

# XS2F/XS3F Connector Cordsets Selection Guide



XS2F and XS2W Connectors



XS3F and XS3W Connectors

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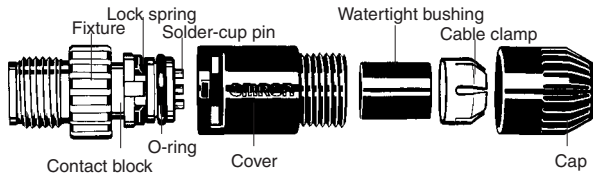


### Water- and Environment-resistive FA Connectors Save Wiring and Maintenance Effort

- Compact FA connectors meet IP67 requirements and ensure a 94V-0 fire retardant rating.
- A wide array of connectors makes a wiring system more modular, simplifies maintenance, and reduces downtime.
- Connectors with Cables and Connector Assemblies are available.
- Three types of Connector Assembly: Crimping, soldering, and screw-on.
- Conforms to IEC 60947-5-2 and NECA 4202.
- UL-listed 4-core cables.



### Construction (Connector Assembly)



### Specifications

|                            |  |
|----------------------------|--|
| Rated current              | 3 A  |
| Rated voltage              | 125 VDC, 250 VAC   |
| Contact resistance         | 40 mΩ max. (20 mV max., 100 mA max.) (See note 1.)                                     |
| Insulation resistance      | 1,000 MΩ min. (at 500 VDC)   |
| Dielectric strength        | 1,500 VAC for 1 min (leakage current: 1 mA max.) (See note 2.)                         |
| Degree of protection       | IP67 (IEC529)  |
| Insertion tolerance        | 200 times min.   |
| Assembled fixture strength | Tensile: 98 N/15 s<br>Torsion: 0.98 N·m/15 s   |
| Cable holding strength     | Cable diameter:<br>6 mm 98 N for 15 s<br>4 to 5 mm 49 N for 15 s<br>3 mm 29 N for 15 s |
| Ambient temperature        | Operating: - 25°C to 70°C  |

- Note:** 1. The contact resistance of the connector.  
2. The dielectric strength of the connector.

### Recommended Cables

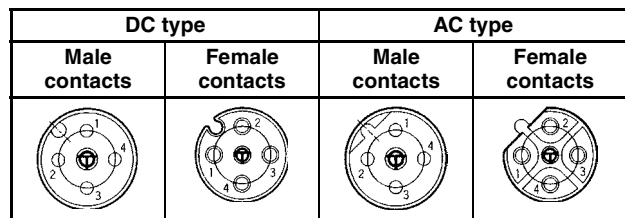
| Cable outer diameter |           | Core sizes   |                          |                              |
|----------------------|-----------|--|--------------------------|------------------------------|
|                      |           | Crimping models  | Soldering models         | Screw-on models              |
| 6 mm                 | 5 to 6 mm | Two types of contacts are available.<br>• 0.18 to 0.3 mm <sup>2</sup><br>• 0.5 to 0.75 mm <sup>2</sup> | 0.5 mm <sup>2</sup> max. | 0.18 to 0.75 mm <sup>2</sup> |
| 4 mm                 | 4 to 5 mm |  |                          |                              |
| 3 mm                 | 3 to 4 mm |  |                          |                              |

### Materials and Finish

| Item                  | XS2F/H/W            | XS2M/R/P                              | XS2C/G                                 |
|-----------------------|---------------------|---------------------------------------|--|
| Contacts              | Materials           | Phosphor bronze                       | Brass                                  |
|                       | Finish              | Nickel base, 0.4-μm gold plating      |  |
| Fixtures              | Materials           | Brass (See note 2.)                   |  |
|                       | Finish              | Nickel plated (See note 2.)           |  |
| Pin Block             | Materials           | PBT resin (UL94V-0)                   | PA resin (UL94V-0) PBT resin (UL94V-0) |
|                       | Finish              | For DC: light gray; for AC: dark gray |  |
| O-ring/rubber bushing | Rubber              |                                       |  |
| Cover                 | Polyester elastomer | ---                                   | PBT resin (UL94V-0)                    |
| Cap                   | ---                 | ---                                   | PBT resin (UL94V-0)                    |
| Cable clamp           | ---                 | ---                                   | PA resin (UL94V-0)                     |
| Pin clamp             | ---                 | ---                                   | PBT resin (UL94V-0)                    |
| Lock spring           | ---                 | ---                                   | LCP resin (UL94V-0)                    |
| Watertight bushing    | ---                 | ---                                   | Rubber                                 |
| Ring                  | ---                 | ---                                   | Steel                                  |






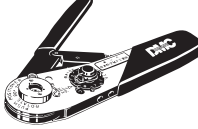


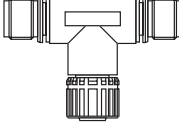
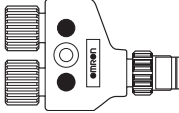




- Note:** 1. The XS2H does not have an O-ring.  
2. The T-joint of the XS2R is aluminum/white.

### Socket Appearance



- Note:** The AC and DC connectors are different as shown here and therefore cannot be connected together.

■ List of Products

| Name   | Model                                       | Appearance   | Page  |          |
|--|---|--|---|----------|
| Connectors attached to Cable   | XS2W Sockets and Plugs on Cable Ends        |    | 3 to 4  |          |
|  | XS2F Sockets on One Cable End               |    | 6 to 10   |          |
|  | XS2H Plugs on One Cable End                 |    | 11 to 12  |          |
| Connector Assemblies (Crimping, Soldering, or Screw-on)<br>Used to enable using connectors for sensor cables and relay cables. | XS2G Plug Assemblies                        |    | 16, 18  |          |
|  | XS2C Socket Assemblies                      |    | 17, 19  |          |
|  | XS2F Crimp Tool (for Crimping Connectors)   |    | 27  |          |
|  | XW4Z Screwdriver (for Screw-on Connectors)  |    | 29  |          |
| Terminal Box Connectors<br>Used to enable using connectors for terminal boxes.   | XS2P Panel-mounting Sockets                 |  | 20  |          |
| T-Joints and Y-Joints<br>Used for branching and for daisy-chain connections.   | XS2R T-Joint/Y-Joint Plug/Socket Connectors | T-Joints   |   | 22 to 23 |
|  |   | Y-Joints   |   | 21       |
| Sensor Connector Assemblies<br>Used to enable using connectors in sensors.   | XS2M Plugs                                  | Embedded Plugs with Screw Threads  |  | 24 to 25 |
|  |   | Embedded Plugs with No Screw Threads   |  |          |
| Panel-mounting Connectors<br>Used to enable using I/O box connectors mounted to panels.  | XS2M Plugs                                  | Flange-mounting Plugs  |  |          |
|  |   | Screw-mounting Plugs   |   |          |

### Model Number Legend

Use this model number legend to identify products from their model number. When ordering, use a model number from the table in *Ordering Information*.

**XS2W** - **D42**□ - □□**1** - □  
 1 2 3 4 5 6 7 8 9

#### 1. Type

W: Connectors connected to cable, socket and plug on cable ends

#### 2. AC/DC (Mating Section Form)

D: For DC

#### 3. Connector Poles

4: 4 poles  
 5: 5 poles

#### 4. Contact Plating

2: 0.4-μm gold plating

#### 5. Cable Connection Direction

1: Straight/straight  
 2: L-shaped/L-shaped  
 3: Straight (XS2F)/L-shaped (XS2H)  
 4: L-shaped (XS2F)/straight (XS2H)

#### 6. Cable Length

A: 0.3 m (straight/straight only)  
 B: 0.5 m (straight/straight only)  
 C: 1 m (straight/straight only)  
 D: 2 m  
 E: 3 m (straight/straight only)  
 F: 4 m (straight/straight only)  
 G: 5 m  
 H: 7 m (straight/straight only)  
 J: 10 m (straight/straight only)  
 K: 15 m (straight/straight only)  
 L: 20 m (straight/straight only)

#### 7. Connections

Pin No.  
 1 2 3 4  
 8: Brown White Blue Black (for DC)

Pin No.  
 1 2 3 4 5  
 G: Brown White Blue Black Gray

#### 8. Connectors on One End/Both Ends

1: Both ends

#### 9. Cable Specifications

A: Standard cable  
 R: Vibration-proof robot cable (straight/straight only)  
 F: Fire-retardant, vibration-proof cable

**XS2W-D42□-□81-A Connectors with Standard Cable**

**XS2W-D421-□81-R Connectors with Vibration-proof Robot Cable (Straight/Straight)**

### Ordering Information

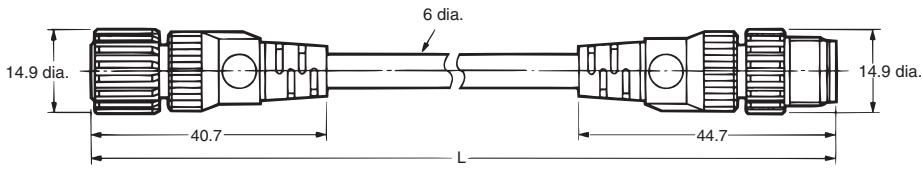
| Cable type     | Cable connection direction  | No. of cable cores | Cable core cross-sectional area | Cable length (m)    | DC              |                 | UL-listed |     |
|----------------|-----------------------------|--------------------|---------------------------------|---------------------|-----------------|-----------------|-----------|-----|
|                |                             |                    |                                 |                     | Model           | Minimum order   |           |     |
| Standard cable | Straight/Straight           | 4                  | 0.5 mm <sup>2</sup>             | 1                   | XS2W-D421-C81-A | 10              | Yes       |     |
|                |                             |                    |                                 | 2                   | XS2W-D421-D81-A |                 | Yes       |     |
|                |                             |                    |                                 | 5                   | XS2W-D421-G81-A | 5               | Yes       |     |
|                |                             |                    |                                 | 10                  | XS2W-D421-J81-A |                 | Yes       |     |
|                | L-shaped/L-shaped           |                    |                                 | 2                   | XS2W-D422-D81-A | 10              | Yes       |     |
|                |                             |                    |                                 | 5                   | XS2W-D422-G81-A | 5               | Yes       |     |
|                |                             |                    |                                 | Straight/L-shaped   | 2               | XS2W-D423-D81-A | 10        | Yes |
|                |                             |                    |                                 |                     | 5               | XS2W-D423-G81-A | 5         | Yes |
|                | L-shaped/Straight           | 2                  | XS2W-D424-D81-A                 | 10                  | Yes             |                 |           |     |
|                |                             | 5                  | XS2W-D424-G81-A                 | 5                   | Yes             |                 |           |     |
|                | Vibration-proof robot cable | Straight/Straight  | 4                               | 0.5 mm <sup>2</sup> | 1               | XS2W-D421-C81-R | 10        | --- |
|                |                             |                    |                                 |                     | 2               | XS2W-D421-D81-R |           |     |
| 5              |                             |                    |                                 |                     | XS2W-D421-G81-R | 5               |           |     |
| 10             |                             |                    |                                 |                     | XS2W-D421-J81-R |                 |           |     |

**Note:** 1. Orders are accepted in multiples of the minimum order.

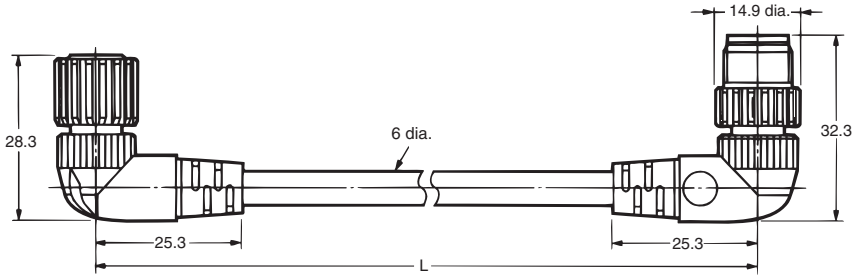
2. Ask your OMRON representative about other cable lengths, and about 5-core cables.

## ■ Dimensions

### Straight/Straight Connectors

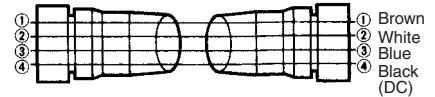


### L-shaped/L-shaped Connectors



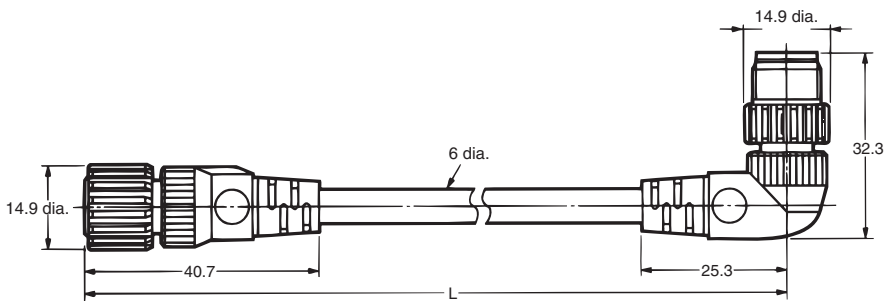
### Wiring Diagram for 4 Cores

Contact No.



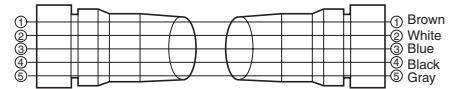
Cable lead colors

### Straight/L-shaped Connectors



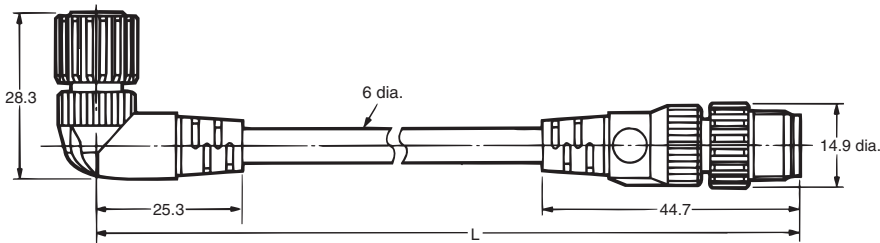
### Wiring Diagram for 5 Cores

Contact No.



Cable lead colors

### L-shaped/Straight Connectors



### ■ Model Number Legend

Use this model number legend to identify products from their model number. When ordering, use a model number from the table in *Ordering Information*.

