

Fieldbus System

(Output device for driving 5-port solenoid valves)



Space-saving installation

Compact
Approx.

28 mm

Actual size



• IP67

* For units with a D-sub connector, and when connected to S0700 manifolds, it is IP40.

• Drives up to 32 solenoids

• Daisy-chain wiring communication

* Excludes the units compatible with IO-Link

<Compatible Protocols>



Made to Order



Please contact SMC for details on compatible products.

New



IO-Link compatible products have been added.

- Can be connected using a single cable
- Various types of diagnostic tests can be performed using service data.

| Diagnostic contents | Internal failure of the SI unit | Output short circuit | Output open circuit |
|---------------------|-------------------------------------|--|---------------------------------------|
| | Solenoid valve power supply failure | Abnormal internal temperature of the SI unit | Output switching count value exceeded |

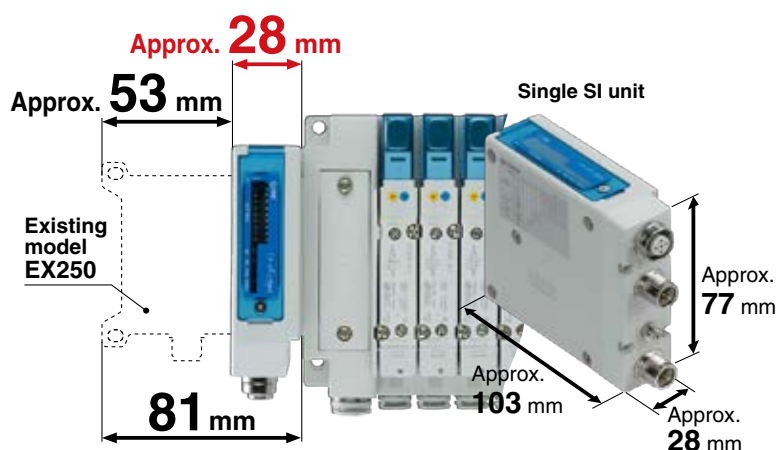


EX260 Series

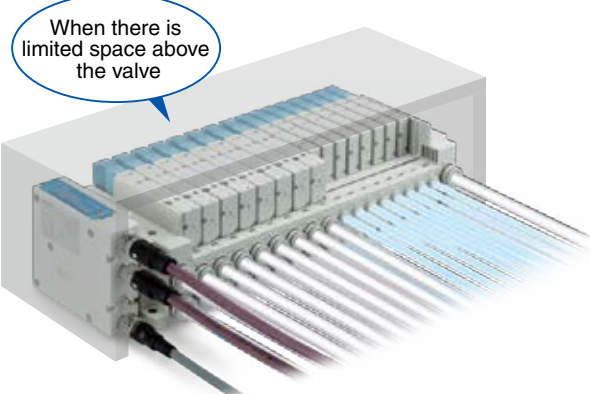


CAT.E02-25C

Manifold length reduced by approx. 53 mm



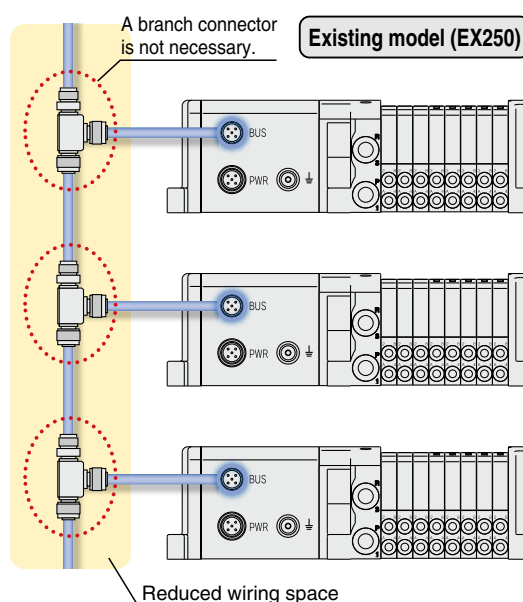
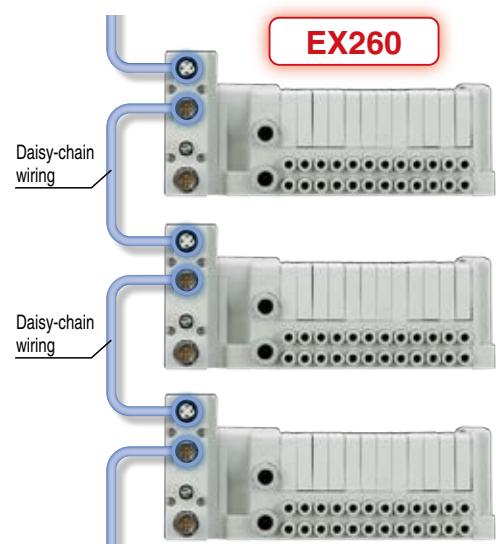
Wiring and piping from the same direction is possible. (for side ported)



Daisy-chain wiring communication is possible.*1

A branch connector is not necessary/Reduced wiring space

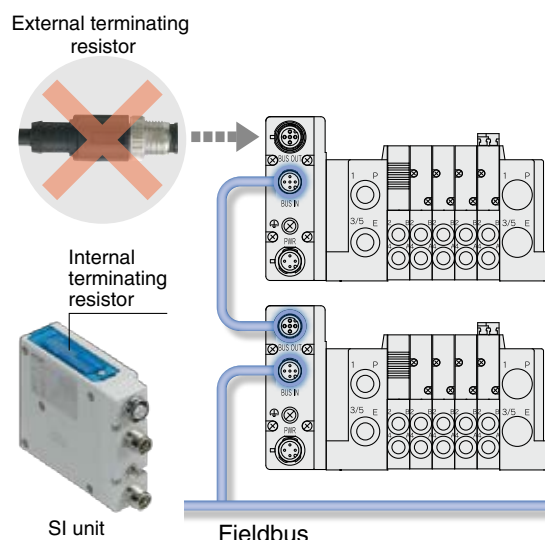
*1 Excludes the units compatible with IO-Link













An external terminating resistor is not necessary.

(Only available for M12 PROFIBUS DP, CC-Link communication connectors)

ON/OFF switching is possible with an internal terminating resistor.
An external terminating resistor is not necessary.



Product Specification Variations

| | |  | DeviceNet | CC-Link |  | EtherNet/IP | EtherCAT | ETHERNET POWERLINK | IO-Link |
|-------------------------|-------|---|--|--|--|---|--|--------------------|---------|
| Number of outputs | 16 | ● | ● | ● | ● | ● | ● | ● | |
| | 32 | ● | ● | ● | ● | ● | ● | ● | ● |
| Output polarity | PNP | ● | ● | ● | ● | ● | ● | ● | ● |
| | NPN | ● | ● | ● | ● | ● | ● | ● | ● |
| Communication connector | M12 | ● | ● | ● | ● | ● | ● | ● | ● |
| | D-sub | ● | | | | | | | |
| Applicable manifold | |  JSY Series |  SY Series |  SV Series |  VQC Series |  S0700 Series |  SY Series  JSY Series  VQC Series | | |

Communication connector examples



M12 communication connector x 2
(For daisy-chain wiring)













M12 communication connector x 1
(Same for the solenoid valve power supply wiring)

IO-Link



D-sub communication connector

Applicable Valve Series

| Series | | | | Flow rate characteristics (4/2 → 5/3) | | Maximum number of solenoids | Power consumption [W] | Applicable cylinder size |
|------------------------|---|---|----------------------|--|------|-----------------------------|---|--------------------------|
| | | | | C [dm ³ /(s·bar)] | b | | | |
| IP67 ^{*1} |  |  | SY3000 | 1.6 | 0.19 | 32 | 0.35 (Standard) 0.1 (With power-saving circuit) | ø50 |
| | | | SY5000 | 3.6 | 0.17 | | | ø63 |
| | | | SY7000 | 5.9 | 0.20 | | | ø80 |
| IP67 ^{*1, *3} |  |  | JSY1000 | 0.91 | 0.48 | 32 | 0.2 (With power-saving circuit) 0.4 (Standard) 0.1 (With power-saving circuit) | ø40 |
| | | | JSY3000 | 2.77 | 0.27 | | | ø50 |
| | | | JSY5000 | 6.59 | 0.22 | | | ø80 |
| IP40 |  |  | S0700 ^{*2} | 0.37 | 0.39 | 32 | 0.35 | ø25 |
| IP67 ^{*1} |  |  | SV1000 ^{*2} | 1.1 | 0.35 | 32 | 0.6 | ø40 |
| | | | SV2000 ^{*2} | 2.4 | 0.18 | | | ø63 |
| | | | SV3000 ^{*2} | 4.3 | 0.21 | | | ø80 |
| IP67 ^{*1} |  |  | VQC1000 | 1.0 | 0.30 | 24 | 0.4 (Standard) | ø40 |
| | | | VQC2000 | 3.2 | 0.30 | | | ø63 |
| | | | VQC4000 | 7.3 | 0.38 | | 0.95 (Standard) 0.4 (Low-wattage type) | ø160 |
| | | | VQC5000 | 17 | 0.31 | | | ø180 |

^{*1} Units with a D-sub communication connector are IP40.

^{*2} There is no manifold part number setting for the IO-Link compatible units.

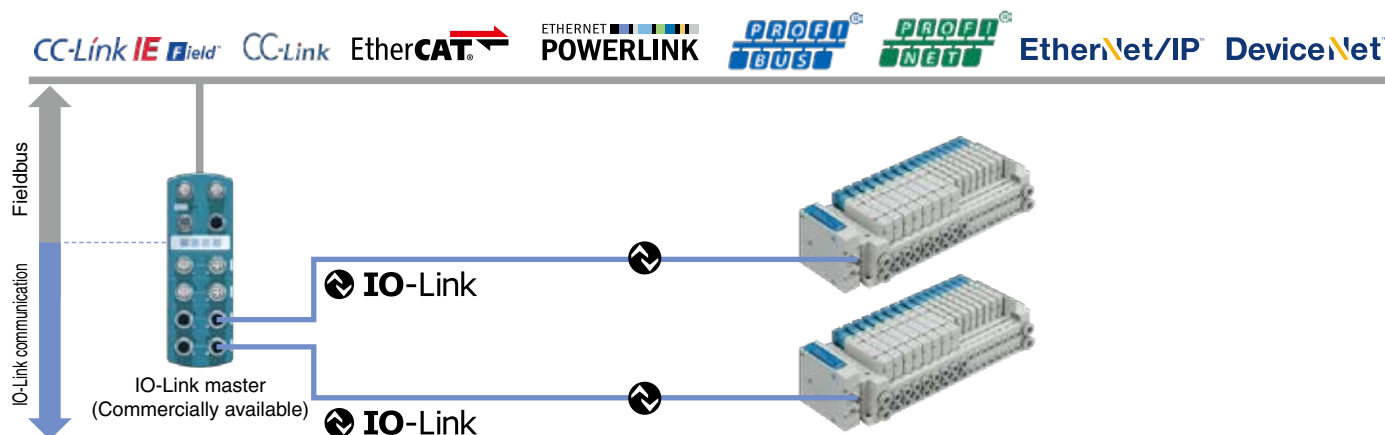
^{*3} IP40 for the JSY1000

New IO-Link compatible

Integratable with various existing networks

IO-Link devices can be easily connected to various networks via the IO-Link master, which acts as a gateway between IO-Link communication and various Fieldbuses.

Solenoid valves can be connected for communication without relying upon a Fieldbus or PLC.



Can be connected using a single general-purpose cable, resulting in a reduction in the space required for wiring

Port class B

IO-Link master
(Commercially available)

Power supply load

- Connect the IO-Link master port to the device using a 1:1 configuration.
- Connect using an M12 round connector.
- Maximum cable length: 20 m
- Special communication cables are not necessary.
- In order to connect the SI unit using a single cable, use a port class B type IO-Link master.



Port class B compliant

Port class A

IO-Link master
(Commercially available)

Power supply load

General-purpose 5-wire unshielded cables are used for connection.
The signal wire and valve power supply wire can be connected with the same cable.

SI unit/Connector pin arrangement

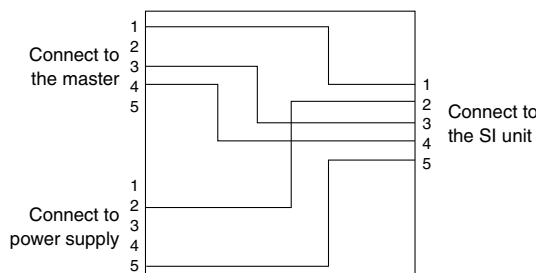
| Pin no. | SI unit port pin function (Port class B) |
|---------|--|
| 1 | +24 V for control unit |
| 2 | +24 V for solenoid valve |
| 3 | 0 V for control unit |
| 4 | IO-Link communication |
| 5 | 0 V for solenoid valve |

Y Branch Connector

Port class A compliant
A special wiring Y branch connector is available.



Used when connecting to a port class A type IO-Link master, which is often used when connecting to an IO-Link sensor

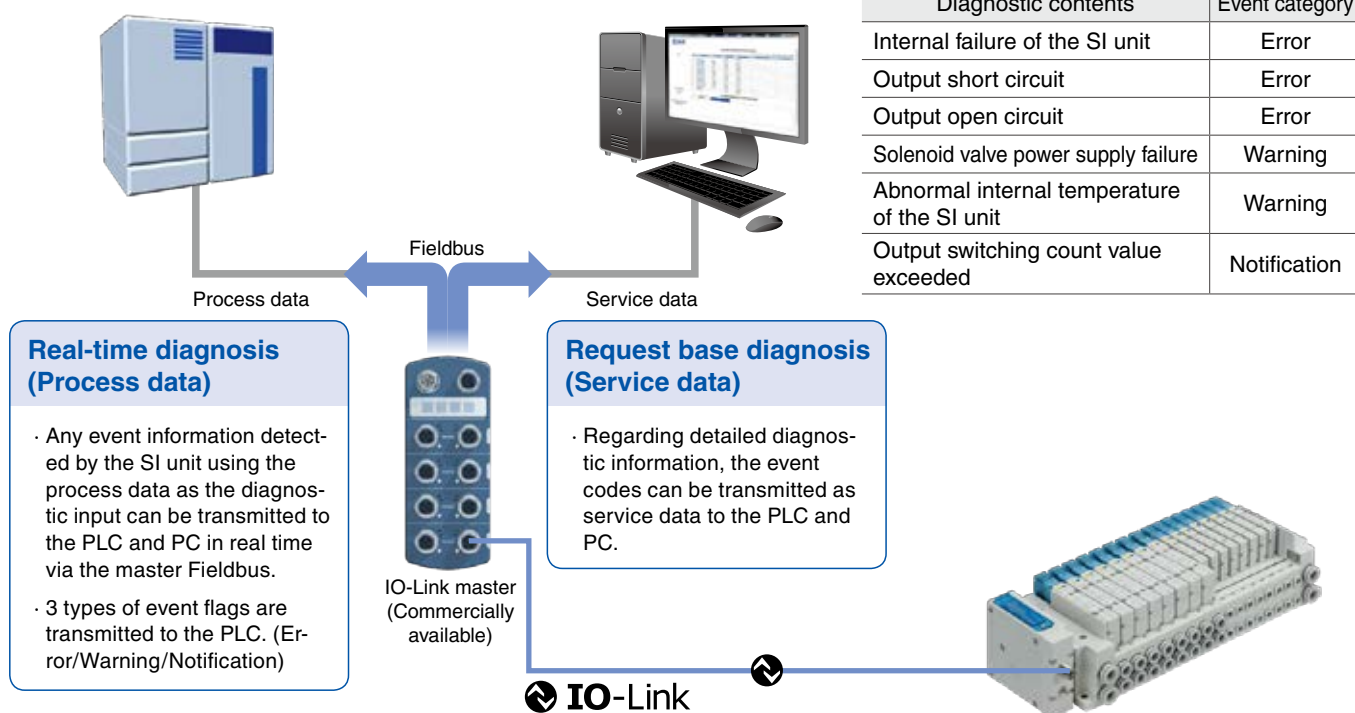


Difference between IO-Link master port class A and class B

| Pin no. | IO-Link master port pin function | |
|---------|----------------------------------|-------------------------------|
| | Port class A | Port class B |
| 1 | +24 V | +24 V |
| 2 | NC/DI/DO | Additional power supply +24 V |
| 3 | 0 V | 0 V |
| 4 | IO-Link/DI/DO | IO-Link/DI/DO |
| 5 | NC | Additional power supply 0 V |

New IO-Link compatible

Features an impressive self-diagnosis function



Equipped with a solenoid valve output operation count function

The number of valve operation instructions is counted for each output of the solenoid valve.

