Fieldbus System (128 Points)

EX500 Series

> The EX500 series is to be discontinued. When designing new equipment and facilities, consider using another series (EX260/EX600) instead.

Decentralized valve installation
⤫
Valves can be installed
near the actuators!

CE UK CA c UL us RoHS
* Only the SY and SV valves are UL-compliant.

| Reduced piping space and piping materials | Reduced wiring space | No need to set the address for the valve manifolds and input units |

GW unit (Gateway unit)

Description	Compatible protocol	Number of inputs/outputs	Number of valve manifold and input unit connections	Branch cable length	New function
Gateway Decentralized System 2 Page 1448	PROFI NET EtherNet/IP	128 inputs/ 128 outputs	Max. 16 units	Max. 20 m	Web server function • Valve operation test • Connection diagnostic • Short-circuit diagnostic Page 1443

Input unit
(M12 connector type)

Input unit
(M8 connector type)
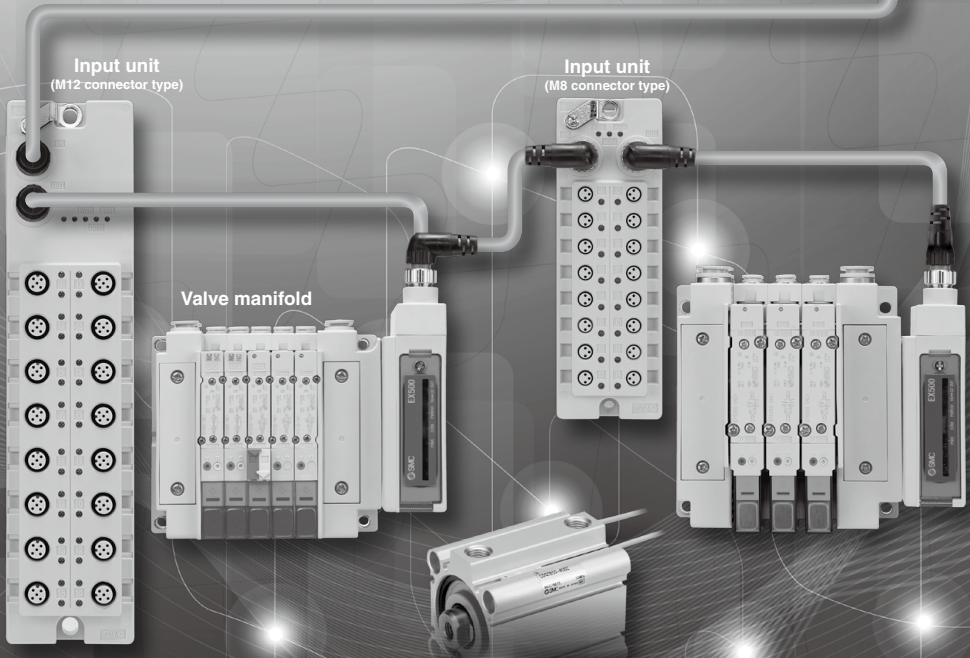
Valve manifold

Gateway Decentralized System 2 (128 Points)

● **Number of branch ports: 4**

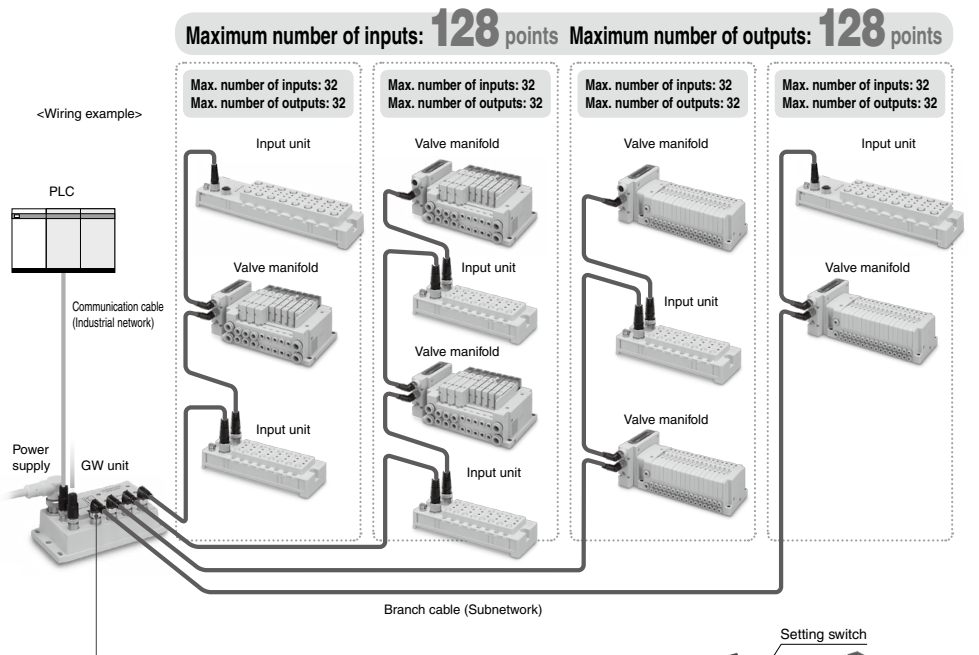| Number of inputs/outputs	**128** inputs/**128** outputs

● **Number of inputs/outputs per branch: Max. 32 inputs/32 outputs**

Number of valve manifold connections	Max. **8** units*1	Number of input unit connections	Max. **8** units

● **Number of valve manifold connections per branch: Max. 2 units*1** ● **Number of input unit connections per branch: Max. 2 units**

Total cable length per branch	Max. **20** m

*1 When the number of outputs is set to "16 outputs" using the built-in setting switch of the SI unit

Maximum number of inputs: 128 points **Maximum number of outputs: 128 points**

Max. number of inputs: 32 Max. number of outputs: 32	Max. number of inputs: 32 Max. number of outputs: 32	Max. number of inputs: 32 Max. number of outputs: 32	Max. number of inputs: 32 Max. number of outputs: 32

<Wiring example>

PLC

Communication cable
(Industrial network)

Power supply GW unit

Input unit

Valve manifold

Input unit

Valve manifold

Input unit

Valve manifold

Valve manifold

Input unit

Valve manifold

Valve manifold

Input unit

Valve manifold

Branch cable (Subnetwork)

Branch port

Two valve manifolds can be connected to one branch port.

