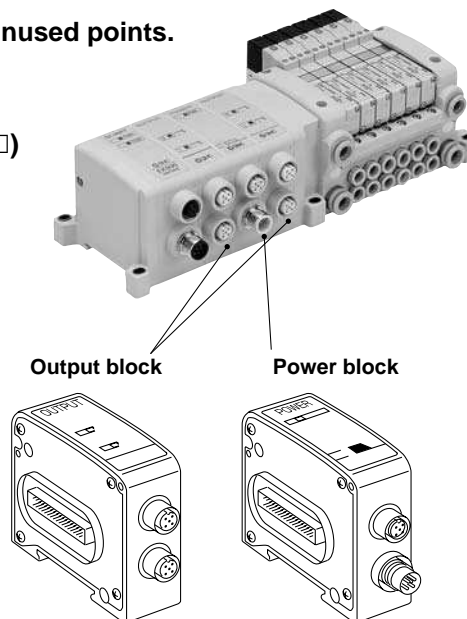


M12 connector (for socket)

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 – OE T 1

• **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

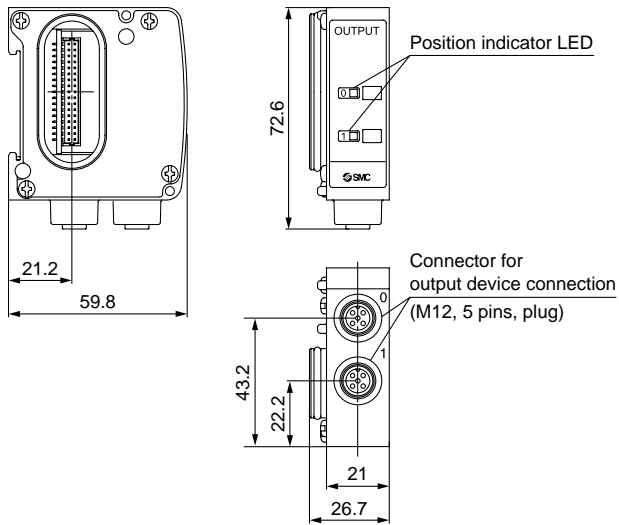
Output Block Specifications

Model		EX9-OET1	EX9-OET2	EX9-OEP1	EX9-OEP2
Output connector		M12 connector (5 pins)			
Internal current 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 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 MΩ 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				

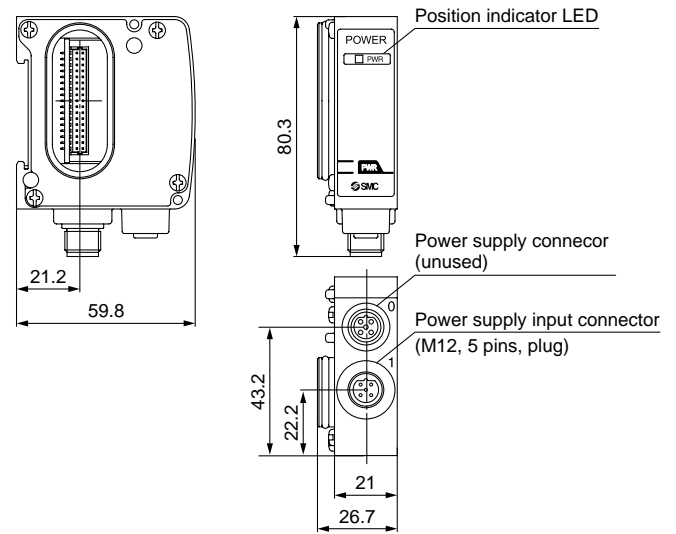
Power Block Specifications

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 MΩ 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



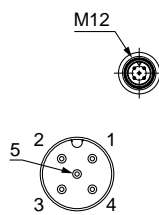
We sell this product individually. Please place an order separately.
You are requested to connect it to an SI unit and a valve manifold.
When using the output block only (valve manifold is unused.), place an order for an end plate (⑪ EX9-EA03) separately for connection.
Refer to the separate technical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

⑨ Cable with connector for output entry

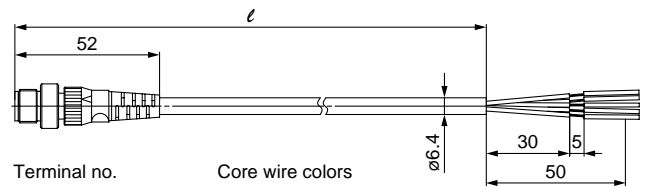
EX9-AC 030-7

Cable length (ℓ)

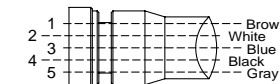
010	1000 [mm]
030	3000 [mm]



Plug connector pin arrangement



Terminal no. Core wire colors



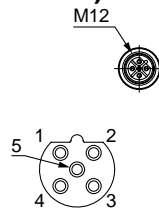
Connections

⑩ Power cable with connector (for power block)

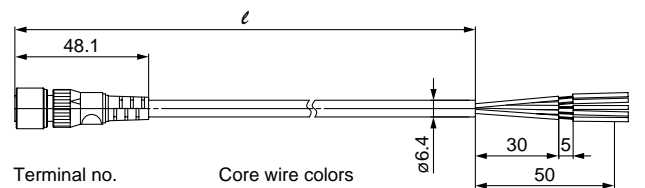
EX9-AC 050-1

Cable length (ℓ)

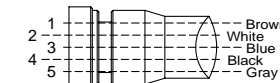
010	1000 [mm]
030	3000 [mm]
050	5000 [mm]



Socket connector pin arrangement



Terminal no. Core wire colors



Connections

⑪ End plate

EX9-EA03