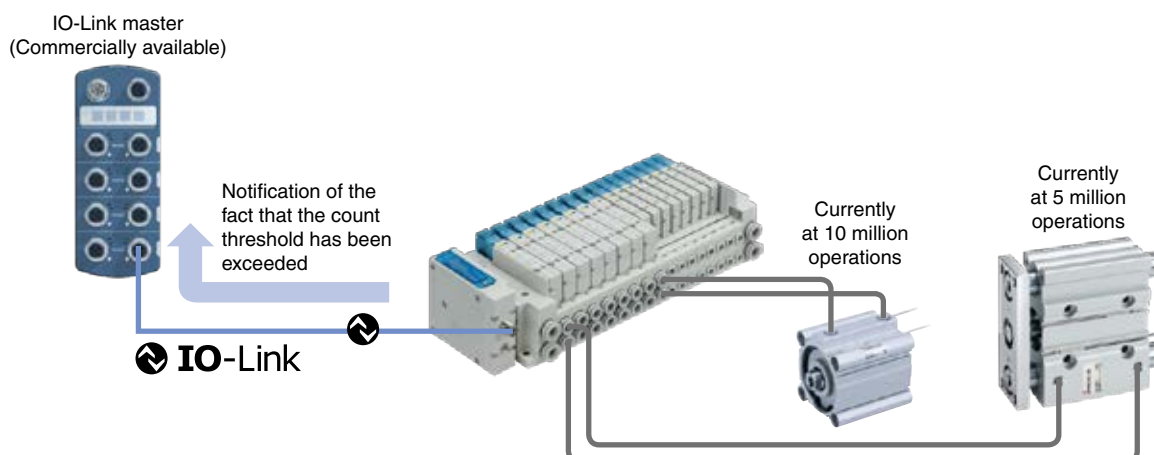
Set the count threshold value to be used as a guide for maintenance according to the operating conditions of the cylinder connected to the solenoid valve.



Once the threshold value is reached, notification of this fact will take place automatically.



This enables periodic maintenance to be performed before any unexpected cylinder failures occur.



CONTENTS

Fieldbus System (Output device for driving 5-port solenoid valves) **EX260 Series**



| | |
|------------------------------------|-------|
| How to Order SI Units | p. 6 |
| Specifications | p. 7 |
| Dimensions | p. 8 |
| Parts Description | p. 9 |
| LED Indicator | p. 10 |

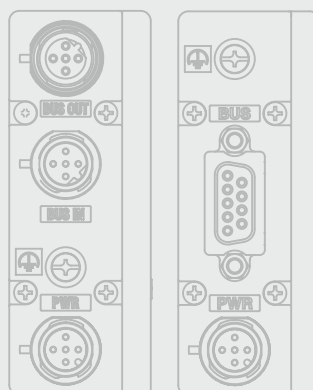
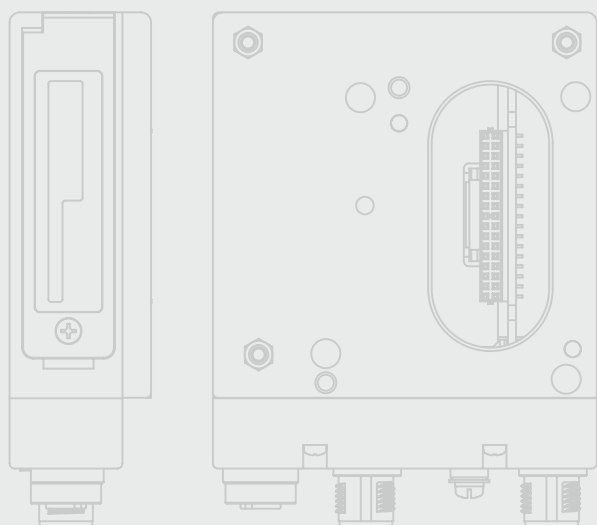
Accessories

| | |
|--|-------|
| ① Communication Cable | p. 11 |
| ② Field-wireable Communication Connector | p. 17 |
| ③ Power Supply Cable (For SI unit) | p. 18 |
| ④ Power Supply Cable (For SI unit/For power block) ... | p. 19 |
| ⑤ Seal Cap (10 pcs.) | p. 19 |
| ⑥ Output Block | p. 20 |
| ⑦ Power Block | p. 20 |
| ⑧ Connector for Output Block Wiring | p. 21 |
| ⑨ End Plate | p. 21 |
| ⑩ Bracket Plate/DIN Rail Mounting Bracket | p. 21 |

Made to Order

| | |
|---|-------|
| SI Unit | |
| EtherNet/IP™ Web server function compatible | p. 22 |
| Communication Cable | p. 22 |
| Power Supply Cable | p. 23 |

| | |
|------------------------------------|-------|
| Specific Product Precautions | p. 24 |
|------------------------------------|-------|



Fieldbus System For Output

EX260 Series



RoHS

| | |
|--------------------------------------|---|
| Compact design | Compact design for space saving |
| Number of outputs | 32/16 digital output type available for each unit in the series (IO-Link is only compatible with the 32-point digital output type.) |
| Output polarity | Negative common (PNP)/positive common (NPN) type available for each unit in the series (Only negative common (PNP) is available for units compatible with Ethernet POWERLINK and IO-Link.) |
| Enclosure | IP67 (For units with a D-sub connector, and when connected with S0700 manifolds, it is IP40.) |
| Internal terminating resistor | ON/OFF switching is possible with an internal terminating resistor for communication. (Only for units compatible with M12 PROFIBUS DP, CC-Link communication connectors) |

Applicable Manifold

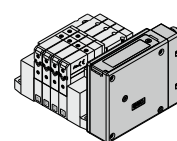
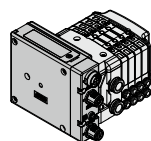
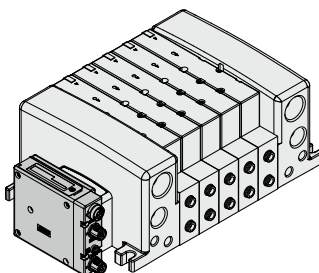
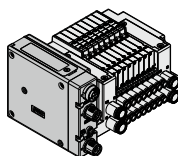
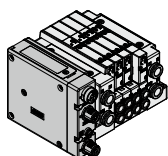
SY3000/5000/7000

JSY1000/3000/5000

VQC1000/2000/4000/5000

S0700

SV1000/2000/3000



How to Order SI Units

EX260 - S PR1

Communication protocol ●

| Symbol | Protocol | Number of outputs | Output polarity | Communication connector | Manifold symbol | Applicable manifold |
|------------|-------------|-------------------|------------------------------|-------------------------|-----------------|--|
| DN1 | DeviceNet™ | 32 | Source/PNP (Negative common) | M12 | QAN | SY3000 SY5000 SY7000 JSY1000 JSY3000 JSY5000 VQC1000 VQC2000 VQC4000 VQC5000 S0700 SV1000 SV2000 SV3000 |
| DN2 | | | Sink/NPN (Positive common) | | QA | |
| DN3 | | 16 | Source/PNP (Negative common) | | QBN | |
| DN4 | | | Sink/NPN (Positive common) | | QB | |
| PR1 | PROFIBUS DP | 32 | Source/PNP (Negative common) | M12 | NAN | |
| PR2 | | | Sink/NPN (Positive common) | | NA | |
| PR3 | | 16 | Source/PNP (Negative common) | | NBN | |
| PR4 | | | Sink/NPN (Positive common) | | NB | |
| PR5 | | 32 | Source/PNP (Negative common) | D-sub*1 | NCN | |
| PR6 | | | Sink/NPN (Positive common) | | NC | |
| PR7 | | 16 | Source/PNP (Negative common) | | NDN | |
| PR8 | | | Sink/NPN (Positive common) | | ND | |
| MJ1 | CC-Link | 32 | Source/PNP (Negative common) | M12 | VAN | SY3000/5000/7000 JSY1000/3000/5000 VQC1000/2000/4000/5000 |
| MJ2 | | | Sink/NPN (Positive common) | | VA | |
| MJ3 | | 16 | Source/PNP (Negative common) | | VBN | |
| MJ4 | | | Sink/NPN (Positive common) | | VB | |

| Symbol | Protocol | Number of outputs | Output polarity | Communication connector | Manifold symbol | Applicable manifold |
|------------|--------------------|-------------------|------------------------------|-------------------------|-----------------|--|
| EC1 | EtherCAT | 32 | Source/PNP (Negative common) | M12 | DAN | SY3000 SY5000 SY7000 JSY1000 JSY3000 JSY5000 VQC1000 VQC2000 VQC4000 VQC5000 S0700 SV1000 SV2000 SV3000 |
| EC2 | | | Sink/NPN (Positive common) | | DA | |
| EC3 | | 16 | Source/PNP (Negative common) | | DBN | |
| EC4 | | | Sink/NPN (Positive common) | | DB | |
| PN1 | PROFINET | 32 | Source/PNP (Negative common) | M12 | FAN | |
| PN2 | | | Sink/NPN (Positive common) | | FA | |
| PN3 | | 16 | Source/PNP (Negative common) | | FBN | |
| PN4 | | | Sink/NPN (Positive common) | | FB | |
| EN1 | EtherNet/IP™ | 32 | Source/PNP (Negative common) | M12 | EAN | SY3000/5000/7000 JSY1000/3000/5000 VQC1000/2000/4000/5000 |
| EN2 | | | Sink/NPN (Positive common) | | EA | |
| EN3 | | 16 | Source/PNP (Negative common) | | EBN | |
| EN4 | | | Sink/NPN (Positive common) | | EB | |
| PL1 | Ethernet POWERLINK | 32 | Source/PNP (Negative common) | M12 | GAN | |
| PL3 | | 16 | | | GBN | |
| IL1 | IO-Link | 32 | Source/PNP (Negative common) | M12 | KAN | |

*1 Enclosure is IP40 when the communication connector is D-sub.



Made to Order

➔ p. 22

EtherNet/IP™ Web server function compatible

* For "How to Order Manifold Assembly," refer to the **Web Catalog** of each valve.



EX260 Series

Specifications

All SI Units Common Specifications

| | | |
|--------------------------|-------------------------------------|--|
| Power supply for control | Power supply voltage | 21.6 to 26.4 VDC*1 |
| | Internal current consumption | 100 mA or less |
| Power supply for output | Power supply voltage | 22.8 to 26.4 VDC |
| Environmental resistance | Enclosure | IP67*2 |
| | Operating temperature range | -10 to +50°C |
| | Operating humidity range | 35 to 85%RH (No condensation) |
| | Withstand voltage | 500 VAC for 1 minute between terminals and housing |
| | Insulation resistance | 10 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing |
| Standards | | CE marking (EMC directive/RoHS directive), UL (CSA) compliant |
| Weight | | 200 g |
| Accessories | Mounting screw | 2 pcs. |
| | Seal cap (for M12 connector socket) | EX9-AWTS (1 pc.)*3 |

*1 To serve as the power supply for communication, the power supply voltages are 11 to 25 VDC for the EX260-SDN□ and 18 to 30 VDC for the EX260-SIL1.

*2 IP40 applies to EX260-SPR5/6/7/8.

*3 Not provided for EX260-SPR5/6/7/8

| Model | | EX260-SPR1/3 | EX260-SPR2/4 | EX260-SPR5/7 | EX260-SPR6/8 | EX260-SDN1/3 | EX260-SDN2/4 | EX260-SMJ1/3 | EX260-SMJ2/4 |
|---------------------------------------|----------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--|--------------------------------------|--|--|
| Applicable system | Protocol | PROFIBUS DP | | | | DeviceNet™ | | CC-Link | |
| | Version*1 | DP-V0 | | | | Volume1 (Edition 3.5) Volume3 (Edition 1.5) | | Ver.1.10 | |
| | Configuration file*3 | GSD file | | | | EDS file | | CSP+ file | |
| I/O occupation area (Inputs/Outputs) | | SPR1: 0/32 SPR3: 0/16 | SPR2: 0/32 SPR4: 0/16 | SPR5: 0/32 SPR7: 0/16 | SPR6: 0/32 SPR8: 0/16 | SDN1: 0/32 SDN3: 0/16 | SDN2: 0/32 SDN4: 0/16 | SMJ1: 32/32 SMJ3: 32/32 (1 station, remote I/O stations) | SMJ2: 32/32 SMJ4: 32/32 (1 station, remote I/O stations) |
| Applicable function | | — | | | | QuickConnect™ | | — | |
| Communication speed | | 9.6 k/19.2 k/45.45 k/93.75 k/ 187.5 k/500 k/1.5 M/3 M/6 M/12 Mbps | | | | 125 k/250 k/500 kbps | | 156 k/625 k/ 2.5 M/5 M/10 Mbps | |
| Communication connector specification | | M12 | | D-sub | | M12 | | | |
| Terminating resistor switch | | Built-in | | None | | | | Built-in | |
| Output | Output type | Source/PNP (Negative common) | Sink/NPN (Positive common) | Source/PNP (Negative common) | Sink/NPN (Positive common) | Source/PNP (Negative common) | Sink/NPN (Positive common) | Source/PNP (Negative common) | Sink/NPN (Positive common) |
| | Number of outputs | SPR1: 32 points SPR3: 16 points | SPR2: 32 points SPR4: 16 points | SPR5: 32 points SPR7: 16 points | SPR6: 32 points SPR8: 16 points | SDN1: 32 points SDN3: 16 points | SDN2: 32 points SDN4: 16 points | SMJ1: 32 points SMJ3: 16 points | SMJ2: 32 points SMJ4: 16 points |
| | Load | Solenoid valve with surge voltage suppressor 24 VDC, 1.5 W or less (SMC) | | | | | | | |
| | Supplied voltage | 24 VDC | | | | | | | |
| | Supplied current | SPR1: Max. 2.0 A SPR3: Max. 1.0 A | SPR2: Max. 2.0 A SPR4: Max. 1.0 A | SPR5: Max. 2.0 A SPR7: Max. 1.0 A | SPR6: Max. 2.0 A SPR8: Max. 1.0 A | SDN1: Max. 2.0 A SDN3: Max. 1.0 A | SDN2: Max. 2.0 A SDN4: Max. 1.0 A | SMJ1: Max. 2.0 A SMJ3: Max. 1.0 A | SMJ2: Max. 2.0 A SMJ4: Max. 1.0 A |