The SI unit has a built-in setting switch which switches the number of outputs (32 points/16 points) of the valve manifold connected to the SI unit. By setting the number of outputs to 16 points, two valve manifolds can be installed to one branch port.
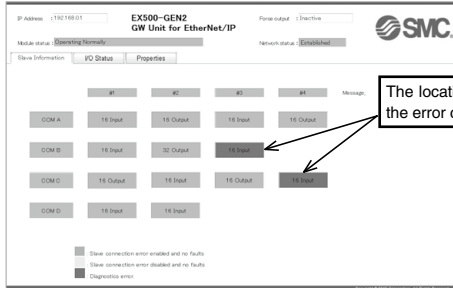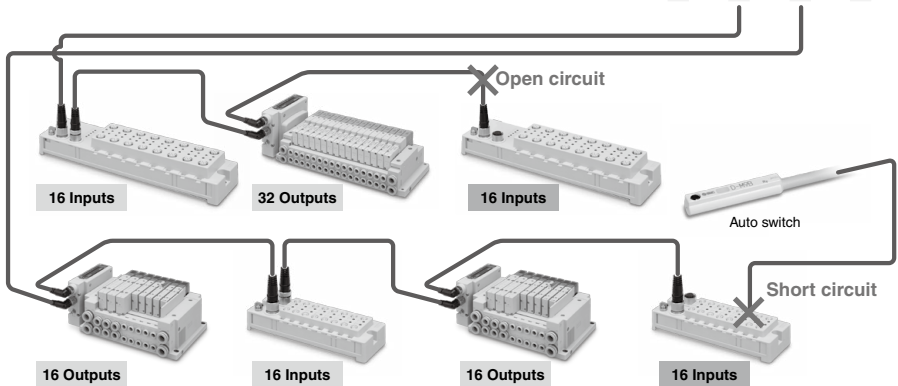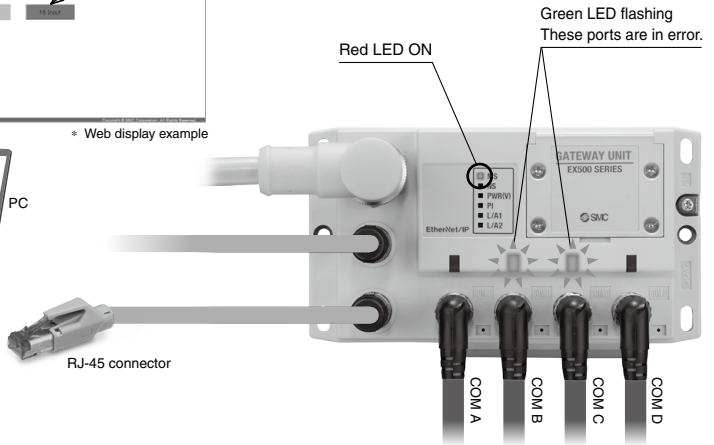
Setting switch

SI unit

SMC
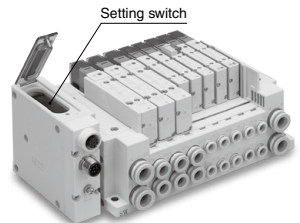
Web server function

A valve operation test (ON/OFF), a connection diagnostic between the valve manifolds and the input units, and a short-circuit diagnostic of input devices can be performed on a web browser.

A password can be used for the valve operation test (ON/OFF) for security.

The location of the error can be identified. Details of the error can be identified on a web browser.

∗ Web display example

PC

RJ-45 connector

Red LED ON

Green LED flashing
These ports are in error.

COM A
COM B
COM C
COM D

Open circuit

16 Inputs

32 Outputs

16 Inputs

Auto switch

Short circuit

16 Outputs

16 Inputs

16 Outputs

16 Inputs

No need to set the address

I/O mapping for the SI unit and input unit is set by the gateway unit automatically.

The unit installation order is not specified.

(The upper limit of the inputs/outputs is 32 points for one branch port.)

EX500 *Series* **Fieldbus System**

Gateway Decentralized System 2 (128 Points)

Reduced wiring

The amount of communication and power supply wiring for the I/O device can be reduced.

Reduction in number of communication nodes

By reducing the number of communication nodes, the load on the network is reduced.

Flexibly copes with changes in the protocol

Previously, it was necessary to change the part number of the I/O unit, return the I/O unit, and make arrangements once again to obtain a new unit (additional quotation, delivery management).

Now, only the GW unit needs to be changed.

Accessories can be ordered together.

Page 1454 Page 1472

Accessories including cables and connectors can be ordered together from SMC. Parts selection and ordering times as well as delivery management can be reduced.

Applicable to output devices other than valve manifolds

Page 1459

By using an output block, lights and buzzers can be operated.

Output block

Output device

Solenoid valve

Others
Indicator light, Relay, Buzzer
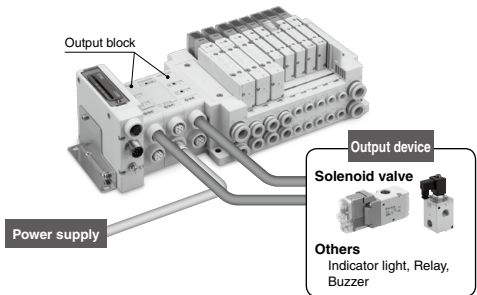
Power supply

Specified valve manifolds can be controlled by supplying power from a different system.

Page 1457

By using a Y branch connector, power from a different system can be supplied to the SI unit (valve manifold).

<Example of use>

Workpieces machined by robots

Power supply A

Valve manifold for holding a workpiece when robots are operating

Valve manifold for holding a workpiece when supplying parts

Workpieces placed by an operator. (Parts supply)

Rotational workbench

Power is off when parts are being positioned.

Y branch connector

Power supply B

SMC
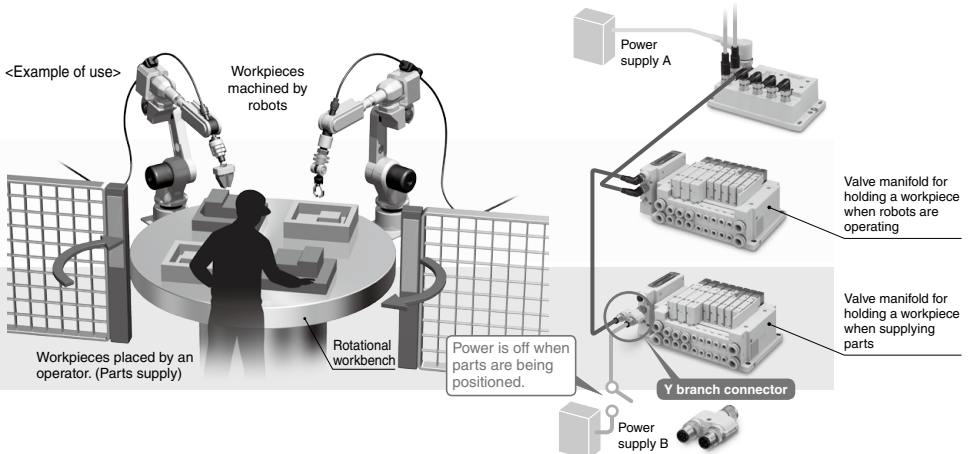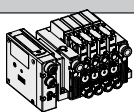
System Comparison Table

	Gateway Decentralized System 2
Protocol	**PROFI NET® EtherNet/IP**
Number of inputs/outputs (Number of inputs/outputs per branch)	**128 inputs/128 outputs** **(32 inputs/32 outputs)**
Number of valve manifold connections (Number of connections per branch)	**Max. 8 units*1** **(Max. 2 units)**
Number of input unit connections (Number of connections per branch)	**Max. 8 units** **(Max. 2 units)**
Branch cable length	**Max. 20 m**
Enclosure	GW unit: IP65 SI unit: IP67 Input unit: IP67
Function	Web server function (Valve operation test, Connection diagnostic, Short-circuit diagnostic)
Page	1448

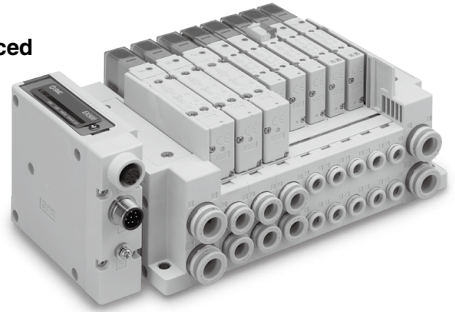*1 When the number of outputs is set to "16 outputs" using the built-in setting switch of the SI unit