XS2F - □□2□ - □□0 - □  
 1 2 3 4 5 6 7 8 9

#### 1. Type

F: Connector connected to cable, socket on one cable end

#### 2. AC/DC (Mating Section Form)

A: For AC

D: For DC

#### 3. Connector Poles

4: 4 poles

5: 5 poles

#### 4. Contact Plating

2: 0.4-μm gold plating

#### 5. Cable Connection Direction

1: Straight

2: L-shaped

#### 6. Cable Length

A: 0.3 m

B: 0.5 m

C: 1 m

D: 2 m

E: 3 m

F: 4 m

G: 5 m

H: 7 m

J: 10 m

K: 15 m

L: 20 m

Only the 2 m (D) and 5 m (G) cables are available for cables with 5 poles.

#### 7. Connections

Pin No.

1 2 3 4

A: Brown --- --- Blue (for DC)

B: --- --- Brown Blue (for DC)

C: Brown --- Blue Black

8: Brown White Blue Black (for DC)

9: Brown White Blue Black (for AC)

Pin No.

1 2 3 4 5

G: Brown White Blue Black Gray

#### 8. Connectors on One End/Both Ends

0: One end

#### 9. Cable Specifications

A: Standard cable

R: Vibration-proof robot cable (straight/straight only)

F: Fire-retardant, vibration-proof cable

TR: For E2E Proximity Sensor (See note.)

**Note:** Refer to page 9 for connections. Connections for this item are different to those specified at item 7. A standard cable is used.

#### Designations for DC Polarity (For Limit Switches and Sensors)

#### 6: Cable Length

3: 2 m

4: 5 m

#### 7: Connections

Pin No.

1 2 3 4

1: --- --- Black White

#### 8: Connectors on One End/Both Ends

0: One end

#### 9: Cable Specifications

Not designated.

**Note:** Model number standards are different for items 6, 7, and 9 for connectors with DC polarity.



**XS2F-□42□-□□0-A Connectors with Standard Cable**  
**XS2F-□42□-□□0-R Connectors with Vibration-proof Robot Cable**  
**XS2F-□42□-□□0 DC-pole Connectors with Standard Cable**

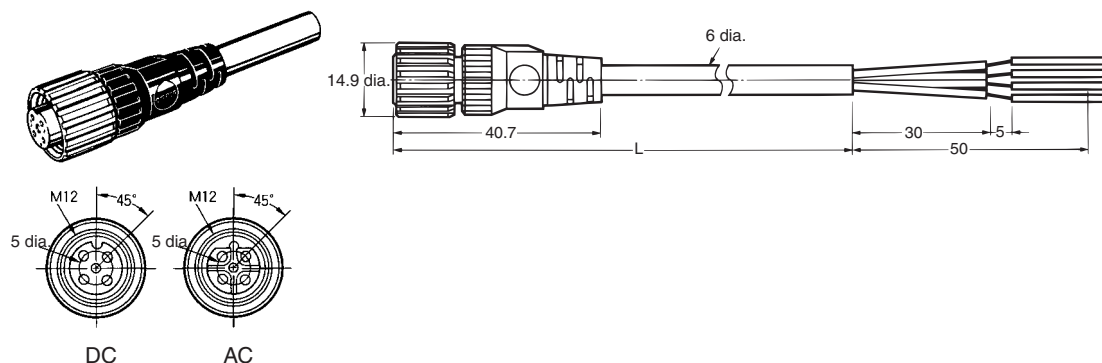
■ **Ordering Information**

| Cable type                  | Cable connection direction | No. of cable cores | No. of cable cores  | Cable length (m) | Model           |                 | Minimum order   | UL-listed       |                 |     |     |
|-----------------------------|----------------------------|--------------------|---------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----|-----|
|                             |                            |                    |                     |                  | DC              | AC              |                 |                 |                 |     |     |
| Standard cable              | Straight                   | 2                  | 0.5 mm <sup>2</sup> | 1                | XS2F-D421-CA0-A | XS2F-A421-CB0-A | 10              | ---             |                 |     |     |
|                             |                            |                    |                     |                  | XS2F-D421-CC0-A | ---             |                 | ---             |                 |     |     |
|                             |                            |                    |                     |                  | XS2F-D421-C80-A | XS2F-A421-C90-A |                 | Yes             |                 |     |     |
|                             |                            | 2                  |                     | 3                | 4               | 2               | XS2F-D421-DA0-A | XS2F-A421-DB0-A | 10              | --- |     |
|                             |                            |                    |                     |                  |                 |                 | XS2F-D421-DC0-A | ---             |                 | --- |     |
|                             |                            |                    |                     |                  |                 |                 | XS2F-D421-D80-A | XS2F-A421-D90-A |                 | Yes |     |
|                             |                            | 2                  |                     | 3                | 4               | 5               | XS2F-D421-GA0-A | XS2F-A421-GB0-A | 5               | --- |     |
|                             |                            |                    |                     |                  |                 |                 | XS2F-D421-GC0-A | ---             |                 | --- |     |
|                             |                            |                    |                     |                  |                 |                 | XS2F-D421-G80-A | XS2F-A421-G90-A |                 | Yes |     |
|                             |                            | 2                  |                     | 3                | 4               | 10              | XS2F-D421-JA0-A | XS2F-A421-JB0-A | 5               | --- |     |
|                             |                            |                    |                     |                  |                 |                 | XS2F-D421-JC0-A | ---             |                 | --- |     |
|                             |                            |                    |                     |                  |                 |                 | XS2F-D421-J80-A | XS2F-A421-J90-A |                 | Yes |     |
|                             | L-shaped                   | 2                  | 3                   | 4                | 1               | XS2F-D422-CA0-A | XS2F-A422-CB0-A | 10              | ---             |     |     |
|                             |                            |                    |                     |                  |                 | XS2F-D422-CC0-A | ---             |                 | ---             |     |     |
|                             |                            |                    |                     |                  |                 | XS2F-D422-C80-A | ---             |                 | Yes             |     |     |
|                             |                            | 2                  | 3                   | 4                | 2               | XS2F-D422-DA0-A | XS2F-A422-DB0-A | 10              | ---             |     |     |
|                             |                            |                    |                     |                  |                 | XS2F-D422-DC0-A | ---             |                 | ---             |     |     |
|                             |                            |                    |                     |                  |                 | XS2F-D422-D80-A | ---             |                 | Yes             |     |     |
|                             |                            | 2                  | 3                   | 4                | 5               | XS2F-D422-GA0-A | XS2F-A422-GB0-A | 5               | ---             |     |     |
|                             |                            |                    |                     |                  |                 | XS2F-D422-GC0-A | ---             |                 | ---             |     |     |
|                             |                            |                    |                     |                  |                 | XS2F-D422-G80-A | ---             |                 | Yes             |     |     |
|                             |                            | 2                  | 3                   | 4                | 10              | XS2F-D422-JA0-A | XS2F-A422-JB0-A | 5               | ---             |     |     |
|                             |                            |                    |                     |                  |                 | XS2F-D422-JC0-A | ---             |                 | ---             |     |     |
|                             |                            |                    |                     |                  |                 | XS2F-D422-J80-A | ---             |                 | Yes             |     |     |
| Vibration-proof robot cable | Straight                   | 2                  |                     | 1                | XS2F-D421-CA0-R | XS2F-A421-CB0-R | 10              | ---             |                 |     |     |
|                             |                            |                    |                     |                  | XS2F-D421-C80-R | XS2F-A421-C90-R |                 | ---             |                 |     |     |
|                             |                            | 4                  |                     | 2                | 4               | 2               | XS2F-D421-DA0-R | XS2F-A421-DB0-R | 10              | --- |     |
|                             |                            |                    |                     |                  |                 |                 | XS2F-D421-D80-R | XS2F-A421-D90-R |                 | --- |     |
|                             |                            | 2                  |                     | 4                | 2               | 5               | XS2F-D421-GA0-R | XS2F-A421-GB0-R | 5               | --- |     |
|                             |                            |                    |                     |                  |                 |                 | XS2F-D421-G80-R | XS2F-A421-G90-R |                 | --- |     |
|                             |                            | 2                  |                     | 4                | 2               | 10              | XS2F-D421-JA0-R | XS2F-A421-JB0-R | 5               | --- |     |
|                             |                            |                    |                     |                  |                 |                 | XS2F-D421-J80-R | XS2F-A421-J90-R |                 | --- |     |
|                             |                            | L-shaped           |                     | 2                | 4               | 3               | 1               | XS2F-D422-CA0-R | XS2F-A422-CB0-R | 10  | --- |
|                             |                            |                    |                     |                  |                 |                 |                 | XS2F-D422-C80-R | ---             |     | --- |
|                             |                            |                    |                     | 2                | 4               | 2               | 2               | XS2F-D422-DA0-R | XS2F-A422-DB0-R | 10  | --- |
|                             |                            |                    |                     |                  |                 |                 |                 | XS2F-D422-D80-R | ---             |     | --- |
|                             | 2                          |                    | 4                   | 2                | 5               | XS2F-D422-GA0-R | XS2F-A422-GB0-R | 5               | ---             |     |     |
|                             |                            |                    |                     |                  |                 | XS2F-D422-G80-R | ---             |                 | ---             |     |     |
|                             | 2                          |                    | 4                   | 2                | 10              | XS2F-D422-JA0-R | XS2F-A422-JB0-R | 5               | ---             |     |     |
|                             |                            |                    |                     |                  |                 | XS2F-D422-J80-R | ---             |                 | ---             |     |     |
|                             | Standard cable (non-polar) |                    | Straight            | 2                |                 | 2               | XS2F-D421-310   | XS2F-A421-310   | 10              | --- |     |
|                             |                            |                    |                     | 2                |                 | 5               | XS2F-D421-410   | XS2F-A421-410   | 5               | --- |     |
|                             |                            |                    | L-shaped            | 2                |                 | 2               | XS2F-D422-310   | XS2F-A422-310   | 10              | --- |     |
|                             |                            |                    |                     | 2                |                 | 5               | XS2F-D422-410   | XS2F-A422-410   | 5               | --- |     |

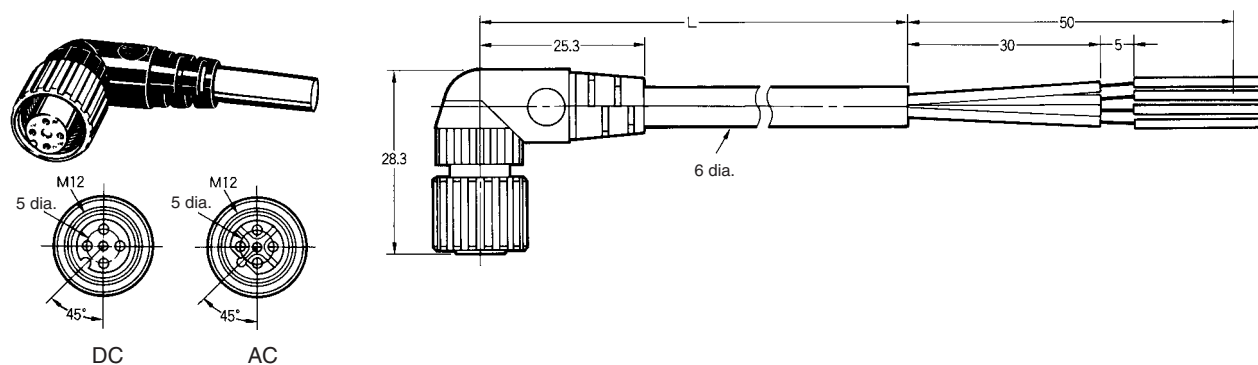
**Note:** 1. Orders are accepted in multiples of the minimum order.  
 2. Ask your OMRON representative about other cable lengths.

## ■ Dimensions

### Straight Connectors



### L-shaped Connectors



### Wiring Diagram

| Item             | Standard cable<br>Vibration-proof robot cable                   | Standard cable (non-polar DC)                       |
|------------------|---|---|
|                  | XS2F-□42□-□□0-A<br>XS2F-□42□-□□0-R                              | XS2F-□42□-□□0                                       |
| Two-core model   | <p>Contact No. ① ② ③ ④</p> <p>Cable lead colors</p>             | <p>Contact No. ① ② ③ ④</p> <p>Cable lead colors</p> |
| Three-core model | <p>Contact No. ① ② ③ ④</p> <p>Cable lead colors</p>             | ---   |
| Four-core model  | <p>Contact No. ① ② ③ ④</p> <p>(DC/AC)<br/>Cable lead colors</p> | ---   |

## XS2F-□42□-□□0-TR Connecting Cables for E2E Proximity Sensors

The pin numbers and lead colors of the E2E Proximity Sensors are used for the XW2E Connecting Cable. This cable is designed specifically for the E2E. It is distinguished from normal XS2F models by the dark gray cable and the -TR suffix added to the 4-digit lot number.