| Model | | EX260-SEC1/3 | EX260-SEC2/4 | EX260-SPN1/3 | EX260-SPN2/4 | EX260-SEN1/3 | EX260-SEN2/4 | EX260-SPL1 | EX260-SPL3 | EX260-SIL1 |
|---|----------------------|---|--------------------------------------|---|--------------------------------------|---|--------------------------------------|---------------------------------|------------|-----------------|
| Applicable system | Protocol | EtherCAT*2 | | PROFINET*2 | | EtherNet/IP™*2 | | Ethernet POWERLINK*2 | | IO-Link |
| | Version*1 | Conformance Test Record V.1.1 | | PROFINET Specification Version 2.2 | | Volume1 (Edition 3.17) Volume2 (Edition 1.18) | | EPSS DS 301 Version 1.2.0 | | V1.1 |
| | Configuration file*3 | XML file | | GSD file | | EDS file | | XDD file | | IODD file |
| I/O occupation area (Inputs/Outputs) | | SEC1: 0/32 SEC3: 0/16 | SEC2: 0/32 SEC4: 0/16 | SPN1: 0/32 SPN3: 0/16 | SPN2: 0/32 SPN4: 0/16 | SEN1: 16/32 SEN3: 16/16 | SEN2: 16/32 SEN4: 16/16 | 16/32 | 16/16 | 0/32 16/32*4 |
| Applicable function | | — | | FSU, MRP | | QuickConnect™, DLR | | — | | — |
| Communication speed | | 100 Mbps*2 | | | | 10 M/100 Mbps*2 | | 100 Mbps*2 | | COM3/COM2*4 |
| Communication connector specification | | M12 | | | | | | | | |
| Terminating resistor switch | | None (Not required) | | | | | | | | |
| Output | Output type | Source/PNP (Negative common) | Sink/NPN (Positive common) | Source/PNP (Negative common) | Sink/NPN (Positive common) | Source/PNP (Negative common) | Sink/NPN (Positive common) | Source/PNP (Negative common) | | |
| | Number of outputs | SEC1: 32 points SEC3: 16 points | SEC2: 32 points SEC4: 16 points | SPN1: 32 points SPN3: 16 points | SPN2: 32 points SPN4: 16 points | SEN1: 32 points SEN3: 16 points | SEN2: 32 points SEN4: 16 points | 32 | 16 | 32 |
| | Load | Solenoid valve with surge voltage suppressor 24 VDC, 1.5 W or less (SMC) | | Solenoid valve with surge voltage suppressor 24 VDC, 1.0 W or less (SMC) | | Solenoid valve with surge voltage suppressor 24 VDC, 1.5 W or less (SMC) | | | | |
| | Supplied voltage | 24 VDC | | | | | | | | |
| | Supplied current | SEC1: Max. 2.0 A SEC3: Max. 1.0 A | SEC2: Max. 2.0 A SEC4: Max. 1.0 A | SPN1: Max. 2.0 A SPN3: Max. 1.0 A | SPN2: Max. 2.0 A SPN4: Max. 1.0 A | SEN1: Max. 2.0 A SEN3: Max. 1.0 A | SEN2: Max. 2.0 A SEN4: Max. 1.0 A | Max. 2 A | Max. 1 A | Max. 2 A |

*1 Please note that the version is subject to change.

*2 Use a CAT5 or higher transmission cable for EtherCAT, PROFINET, EtherNet/IP™, and Ethernet POWERLINK.

*3 The configuration file can be downloaded from the SMC website, <https://www.smcworld.com>

*4 A selection can be made using the setting switch.

Dimensions

M12 communication connector type

For PROFIBUS DP

For DeviceNet™

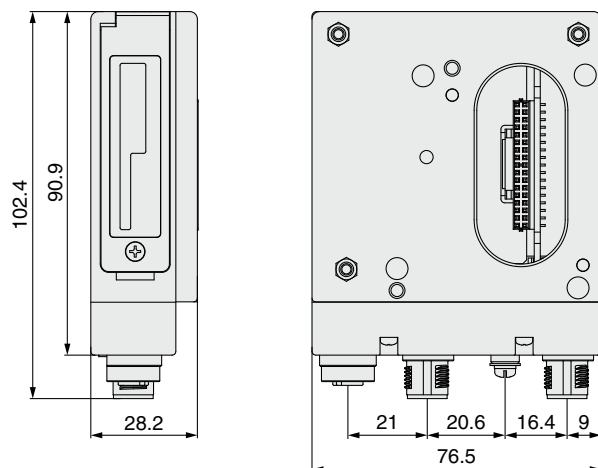
For CC-Link

For EtherCAT

For PROFINET

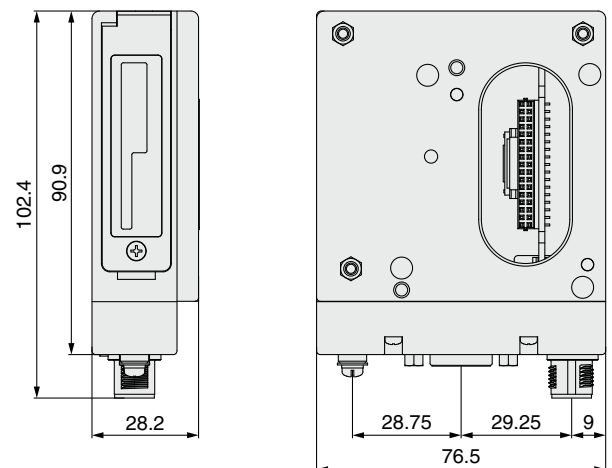
For EtherNet/IP™

For Ethernet POWERLINK



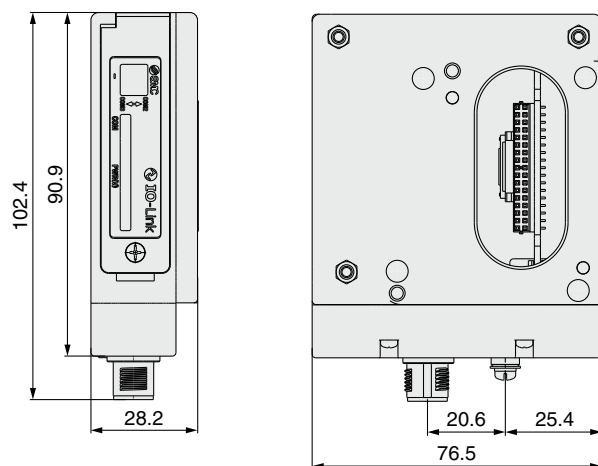
D-sub communication connector type (EX260-SPR5/6/7/8)

For PROFIBUS DP



M12 communication connector type

For IO-Link

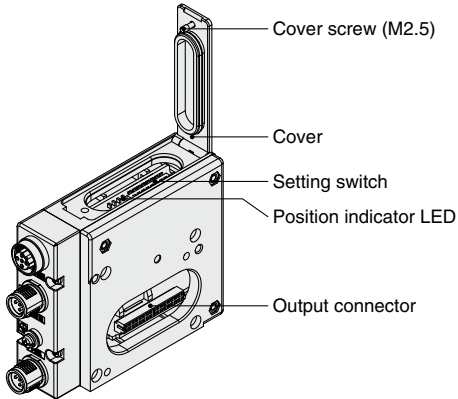


EX260 Series

Parts Description

For PROFIBUS DP For DeviceNet™ For CC-Link

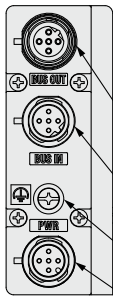
For EtherCAT For PROFINET For EtherNet/IP™ For Ethernet POWERLINK



* The setting switch varies depending on the model.
Refer to the operation manual for details.
It can be downloaded via the SMC website: <https://www.smcworld.com>

<Connector>

M12 communication connector type



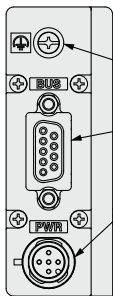
| Part no. | EX260-SPR1/-SPR2 -SPR3/-SPR4 | EX260-SDN□ | EX260-SMJ□ | EX260-SEC□ EX260-SPN□ EX260-SEN□ EX260-SPL□ |
|---------------------------------------|--------------------------------------|--------------------------------------|--|--|
| Communication protocol | PROFIBUS DP | DeviceNet™ | CC-Link | EtherCAT PROFINET EtherNet/IP™ Ethernet POWERLINK |
| Communication connector (M12) BUS OUT | 5 pins, socket, B code (SPEEDCON) | 5 pins, socket, A code (SPEEDCON) | 5 pins, socket, A code* ¹ (SPEEDCON) | 4 pins, socket, D code (SPEEDCON) |
| Communication connector (M12) BUS IN | 5 pins, plug, B code (SPEEDCON) | 5 pins, plug, A code (SPEEDCON) | 4 pins, plug, A code (SPEEDCON) | 4 pins, socket, D code (SPEEDCON) |
| Ground terminal | M3 | | | |
| Power connector (M12) | 5 pins, plug, A code (SPEEDCON) | 4 pins, plug, A code (SPEEDCON) | 5 pins, plug, B code (SPEEDCON) | 5 pins* ² , 4 pins* ³ , plug, A code (SPEEDCON) |

*¹ Recommended mating M12
4-pin plug part no.:
PCA-1567717

*² For EtherCAT, PROFINET,
and Ethernet POWERLINK

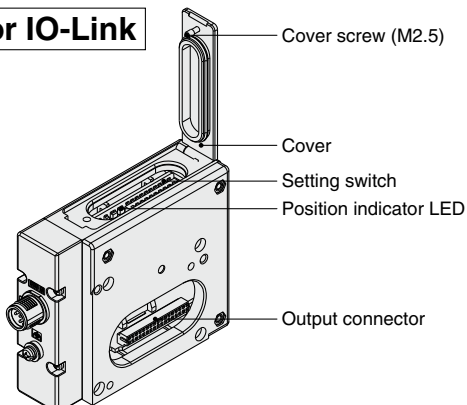
*³ For EtherNet/IP™

D-sub communication connector type

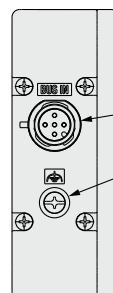


| Part no. | EX260-SPR5/-SPR6/-SPR7/-SPR8 |
|--|------------------------------|
| Communication protocol | PROFIBUS DP |
| Ground terminal | M3 |
| Communication connector (D-sub) BUS IN/OUT | 9 pins, socket |
| Power connector (M12) | 5 pins, plug, A code |

For IO-Link



<Connector>



| Part no. | EX260-SIL1 |
|---|--|
| Communication protocol | IO-Link |
| Communication/ Power connector (M12) | 5 pins, plug,* ¹ A code (SPEEDCON) |
| Ground terminal | M3 |

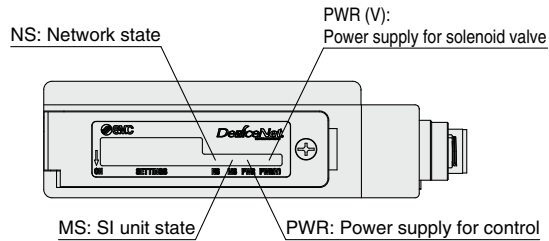
*¹ The communication line, SI unit power supply line, and the solenoid valve power supply line are connected using the same cable.

* The setting switch varies depending on the model.
Refer to the operation manual for details.
It can be downloaded via the SMC website: <https://www.smcworld.com>

LED Indicator

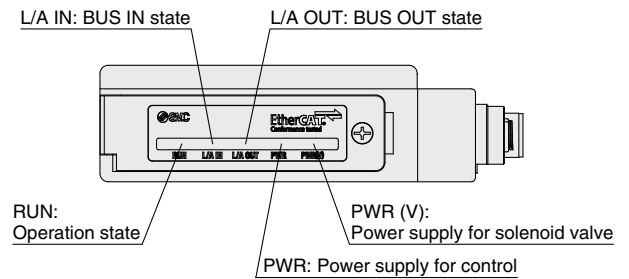
For DeviceNet™

EX260-SDN□



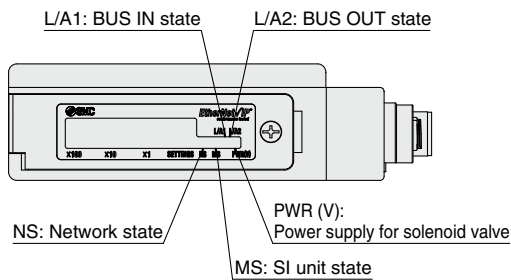
For EtherCAT

EX260-SEC□



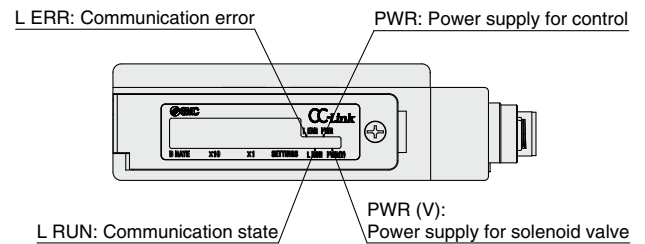
For EtherNet/IP™

EX260-SEN□



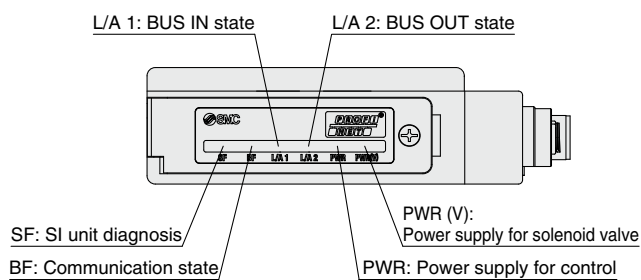
For CC-Link

EX260-SMJ□



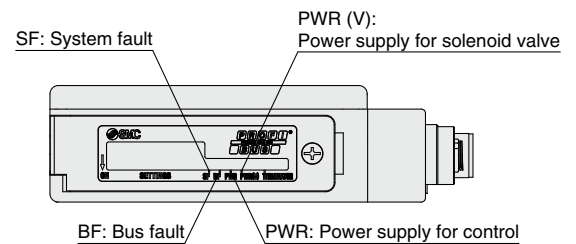
For PROFINET

EX260-SPN□



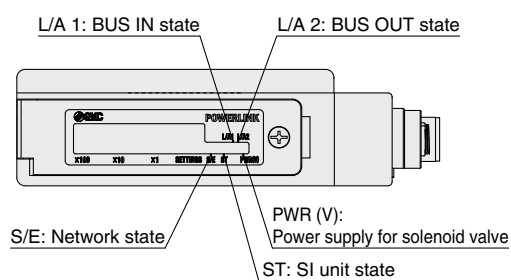
For PROFIBUS DP

EX260-SPR□



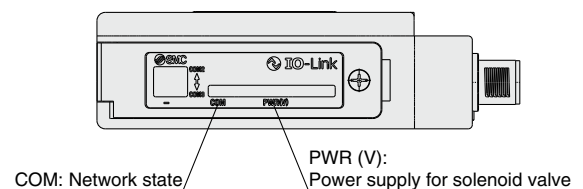
For Ethernet POWERLINK

EX260-SPL□



For IO-Link

EX260-SIL1

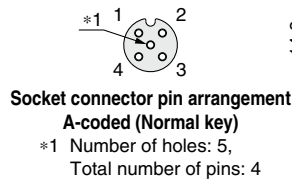


EX260 Series Accessories

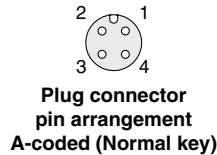
① Communication Cable

For CC-Link

PCA-1567720
(Socket)