Applicable Valve/Vacuum Unit

Applicable valve		Flow rate characteristics (4/2→5/3)		Maximum number of solenoids	Power consumption [W]	Enclosure	Standards	Page
		C [dm³/(s·bar)]	b					
	SY3000	1.6	0.19	32	0.35 (Standard) 0.1 (With power-saving circuit) [Inrush 0.4, Holding 0.1]	IP67	CE UK CA	
	SY5000	3.6	0.17					
	SY7000	5.9	0.20					
	VQC1000	1.0*1	0.30*1	24	0.4 (Standard)	IP67	CE UK CA	Web Catalog
	VQC2000	3.2*1	0.30*1					
	VQC4000	7.3*1	0.38*1		0.95 (Standard) 0.4 (Low-wattage type)			
	VQC5000	17.0*1	0.31*1					
	S0700	0.37	0.39	32	0.35	IP40	CE UK CA	
	SV1000	1.1	0.35	32	0.6	IP67	CE UK CA c(UL)us	
	SV2000	2.4	0.18					
	SV3000	4.3	0.21					

Applicable vacuum unit		Nozzle diameter [mm]	Max. number of solenoids	Power consumption [W]	Enclosure	Standards	Page
	ZK2□A	0.7	16	0.4	IP40	CE UK CA	Web Catalog
		1.0					
		1.2					
		1.5					

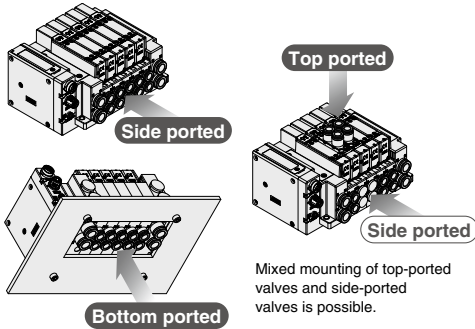*1 Values for 2-position single, rubber seal type

SMC

SY3000/5000/7000 Series

**Piping on the top or the bottom allows for a reduced footprint and increased space saving.**

Valve piping direction variations

■ Piping is possible from 3 directions.

Top ported

Side ported

Side ported

Bottom ported

Mixed mounting of top-ported valves and side-ported valves is possible.

Max. 24 stations are connectable.

■ It is possible to connect only the number of valves required, from 1 to 24 stations, to suit the application. (Maximum number of solenoids: 32)
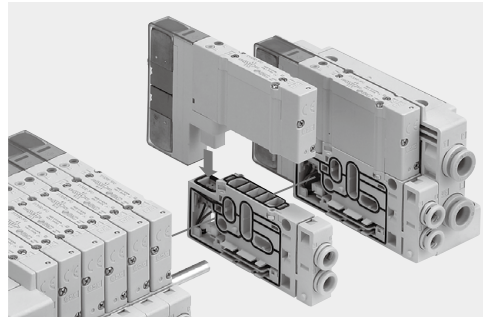
Mixed valve sizes manifold

It is also possible to install a combination of different-sized valves on the same manifold. (SY3000 and SY5000, or SY5000 and SY7000)
This facilitates a reduction in the installation space and number of units/cables.
■ Example: For the SY5000 and SY3000

Overall length of manifold
Approx. 31% reduction

	Single manifold SY5000 3 stations	Single manifold SY3000 5 stations	Mixed manifold SY5000 3 stations SY3000 5 stations
Installation space	136.7 mm	135.2 mm	186.9 mm

2 sets

1 set

50% reduction

Number of Fieldbus units/Unit cost

| Manifold | **2 pcs.** | Manifold | **1 pc.** |
| Fieldbus unit | **2 sets** | Fieldbus unit | **1 set** |

SMC
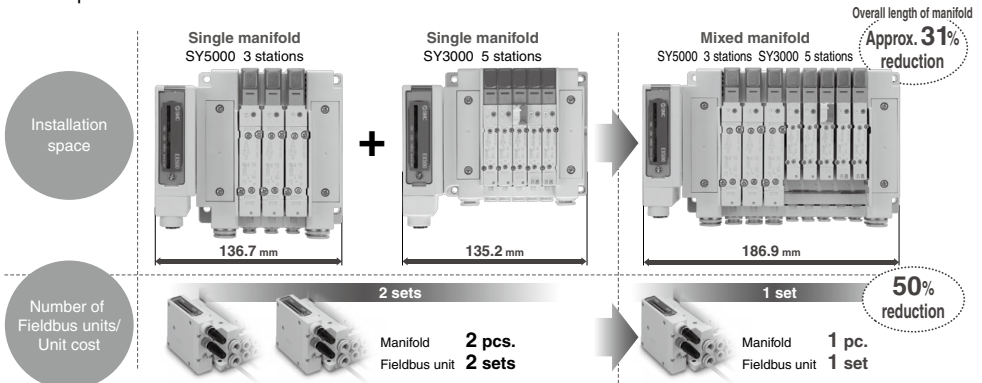
CONTENTS

Type 2 | **Gateway type**

Fieldbus System (128 Points)
EX500 Series

Fieldbus System
Gateway Decentralized System 2 (128 Points)
EX500 Series $C \epsilon$ UK CA c RU us

* Only the SY and SV valves are UL-compliant.

RoHS

★ **Valve manifolds and input units can be connected around the GW (Gateway) unit.**
★ **Compatible with other protocols by replacing the GW unit**
★ **Number of inputs/outputs = 128 points/128 points**
  The number of outputs (solenoids) per branch is 32 points.
★ **Number of valve manifold connections = Max. 8 units, Number of input unit connections = Max. 8 units, Branch cable length = Max. 20 m**
★ **Web server function (Valve operation test, Connection diagnostic of units, Short-circuit diagnostic of input devices)**
★ **No need to set the address for the valve manifolds or input units**
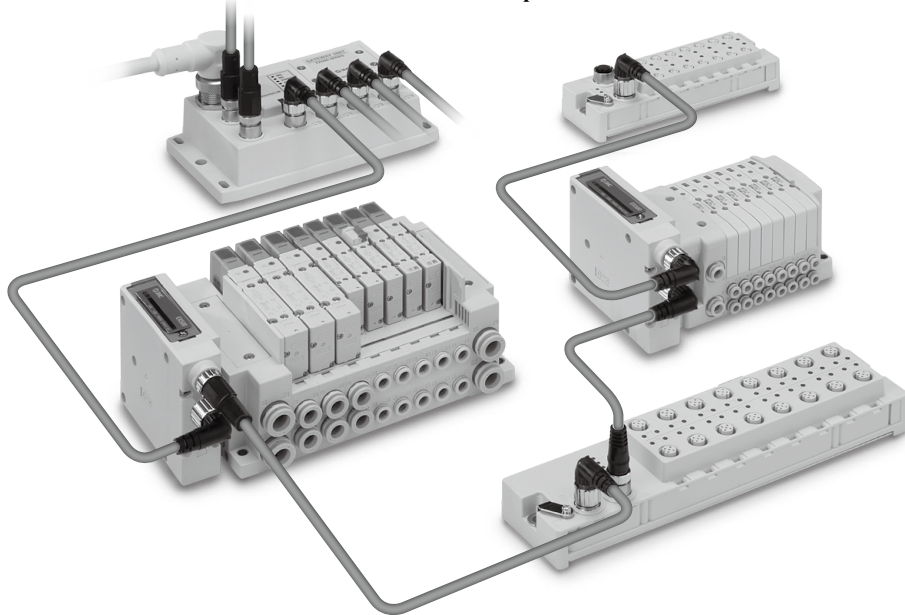
Applicable Manifold				Applicable Vacuum Unit

SY3000/5000/7000

VQC1000/2000/4000/5000

S0700

SV1000/2000/3000

ZK2□A

SMC

Gateway Decentralized System 2 (128 Points)
GW Unit

C E   UK CA   c UL us

∗ Only the SY and SV valves are UL-compliant.