### ■ Ordering Information

| Cable connection direction | No. of cable cores | Cable core cross-sectional area | Cable length (m) | Model            |                  | Minimum order |
|----------------------------|--------------------|---------------------------------|------------------|------------------|------------------|---------------|
|                            |                    |                                 |                  | DC               | AC               |               |
| Straight                   | 2                  | 0.5 mm <sup>2</sup>             | 2                | XS2F-D421-DD0-TR | XS2F-A421-DB0-TR | 10            |
|                            |                    |                                 | 5                | XS2F-D421-GD0-TR | XS2F-A421-GB0-TR | 5             |
| L-shaped                   |                    |                                 | 2                | XS2F-D422-DD0-TR | XS2F-A422-DB0-TR | 10            |
|                            |                    |                                 | 5                | XS2F-D422-GD0-TR | XS2F-A422-DB0-TR | 5             |
| Straight                   | 3                  |                                 | 2                | XS2F-D421-DC0-TR | ---              | 10            |
|                            |                    |                                 | 5                | XS2F-D421-GC0-TR | ---              | 5             |
| L-shaped                   |                    |                                 | 2                | XS2F-D422-DC0-TR | ---              | 10            |
|                            |                    |                                 | 5                | XS2F-D422-GC0-TR | ---              | 5             |

**Note:** 1. Orders are accepted in multiples of the minimum order.

2. The XS2F Cables for E2E Proximity Sensors have different model number standards from those for standard XS2F models.

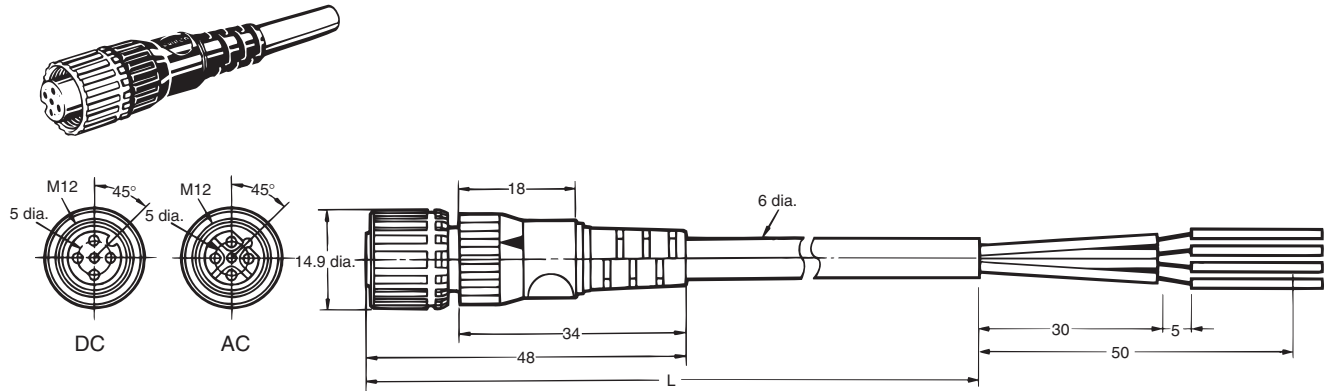
### ■ Applicable Proximity Sensors

| XS2F model       | Proximity Sensor                             | Old connector model |
|------------------|--|---------------------|
| XS2F-D42□-□D0-TR | E2E-X□D1-P1<br>E2E-X□D1-M1J-T<br>E2E-X□D2-P1 | Y92E-P1D2□          |
| XS2F-D42□-□C0-TR | E2E-X□E1-P1                                  | Y92E-P1D3□          |
| XS2F-D42□-□80-□  | E2E-X□D1S-P1                                 | Y92E-P1D4□          |

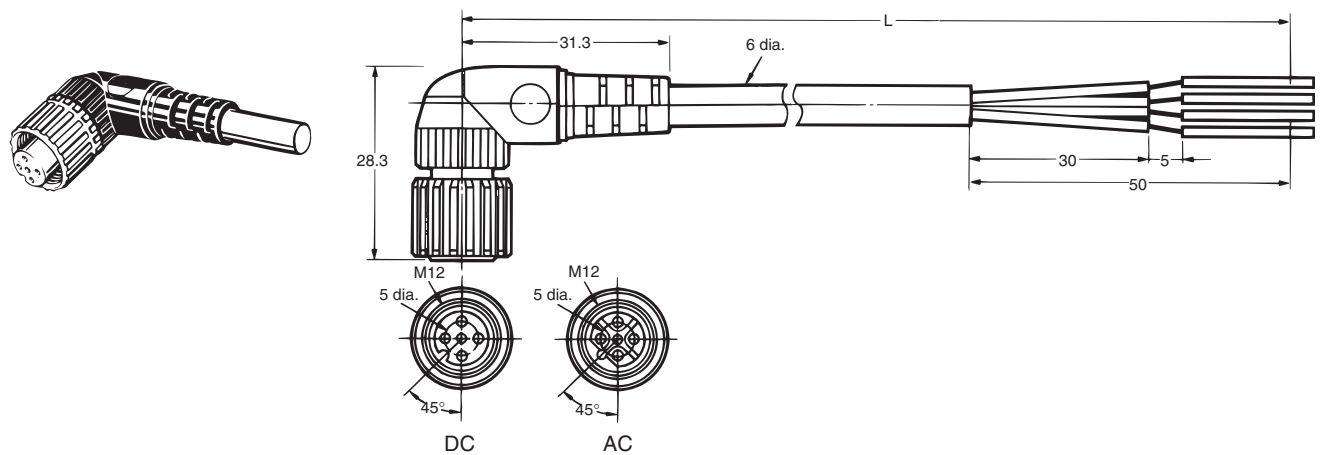
**Note:** There is no difference in wiring method and cable wire color between the XS2F and Y92E.

## ■ Dimensions

### Straight Connectors



### L-shaped Connectors



### Wiring Diagram

| Model            | Wiring diagram   | No. of cable cores |
|------------------|--|--------------------|
| XS2F-D42□-□D0-TR | <p>Contact No.</p> <p>Blue<br/>Brown<br/>(DC)</p> <p>Cable lead colors</p>           | 2                  |
| XS2F-A42□-□B0-TR | <p>Contact No.</p> <p>Brown<br/>Blue<br/>(AC)</p> <p>Cable lead colors</p>           | 2                  |
| XS2F-D42□-□C0-TR | <p>Contact No.</p> <p>Brown<br/>Blue<br/>Black<br/>(DC)</p> <p>Cable lead colors</p> | 3                  |

**XS2F-D521-□G0-A 5-pole Connectors for DC**

**Ordering Information**

| Cable connection direction | No. of cable cores | Cable core cross-sectional area | Cable length (m) | DC              |               |
|----------------------------|--------------------|---------------------------------|------------------|-----------------|---------------|
|                            |                    |                                 |                  | Model           | Minimum order |
| Straight                   | 5                  | 0.3 mm <sup>2</sup>             | 2                | XS2F-D521-DG0-A | 10            |
|                            |                    |                                 | 5                | XS2F-D521-GG0-A | 5             |

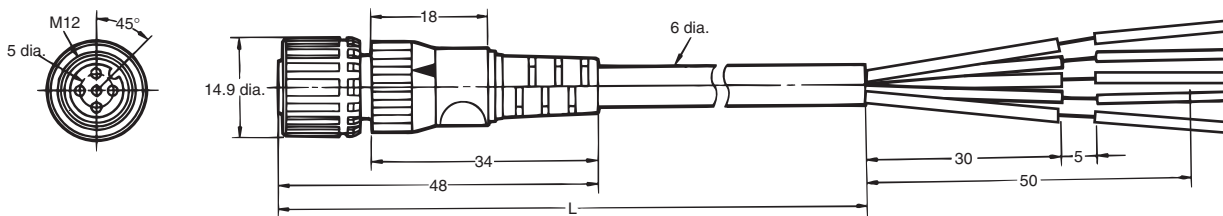
**Note:** 1. Orders are accepted in multiples of the minimum order.  
 2. Ask your OMRON representative about other cable lengths.

**Dimensions**

**Straight Connectors**



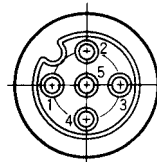
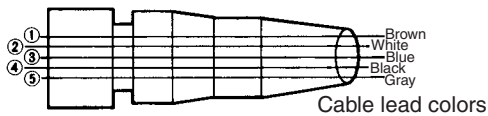
**Note:** Use the XS2F-D521-□G0-A in combination with the XS2H-D521-□G0-A.



**Wiring Diagram**

**Pin Arrangements (Engagement Side)**

Contact No.



### Model Number Legend

Use this model number legend to identify products from their model number. When ordering, use a model number from the table in *Ordering Information*.

XS2H - □□□21 - □□□0 - □  
 1 2 3 4 5 6 7 8 9

#### 1. Type

H: Connector connected to cable, plug on one cable end

#### 2. AC/DC (Mating Section Form)

A: For AC

D: For DC

#### 3. Connector Poles

4: 4 poles

5: 5 poles

#### 4. Contact Plating

2: 0.4-μm gold plating

#### 5. Cable Connection Direction

1: Straight

#### 6. Cable Length

A: 0.3 m

B: 0.5 m

C: 1 m

D: 2 m

G: 5 m

#### 7. Connections

Pin No.

1 2 3 4

A: Brown --- --- Blue (for DC)

B: --- --- Brown Blue (for AC)

C: Brown --- Blue Black (for DC)

8: Brown White Blue Black (for DC)

9: Brown White Blue Black (for AC)

Pin No.

1 2 3 4 5

G: Brown White Blue Black Gray

#### 8. Connectors on One End/Both Ends

1: One end

#### 9. Cable Specifications

A: Standard cable

R: Vibration-proof robot cable (straight/straight only)

F: Fire-retardant, vibration-proof cable

### Ordering Information

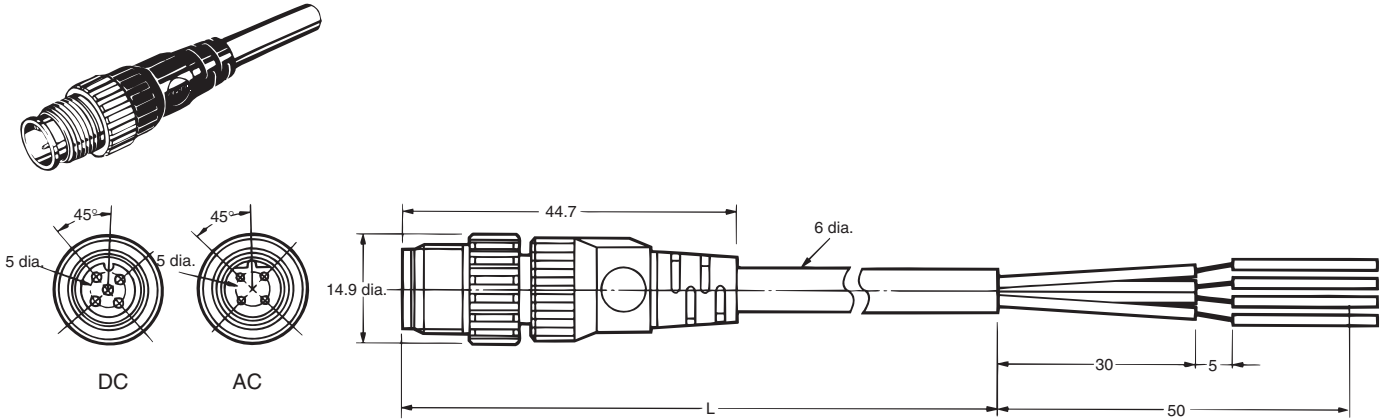
| No. of connector poles | Cable connection direction | No. of cable cores  | Size                | Cable length (m) | Model           |                 | Minimum order | UL-listed       |     |
|------------------------|----------------------------|---------------------|---------------------|------------------|-----------------|-----------------|---------------|-----------------|-----|
|                        |                            |                     |                     |                  | DC              | AC              |               |                 |     |
| 4                      | Straight                   | 2                   | 0.5 mm <sup>2</sup> | 0.3              | XS2H-D421-AA0-A | XS2H-A421-AB0-A | 10            | ---             |     |
|                        |                            |                     |                     |                  | XS2H-D421-AC0-A | ---             |               | ---             |     |
|                        |                            |                     |                     |                  | XS2H-D421-A80-A | XS2H-A421-A90-A |               | Yes             |     |
|                        |                            | 3                   |                     | 1                | XS2H-D421-CA0-A | XS2H-A421-CB0-A |               | ---             |     |
|                        |                            |                     |                     |                  | XS2H-D421-CC0-A | ---             |               | ---             |     |
|                        |                            |                     |                     |                  | 4               | XS2H-D421-C80-A |               | XS2H-A421-C90-A | Yes |
|                        |                            |                     |                     |                  |                 | ---             |               | ---             | --- |
| 5                      | 5                          | 0.3 mm <sup>2</sup> | 0.3                 | XS2H-D521-AG0-A  | ---             | ---             |               |                 |     |
|                        |                            |                     |                     | XS2H-D521-CG0-A  | ---             | ---             |               |                 |     |

**Note:** Orders are accepted in multiples of the minimum order.

**XS2H-□421-□□0-A Connectors on Standard Cable**

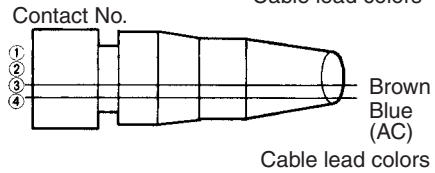
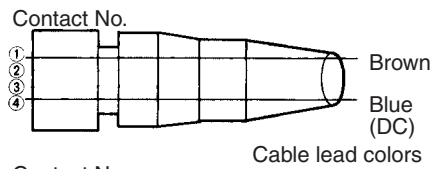
**■ Dimensions**

**Straight Connectors**

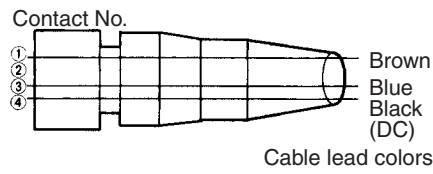


**Wiring Diagram**

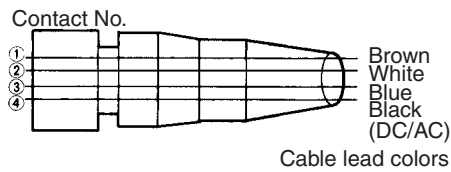
**Two-core Model**



**Three-core Model**



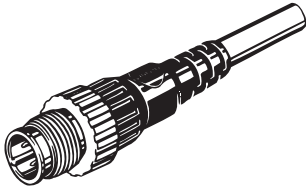
**Four-conductor Model**



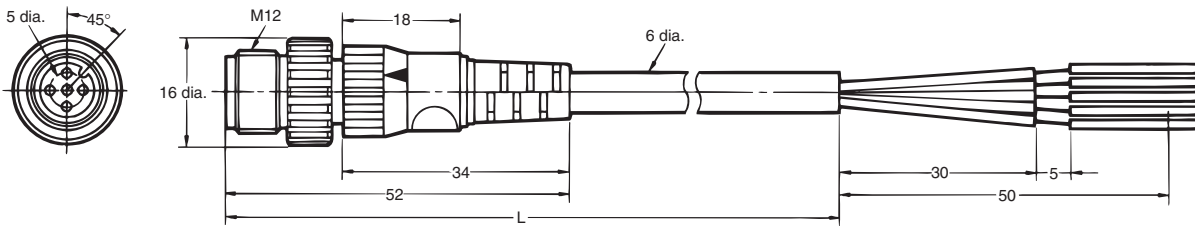
**XS2H-D521-□G0-A Connectors on DC Cable (Five Poles)**

**■ Dimensions**

**Straight Connectors**



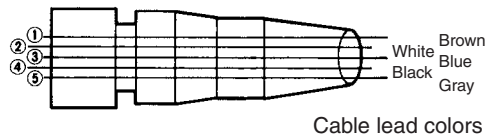
**Note:** Use the XS2H-D521-□G0-A in combination with the XS2F-D521-□G0-A.