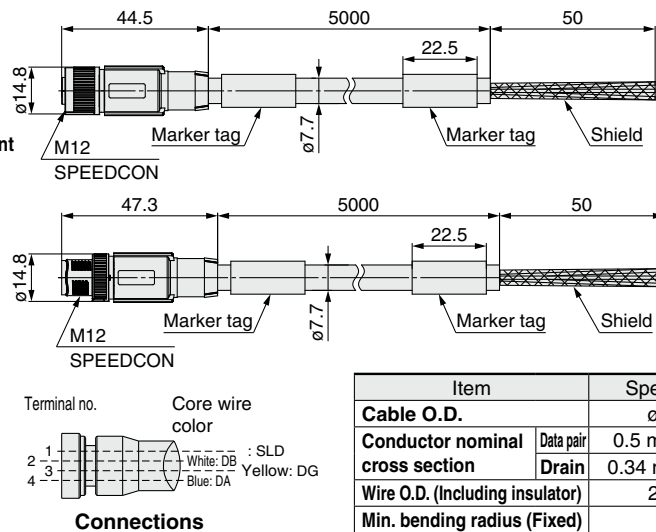


PCA-1567717
(Plug)



Made to Order

| | | |
|--------------|----------|-------|
| Cable length | 10000 mm | p. 22 |
|--------------|----------|-------|

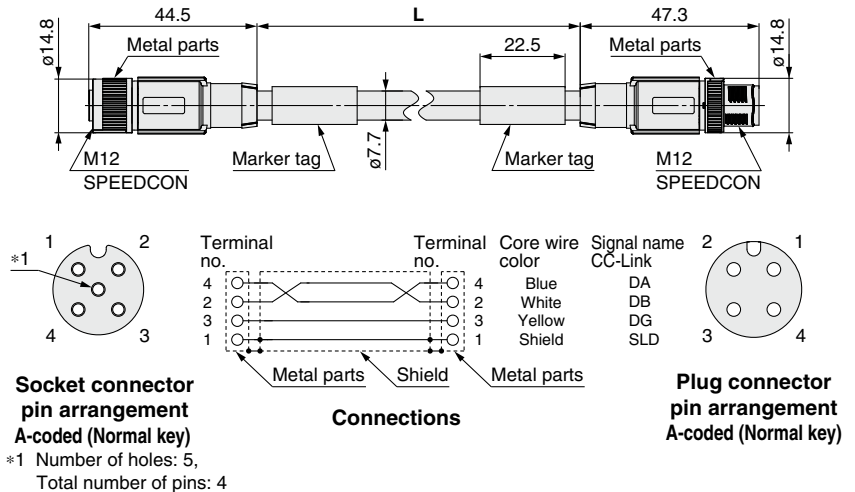


EX9-AC 005 MJ-SSPS (With connector on both sides (Socket/Plug))

• Cable length (L)

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

| Item | Specifications |
|---------------------------------|---|
| Cable O.D. | ø7.7 mm |
| Conductor nominal cross section | Data pair 0.5 mm ² /AWG20 Drain 0.34 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 2.55 mm |
| Min. bending radius (Fixed) | 77 mm |

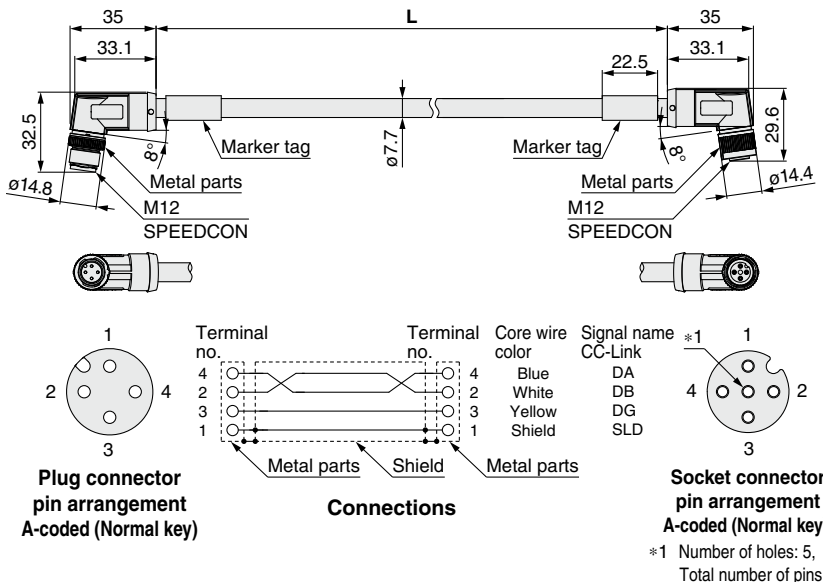


EX9-AC 005 MJ-SAPA (With angled connector on both sides (Socket/Plug))

• Cable length (L)

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

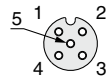
| Item | Specifications |
|---------------------------------|---|
| Cable O.D. | ø7.7 mm |
| Conductor nominal cross section | Data pair 0.5 mm ² /AWG20 Drain 0.34 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 2.55 mm |
| Min. bending radius (Fixed) | 77 mm |



1 Communication Cable

For DeviceNet™
PCA-1557633

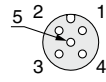
(Socket)



Socket connector
pin arrangement
A-coded (Normal key)

PCA-1557646

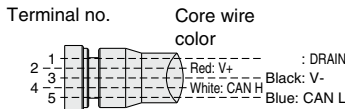
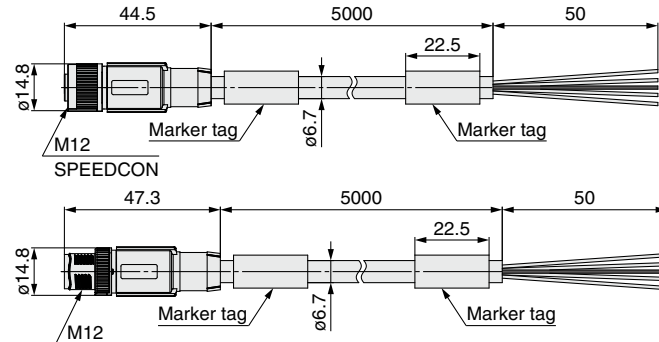
(Plug)



Plug connector
pin arrangement
A-coded (Normal key)


Made to Order

| | | |
|--------------|----------|-------|
| Cable length | 10000 mm | p. 22 |
|--------------|----------|-------|



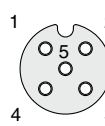
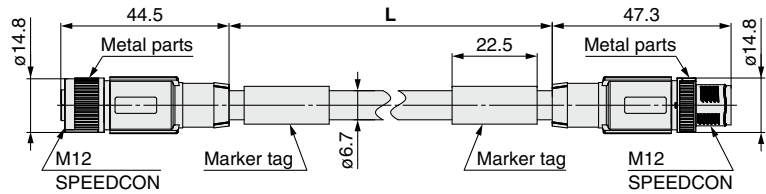
Connections

| Item | Specifications |
|---------------------------------|---|
| Cable O.D. | ø6.7 mm |
| Conductor nominal cross section | Power pair 0.34 mm ² /AWG22 Data pair 0.25 mm ² /AWG24 |
| Wire O.D. (Including insulator) | Power pair 1.4 mm Data pair 2.05 mm |
| Min. bending radius (Fixed) | 67 mm |

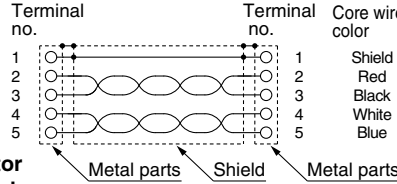
EX9-AC 005 DN-SSPS (With connector on both sides (Socket/Plug))

Cable length (L)

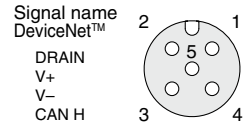
| | |
|-----|----------|
| 005 | 500 mm |
| 010 | 1000 mm |
| 020 | 2000 mm |
| 030 | 3000 mm |
| 050 | 5000 mm |
| 100 | 10000 mm |



Socket connector
pin arrangement
A-coded (Normal key)



Connections



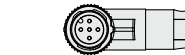
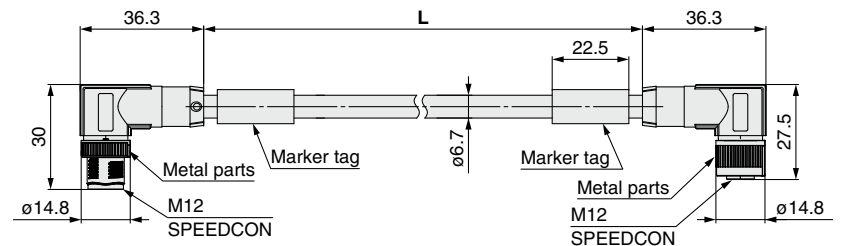
Plug connector
pin arrangement
A-coded (Normal key)

| Item | Specifications |
|---------------------------------|---|
| Cable O.D. | ø6.7 mm |
| Conductor nominal cross section | Power pair 0.34 mm ² /AWG22 Data pair 0.25 mm ² /AWG24 |
| Wire O.D. (Including insulator) | Power pair 1.4 mm Data pair 2.05 mm |
| Min. bending radius (Fixed) | 67 mm |

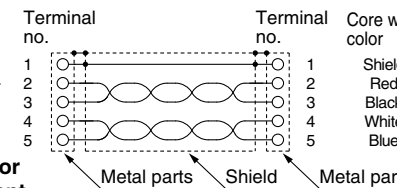
EX9-AC 005 DN-SAPA (With angled connector on both sides (Socket/Plug))

Cable length (L)

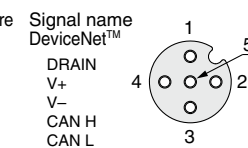
| | |
|-----|----------|
| 005 | 500 mm |
| 010 | 1000 mm |
| 020 | 2000 mm |
| 030 | 3000 mm |
| 050 | 5000 mm |
| 100 | 10000 mm |



Plug connector
pin arrangement
A-coded (Normal key)



Connections



Socket connector
pin arrangement
A-coded (Normal key)

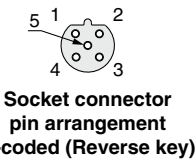
| Item | Specifications |
|---------------------------------|---|
| Cable O.D. | ø6.7 mm |
| Conductor nominal cross section | Power pair 0.34 mm ² /AWG22 Data pair 0.25 mm ² /AWG24 |
| Wire O.D. (Including insulator) | Power pair 1.4 mm Data pair 2.05 mm |
| Min. bending radius (Fixed) | 67 mm |

EX260 Series

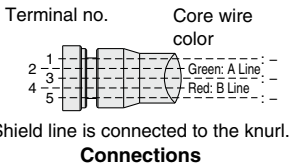
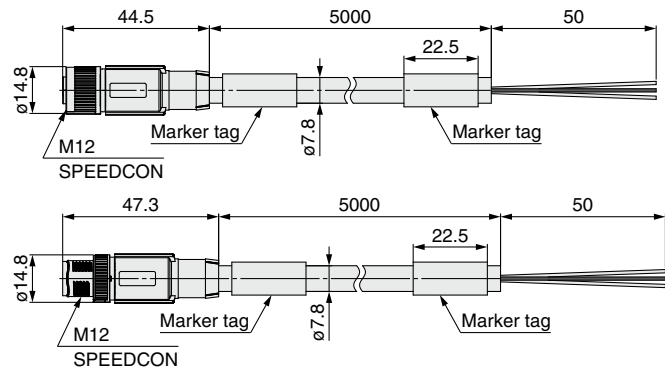
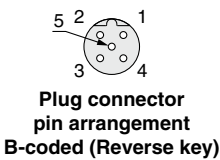
① Communication Cable

For PROFIBUS DP

PCA-1557688
(Socket)



PCA-1557691
(Plug)



| Item | Specifications |
|---------------------------------|-----------------------------|
| Cable O.D. | 7.8 mm |
| Conductor nominal cross section | 0.34 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 2.55 mm |
| Min. bending radius (Fixed) | 78 mm |

For EtherCAT

For PROFINET

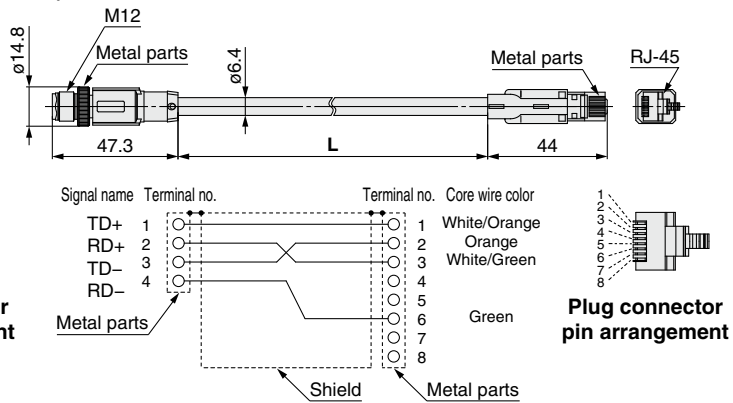
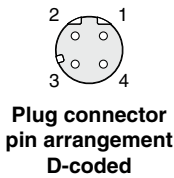
For EtherNet/IP™

For Ethernet POWERLINK

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

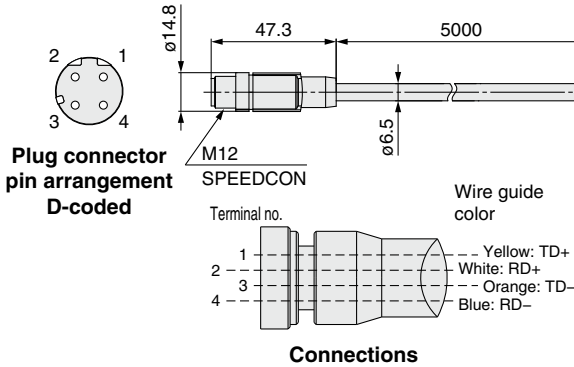
• Cable length (L)

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



| Item | Specifications |
|---------------------------------|-----------------------------|
| Cable O.D. | 6.4 mm |
| Conductor nominal cross section | 0.14 mm ² /AWG26 |
| Wire O.D. (Including insulator) | 0.98 mm |
| Min. bending radius (Fixed) | 26 mm |

PCA-1446566 (Plug)



| Item | Specifications |
|---------------------------------|-----------------------------|
| Cable O.D. | 6.5 mm |
| Conductor nominal cross section | 0.34 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 1.55 mm |
| Min. bending radius (Fixed) | 19.5 mm |

① Communication Cable

For EtherCAT

For PROFINET

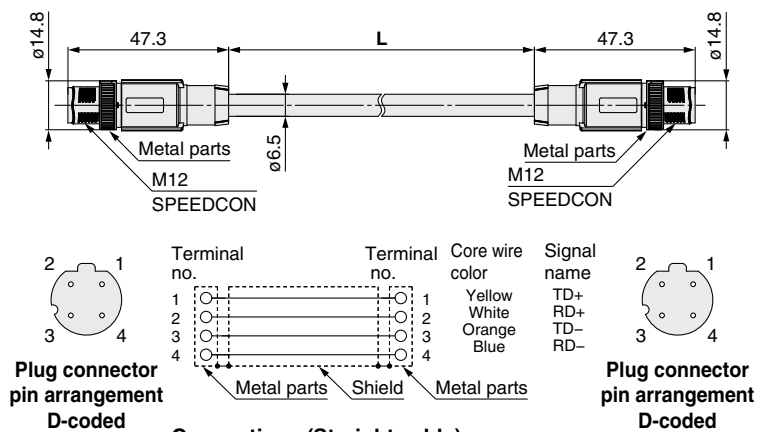
For EtherNet/IP™

For Ethernet POWERLINK

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 |

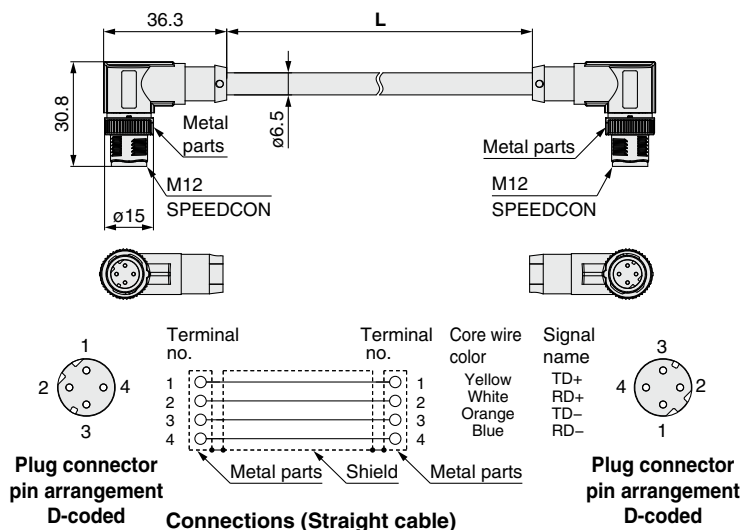


| Item | Specifications |
|---------------------------------|-----------------------------|
| Cable O.D. | 6.5 mm |
| Conductor nominal cross section | 0.34 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 1.55 mm |
| Min. bending radius (Fixed) | 19.5 mm |