RoHS

How to Order

EX500－G EN2

Protocol

EN2	EtherNet/IP™	(Input/Output = 128 points/128 points)
PN2	PROFINET	(Input/Output = 128 points/128 points)

Specifications

	Model	**EX500-GEN2**	**EX500-GPN2**
Communication	**Protocol**	EtherNet/IP™∗1	PROFINET IO
	Version∗2	Volume 1 (Edition 3.14) Volume 2 (Edition 1.15)	PROFINET Specification Version 2.2
	Media	100BASE-TX	100BASE-TX
	Communication speed	10/100 Mbps (Automatic)	100 Mbps
	Communication method	Full duplex/Half duplex (Automatic)	Full duplex
	Number of inputs/ outputs (I/O occupation area)	128 inputs/128 outputs (20 bytes/20 bytes)	128 inputs/128 outputs (18 bytes/16 bytes)
	Configuration file∗3	EDS file	GSDML
	IP address setting range	Switch settings: 192.168.0.1 to 254 or 192.168.1.1 to 254, Through DHCP server: Optional address	Optional address
	Device information	Vendor ID: 7 (SMC Corporation) Product type: 12 (Communication Adapter), Product code: 198	—
	Applicable function	DLR QuickConnect™ Web server	MRP Fast Start Up Web server
Power supply voltage	**For input and control**	24 VDC ±10%	
	For valve	24 VDC +10%, −5%	
Current consumption	**For input and control**	6.2 A or less (Max. 1.5 A per branch x 4 branches + GW unit internal current consumption: 0.2 A or less)	
	For output (valve)	4 A or less (Max. 1 A per branch x 4 branches)	
Branch port	**Number of branch ports**	4 ports	
	Number of inputs and outputs	32 inputs/32 outputs per branch	
	Branch cable length	20 m or less per branch	
Environmental resistance	**Enclosure**	IP65	
	Operating temperature range	Operating: −10 to +50°C, Stored: −20 to +60°C (No condensation)	
	Operating humidity range	Operating, Stored: 35 to 85%RH (No condensation)	
Standards		CE/UKCA marking, UL (CSA)	
Weight		550 g	
Enclosed parts		Seal cap (for M12 connector socket) 5 pcs.	

∗1 Use a CAT5 or higher communication cable.
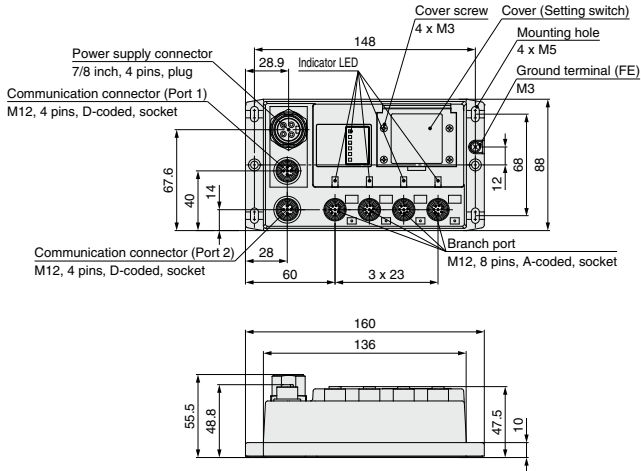∗2 Please note that the version is subject to change.
∗3 The setting file can be downloaded from SMC website, https://www.smcworld.com

EX500 *Series*

Dimensions/Parts Description

EX500-GEN2 (EtherNet/IP™)

Cover screw
4 x M3

Cover (Setting switch)

Power supply connector
7/8 inch, 4 pins, plug

Mounting hole
4 x M5

Indicator LED

Ground terminal (FE)
M3

148

28.9

Communication connector (Port 1)
M12, 4 pins, D-coded, socket

67.6

40

14

88

68

12

Communication connector (Port 2)
M12, 4 pins, D-coded, socket

28

60

3 x 23

Branch port
M12, 8 pins, A-coded, socket

160

136

55.5

48.8

47.5

10

EX500-GPN2 (PROFINET)

Cover screw
4 x M3

Cover

Power supply connector
7/8 inch, 5 pins, plug

Mounting hole
4 x M5

Indicator LED

Ground terminal (FE)
M3

148

28.9

Communication connector (Port 1)
M12, 4 pins, D-coded, socket

67.6

40

14

88

68

12

Communication connector (Port 2)
M12, 4 pins, D-coded, socket

28

60

3 x 23

Branch port
M12, 8 pins, A-coded, socket

160

136

55.5

48.8

47.5

10

SMC

Gateway Decentralized System 2 (128 Points)
SI Unit

Output unit for valve manifold connection

CE UKCA c UL us

RoHS

EX500－S103

Specifications

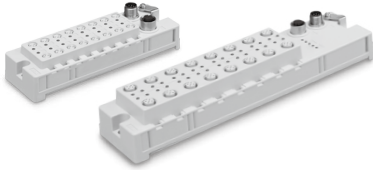| Model		EX500-S103
Applicable valve/Vacuum unit		SY, VQC, S0700, SV, ZK2□A
Output	Number of outputs	16/32 outputs (Switched by built-in setting switch)
	Output type	Source/PNP (Negative common)
	Rated voltage	24 VDC
	Supply current	With power supplied to GW unit: Max. 1.0 A With external power∗1 supplied: Max. 1.5 A
Internal current consumption		50 mA or less
Environmental resistance	Enclosure	IP67
	Operating temperature range	Operating: –10 to +50°C, Stored: –20 to +60°C (No condensation)
	Operating humidity range	Operating, Stored: 35 to 85%RH (No condensation)
Standards		CE/UKCA marking, UL (CSA)
Weight		200 g
Enclosed parts		Seal cap (for M12 connector socket) 1 pc.
		Valve manifold mounting screw (M3 x 30) 2 pcs.

∗1 When an accessory, Y branch connector, is used.

Dimensions/Parts Description

Indicator LED

28.2
22.5

Cover screw
M3

Cover (Setting switch)