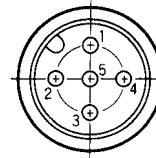
**Wiring diagram**

**Five-conductor Model**

Contact No.



**Pin Arrangements (Engagement Side)**





### Ordering Information

| Connector type                | Cable connection direction | Number of cores | Cable length (m) | Model           |
|-------------------------------|----------------------------|-----------------|------------------|-----------------|
| Panel-mounting socket         | ---                        | ---             | ---              | XS2P-D821-2     |
|                               |                            |                 |                  | XS2P-D822-2     |
| Panel-mounting plug           |                            |                 |                  | XS2M-D824-4     |
| Plug on one cable end         | Straight                   | 8               | 0.3              | XS2H-D821-AH0-C |
|                               |                            |                 | 1                | XS2H-D821-CH0-C |
| Socket on one cable end       |                            |                 | 2                | XS2F-D821-DH0-C |
|                               |                            |                 | 5                | XS2F-D821-GH0-C |
| Plug and socket on cable ends |                            |                 | 2                | XS2W-D821-DH1-C |
|                               | 5                          | XS2W-D821-GH1-C |                  |                 |

### Pin Numbers and Cable Lead Colors

| ---                              | Pin number |       |       |        |      |      |      |        |
|----------------------------------|------------|-------|-------|--------|------|------|------|--------|
| XS2F/XS2H/XS2W cable lead colors | 1          | 2     | 3     | 4      | 5    | 6    | 7    | 8      |
|                                  | White      | Brown | Green | Yellow | Gray | Pink | Blue | Shield |

### Ratings and Characteristics

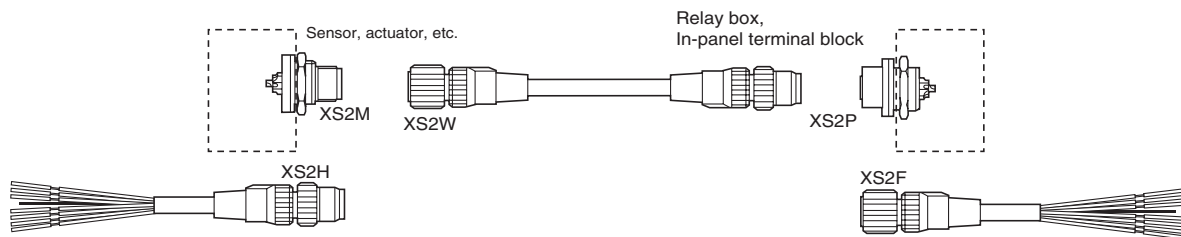
|                       |   |
|-----------------------|---|
| Rated current         | 1.5 A   |
| Rated voltage         | 36 VDC  |
| Contact resistance    | 40 MΩ max.<br>(at 20 mVDC max. and 100 mA max.)     |
| Insulation resistance | 1,000 MΩ min. (at 500 VDC)                          |
| Dielectric strength   | 1,000 VAC for 1 min<br>(leakage current: 1 mA max.) |
| Degree of protection  | IP67  |
| Insertion durability  | 200 times min.                                      |
| Operating temperature | - 25 to 70°C  |

### Materials and Finish

|                                      |  |
|--------------------------------------|--|
| Contacts                             | Brass/nickel base, 0.4-μm gold-plating |
| Bracket, body, M16 nuts              | Brass/nickel plated                    |
| Pin Block                            | PBT resin (UL94V-0)/light gray         |
| Cover (See note 1.)                  | Polyester elastomer (UL94V-0)/black    |
| Seal rubber and O-ring (See note 2.) | Rubber                                 |

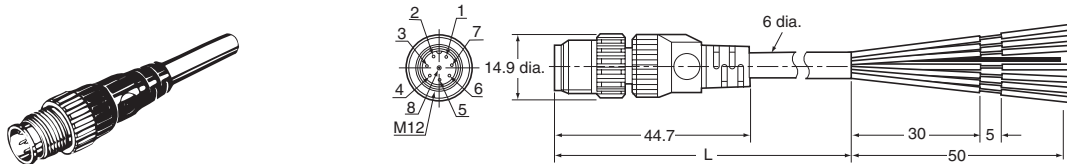
**Note:** 1. XS2F/XS2H/XS2W only.  
2. O-rings are on sockets only.

### Wiring Example

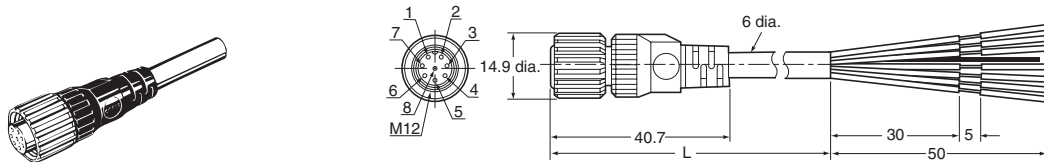


## ■ Dimensions

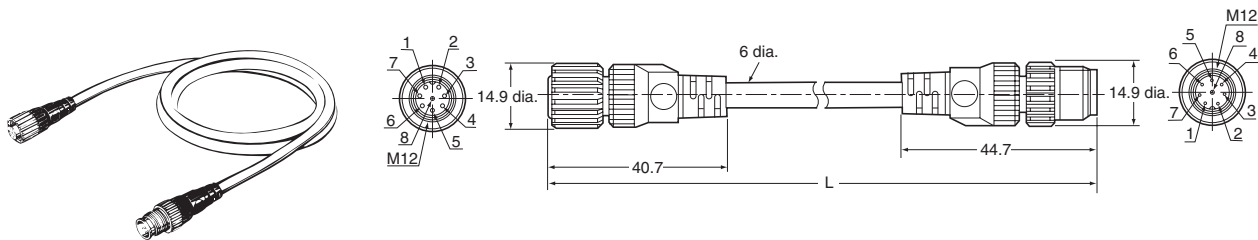
### XS2H Plug on One Cable End (M12)



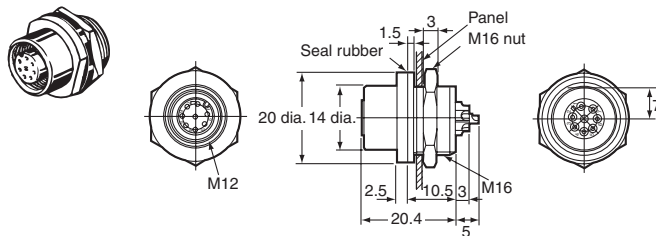
### XS2F Socket on One Cable End (M12)



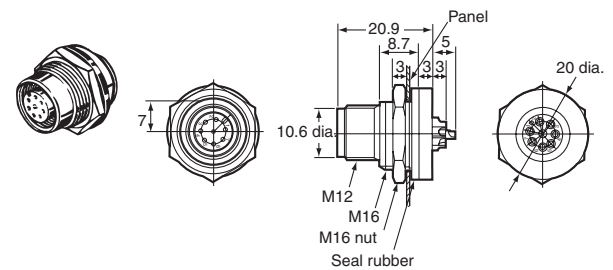
### XS2W Plug and Socket on Cable Ends (M12)



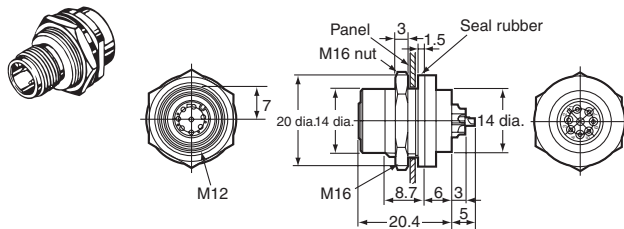
### XS2P-D821-2 Panel-mounting Socket (M12) with Solder Cup Pins and Rear Lock



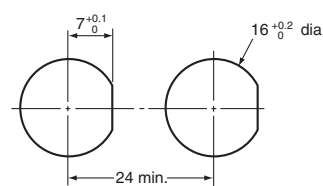
### XS2M-D824-4 Panel-mounting Plug (M12) with Solder Cup Pins and Front Lock



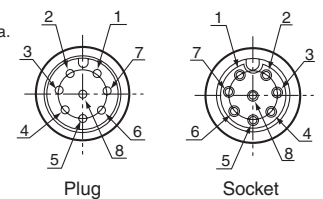
### XS2P-D822-2 Panel-mounting Socket (M12) with Solder Cup Pins and Front Lock



### Panel Cutouts



### Connector Pin Numbers (from Mating Side)



- Note:**
1. Mounting panel thickness: 1 to 4 mm
  2. Applicable core wire size for solder cup pins: 0.5 mm<sup>2</sup> max.
  3. The M16 nut and seal rubber are included.

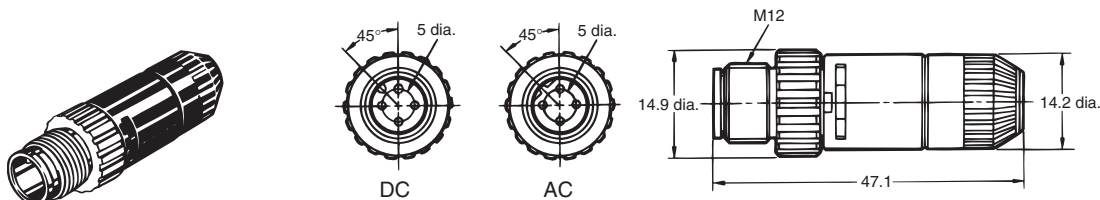
### Ordering Information

| Suitable cable dia. (mm)            | Cable connection direction | Connection method | Model     |           | Minimum order |
|-------------------------------------|----------------------------|-------------------|-----------|-----------|---------------|
|                                     |                            |                   | DC        | AC        |               |
| 6-mm-dia. model<br>(5 to 6 mm dia.) | Straight                   | Crimping          | XS2G-D4C1 | XS2G-A4C1 | 50            |
|                                     |                            | Soldering         | XS2G-D421 | XS2G-A421 |               |
|                                     | L-shaped                   | Soldering         | XS2G-D422 | ---       |               |
| 4-mm-dia. model<br>(4 to 5 mm dia.) | Straight                   | Crimping          | XS2G-D4C3 | XS2G-A4C3 |               |
|                                     |                            | Soldering         | XS2G-D423 | XS2G-A423 |               |
|                                     | L-shaped                   | Soldering         | XS2G-D424 | ---       |               |
| 3-mm-dia. model<br>(3 to 4 mm dia.) | Straight                   | Crimping          | XS2G-D4C5 | XS2G-A4C5 |               |
|                                     |                            | Soldering         | XS2G-D425 | XS2G-A425 |               |
|                                     | L-shaped                   | Soldering         | XS2G-D426 | ---       |               |

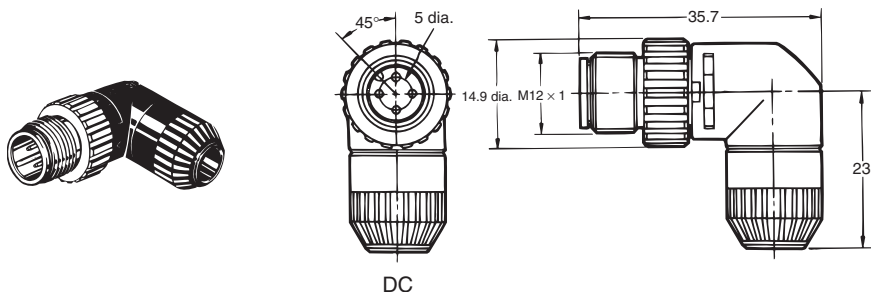
**Note:** 1. Orders are accepted in multiples of the minimum order.  
2. Crimping plug contacts are sold separately.

### Dimensions

XS2G-□4C□ (Crimping Model)  
XS2G-□42□ (Soldering Model)  
Straight Connectors



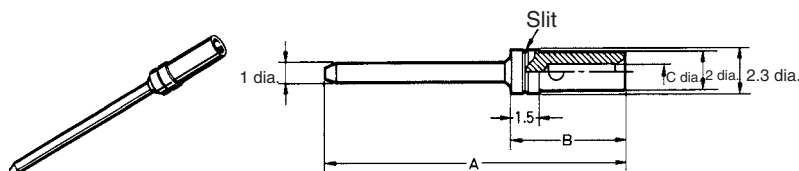
XS2G-D42□ (Soldering Model)  
L-shaped Connectors



### XS2U Crimping Pin for XS2G

### Dimensions

XS2U-312□ (Plug Pin)



#### Dimensions

| Model     | Suitable core size (mm <sup>2</sup> ) | Dimension (mm) |     |     | No. of slits |
|-----------|---------------------------------------|----------------|-----|-----|--------------|
|           |                                       | A              | B   | C   |              |
| XS2U-3121 | 0.18 to 0.3                           | 20.0           | 6.1 | 0.8 | 1            |
| XS2U-3122 | 0.5 to 0.75                           | 20.1           | 6.2 | 1.3 | 0            |

### Ordering Information

| Suitable core size (mm <sup>2</sup> ) | Model     | Minimum order |
|---------------------------------------|-----------|---------------|
| 0.18 to 0.3                           | XS2U-3121 | 100           |
| 0.5 to 0.75                           | XS2U-3122 |               |