EX9-AC 005 EN-PAPA (With angled 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 |



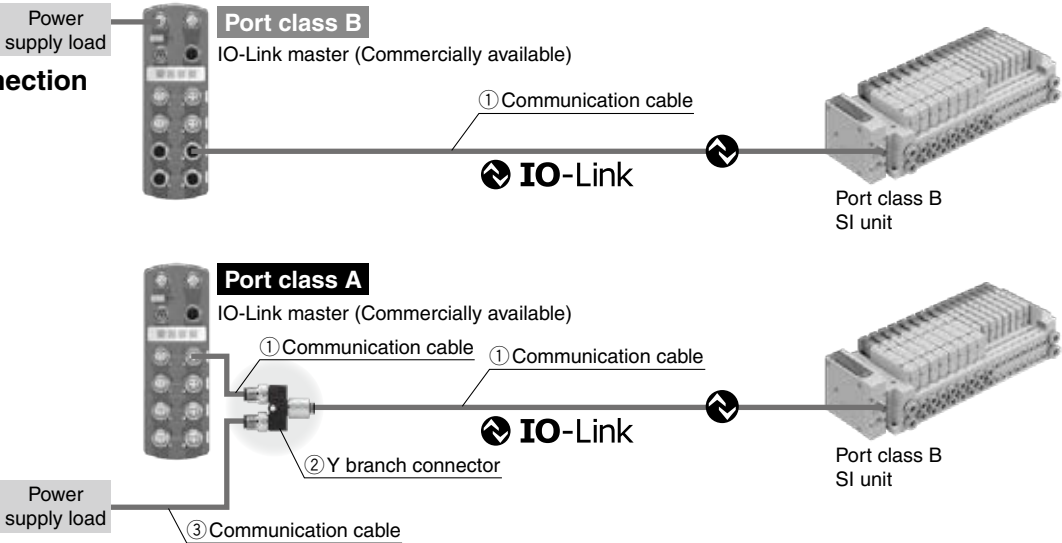
| Item | Specifications |
|---------------------------------|-----------------------------|
| Cable O.D. | 6.5 mm |
| Conductor nominal cross section | 0.34 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 1.55 mm |
| Min. bending radius (Fixed) | 19.5 mm |

EX260 Series

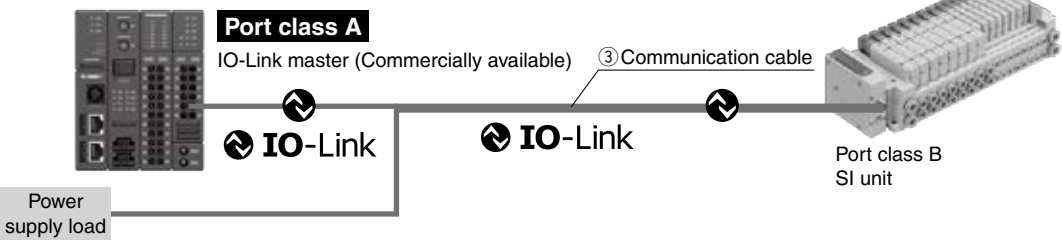
① Communication Cable

For IO-Link

Example of Connection



Terminal block wiring type

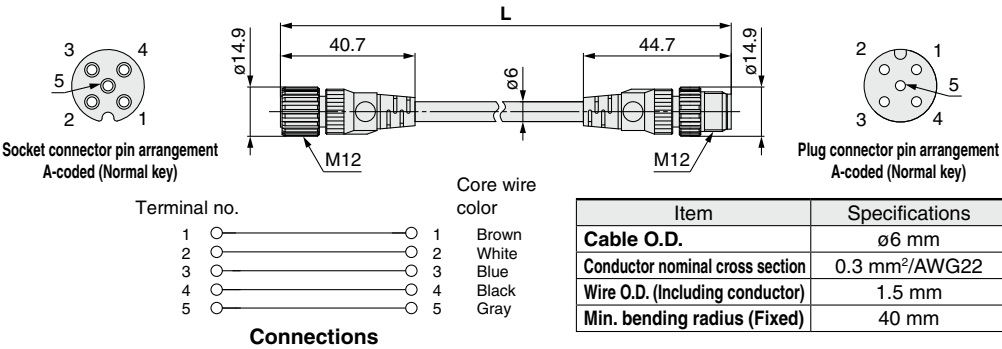


① Communication Cable

EX9-AC 005 -SSPS (With connector on both sides (Socket/Plug))

● Cable length (L)

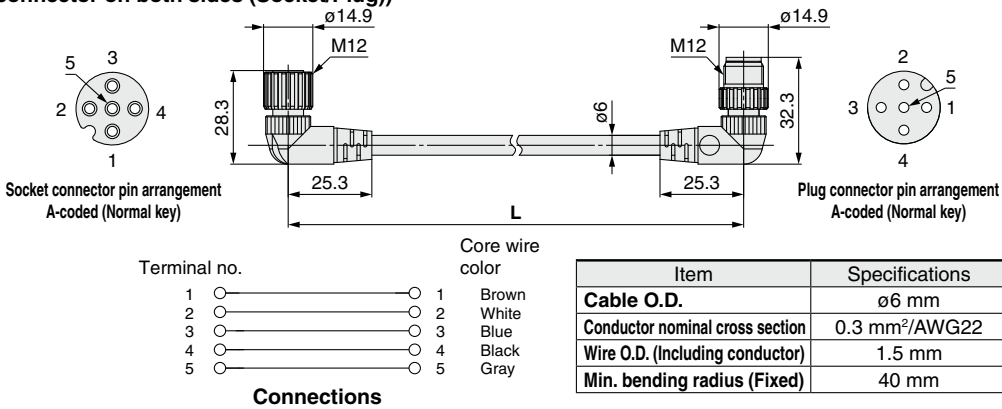
| | |
|-----|----------|
| 005 | 500 mm |
| 010 | 1000 mm |
| 020 | 2000 mm |
| 030 | 3000 mm |
| 050 | 5000 mm |
| 100 | 10000 mm |



EX9-AC 005 -SAPA (With connector on both sides (Socket/Plug))

● Cable length (L)

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



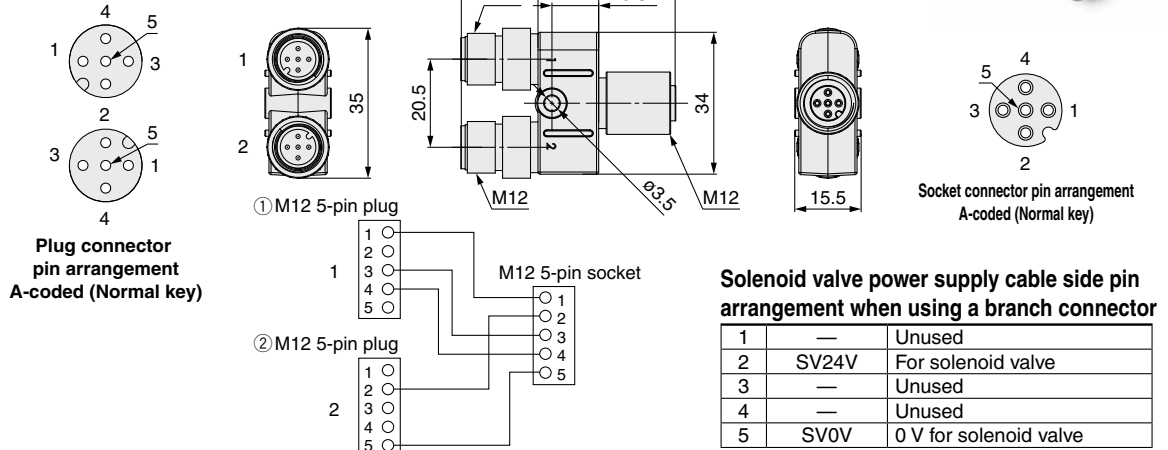
① Communication Cable

For IO-Link

② Y branch connector

This connector is used to supply power to the valve manifold by branching the IO-Link communication cable in cases where a port class A IO-Link master is used.

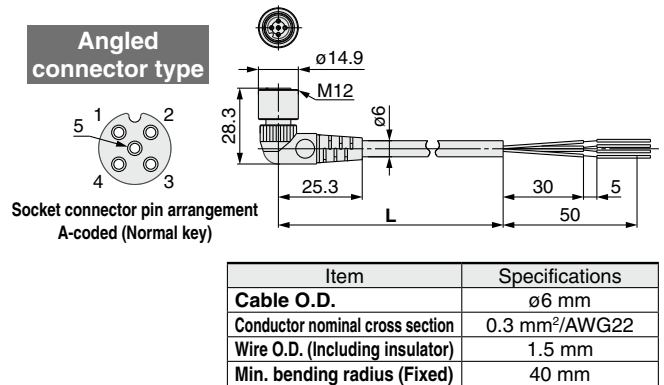
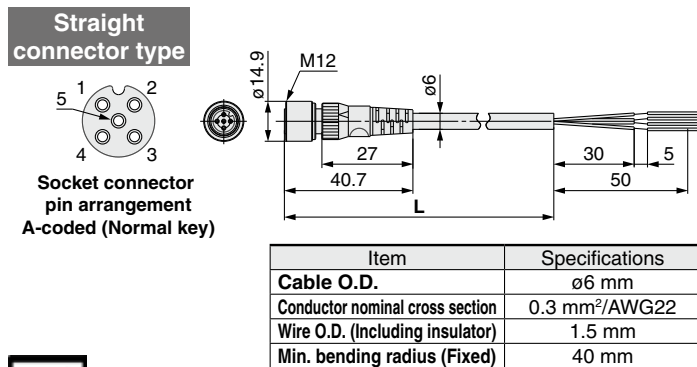
EX9-ACY02-S



③ Communication cable

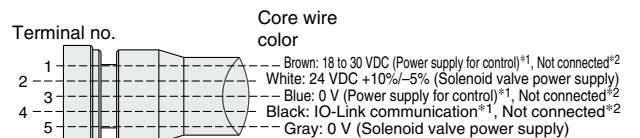
EX500-AP 050-S

| | |
|-------------------------|--------------------------------|
| Cable length (L) | Connector specification |
| 010 1000 mm | S Straight |
| 050 5000 mm | A Angled |



Made to Order

| | | |
|--------------|----------|-------|
| Cable length | 10000 mm | p. 23 |
|--------------|----------|-------|



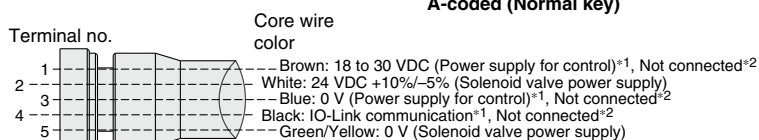
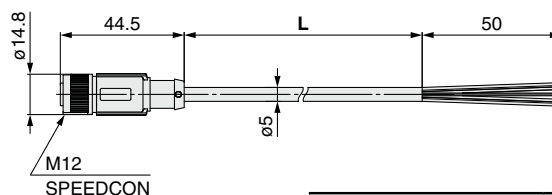
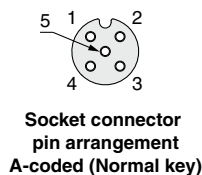
Connections (IO-Link)

*1 When used as an IO-Link communication cable
*2 When used as a solenoid valve power supply cable

PCA-1401804

Cable length (L)

| | |
|----------------|---------|
| 1401804 | 1500 mm |
| 1401805 | 3000 mm |
| 1401806 | 5000 mm |



Connections (IO-Link)

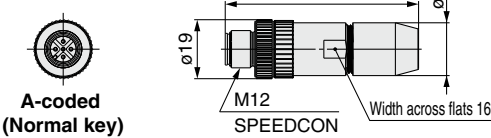
*1 When used as an IO-Link communication cable *2 When used as a solenoid valve power supply cable

EX260 Series

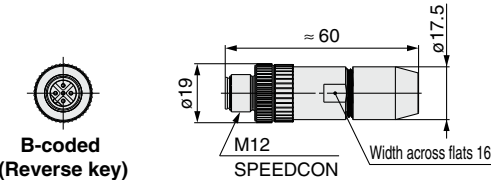
② Field-wireable Communication Connector

Plug

For CC-Link For DeviceNet™
PCA-1075526 PCA-1075528



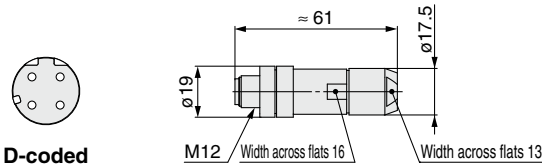
For PROFIBUS DP
PCA-1075530



Applicable Cable

| Item | Specifications |
|--|---|
| Cable O.D. | 4.0 to 8.0 mm |
| Wire gauge (Stranded wire cross section) | 0.14 to 0.75 mm²/AWG26 to 18 (Solid cable/Flexible cable) 0.08 to 0.5 mm²/AWG28 to 20 (With ferrule) |

For EtherCAT For PROFINET For EtherNet/IP™ For Ethernet POWERLINK
PCA-1446553



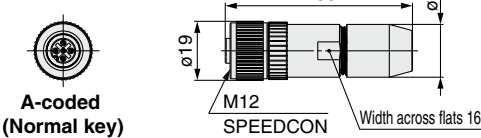
Applicable Cable

| 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 |

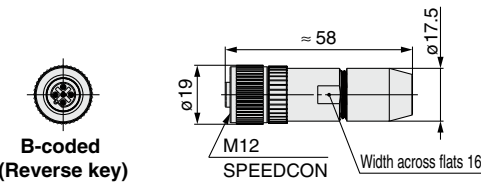
* The table above shows the specifications for the applicable cable. Adaptation for the connector may vary on account of the conductor construction of the electric wire.