Branch connector (IN)
M12, 8 pins, A-coded, plug

Branch connector (OUT)
M12, 8 pins, A-coded, socket

101.4
99.9
90.9

67
46
25.4
76.5

11.3

Ground terminal (FE)
M3

SMC

Gateway Decentralized System 2 (128 Points)
Input Unit

CE UKCA c**UL**us

RoHS
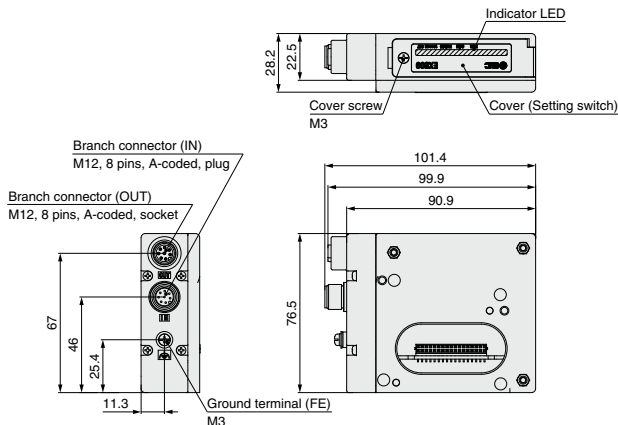
How to Order

EX500－DX P A

Input unit •

• **Connector type**

A	M8 connector type
B	M12 connector type

Specifications

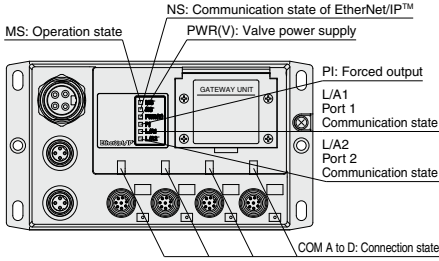| Model		EX500-DXPA	EX500-DXPB
Connector type		M8 connector	M12 connector
Input	Number of inputs	16 inputs	
	Input type	PNP sensor input	
	Rated voltage	24 VDC	
	Supply current	Max. 1.3 A/Unit [Total of 8 connectors of even number must be Max. 0.65 A, 8 connectors of odd number must be Max. 0.65 A]	
	Input ON voltage/Input ON current	11 V or more/Typ. 7 mA (at 24 VDC)	
	Input OFF voltage/Input OFF current	5 V or less/1.5 mA or less	
Internal current consumption		200 mA or less (when the input signal is ON)	
Environmental resistance	Enclosure	IP67	
	Operating temperature range	Operating: –10 to +50°C, Stored: –20 to +60°C (No condensation)	
	Operating humidity range	Operating, Stored: 35 to 85%RH (No condensation)	
Standards		CE/UKCA marking, UL (CSA)	
Weight		250 g	450 g
Enclosed parts		Seal cap (for M8 connector socket) 16 pcs. Seal cap (for M12 connector socket) 1 pc.	Seal cap (for M12 connector) 17 pcs.

Dimensions/Parts Description
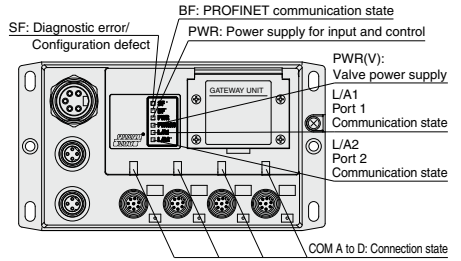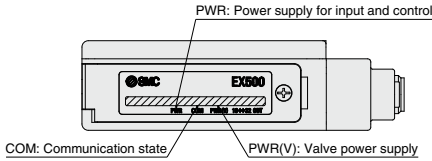
EX500-DXPA

EX500-DXPB

SMC
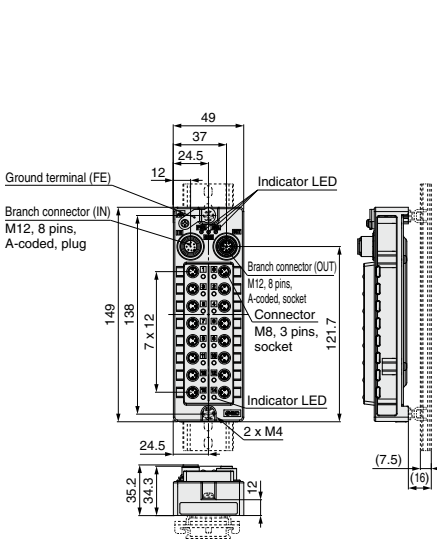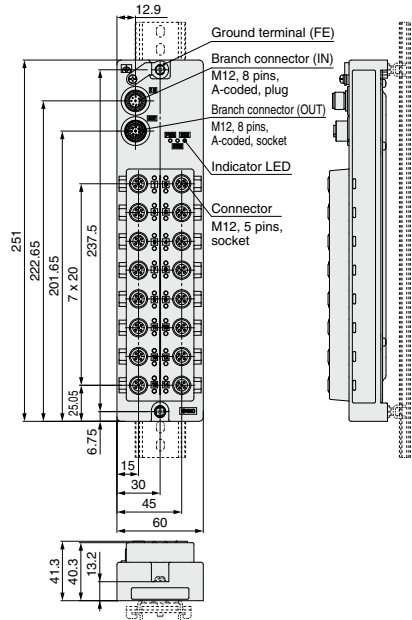
LED Indicator

EX500-GEN2

MS: Operation state
NS: Communication state of EtherNet/IP™
PWR(V): Valve power supply
PI: Forced output
L/A1 Port 1 Communication state
L/A2 Port 2 Communication state
COM A to D: Connection state

EX500-GPN2

SF: Diagnostic error/ Configuration defect
BF: PROFINET communication state
PWR: Power supply for input and control
PWR(V): Valve power supply
L/A1 Port 1 Communication state
L/A2 Port 2 Communication state
COM A to D: Connection state

EX500-S103

PWR: Power supply for input and control
COM: Communication state
PWR(V): Valve power supply

EX500-DXPA

PWR: Power supply for input and control
COM: Communication state
ERR: Error
0 to 15: Sensor signal state

EX500-DXPB

PWR: Power supply for input and control
COM: Communication state
ERR: Error
0 to 15: Sensor signal state

Gateway Decentralized System 2 (128 Points)
Accessories

❶ Power Supply Cable
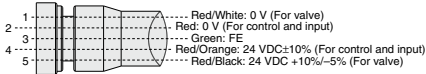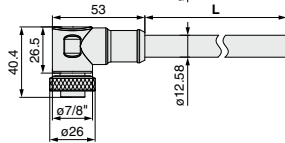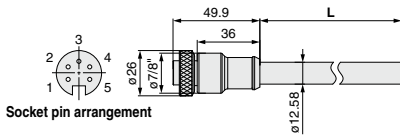
Supplies power to the GW unit.

For PROFINET

PCA- 1558810

● Connector specification, Cable length (L)

1558810	Straight 2 m
1558823	Straight 6 m
1558836	Angle 2 m
1558849	Angle 6 m

Socket pin arrangement

Socket pin arrangement

Connections

Red/White: 0 V (For valve)
Red: 0 V (For control and input)
Green: FE
Red/Orange: 24 VDC±10% (For control and input)
Red/Black: 24 VDC +10%/–5% (For valve)

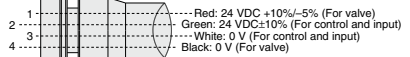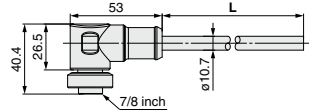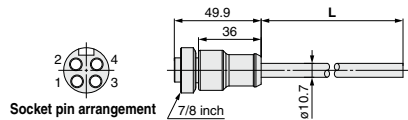| Item	Specifications
Cable O.D.	ø12.58 mm
Conductor nominal cross section	1.5 mm²/AWG16
Wire O.D. (Including insulator)	2.35 mm
Min. bending radius (Fixed)	110 mm

For EtherNet/IP™

PCA- 1416000

● Connector specification, Cable length (L)

1415999	Straight 2 m
1415996	Straight 6 m
1416000	Angle 2 m
1415997	Angle 6 m

Socket pin arrangement

Socket pin arrangement

Connections

Red: 24 VDC +10%/–5% (For valve)
Green: 24 VDC±10% (For control and input)
White: 0 V (For control and input)
Black: 0 V (For valve)

Item	Specifications
Cable O.D.	ø10.7 mm
Conductor nominal cross section	1.5 mm²/AWG16
Min. bending radius (Fixed)	94 mm