**Note:** Orders are accepted in multiples of the minimum order.

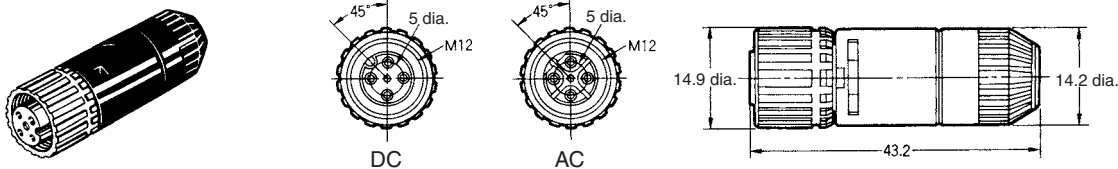
### Ordering Information

| Suitable cable dia. (mm)         | Cable connection direction | Connection method | Model     |           | Minimum order |
|----------------------------------|----------------------------|-------------------|-----------|-----------|---------------|
|                                  |                            |                   | DC        | AC        |               |
| 6-mm-dia. model (5 to 6 mm dia.) | Straight                   | Crimping          | XS2C-D4C1 | XS2C-A4C1 | 50            |
|                                  |                            | Soldering         | XS2C-D421 | XS2C-A421 |               |
|                                  | L-shaped                   | Crimping          | XS2C-D4C2 | XS2C-A4C2 |               |
|                                  |                            | Soldering         | XS2C-D422 | XS2C-A422 |               |
| 4-mm-dia. model (4 to 5 mm dia.) | Straight                   | Crimping          | XS2C-D4C3 | XS2C-A4C3 |               |
|                                  |                            | Soldering         | XS2C-D423 | XS2C-A423 |               |
|                                  | L-shaped                   | Crimping          | XS2C-D4C4 | XS2C-A4C4 |               |
|                                  |                            | Soldering         | XS2C-D424 | XS2C-A424 |               |
| 3-mm-dia. model (3 to 4 mm dia.) | Straight                   | Crimping          | XS2C-D4C5 | XS2C-A4C5 |               |
|                                  |                            | Soldering         | XS2C-D425 | XS2C-A425 |               |
|                                  | L-shaped                   | Crimping          | XS2C-D4C6 | XS2C-A4C6 |               |
|                                  |                            | Soldering         | XS2C-D426 | XS2C-A426 |               |

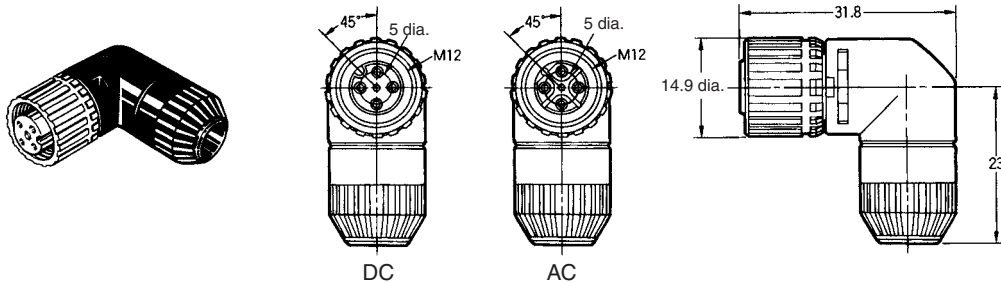
**Note:** 1. Orders are accepted in multiples of the minimum order.  
2. Crimping plug contacts are sold separately.

### Dimensions

XS2C-□4C□ (Crimping Model)  
XS2C-□42□ (Soldering Model)  
Straight Connectors



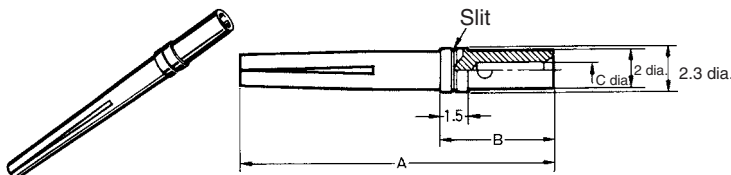
L-shaped Connectors



### XS2U Crimping Pin for XS2C

### Dimensions

XS2U-222□ (Socket Pin)



Dimensions

| Model     | Suitable core size (mm <sup>2</sup> ) | Dimension (mm) |     |     | No. of slits |
|-----------|---------------------------------------|----------------|-----|-----|--------------|
|           |                                       | A              | B   | C   |              |
| XS2U-2221 | 0.18 to 0.3                           | 16.7           | 6.1 | 0.8 | 1            |
| XS2U-2222 | 0.5 to 0.75                           | 16.8           | 6.2 | 1.3 | 0            |

### Ordering Information

| Suitable core size (mm <sup>2</sup> ) | Model     | Minimum order |
|---------------------------------------|-----------|---------------|
| 0.18 to 0.3                           | XS2U-2221 | 100           |
| 0.5 to 0.75                           | XS2U-2222 |               |

**Note:** Orders are accepted in multiples of the minimum order.

### Ordering Information

| No. of poles | Suitable cable dia. (mm)         | Model                        |                              | Minimum order |
|--------------|----------------------------------|------------------------------|------------------------------|---------------|
|              |                                  | Straight connectors (for DC) | L-shaped connectors (for DC) |               |
| 5            | 8-mm-dia. model (7 to 8 mm dia.) | XS2G-D5S7 <i>NEW</i>         | ---                          | 50            |
|              | 7-mm-dia. model (6 to 7 mm dia.) | XS2G-D5S9 <i>NEW</i>         | ---                          |               |
|              | 6-mm-dia. model (5 to 6 mm dia.) | XS2G-D5S1 <i>NEW</i>         | XS2G-D5S2 <i>NEW</i>         |               |
| 4            | 8-mm-dia. model (7 to 8 mm dia.) | XS2G-D4S7 <i>NEW</i>         | ---                          |               |
|              | 7-mm-dia. model (6 to 7 mm dia.) | XS2G-D4S9 <i>NEW</i>         | ---                          |               |
|              | 6-mm-dia. model (5 to 6 mm dia.) | XS2G-D4S1                    | XS2G-D4S2                    |               |
|              | 4-mm-dia. model (4 to 5 mm dia.) | XS2G-D4S3                    | XS2G-D4S4                    |               |
|              | 3-mm-dia. model (3 to 4 mm dia.) | XS2G-D4S5                    | XS2G-D4S6                    |               |

- Note:**
- Orders are accepted in multiples of the minimum order.
  - XS2G Screw-on Plugs cannot be connected side-by-side to the CN1 and CN2 connectors of XS2R Y-Joint Sockets/Plugs.

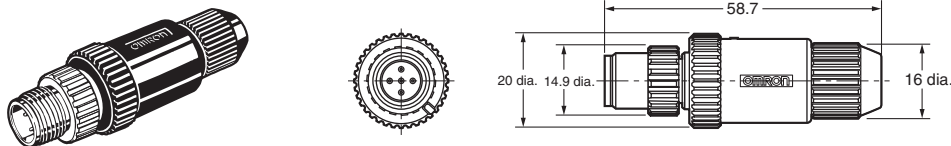
### Dimensions

**XS2G-D5S7 (5-pole, Straight, Applicable Cable Outer Diameter: 8 mm)**

**XS2G-D5S9 (5-pole, Straight, Applicable Cable Outer Diameter: 7 mm)**

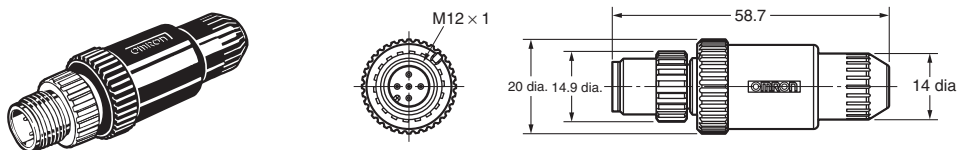
**XS2G-D4S7 (4-pole, Straight, Applicable Cable Outer Diameter: 8 mm)**

**XS2G-D4S9 (4-pole, Straight, Applicable Cable Outer Diameter: 7 mm)**



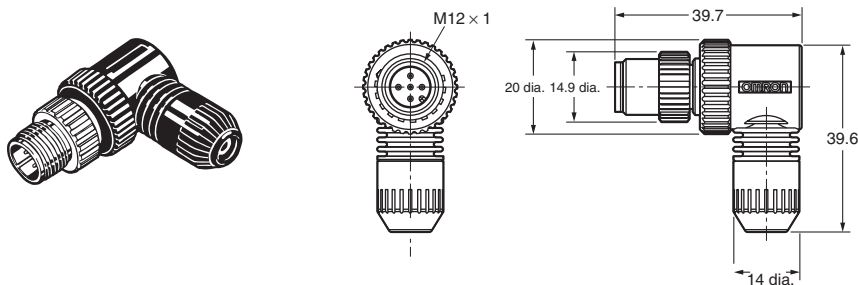
**XS2G-D5S1 (5-pole, Straight, Applicable Cable Outer Diameter: 6 mm)**

**XS2G-D4S□ (4-pole, Straight, Applicable Cable Outer Diameter: 3, 4, or 6 mm)**



**XS2G-D5S2 (5-pole, L-shaped, Applicable Cable Outer Diameter: 6 mm)**

**XS2G-D4S□ (4-pole, L-shaped, Applicable Cable Outer Diameter: 3, 4, or 6 mm)**



### Ordering Information

| No. of poles | Suitable cable dia. (mm)         | Model                        |                              | Minimum order |
|--------------|----------------------------------|------------------------------|------------------------------|---------------|
|              |                                  | Straight connectors (for DC) | L-shaped connectors (for DC) |               |
| 5            | 8-mm-dia. model (7 to 8 mm dia.) | XS2C-D5S7 <i>NEW</i>         | ---                          | 50            |
|              | 7-mm-dia. model (6 to 7 mm dia.) | XS2C-D5S9 <i>NEW</i>         | ---                          |               |
|              | 6-mm-dia. model (5 to 6 mm dia.) | XS2C-D5S1 <i>NEW</i>         | XS2C-D5S2 <i>NEW</i>         |               |
| 4            | 8-mm-dia. model (7 to 8 mm dia.) | XS2C-D4S7 <i>NEW</i>         | ---                          |               |
|              | 7-mm-dia. model (6 to 7 mm dia.) | XS2C-D4S9 <i>NEW</i>         | ---                          |               |
|              | 6-mm-dia. model (5 to 6 mm dia.) | XS2C-D4S1                    | XS2C-D4S2                    |               |
|              | 4-mm-dia. model (4 to 5 mm dia.) | XS2C-D4S3                    | XS2C-D4S4                    |               |
|              | 3-mm-dia. model (3 to 4 mm dia.) | XS2C-D4S5                    | XS2C-D4S6                    |               |

**Note:** Orders are accepted in multiples of the minimum order.

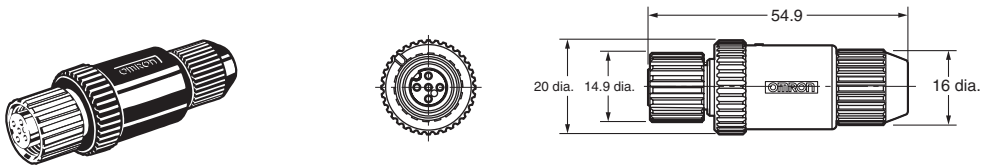
### Dimensions

**XS2C-D5S7 (5-pole, Straight, Applicable Cable Outer Diameter: 8 mm)**

**XS2C-D5S9 (5-pole, Straight, Applicable Cable Outer Diameter: 7 mm)**

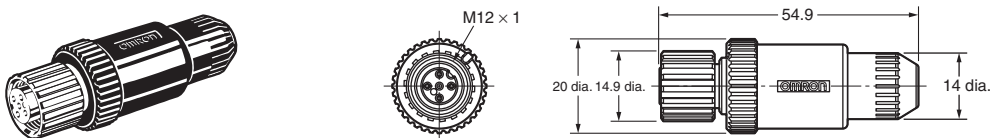
**XS2C-D4S7 (4-pole, Straight, Applicable Cable Outer Diameter: 8 mm)**

**XS2C-D4S9 (4-pole, Straight, Applicable Cable Outer Diameter: 7 mm)**



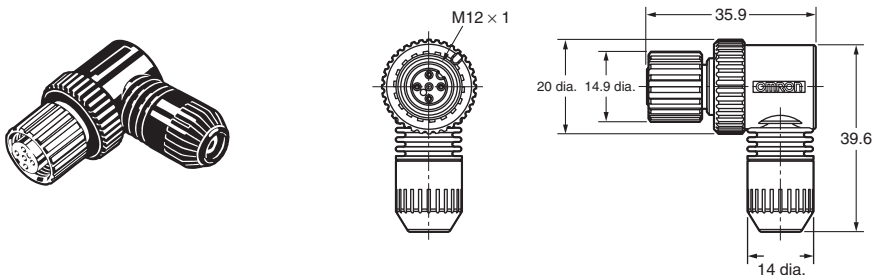
**XS2C-D5S1 (5-pole, Straight, Applicable Cable Outer Diameter: 6 mm)**

**XS2C-D4S□ (4-pole, Straight, Applicable Cable Outer Diameter: 3, 4, or 6 mm)**



**XS2C-D5S2 (5-pole, L-shaped, Applicable Cable Outer Diameter: 6 mm)**

**XS2C-D4S□ (4-pole, L-shaped, Applicable Cable Outer Diameter: 3, 4, or 6 mm)**



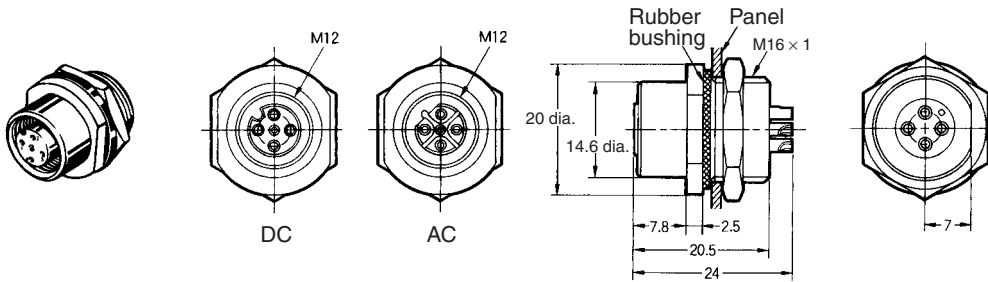
### Ordering Information

| Lock method | Pin shape      | Model       |             | Minimum order |
|-------------|----------------|-------------|-------------|---------------|
|             |                | DC          | AC          |               |
| Rear lock   | Solder cup pin | XS2P-D421-2 | XS2P-A421-2 | 50            |
| Front lock  | Solder cup pin | XS2P-D422-2 | XS2P-A422-2 |               |
|             | DIP pin        | XS2P-D422-1 | XS2P-A422-1 |               |

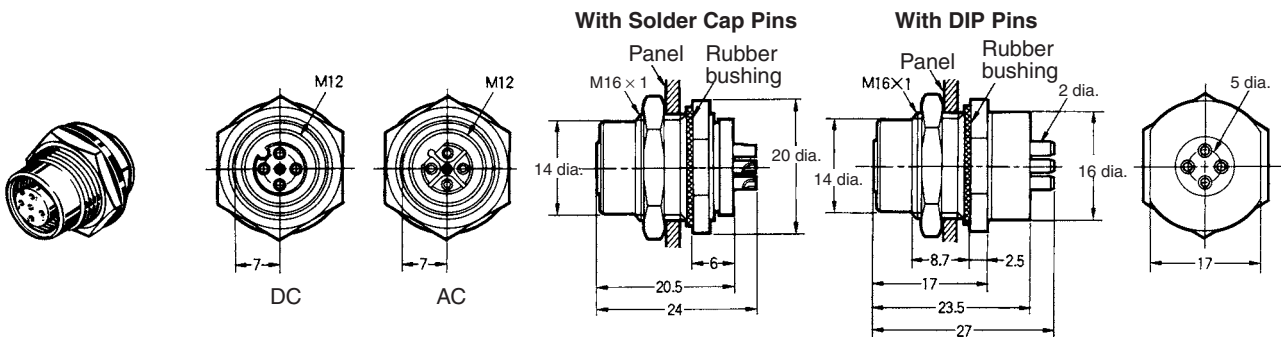
**Note:** Orders are accepted in multiples of the minimum order.