Socket

For CC-Link For DeviceNet™
PCA-1075527 PCA-1075529



For PROFIBUS DP
PCA-1075531



Applicable Cable

| Item | Specifications |
|--|---|
| Cable O.D. | 4.0 to 8.0 mm |
| Wire gauge (Stranded wire cross section) | 0.14 to 0.75 mm²/AWG26 to 18 (Solid cable/Flexible cable) 0.08 to 0.5 mm²/AWG28 to 20 (With ferrule) |

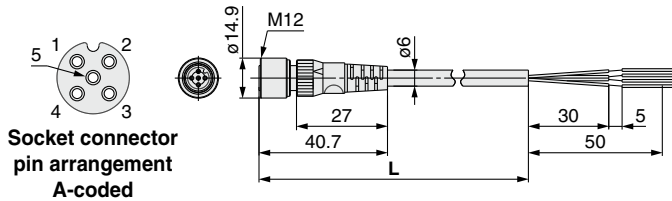
③ Power Supply Cable (For SI unit)

For PROFIBUS DP For DeviceNet™ For EtherCAT For PROFINET For EtherNet/IP™ For Ethernet POWERLINK

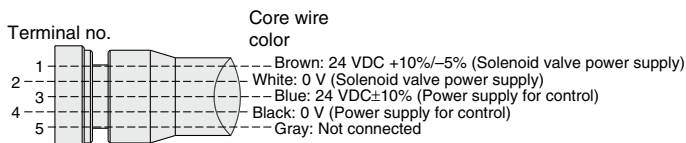
EX500-AP **050** - **S**

| Cable length (L) | | Connector specification | |
|------------------|---------|-------------------------|----------|
| 010 | 1000 mm | S | Straight |
| 050 | 5000 mm | A | Angled |

Straight connector type

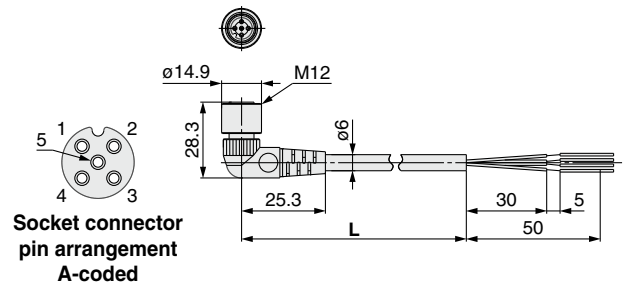


| Item | Specifications |
|--|----------------------------|
| Cable O.D. | ø6 mm |
| Conductor nominal cross section | 0.3 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 1.5 mm |
| Min. bending radius (Fixed) | 40 mm |

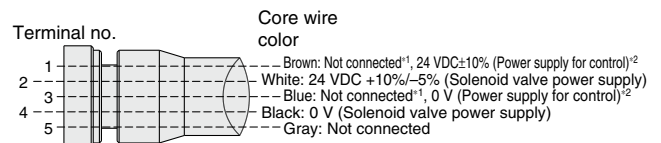


Connections (PROFIBUS DP/EtherCAT/PROFINET/Ethernet POWERLINK)

Angled connector type



| Item | Specifications |
|--|----------------------------|
| Cable O.D. | ø6 mm |
| Conductor nominal cross section | 0.3 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 1.5 mm |
| Min. bending radius (Fixed) | 40 mm |



Connections (DeviceNet™, EtherNet/IP™)

*1 For DeviceNet™
*2 For EtherNet/IP™



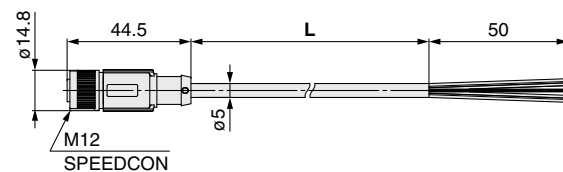
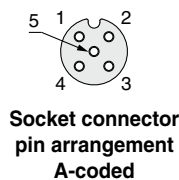
Made to Order

| | | |
|--------------|----------|-------|
| Cable length | 10000 mm | p. 23 |
|--------------|----------|-------|

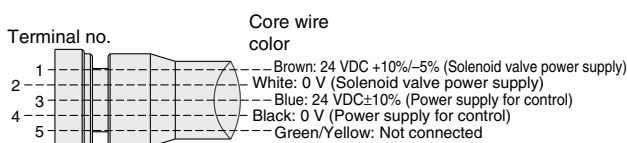
PCA- **1401804**

Cable length (L)

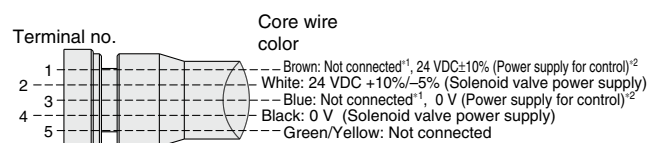
| | |
|----------------|---------|
| 1401804 | 1500 mm |
| 1401805 | 3000 mm |
| 1401806 | 5000 mm |



| Item | Specifications |
|--|-----------------------------|
| Cable O.D. | ø5 mm |
| Conductor nominal cross section | 0.34 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 1.27 mm |
| Min. bending radius (Fixed) | 21.7 mm |



Connections (PROFIBUS DP/EtherCAT/PROFINET/Ethernet POWERLINK)



Connections (DeviceNet™, EtherNet/IP™)

*1 For DeviceNet™
*2 For EtherNet/IP™

EX260 Series

④ Power Supply Cable (For SI unit/For power block)

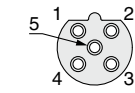
For CC-Link For Power block

Straight connector type

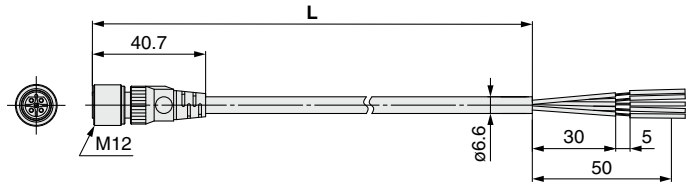
EX9-AC 050 - 1

● Cable length (L)

| | |
|-----|---------|
| 010 | 1000 mm |
| 030 | 3000 mm |
| 050 | 5000 mm |



Socket connector
pin arrangement
B-coded

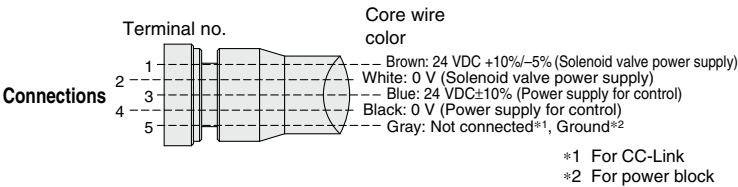


| Item | Specifications |
|---------------------------------|----------------------------|
| Cable O.D. | 6.6 mm |
| Conductor nominal cross section | 0.3 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 1.65 mm |
| Min. bending radius (Fixed) | 40 mm |



Made to Order

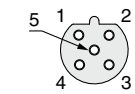
| | | |
|--------------|----------|-------|
| Cable length | 10000 mm | p. 23 |
|--------------|----------|-------|



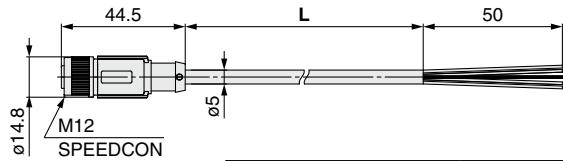
PCA- 1401807

● Cable length (L)

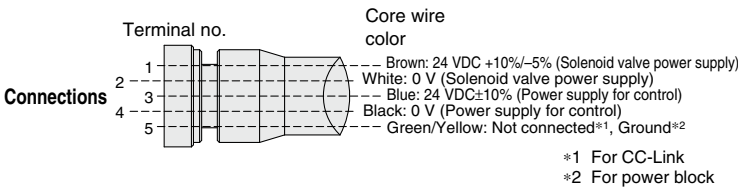
| | |
|---------|---------|
| 1401807 | 1500 mm |
| 1401808 | 3000 mm |
| 1401809 | 5000 mm |



Socket connector
pin arrangement
B-coded



| Item | Specifications |
|---------------------------------|-----------------------------|
| Cable O.D. | 5 mm |
| Conductor nominal cross section | 0.34 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 1.27 mm |
| Min. bending radius (Fixed) | 21.7 mm |



⑤ Seal Cap (10 pcs.)

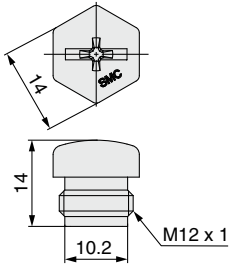
Use this on ports that are not being used for communication connector (M12 connector socket).
Use of this seal cap maintains the integrity of the IP67 enclosure.

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

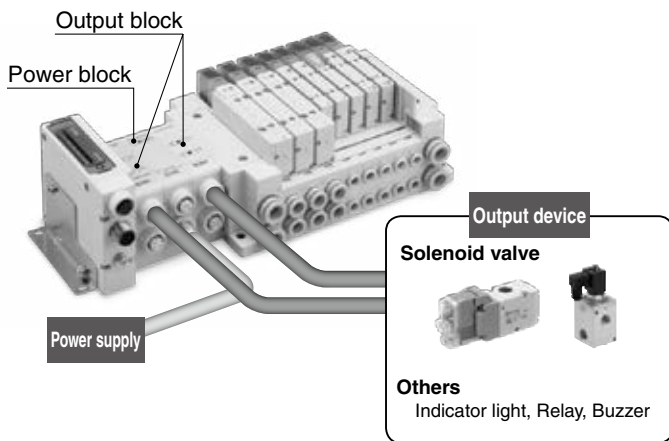
EX9-AW TS

● Connector specification

| | |
|----|------------------------------------|
| TS | For M12 connector socket (10 pcs.) |
|----|------------------------------------|



For M12 connector socket

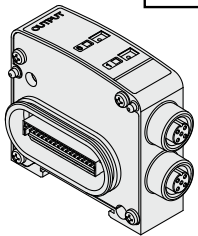


- Output devices other than valve manifold can be operated.
- By using the power block and output block for high watt load, operation up to 0.5 A/point can be performed.
- Possible to mount the output block and power block additionally between the SI unit and the solenoid valve (The surplus I/O points 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>

⑥ Output Block

EX9-OE **T** **1**



● Output specification

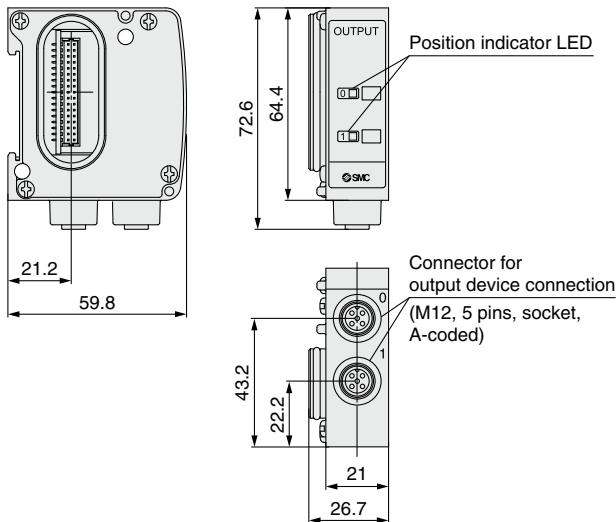
| | |
|---|------------------------------|
| 1 | Source/PNP (Negative common) |
| 2 | Sink/NPN (Positive common) |

● 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

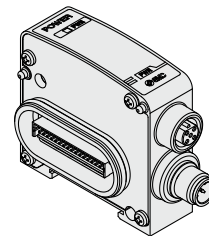


Specifications

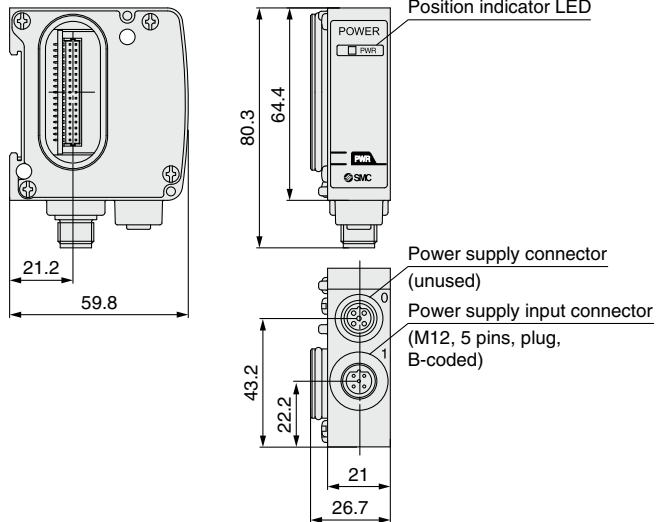
| Model | | EX9-OET1 | EX9-OET2 | EX9-OEP1 | EX9-OEP2 |
|------------------------------|------------------------------|---|-------------------------------|--|-------------------------------|
| Internal current consumption | | 40 mA or less | | | |
| Output | Output type | Source/PNP (Negative common) | Sink/NPN (Positive common) | Source/PNP (Negative common) | Sink/NPN (Positive 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 marking (EMC directive/RoHS directive), UL (CSA) | | | |
| Weight | | 120 g | | | |

⑦ Power Block

EX9-PE1



Dimensions/Parts Description



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 marking (EMC directive/RoHS directive), UL (CSA) |
| Weight | 120 g |
| Enclosed parts | Seal cap (for M12 connector) 1 pc. |

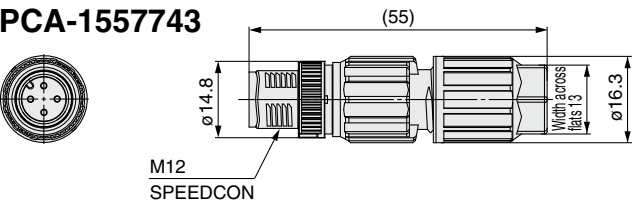
*1 When using with 3.0 to 3.1 A, the ambient temperature should not exceed 40°C, and do not bundle the cable.

EX260 Series

8 Connector for Output Block Wiring

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

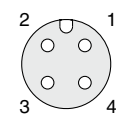
PCA-1557743



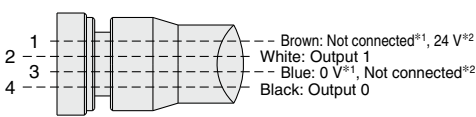
Applicable Cable

| Item | Specifications |
|--|---|
| Cable O.D. | 3.5 to 6.0 mm |
| Wire gauge (Stranded wire cross section) | 0.14 to 0.34 mm ² /AWG26 to 22 |
| Core wire diameter (Including insulating material) | 0.7 to 1.3 mm |

A-coded



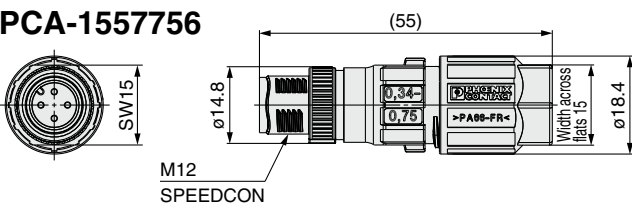
Plug pin arrangement



Connections

- *1 When used for EX9-OE□1
- *2 When used for EX9-OE□2

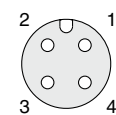
PCA-1557756



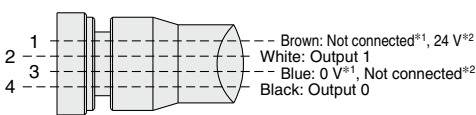
Applicable Cable

| Item | Specifications |
|--|---|
| Cable O.D. | 4.0 to 8.0 mm |
| Wire gauge (Stranded wire cross section) | 0.34 to 0.75 mm ² /AWG22 to 18 |
| Core wire diameter (Including insulating material) | 1.3 to 2.5 mm |

A-coded



Plug pin arrangement



Connections

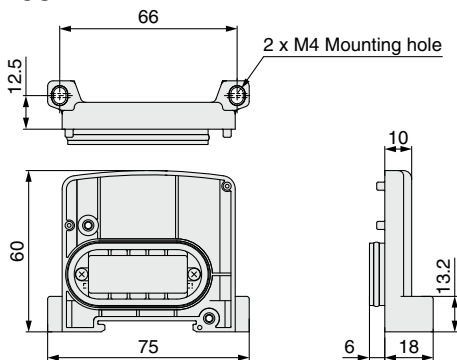
- *1 When used for EX9-OE□1
- *2 When used for EX9-OE□2

Refer to page 19 for the power supply cable for power block.