SMC

❷ Communication Cable
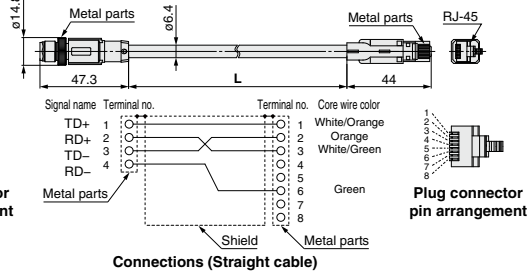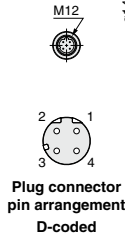
Connects field bus to the GW unit.

| **For PROFINET** | **For EtherNet/IP™** |

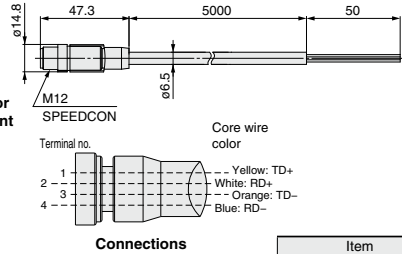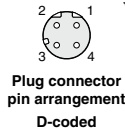### EX9-AC 020 EN-PSRJ (Plug/RJ-45 connector)

Cable length (L)

010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm

Plug connector pin arrangement D-coded

Connections (Straight cable)

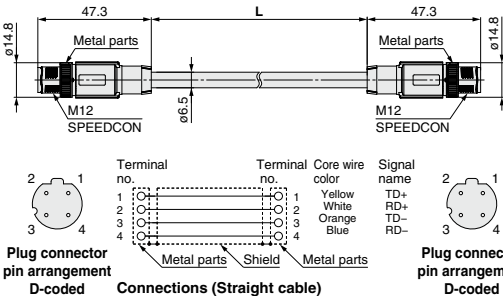| Item	Specifications
Cable O.D.	ø6.4 mm
Conductor nominal cross section	0.14 mm²/AWG20
Wire O.D. (Including insulator)	0.98 mm
Min. bending radius (Fixed)	26 mm

PCA-1446566 (Plug)

Plug connector pin arrangement D-coded

Connections

Item	Specifications
Cable O.D.	ø6.5 mm
Conductor nominal cross section	0.34 mm²/AWG22
Wire O.D. (Including insulator)	1.55 mm
Min. bending radius (Fixed)	19.5 mm

EX9-AC 005 EN-PSPS (With connector on both sides (Plug/Plug))

Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm

Plug connector pin arrangement D-coded

Connections (Straight cable)

Plug connector pin arrangement D-coded

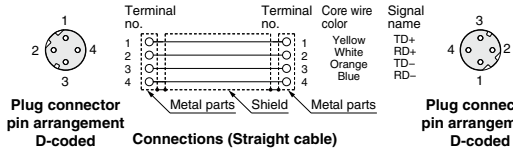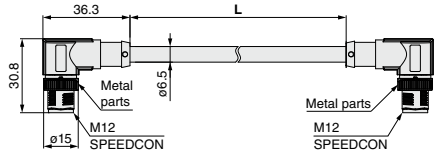| Item	Specifications
Cable O.D.	ø6.5 mm
Conductor nominal cross section	0.34 mm²/AWG22
Wire O.D. (Including insulator)	1.55 mm
Min. bending radius (Fixed)	19.5 mm

EX500 Series

❷ Communication Cable

| For PROFINET | For EtherNet/IP™ |

EX9-AC [005] EN-PAPA (With angle connector on both sides (Plug/Plug))

● Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm

36.3   L

30.8   ø6.5

Metal parts

Metal parts

ø15   M12 SPEEDCON

M12 SPEEDCON

Plug connector pin arrangement D-coded

Terminal no.			Terminal no.	Core wire color	Signal name
1			1	Yellow	TD+
2			2	White	RD+
3			3	Orange	TD–
4			4	Blue	RD–

Metal parts   Shield   Metal parts

Connections (Straight cable)

Plug connector pin arrangement D-coded

Item	Specifications
Cable O.D.	ø6.5 mm
Conductor nominal cross section	0.34 mm²/AWG22
Wire O.D.(Including insulator)	1.55 mm
Min. bending radius (Fixed)	19.5 mm

❸ Field-wireable Communication Connector

| For PROFINET | For EtherNet/IP™ |

PCA-1446553
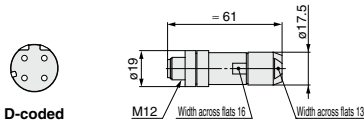
D-coded

≒ 61   ø17.5

ø19

M12   Width across flats 16   Width across flats 13

Applicable Cable

Item	Specifications
Cable O.D.	4.0 to 8.0 mm
Wire gauge (Stranded wire cross section)	0.14 to 0.34 mm²/AWG26 to 22

∗ The table above shows the specifications for the applicable cable. Adaptation for the connector may vary on account of the conductor construction of the electric wire.

SMC

❹ Branch Cable

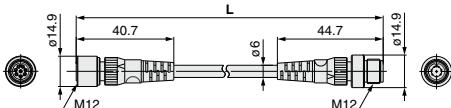Connects the GW unit and SI unit or input unit.

EX500-AC `030` **-** `SSPS`

Cable length (L)

003	300 mm
005	500 mm
010	1000 mm
030	3000 mm
050	5000 mm
100	10000 mm

Connector specification

SSPS	Socket side: Straight, Plug side: Straight
SAPA	Socket side: Angle, Plug side: Angle
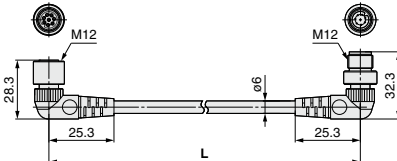
ø14.9   40.7   ø6   44.7   ø14.9

M12   M12

A-coded

Socket pin arrangement

8 7 6 5 1 2 3 4

A-coded

Plug pin arrangement

8 3 4 5 1 7 2

M12   M12

28.3   ø6   32.3

25.3   L   25.3

A-coded

Socket pin arrangement

8 7 6 5 1 2 3 4

A-coded

Plug pin arrangement

8 3 4 5 2 1 7

Item	Specifications
Cable O.D.	ø6 mm
Conductor nominal cross section	0.25 mm^2
Wire O.D. (Including insulator)	1.27 mm
Min. bending radius (Fixed)	40 mm

❺ Y Branch Connector

Supplies separate power to valve manifold when it is connected to the SI unit.
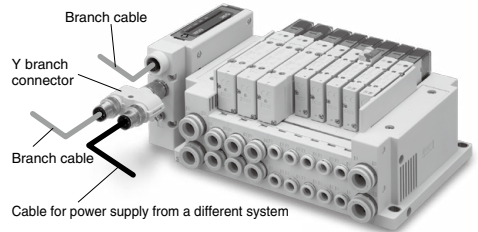
EX500-ACY01-S

M12   51.7   16
16.9   12.9   M12
ø14.8   21   ø14.8   39
M12   21.2

A-coded

1
2   3
4
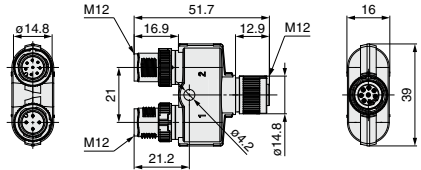
Plug pin arrangement

Pin Layout of the Cable for Power Supply from a Different System

1	24 VDC +10%, −5% (for valve)
2	0 VDC (for valve)
3	Unused
4	Unused

<Example of use>

Branch cable

Y branch connector

Branch cable

Cable for power supply from a different system

EX500 *Series*

❻ Cable for Power Supply from a Different System

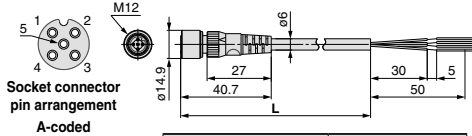Connect to Y branch connector to supply power.