### Dimensions

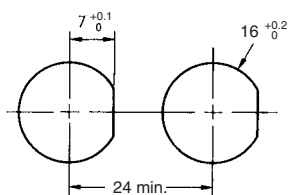
XS2P-□421-2 (with Solder Cup Pins)  
Rear Lock Model



XS2P-□422-1 (with DIP Pins)  
XS2P-□422-2 (with Solder Cup Pins)  
Front Lock Model

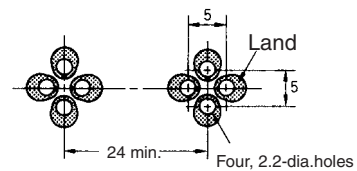


#### Panel Cutout



**Note:** The panel thickness is 1 to 4 mm.

#### PCB-mounting Dimensions



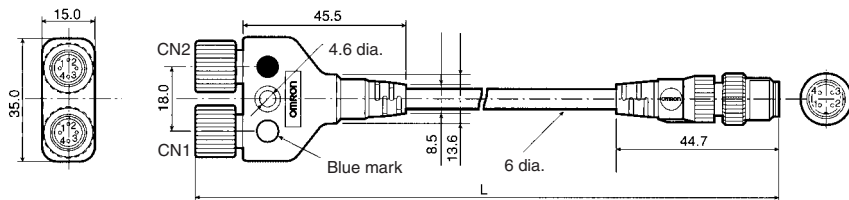
### Ordering Information

| Type          | Connector                  | DC                 |                 | Minimum order |
|---------------|----------------------------|--------------------|-----------------|---------------|
|               |                            | Cable length L (m) | Model           |               |
| With cable    | Connectors on cable ends   | 0.5                | XS2R-D426-B11-F | 5             |
|               |                            | 1                  | XS2R-D426-C11-F |               |
|               |                            | 2                  | XS2R-D426-D11-F |               |
|               |                            | 3                  | XS2R-D426-E11-F |               |
|               | Connector on one cable end | 2                  | XS2R-D426-D10-F |               |
|               |                            | 5                  | XS2R-D426-G10-F |               |
| Without cable | Y-Joint plug/socket        | ---                | XS2R-D426-1     | 10            |
|               |                            |                    | XS2R-D426-5     |               |
|               |                            |                    | XS2R-D426-81    |               |
|               |                            |                    | XS2R-D426-82    |               |

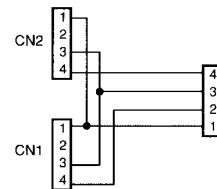
- Note:**
- Orders are accepted in multiples of the minimum order.
  - XS2G Screw-on Plugs cannot be connected side-by-side to the CN1 and CN2 connectors.

### Dimensions

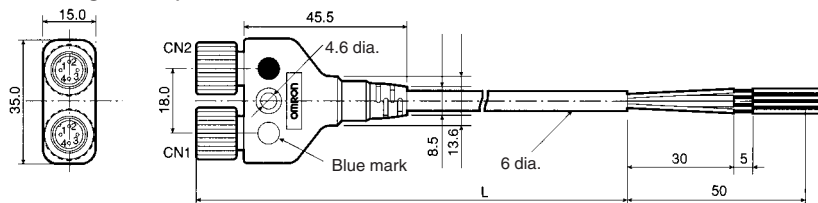
#### XS2R-D426-□11-F Connectors on Cable Ends (Y-Joint Plug/Socket)



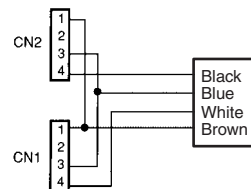
#### Internal Connections



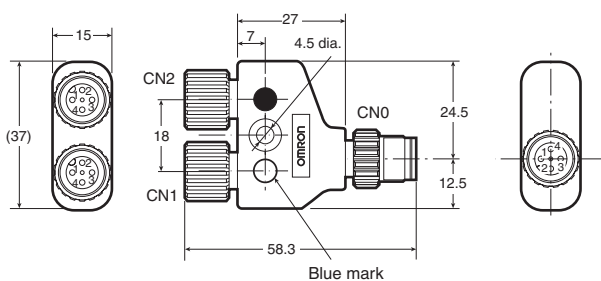
#### XS2R-D426-□10-F Connectors on One Cable End (Y-Joint Plug/Socket)



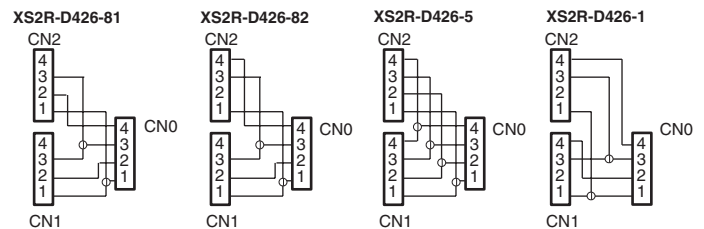
#### Internal Connections



#### XS2R-D426-1 Y-Joint Plug/Socket without Cable



#### Internal Connections





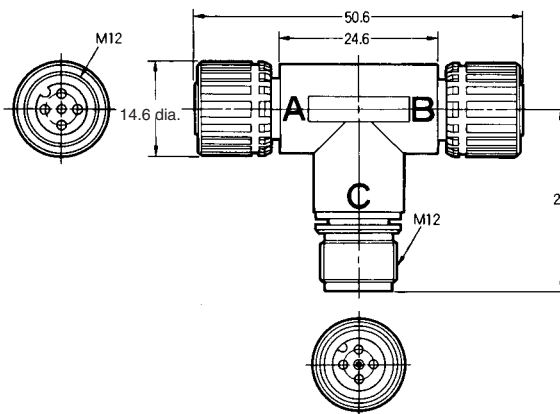
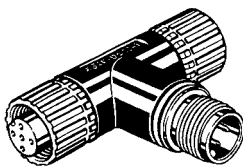
### Ordering Information

| Type              | DC          |               |
|-------------------|-------------|---------------|
|                   | Model       | Minimum order |
| Aggregate model   | XS2R-D422-1 | 20            |
|                   | XS2R-D422-5 |               |
| Bifurcated model  | XS2R-D423-1 |               |
| Daisy-chain model | XS2R-D424-1 |               |

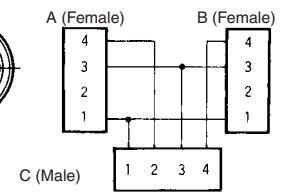
**Note:** Orders are accepted in multiples of the minimum order.

### Dimensions

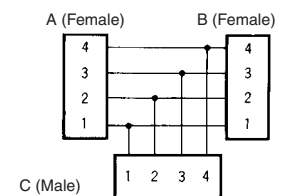
XS2R-D422-1  
XS2R-D422-5  
Aggregate Models



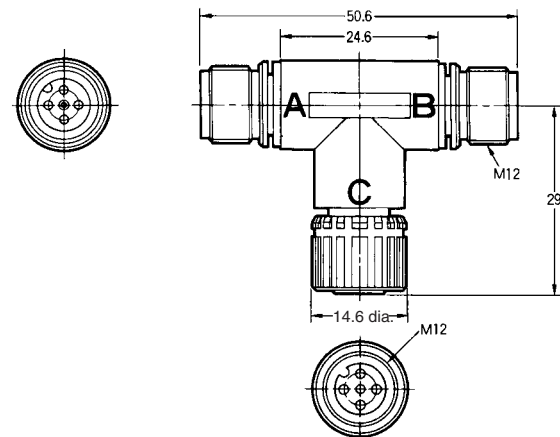
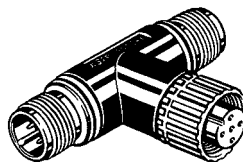
Internal Connections  
XS2R-D422-1



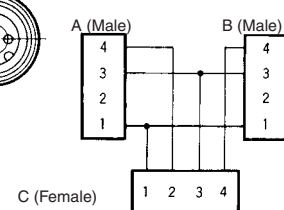
XS2R-D422-5



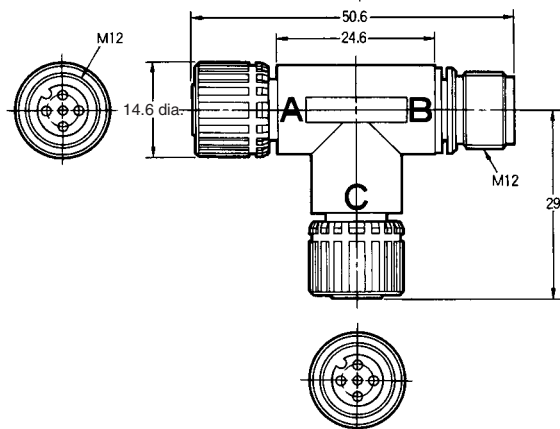
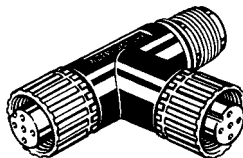
XS2R-D423-1  
Bifurcated Model



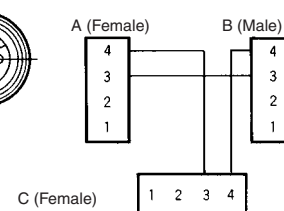
Internal Connections



XS2R-D424-1  
Daisy-chain Model



Internal Connections

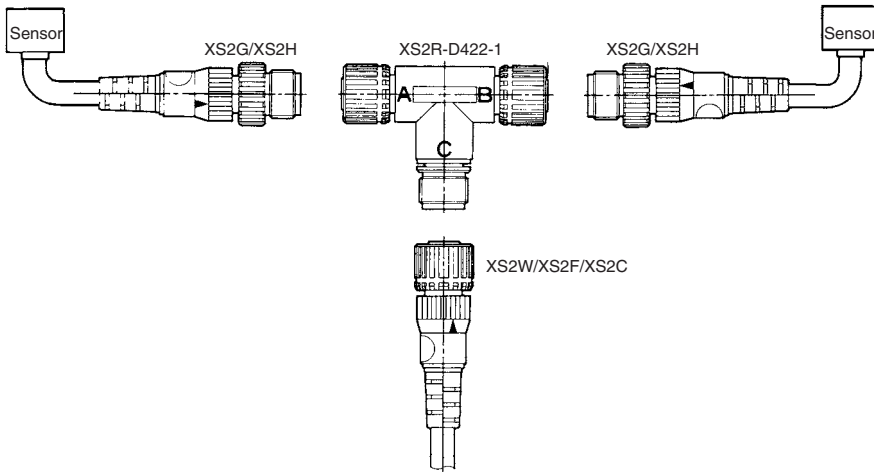


## ■ Precautions

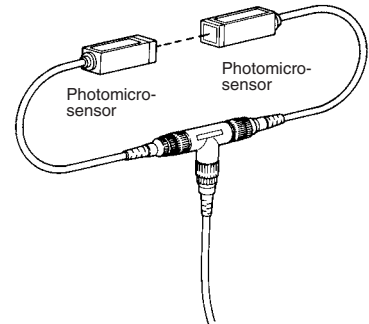
Before using the XS2R for Sensors, make sure that the wiring of the Sensors and the internal connections of the XS2R are correct.

### XS2R Application Examples

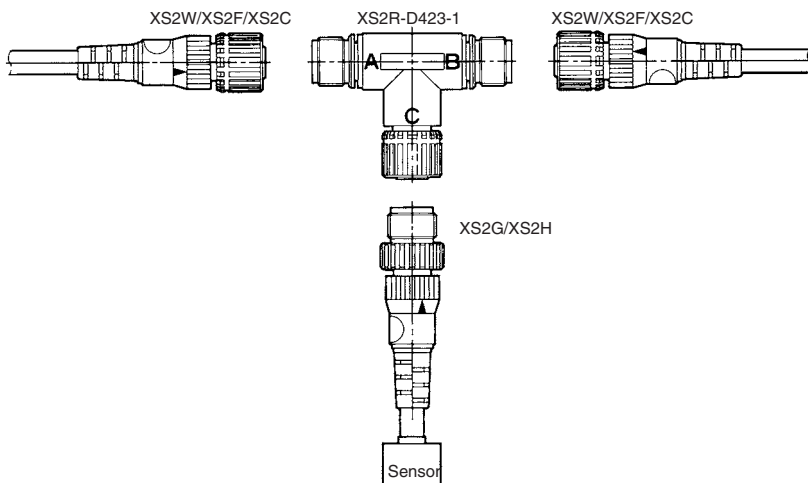
#### XS2R-D422-1 (Aggregate Model)



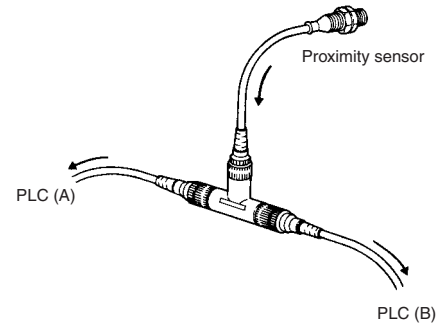
A pair of Two-wire Sensors or Three-wire Sensors can be connected as shown in the illustration. The XS2R-D422-5 has feed-through connections, thus working as a connector for the extension cable.