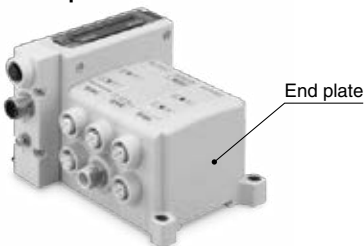
9 End Plate

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

EX9-EA03



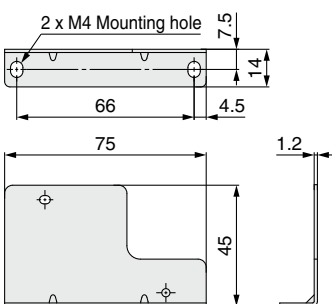
<Example of use>



10 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

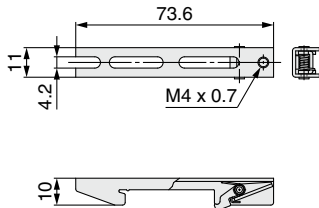


Accessory

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

EX9-BD1

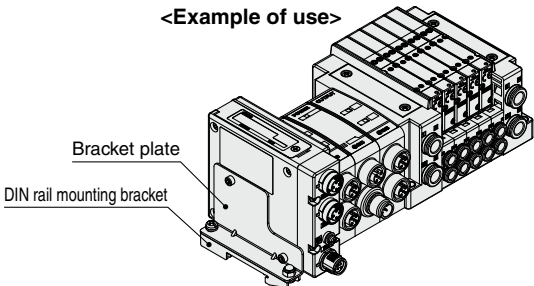
(For VQC, S0700, SV)



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>



EX260 Series Made to Order

Please contact SMC for detailed specifications and lead times.



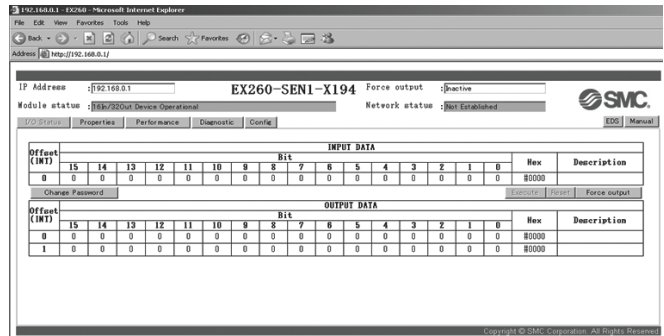
SI Unit

Prepare the SI unit and valve manifold (without SI unit) separately, and combine them before use.

EtherNet/IP™ Web server function compatible

EX260-SEN1-X194

- Web server compatible: Can conduct a solenoid valve operation test (ON/OFF), check communication state, set QuickConnect™, etc.
- Applicable to the power supply taken from Rockwell Automation's safe output module with pulse test function
- Compliant with QuickConnect™ class A specifications
- The gateway address is set to 192.168.□.001 when the IP address is set by the rotary switch.
- Dimensions are the same as those of the standard type.



Web server screen (Example)

Communication Cable

With connector on one side (Socket)
Cable length: 10000 mm

For CC-Link

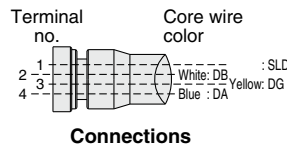
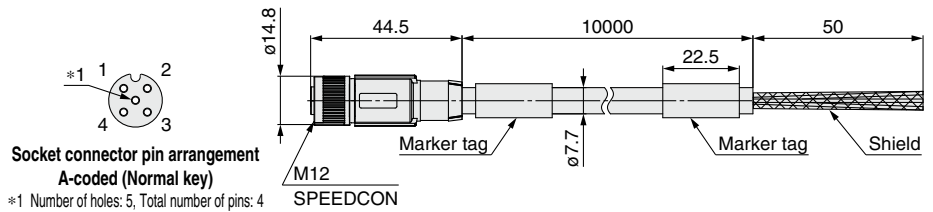
For DeviceNet™

EX9-AC100 **MJ**-X12

• Applicable protocol

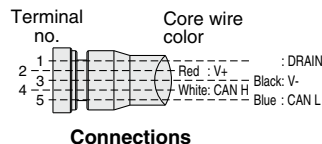
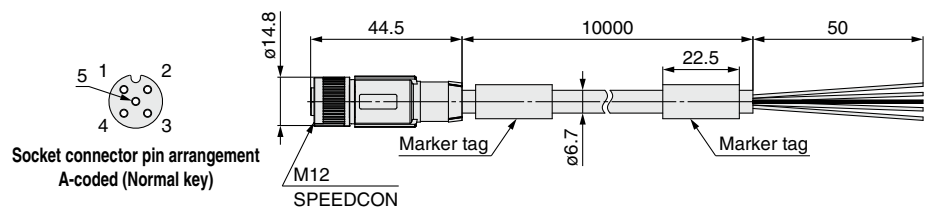
| | |
|-----------|------------|
| MJ | CC-Link |
| DN | DeviceNet™ |

For CC-Link



| Item | Specifications |
|--|---|
| Cable O.D. | ø7.7 mm |
| Conductor nominal cross section | Data pair 0.5 mm²/AWG20 Drain 0.34 mm²/AWG22 |
| Wire O.D. (Including insulator) | 2.55 mm |
| Min. bending radius (Fixed) | 77 mm |

For DeviceNet™



| Item | Specifications |
|--|---|
| Cable O.D. | ø6.7 mm |
| Conductor nominal cross section | Power pair 0.34 mm²/AWG22 Data pair 0.25 mm²/AWG24 |
| Wire O.D. (Including insulator) | Power pair 1.4 mm Data pair 2.05 mm |
| Min. bending radius (Fixed) | 67 mm |

EX260 Series

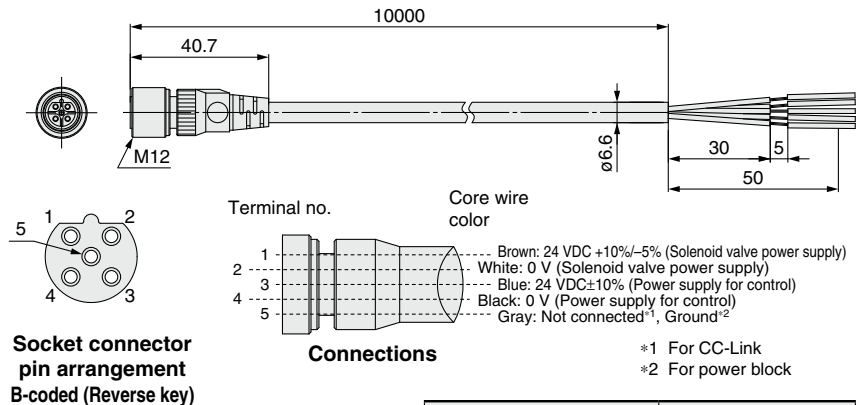
Power Supply Cable

① With connector on one side (Socket)

Cable length: 10000 mm

For CC-Link For Power block

EX9-AC100-1-X16



| Item | Specifications |
|---------------------------------|----------------------------|
| Cable O.D. | $\phi 6.6$ mm |
| Conductor nominal cross section | 0.3 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 1.65 mm |
| Min. bending radius (Fixed) | 40 mm |

② With connector on one side (Socket)

Cable length: 10000 mm

For PROFIBUS DP For DeviceNet™ For EtherCAT For PROFINET For EtherNet/IP™

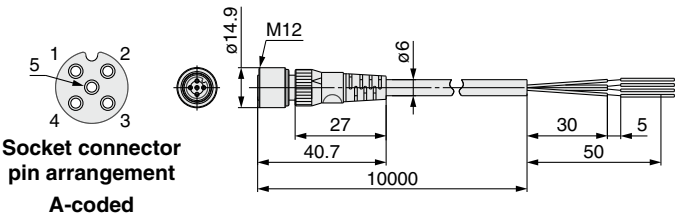
For Ethernet POWERLINK For IO-Link

EX500-AP100-S-X1

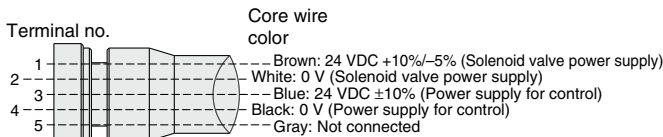
Connector specification

| | |
|---|----------|
| S | Straight |
| A | Angled |

Straight connector type

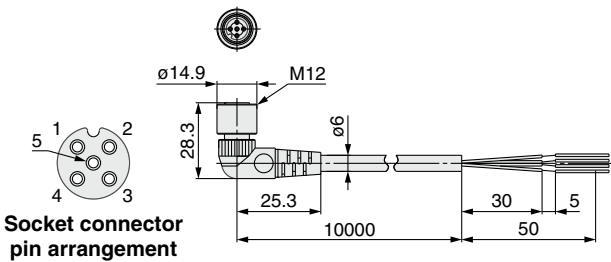


| Item | Specifications |
|---------------------------------|----------------------------|
| Cable O.D. | $\phi 6$ mm |
| Conductor nominal cross section | 0.3 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 1.5 mm |
| Min. bending radius (Fixed) | 40 mm |

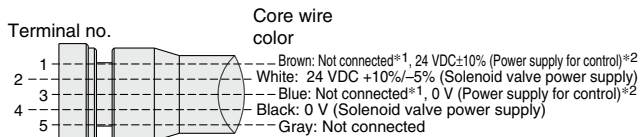


Connections (PROFIBUS DP/EtherCAT/PROFINET/Ethernet POWERLINK)

Angled connector type

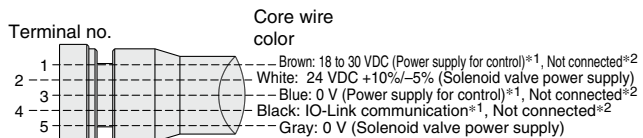


| Item | Specifications |
|---------------------------------|----------------------------|
| Cable O.D. | $\phi 6$ mm |
| Conductor nominal cross section | 0.3 mm ² /AWG22 |
| Wire O.D. (Including insulator) | 1.5 mm |
| Min. bending radius (Fixed) | 40 mm |



Connections (DeviceNet™, EtherNet/IP™)

^{*1} For DeviceNet™
^{*2} For EtherNet/IP™



Connections (IO-Link) ^{*1} When used as an IO-Link communication cable
^{*2} When used as a solenoid valve power supply cable



EX260 Series

Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For fieldbus system precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smcworld.com>

Wiring

Caution

1. **Select connectors that are $\phi 16$ or less if mounting valve manifolds directly using field-wireable connectors for SI unit power supply wiring.**

Using large diameter connectors causes interference with the mounting surface.

The following cables with connectors are recommended.

■ **For EX260-SPR□/-SDN□/-SEC□/-SPN□/-SEN□/-SPL□**

<Cable with connector>

- EX500-AP□□□-□
- PCA-1401804/-1401805/-1401806

■ **For EX260-SMJ□**

<Cable with connector>

- EX9-AC□□□-1
- PCA-1401807/-1401808/-1401809

Adjustment / Operation

Caution

1. **For details on programming and address setting, refer to the manual from the PLC manufacturer.**

The content of programming related to protocol is designed by the manufacturer of the PLC used.

2. **For the EX260-SPN□, the side of the SI unit may become hot.**

It may cause burns.

Operating Environment

Caution

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

IP67 is achieved when the following conditions are met.

- 1) Provide appropriate wiring between all units using electrical wiring cables, communication connectors and cables with M12 connectors.

- 2) Appropriately mount each unit 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.

When the enclosure is IP40, do not use in an operating environment or atmosphere where it may come in contact with corrosive gas, chemical agents, seawater, water, or water vapor.

When connected to the EX260-SPR5/6/7/8, manifold enclosure is IP40.

■ Trademark

DeviceNet™ is a trademark of ODVA.

EtherNet/IP™ is a trademark of ODVA.


EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.


Modbus® is a registered trademark of Schneider Electric, licensed to the Modbus Organization, Inc.


QuickConnect™ is a trademark of ODVA.

Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

 **Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

 **Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

 **Danger :** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots – Safety.
etc.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

Caution

1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.

If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) **Vacuum pads are excluded from this 1 year warranty.**

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

Revision History

| | | |
|------------------|--|----|
| Edition B | * EtherNet/IP™ has been added to applicable Fieldbus protocols. | QS |
| Edition C | * The IO-Link compatible EX260-SIL1 has been added. * Accessories and made-to-order specifications have been added. * “How to Order Manifold” and “Dimensions” pages have been deleted. * Number of pages has been decreased from 52 to 28. | XU |

Safety Instructions

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

Fieldbus System *EX260 Series*

SI Unit

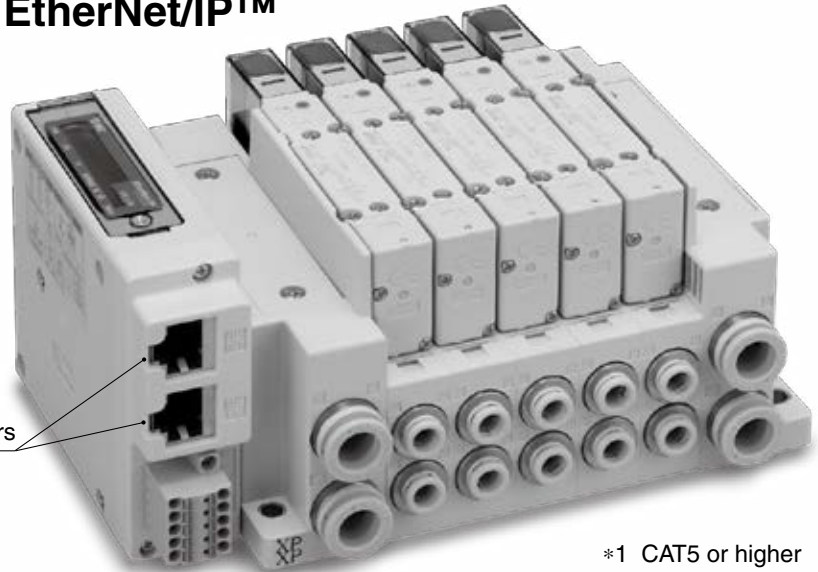


LAN cable connectable RJ45 communication connectors

■ Communication protocol: EtherNet/IP™

■ Number of outputs: 32

LAN cable*¹ connectable
RJ45 communication connectors



■ **Trademark**

EtherNet/IP™ is a trademark of ODVA.
QuickConnect™ is a trademark of ODVA.

*¹ CAT5 or higher

* Enclosure: IP20

■ Applicable Valve Series

| Series | | Flow rate characteristics (4/2 → 5/3) | | Max. number of solenoids | Power consumption [W] | Applicable cylinder size |
|--------------------------|---------|---------------------------------------|------|--------------------------|--|--------------------------|
| | | C [dm ³ /(s·bar)] | b | | | |
| JSY Series* ² | JSY1000 | 0.91 | 0.48 | 32 | 0.2 (With power-saving circuit) | ø40 |
| | JSY3000 | 2.77 | 0.27 | | 0.4 (Standard) | ø50 |
| | JSY5000 | 6.59 | 0.22 | | 0.1 (With power-saving circuit) | ø80 |
| SY Series | SY3000 | 1.6 | 0.19 | 32 | 0.35 (Standard) 0.1 (With power-saving circuit) | ø50 |
| | SY5000 | 3.6 | 0.17 | | | ø63 |
| | SY7000 | 5.9 | 0.20 | | | ø80 |
| VQC Series* ² | VQC1000 | 1.0 | 0.30 | 24 | 0.4 (Standard) | ø40 |
| | VQC2000 | 3.2 | 0.30 | | | ø63 |
| | VQC4000 | 7.3 | 0.38 | | 0.95 (Standard) 0.4 (Low-wattage type) | ø160 |
| | VQC5000 | 17 | 0.31 | | | ø180 |

*² The assembly of JSY and VQC series valves should be requested separately by the customer. Specify "without SI unit" and "positive common" or "non-polar" for the valve manifold specifications.