EX500-AP 050 - S

Cable length (L)

010	1000 mm
050	5000 mm

Connector specification

S	Straight
A	Angle

Straight connector type

M12

Socket connector
pin arrangement
A-coded

ø14.9

27
40.7
30
5
50
L
ø6

Item	Specifications
Cable O.D.	ø6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including insulator)	1.5 mm
Min. bending radius (Fixed)	40 mm

Angle connector type
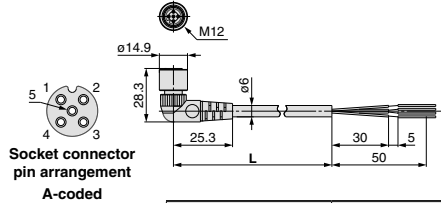
M12

Socket connector
pin arrangement
A-coded

ø14.9
28.3
25.3
30
5
50
L
ø6

Item	Specifications
Cable O.D.	ø6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including insulator)	1.5 mm
Min. bending radius (Fixed)	40 mm

Terminal no.

Core wire color

1 ---- Brown: 24 VDC +10%/−5% (for valve)
2 ---- White: 0 VDC (for valve)
3 ---- Blue: Not connected
4 ---- Black: Not connected
5 ---- Gray: Not connected
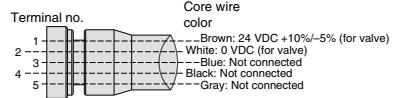
Made to Order

Cable length	10000 mm	**p. 1475**

PCA- 1401804

Cable length (L)

1401804	1500 mm
1401805	3000 mm
1401806	5000 mm

Socket connector
pin arrangement
A-coded
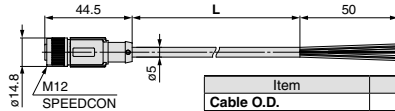
ø14.8
M12
SPEEDCON

44.5
L
50
ø5

Item	Specifications
Cable O.D.	ø5 mm
Conductor nominal cross section	0.34 mm²/AWG22
Wire O.D. (Including insulator)	1.27 mm
Min. bending radius (Fixed)	21.7 mm

Terminal no.

Core wire color

1 ---- Brown: 24 VDC +10%/−5% (for valve)
2 ---- White: 0 VDC (for valve)
3 ---- Blue: Not connected
4 ---- Black: Not connected
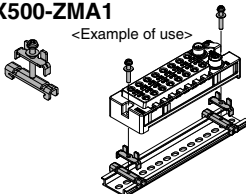5 ---- Green/Yellow: Not connected
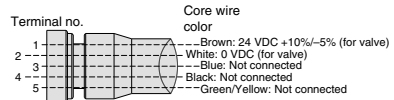
❼ DIN Rail Bracket (2 pcs.)

Bracket for mounting the input unit (EX500-DXPA, EX500-DXPB) to DIN rail.
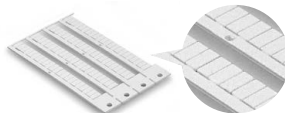
EX500-ZMA1

<Example of use>

❽ Marker (1 sheet, 88 pcs.)

Signal name of the input device such as a switch can be written on the marker and installed to the input unit.

EX600-ZT1

❾ Seal Cap (10 pcs.)

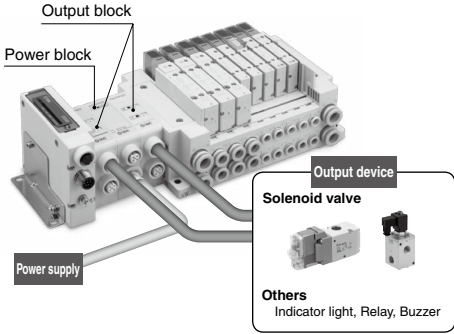Use with new connector. By using these seal caps, the new connector maintains IP65/67 enclosure.

EX9-AWES
For M8 connector socket

EX9-AWTS
For M12 connector socket

SMC

Output block

Power block

Output device

Solenoid valve

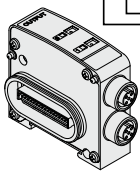Power supply

Others
Indicator light, Relay, Buzzer

- ● Output devices other than valve manifold can be operated.
- ● By using the power block and output block for high watt load, operation up to 0.5 A/point can be performed.
- ● Possible to mount the output block and power block additionally between the SI unit and the valve (The surplus I/O points are used).
- ● 2 point outputs per output block (M12 connector)

You are requested to connect it to an SI unit and a valve manifold. For detailed specifications, refer to the operation manual that can be downloaded from SMC website, https://www.smcworld.com
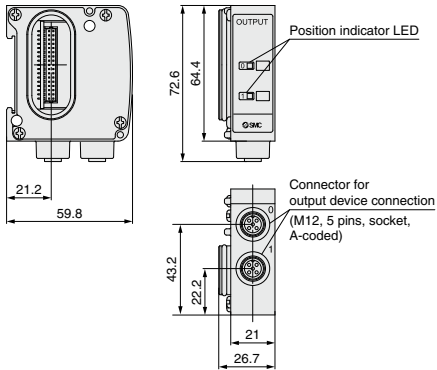
❿ Output Block

EX9-OE T 1

● Output specification

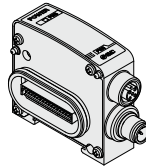| 1 | Source/PNP (Negative common) |

● Power supply type

| T | Internal power supply method (for low-wattage load) |
| P | Integrated power supply method (for high-wattage load) *1 |

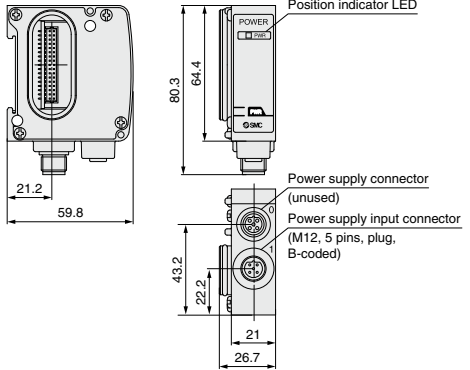*1 Required to connect with a power block

Dimensions/Parts Description

Position indicator LED

72.6
64.4
21.2
59.8

Connector for output device connection
(M12, 5 pins, socket, A-coded)

43.2
22.2
21
26.7

Specifications

Model		EX9-OET1	EX9-OEP1
Internal current consumption		40 mA or less	
Output	Output type	Source/PNP (Negative common)	
	Number of outputs	2 outputs	
	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)
Environmental resistance	Enclosure	IP67	
	Operating temperature range	−10 to 50°C	
	Operating humidity range	35 to 85%RH (No condensation)	
Standards		CE/UKCA marking, UL (CSA)	
Weight		120 g	

⓫ Power Block

EX9-PE1

Dimensions/Parts Description

Position indicator LED

80.3
64.4
21.2
59.8

Power supply connector (unused)
Power supply input connector
(M12, 5 pins, plug, B-coded)

43.2
22.2
21
26.7

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 current consumption	20 mA or less
Supply current		Max. 3.1 A*1
Environmental resistance	Enclosure	IP67
	Operating temperature range	−10 to 50°C
	Operating humidity range	35 to 85%RH (No condensation)
Standards		CE/UKCA marking, UL (CSA)
Weight		120 g
Enclosed parts		Seal cap (for M12 connector) 1 pc.