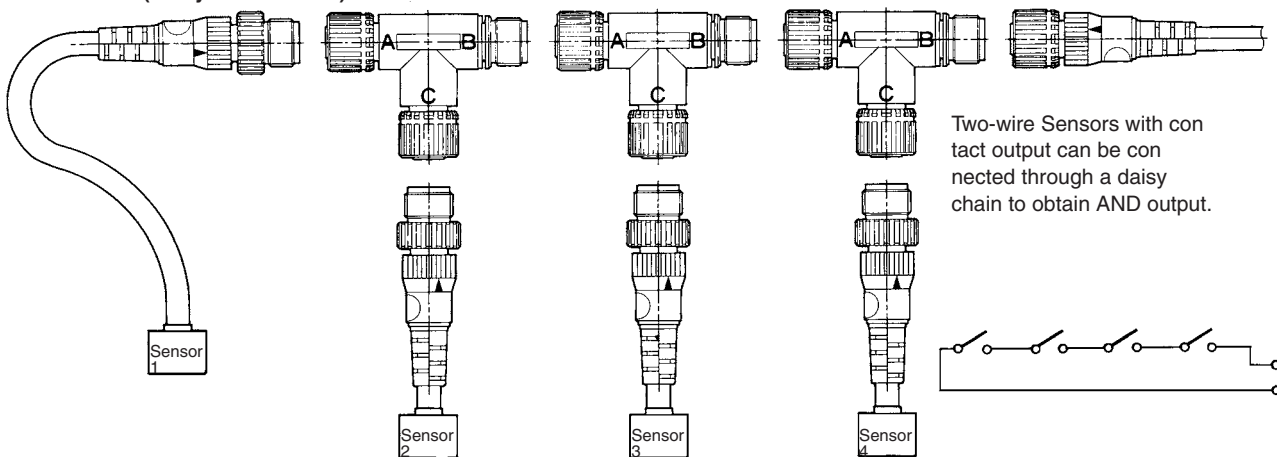
#### XS2R-D423-1 (Bifurcated Model)



Two or Three-wire Sensor signals can be bifurcated.



#### XS2R-D424-1 (Daisy Chain Model)



Two-wire Sensors with contact output can be connected through a daisy chain to obtain AND output.

### Ordering Information

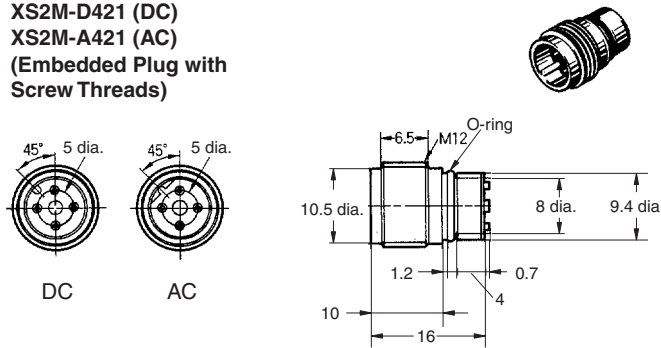
| Mounting method                | Pin shape      | Model       |             | Minimum order |
|--------------------------------|----------------|-------------|-------------|---------------|
|                                |                | DC          | AC          |               |
| Embedded with screw threads    | Solder cup pin | XS2M-D421   | XS2M-A421   | 50            |
| Embedded with no screw threads |                | XS2M-D422   | XS2M-A422   |               |
| Flange-mounting                |                | XS2M-D423   | XS2M-A423   |               |
| Screw-mounting                 | DIP pin        | XS2M-D424-1 | XS2M-A424-1 |               |
|                                | Solder cup pin | XS2M-D424-2 | XS2M-A424-2 |               |

**Note:** Orders are accepted in multiples of the minimum order.

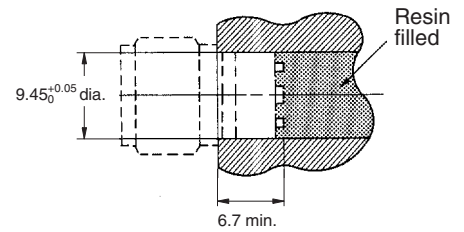
### XS2M-□42□ Sensor-embedded Plugs

### Dimensions

XS2M-D421 (DC)  
XS2M-A421 (AC)  
(Embedded Plug with  
Screw Threads)

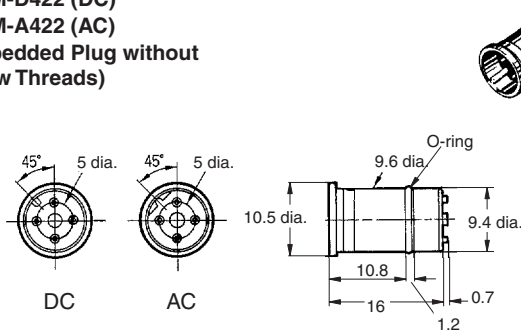


Mounted Dimensions

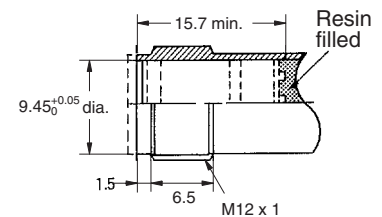


**Note:** After mounting, anchor the solder cups by injecting resin.

XS2M-D422 (DC)  
XS2M-A422 (AC)  
(Embedded Plug without  
Screw Threads)



Mounted Dimensions

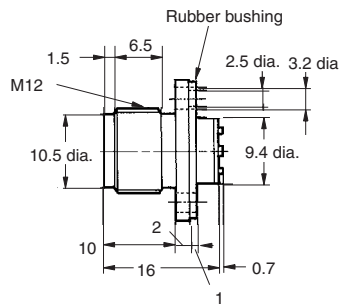
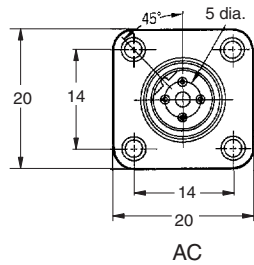
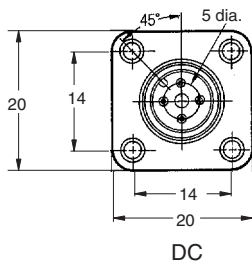
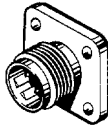


**Note:** After mounting, anchor the solder cups by injecting resin.

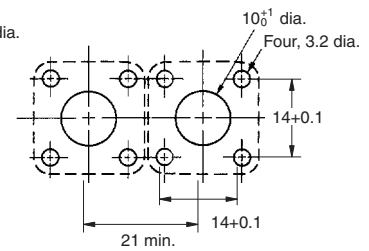
**XS2M-□423 Flange-mounting Panel-mounting Plugs**  
**XS2M-□424-□ Screw-mounting Panel-mounting Plugs**

**■ Dimensions**

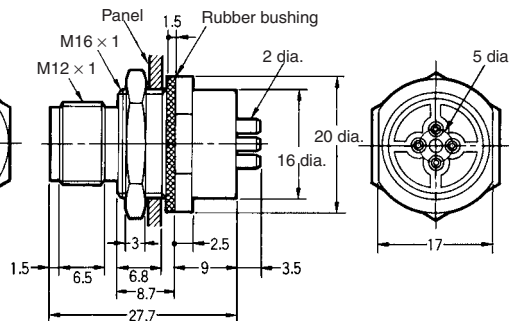
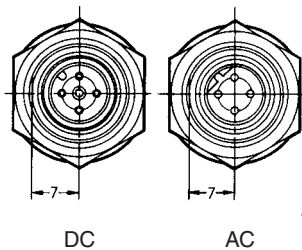
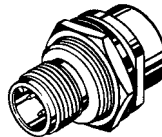
XS2M-D423 (For DC)  
 XS2M-A423 (For AC)  
 (Flange-mounting Model)



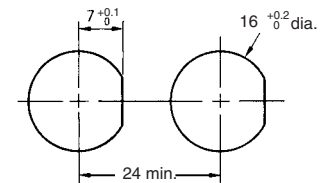
**Panel Dimensions**



XS2M-□424-1 (With DIP Pins)  
 XS2M-□424-2 (With Solder Cup Pins)  
 (Screw-mounting Model)

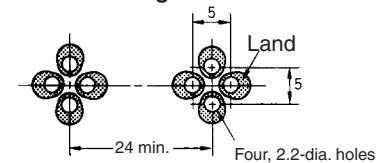


**Panel Cutout**



Note: The panel thickness is 1 to 4 mm.

**PCB-mounting Dimensions**

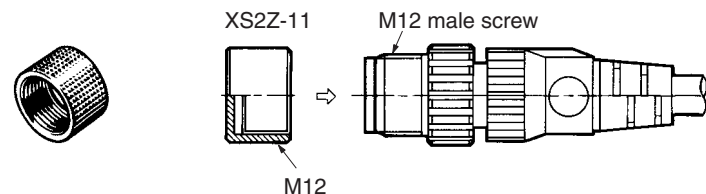


## XS2 Accessories

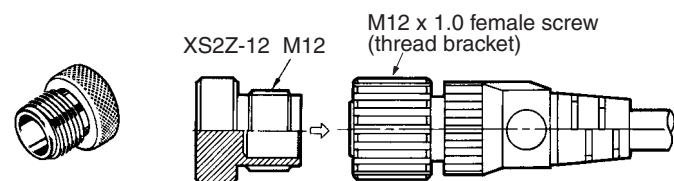
### ■ XS2 Connector Covers

#### Water-resistant Covers

XS2Z-11



XS2Z-12



The Water-resistant Cover ensures IP67. When mounting the Water-resistant Cover to a Connector, be sure to apply a torque range between 0.39 and 0.49 N·m to tighten the Water-resistant Cover.

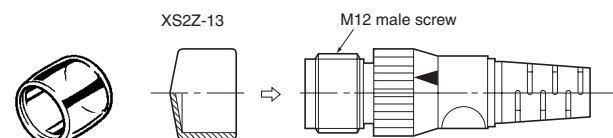
### ■ Ordering Information

| Model   | Minimum order | Material            | Suitable connector       |                                   |
|---------|---------------|---------------------|--------------------------|-----------------------------------|
|         |               |                     | Model                    | Mounting portion                  |
| XS2Z-11 | 50            | Brass/nickel plated | XS2G/XS2H/XS2M/XS2R      | M12 male screw                    |
| XS2Z-12 |               |                     | XS2C/XS2R/XS2F/XS2P/XW3B | M12 female screw (thread bracket) |

**Note:** Orders are accepted in multiples of the minimum order.

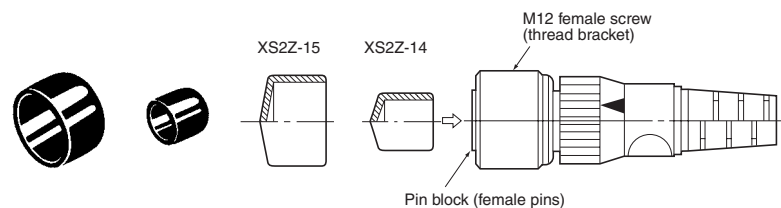
#### Dust Covers

XS2Z-13



The Dust Cover is for dust prevention and does not ensure IP67 degree of protection. When mounting the Dust Cover to a connector, be sure to press the Dust Cover onto the Connector until the Connector is fully inserted into the Dust Cover.

XS2Z-15/XS1Z-14



### ■ Ordering Information

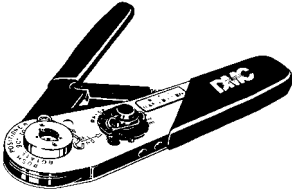
| Model   | Minimum order | Material                       | Suitable connector       |                                   |
|---------|---------------|--------------------------------|--------------------------|-----------------------------------|
|         |               |                                | Model                    | Mounting portion                  |
| XS2Z-13 | 50            | Transparent polyvinyl chloride | XS2G/XS2H/XS2M/XS2R      | M12 male screw                    |
| XS2Z-14 |               | Red polyvinyl chloride         | XS2C/XS2R/XS2F/XS2P/XW3B | Pin block (female pins)           |
| XS2Z-15 |               |                                |                          | M12 female screw (thread bracket) |

**Note:** Orders are accepted in multiples of the minimum order.

## ■ Tools

### Crimp Tool

XY2F-0002



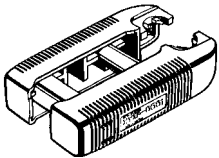
### Locator

XY2F-0003



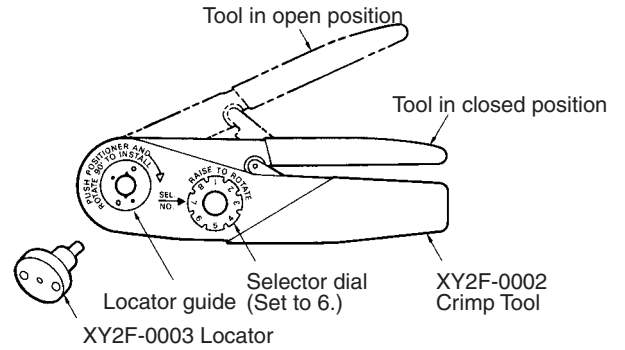
### Pin-block Extraction Tool

XY2F-0001



Use the Crimp Tool to crimp a cable core to the XS2U Crimping Pin used with the XS2C or XS2G Crimping Connector.

**Note:** The XY2F-0002 Crimp Tool is DMC's AFM8 (M22520/2-01). Mount the XY2F-0003 Locator (sold separately) to the locator guide of the Crimp Tool with a screw provided with the XY2F-0003 Locator.



Use this tool to extract a Pin Block from the covers in order to make wiring changes or corrections after the cover has been mounted to the pin block for Connector Assemblies (XS2C/XS2G, soldering/crimping).

## ■ Assembly Procedure for XS2C/XS2G Connector Assemblies

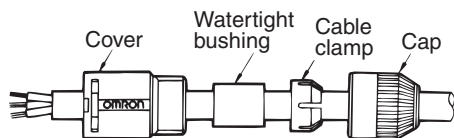
### Connector and Cable External Diameters

- Connectors for 6-, 4-, and 3-mm-diameter Cables (i.e., Cables that are 5 to 6, 4 to 5, and 3 to 4 mm in diameter respectively) are available. When assembling a Connector used with a cable, make sure that the external diameter of the Connector is suited to that of the cable.
- Connectors for 6-mm-diameter Cables use white cable clamps. Connectors for 4 and 3-mm-diameter Cables use black cable clamps. A watertight bushing for 6-mm-diameter Cable has no stripe, that for 4-mm-diameter Cable has a single stripe, and that for 3-mm-diameter Cable has two stripes.