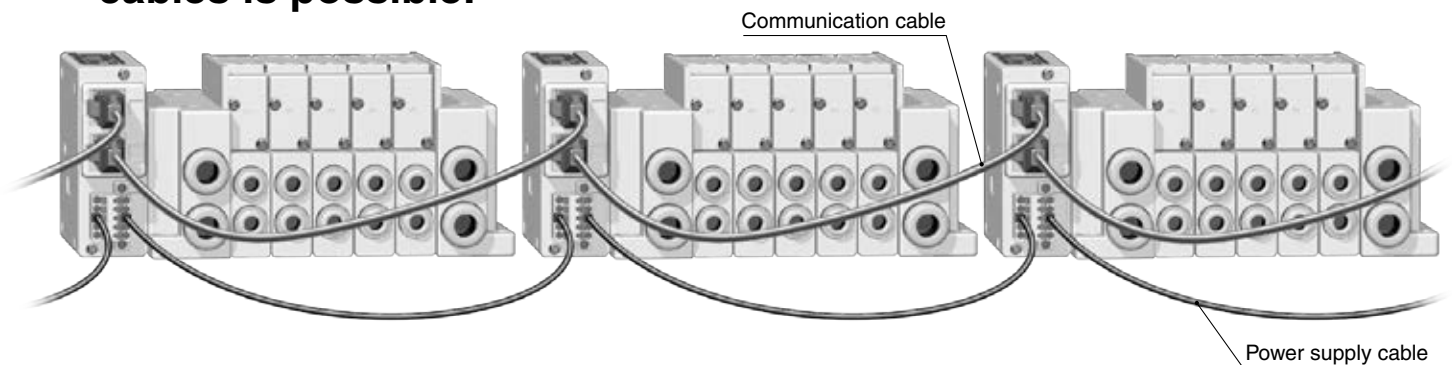
EX260-SEN2-X205



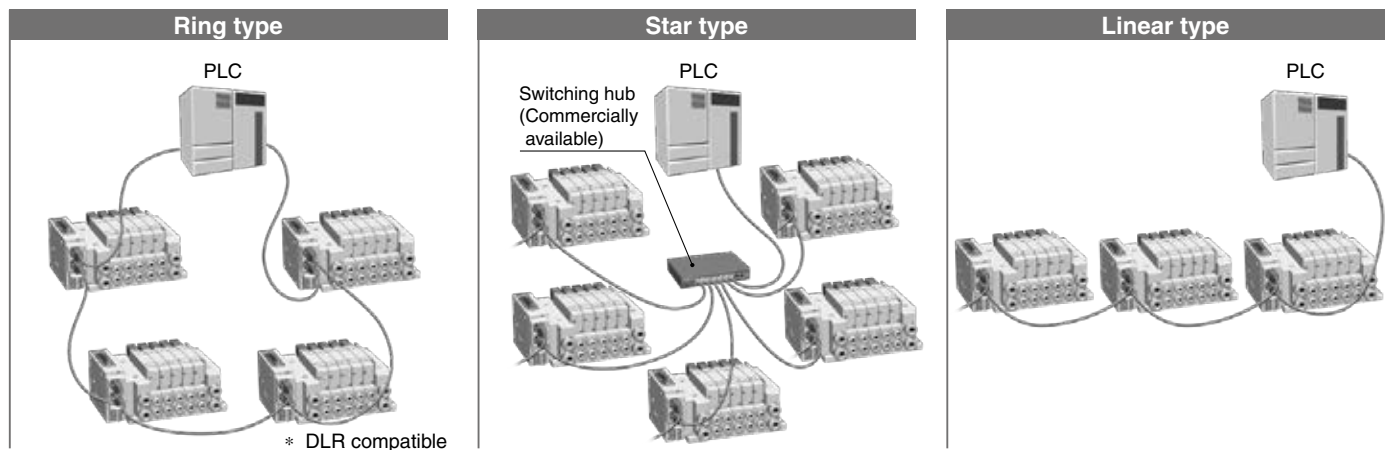
19-E731

EX260-SEN2-X205

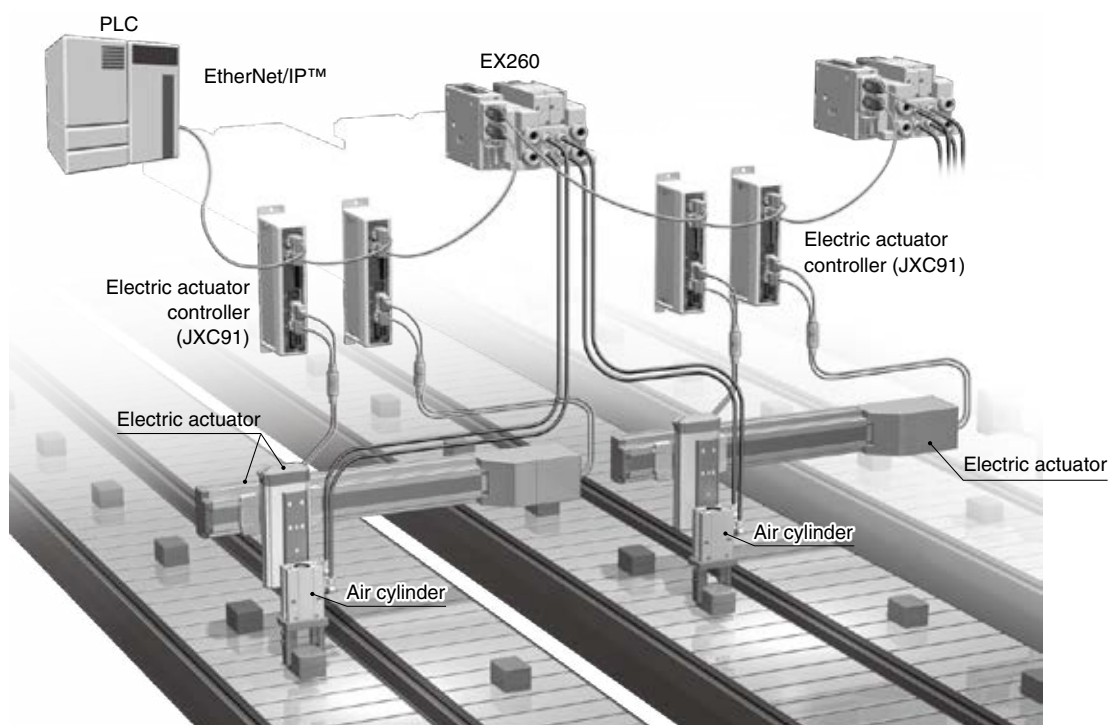
- **Daisy-chain wiring of communication cables and power supply cables is possible.**



■ **Compatible Topologies**



- **Both air and electric systems can be constructed with RJ45 communication cables.**



How to Order SI Units



EX260-S EN2-X205

Communication protocol

EN EtherNet/IP™

Connector specification

X205

Communication connector: RJ45
Power connector: Spring type connector

Output specification

2 32 outputs, NPN (Positive common)/Sink

Specifications

| Item | Specifications |
|--------------------------|---|
| Protocol | EtherNet/IP™ Volume 1 (Edition 3.25) Volume 2 (Edition 1.23) |
| Transmission medium | Standard Ethernet cable (CAT5 or higher) (100BASE-TX) |
| Transmission speed | 100 Mbps/10 Mbps (Automatic negotiation) |
| Transmission method | Full duplex/Half duplex (Automatic negotiation) |
| Device information | Vendor ID: 7 (SMC Corp.) Device type: 27 (Pneumatic Valve) |
| Applicable function | QuickConnect™ DLR |
| EDS file | ex260_sen2_X205_24_v*.eds |
| Output | Number of outputs |
| | 32 |
| | Output type |
| | Sink/NPN (Positive common) |
| Output | Connected load |
| | Solenoid valve with surge voltage suppressor of 24 VDC and 1.5 W or less (manufactured by SMC) |
| | Power supply for solenoid valve |
| Output | 22.8 to 26.4 VDC |
| | 2.0 A or less, according to the solenoid valve station specification |
| Output | Residual voltage |
| | 0.4 VDC or less |
| Power supply for control | 21.6 to 26.4 VDC 0.1 A or less |
| Enclosure | IP20 (with manifold assembled) |
| Weight | 200 g or less (including accessories) |

EtherNet/IP™ communication connector BUS OUT: RJ45 8 pins, socket



| No. | Designation | No. | Designation |
|-----|-------------|-----|-------------|
| 1 | Tx+ | 5 | - |
| 2 | Tx- | 6 | Rx- |
| 3 | Rx+ | 7 | - |
| 4 | - | 8 | - |

EtherNet/IP™ communication connector BUS IN: RJ45 8 pins, socket

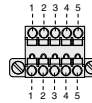


| No. | Designation | No. | Designation |
|-----|-------------|-----|-------------|
| 1 | Tx+ | 5 | - |
| 2 | Tx- | 6 | Rx- |
| 3 | Rx+ | 7 | - |
| 4 | - | 8 | - |

Accessory

| Description | Qty. |
|---|------|
| Hexagon socket head cap screw (M3 x 30) | 2 |
| RJ45 cap | 1 |
| Power connector | 1 |

Power connector PWR: 5 pins, socket

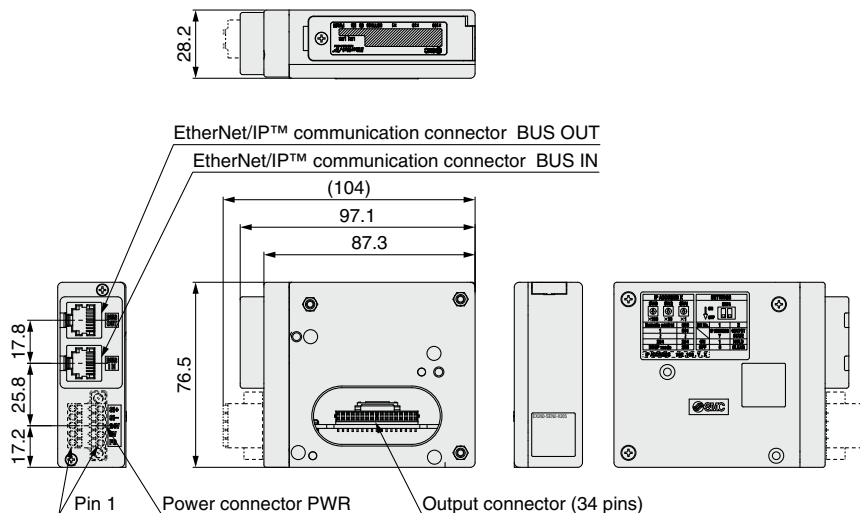


| No. | Designation | Function | No. | Designation | Function |
|-----|-------------|--------------------------|-----|-------------|------------------------|
| 1 | FE | Grounding | 4 | SI0V | 0 V for control unit |
| 2 | SV0V | 0 V for solenoid valve | 5 | SI24V | +24 V for control unit |
| 3 | SV24V | +24 V for solenoid valve | | | |

Applicable wire for power supply connector

| | |
|---|----------------------------|
| Wire gauge (Solid cable/Flexible cable) | 0.2 to 1.5 mm²/AWG24 to 16 |
|---|----------------------------|

Dimensions



⚠ Caution

- The dimensions when combined with the valve manifold are the same as the dimensions of the valve manifold with a standard EX260 series unit mounted.
- For the JSY and VQC series, order the valve manifold separately.
- Specify "without SI unit" and "positive common" or "non-polar" for the valve manifold specifications.

LED Indicator

| LED | LED Status | Details |
|--------|-----------------------|--|
| NS | OFF | Power is not being supplied or the IP address is not set. |
| | Green LED is ON | EtherNet/IP™ communication established |
| | Green LED is flashing | EtherNet/IP™ communication not established |
| | Red LED is flashing | EtherNet/IP™ connection time out |
| | Red LED is ON | IP duplicated |
| MS | OFF | Power is not being supplied. |
| | Green LED is ON | Operating normally |
| | Green LED is flashing | Setting error |
| | Red LED is flashing | Recoverable error |
| L/A1 | Red LED is ON | Unrecoverable error |
| | OFF | BUS IN side: No link, No activity |
| | Green LED is ON | BUS IN side: Link, No activity |
| L/A2 | Green LED is flashing | BUS IN side: Link, Activity |
| | OFF | BUS OUT side: No link, No activity |
| | Green LED is ON | BUS OUT side: Link, No activity |
| PWR(V) | Green LED is flashing | BUS OUT side: Link, Activity |
| | Yellow LED is ON | Power is being supplied to the valve. |
| | OFF | Power is not being supplied to the valve or is outside the tolerance range (19 V or less). |

EX260-SEN2-X205



SY3000/5000/7000 Series

How to Order Manifold



Type

| | |
|----|-----------------|
| 10 | Side ported |
| 11 | Bottom ported*1 |

*1 The bottom-port type is not available for the SY3000.

Side/Bottom ported

Type 10/11 SS5Y 3 - 10 SEC - 05 U - C6 - X1100

Top ported

Type 12 SS5Y 3 - 12 SEC - 05 U - X1100

Valve series

| | |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |
| 7 | SY7000 |

Type

| | |
|----|------------|
| 12 | Top ported |
|----|------------|

Valve stations

| Symbol | Stations | Note |
|--------|-------------|--|
| 02 | 2 stations | Double wiring*2 |
| : | : | |
| 16 | 16 stations | Specified layout*3 (Up to 32 solenoids available) |
| 02 | 2 stations | |
| : | : | |
| 24 | 24 stations | |

P, E port entry

| | |
|---|-------------------------------|
| U | U side (2 to 10 stations) |
| D | D side (2 to 10 stations) |
| B | Both sides (2 to 24 stations) |

SUP/EXH block assembly

| | |
|-----|-----------------------------------|
| Nil | Internal pilot |
| S | Internal pilot, Built-in silencer |
| R | External pilot |

A, B port size
* Refer to the Web Catalog.

Mounting

| | | |
|-----|--------------------------------------|---|
| Nil | Direct mounting | |
| D | DIN rail mounting (with DIN rail) | |
| D0 | DIN rail mounting (without DIN rail) | |
| D3 | For 3 stations | Specify a length longer than that of the standard rail. |
| : | : | |
| D24 | For 24 stations | |

* Only direct mounting is available for the type 11 bottom-port type.

P, E port size (One-touch fitting)

| Symbol | SY3000 | SY5000 | SY7000 |
|--------|--------|--------|--------|
| Nil | ø8 | ø10 | ø12 |
| N | ø5/16" | ø3/8" | ø1/2" |

* For N, sizes are in inches.

*2 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

*3 Double wiring is normally used for all the wiring of the manifold. If other wiring is required, specify on the manifold specification sheet.

* Valves do not come assembled for order no. "SS5Y□-□SEC-□□□-□□-□X1100." Specify on the manifold specification sheet separately to request assembly.

* Produced upon receipt of order

How to Order Valves

SY □ □ □ □ □ □ □ □ - 5 U □ 1 - □

Enter the standard product number.

Enter the standard product number.

Light/surge voltage suppressor and common specification

| Symbol | With light | Surge voltage suppressor | Common specification |
|--------|------------|--------------------------|----------------------|
| R | — | ● | Non-polar |
| U | ● | | |
| S | — | | Positive common |
| Z | ● | | |

⚠ Safety Instructions Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.



www.smc.com.mx

SMC Corporation (México) S.A. de C.V.
informacion.tecnica@smcmx.com.mx

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Todas las especificaciones incluidas en este catálogo están sujetas a cambio sin previo aviso.