*1 When using with 3.0 to 3.1 A, the ambient temperature should not exceed 40°C, and do not bundle the cable.

SMC

EX500 *Series*

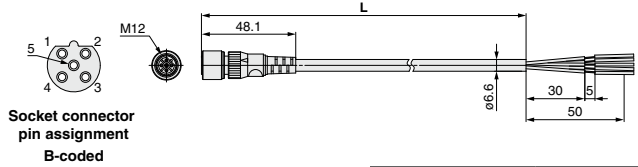⑫ **Power Supply Cable (For power block)**

Supplies power to the power block.

Straight connector type

EX9-AC 050 -1

● **Cable length (L)**

010	1000 mm
030	3000 mm
050	5000 mm

**Socket connector
pin assignment
B-coded**

M12

48.1

L

ø6.6

30 | 5

50

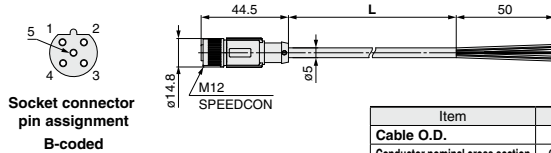| Item	Specifications
Cable O.D.	ø6.6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including insulator)	1.65 mm
Min. bending radius (Fixed)	40 mm

Made to Order

Cable length	10000 mm	p. 1475

Terminal no.

Core wire color

Connections

1 --- Brown: 24 VDC +10%/−5% (Power supply for output)
2 --- White: 0 V (Power supply for output)
3
4
5 --- Gray: Ground
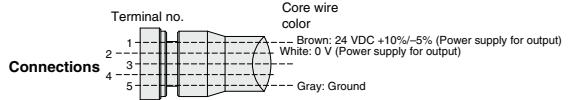
PCA- 1401807

● **Cable length (L)**

1401807	1500 mm
1401808	3000 mm
1401809	5000 mm

**Socket connector
pin assignment
B-coded**

44.5

L

50

ø14.8

ø5

M12
SPEEDCON

Item	Specifications
Cable O.D.	ø5 mm
Conductor nominal cross section	0.34 mm²/AWG22
Wire O.D. (Including insulator)	1.27 mm
Min. bending radius (Fixed)	21.7 mm

Terminal no.

Core wire color

Connections

1 --- Brown: 24 VDC +10%/−5% (Power supply for output)
2 --- White: 0 V (Power supply for output)
3
4
5 --- Green/Yellow: Ground

SMC
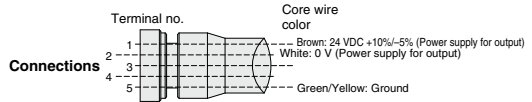
⓭ Connector for Output Block Wiring

Field-wireable connector for connecting an output device to an output block

PCA-1557743

M12
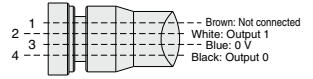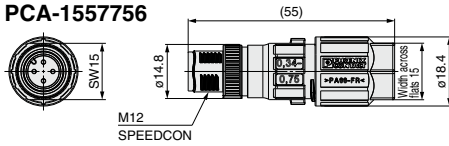SPEEDCON

A-coded

Plug pin arrangement

Connections

Brown: Not connected
White: Output 1
Blue: 0 V
Black: Output 0
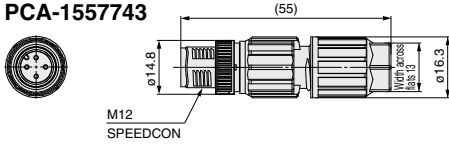
Applicable Cable

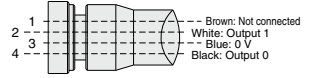| Item	Specifications
Cable O.D.	3.5 to 6.0 mm
Wire gauge (Stranded wire cross section)	0.14 to 0.34 mm²/AWG26 to 22
Core wire diameter (Including insulating material)	0.7 to 1.3 mm

PCA-1557756

M12
SPEEDCON

A-coded

Plug pin arrangement

Connections

Brown: Not connected
White: Output 1
Blue: 0 V
Black: Output 0

Applicable Cable

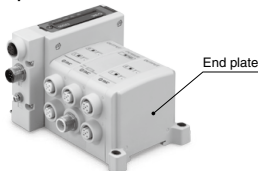| Item	Specifications
Cable O.D.	4.0 to 8.0 mm
Wire gauge (Stranded wire cross section)	0.34 to 0.75 mm²/AWG22 to 18
Core wire diameter (Including insulating material)	1.3 to 2.5 mm

⓮ End Plate

Use when an output block is not being used and a valve manifold is not connected.

EX9-EA03
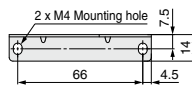
2 x M4 Mounting hole

<Example of use>

End plate
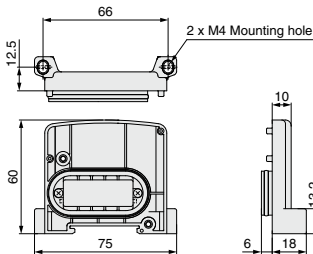
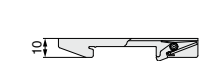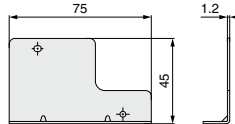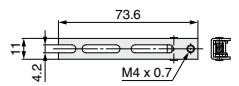## ⓯ Bracket Plate/DIN Rail Mounting Bracket

A reinforcing brace used to mount an output block or power block onto an SI unit
To prevent connection failure between products due to deflection, use this bracket plate whenever an output block or power block is mounted.
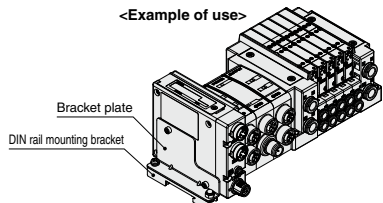
EX9-BP1

2 x M4 Mounting hole

Accessory

Description	Qty.
Hexagon socket head cap screw (M3 x 35)	2

EX9-BD1

M4 x 0.7

Accessory

Description	Qty.
Domed cap nut (M4)	1
Round head combination screw (M4 x 8)	1
Round head combination screw (M4 x 10)	1

<Example of use>

Bracket plate

DIN rail mounting bracket

EX500 Series
Specific Product Precautions

Be sure to read this before handling the products. Refer to page 7 for safety instructions and pages 15 to 17 for fieldbus system precautions.

Operating Environment

⚠ Caution

1. Select the proper type of enclosure according to the operating environment.

IP65/67 is achieved when the following conditions are met.

1) Provide appropriate wiring between the products using electrical wiring cables, communication connectors and cables with M12 connectors.

2) Suitable mounting of the product and valve manifold.

3) Be sure to mount a seal cap on any unused connectors.

If using in an environment that is exposed to water splashes, please take measures such as using a cover.

Adjustment / Operation

⚠ Warning

<Web server function>

1. The valve operation test is a function which forcibly changes the signal status. Please check safety of the ambient environment and the device before using this function.

This may cause injuries or equipment damage.

2. If the communication line and PC are shut down during a valve operation test, the valve output status will be held (It remains in the output status before the communication line and/or PC was shut down). Please check safety of the ambient environment and the device when performing this function.

This may cause injuries or equipment damage.

■ **Trademark**
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QuickConnect™ is a trademark of ODVA.

SMC