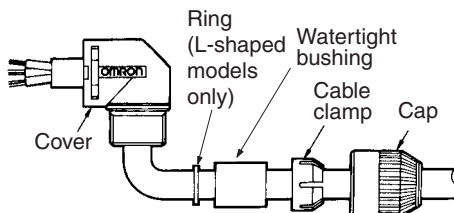
**Note:** When connecting a commercially available cable to a connector assembly, use a cable with an outside diameter of 3 to 6 mm and core sizes of 0.18 to 0.75 mm<sup>2</sup> for crimping connectors and 0.5 mm<sup>2</sup> maximum for soldering connectors.

### Component Insertion

#### Straight Connectors



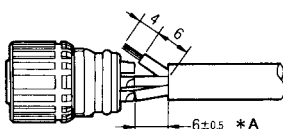
#### L-shaped Connectors



- Note:** A ring is not required for Screw-on Connectors.
- As shown in the above illustration, connect the above components to the Cable with its end processed.
- Note:** The diagram shows the cover for Soldering or Crimping Connectors. The shape of the cover is different for Screw-on Connectors.

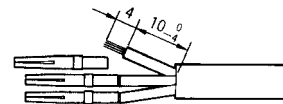
### Wiring (Processing Cable Ends)

#### Soldering Connectors



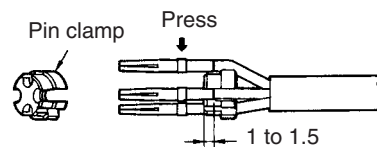
- Strip 10 mm of the Cable sheath and 4 mm of each core.
- Before soldering cores and solder cup pins together, solder-coat each of them.
- The following conditions are recommended for soldering each solder cup pin.
  - Soldering iron: 30 to 60 W
  - Soldering temperature: 280°C to 340°C
  - Soldering period: 3 s max.
- The length marked \*A should be 6.5 mm max., otherwise the proper degree of protection of the connector will not be maintained.

#### Crimping Connectors



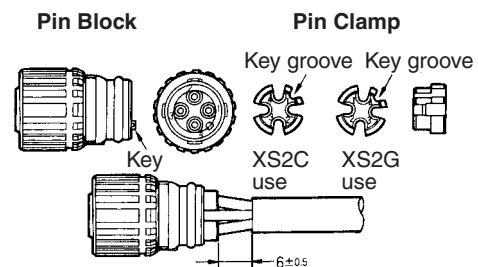
- Strip 14 mm of the Cable sheath and 4 mm of each core.
- Make sure that each core is not damaged and its end strands are not spread out.
- Mount the XY2F-0003 Locator to DMC's AFM8 (M25520/2-01) Crimping Tool, both of which are sold separately, and set the selector dial of the Crimping Tool to 6 for the XS2U-□□21 and to 7 for the XS2U-□□22.
- After mounting the crimping pins to the Locator, fully insert the cores to the crimping pins.
- Squeeze the handle of the Crimp Tool to press-fit the cores to the crimping pins. (Squeeze the handle firmly until the handle automatically returns to the release position.)

#### Crimping Cable Cores to Pin Clamp



- After press-fitting the cores to the pins, insert the pins into the pin clamp as shown in the illustration. Then make sure that the lead colors correspond to the pin clamp numbers that are identical to the connector pin numbers.

#### Mounting Pin Clamp to Pin Block

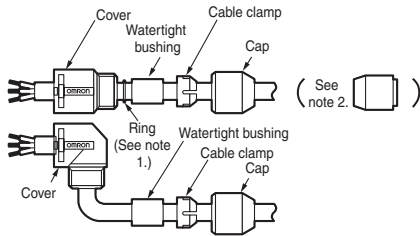


- Tentatively insert the pins to the pin block holes so that the key on the pin block will coincide with the key groove on the pin clamp. Then insert the cable along with the pin clamp.

## Screw-on Connectors

### Inserting Parts

Confirm that you have all of the required parts.

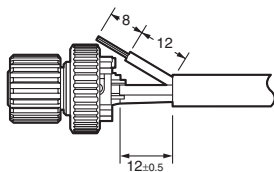


Insulation caps and insulation tubes are included with 5-pole Connectors (XS2C-D5S□ and XS2G-D5S□).

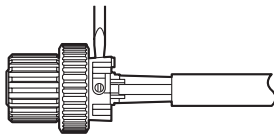
- Note:**
1. Rings are not required with 7-mm and 8-mm cables.
  2. Insert the waterproof bushing for 7-mm and 8-mm cables in the direction shown in the diagram.

### Cable End Processing

#### Four-pole Connectors



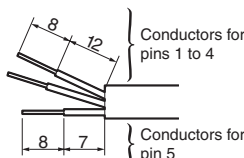
- Loosen the screws on pins 1 to 4 and insert the cores according to the pin numbers.



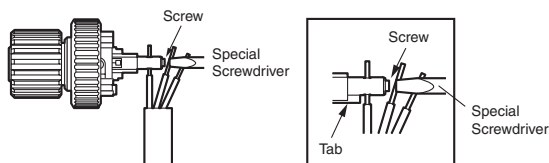
- Use the special Screwdriver (XW4Z-00B) and tighten the screws securely so that the cores do not pull out (tightening torque: 0.15 to 0.2 N·m).

#### Five-pole Connectors

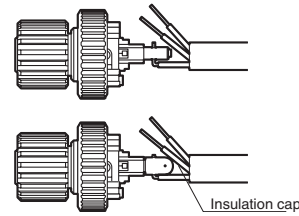
- Strip the cable sheath for a total of 15 mm and strip the core covering for 8 mm for the core to connect to pin 5.



- Connect the core to pin 5 (in the center) first.
- Insert the core from the side of the hold with the tab and tighten the screw securely (tightening torque: 0.15 to 0.2 N·m), and then cut off the excess wire with wire cutters.



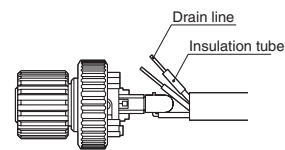
- Bend the cable as shown below, attached the enclosed insulation cap, and then strip the other cores.



- Connect the cores to pins 1 to 4.

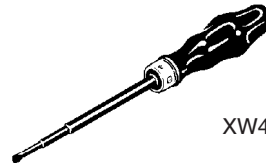
### Connecting Shielded Cables to Five-pole Connectors

- Place the insulation tub on the drain line of the shield and connect it to the terminal.
- Tighten the screw and then check visually to see if there is insulation between the cores.



- Connect the cores to pins 1 to 4.

**Note:** When tightening the screws, use the dedicated XW4Z-00B Screwdriver that matches with the screw-slot dimensions.

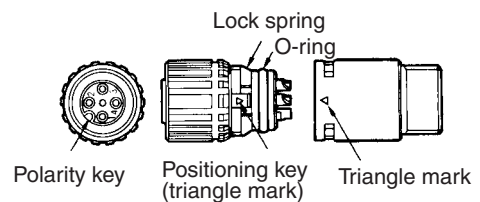


XW4Z-00B Screwdriver

### Inserting Pin Block

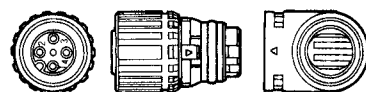
#### Pin Block (Soldering Model)

#### Cover (Straight Model)



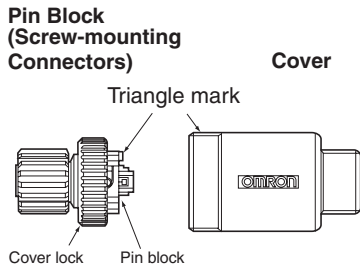
#### (Crimping Model)

#### (L-shaped Model)



- Mount the cover to the pin block so that the triangle mark on the pin block will coincide with the triangle mark on the cover.
- If the cover is used for an L-shaped model, the relationship between the position of the polarity key on the engaged side and cable connection direction will be determined by the direction in which the positioning key is inserted into the cover, which can be rotated by 90°.
- Fully insert the positioning key until the positioning key is hidden by the casing.



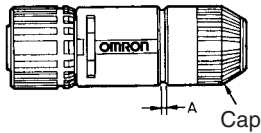


- Align the triangular marks on the pin block and cover and insert the pin block into the cover.
- Press them together firmly (0.39 to 0.49 N·m) until the pin block does not come out of the cover.

### Mounting Cap

- After mounting the cover to the pin block and the cover snaps into place, tighten the cap securely by hand within a torque of 0.39 and 0.49 N·m.

**Note:** If the cap is not tightened securely enough, the degree of protection (IP67) may not be maintained or vibration may cause the cap to become loose. Do not tighten the cap with pliers or similar tools; they may damage the cap.



- After fully tightening the cap, length A should be approximately one of the following according to the cable external diameter and the Connector model.

| Connector           | Cable external diameter (mm) |      |      |      |
|---------------------|------------------------------|------|------|------|
|                     | 6 mm                         | 5 mm | 4 mm | 3 mm |
| For 6-mm-dia. cable | 1                            | 0    | ---  | ---  |
| For 4-mm-dia. cable | ---                          | 2    | 1    | ---  |
| For 3-mm-dia. cable | ---                          | ---  | 2    | 1    |

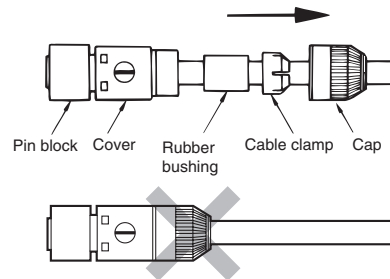
### After Assembly

- Confirm the insulation between cores after completing assembly.

## Extraction Procedure

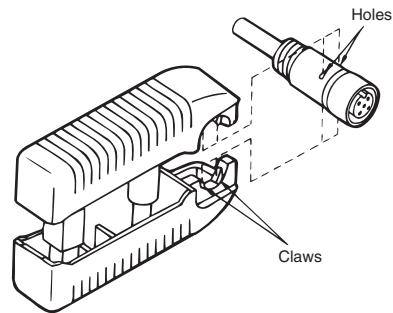
### Disconnecting Components

- Disconnect all components on the cap side from the cover.

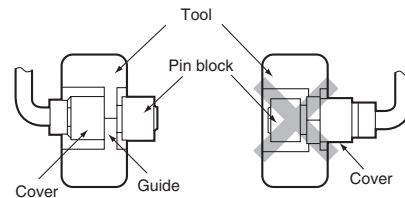


### Extracting Pin Block

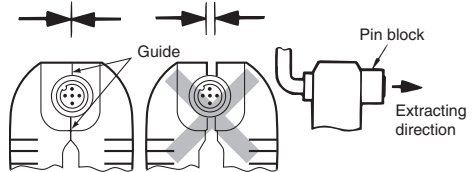
- Insert the claws of the Tool into the four holes of the cover.



- Make sure that the pin block is outside the Tool.



- Press the Tool so that the guides of the Tool are in close contact. Then pull the pin block straight.



### Caution

The pin block must not be extracted from the same Connector more than 3 times, otherwise the proper degree of protection of the pin block or Connector will not be maintained.

## ■ Precautions

Refer to *Correct Use* for precautions for individual products.

### Correct Use

#### Mating

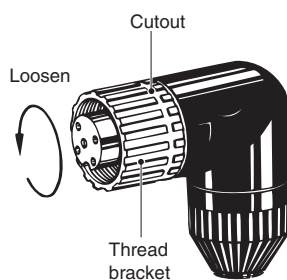
- XS2 and XS3 Connectors will not mate with each other.
- When using Sensors with Connectors or Limit Switches, use the Sensor I/O Connectors specified in the catalog.

#### Tightening Cap (Connector Assemblies)

- Do not use pliers to tighten caps, otherwise the caps may be damaged. Be sure to tighten each cap by hand within a torque range between 0.39 and 0.49 N·m.
- If caps are not tightened securely, the Connectors may not maintain their proper degree of protection (i.e., IP67) or the caps may become loose due to vibration.

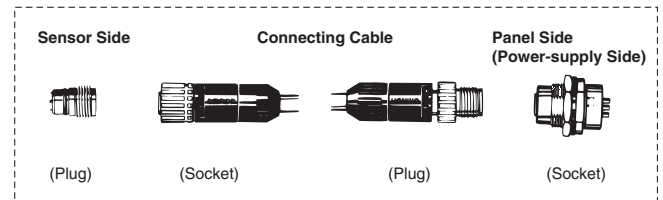
#### Connector Connection and Disconnection

- Always turn OFF the power supply before connecting or disconnecting connectors.
- When connecting or disconnecting Connectors, be sure to hold the Connectors by hand. Do not hold the cable part when disconnecting Connectors.
- Do not touch the mating surfaces with wet hands. Remove any water on the Connectors or surrounding area before connecting or disconnecting Connectors. Water can cause internal shorts or insulation faults.
- Do not allow pieces of metal or powder to enter the mating sections.
- Connectors mating with sockets must be fully inserted into the sockets. Tighten the thread brackets carefully so that the threads will not be damaged.
- Fully tighten thread brackets within a torque range between 0.39 and 0.49 N·m and be sure that the threads of the opposite parts are hidden by the thread brackets.
- When disconnecting Connectors, be sure to loosen the thread brackets first. Do not loosen the caps.
- Thread brackets must be loosened in the cutout direction.



#### Connector Arrangement

- For safety, when constructing a connection system between a Sensor and panel with a connector, make sure that the connector plug is on the Sensor side and the connector socket is on the panel side (i.e., the female pins are located on the power-supply side).



#### Recommended Cables

- When connecting a commercially available cable to a connector assembly, use a cable with an outside diameter of 3 to 6 mm and core sizes of 0.18 to 0.75 mm<sup>2</sup> for crimping connectors and 0.5 mm<sup>2</sup> maximum for soldering connectors.

#### Degree of Protection

- Do not impose external force continuously on the joints of pin blocks and covers, otherwise the Connectors may not keep its proper degree of protection (i.e., IP67).
- The degree of protection of connectors (IP67) is not for a fully watertight structure. Do not use them underwater.
- The Connectors are not oil-resistant. Do not use them where they would be subject to oil.
- When using a Connector in a location subject to constant vibration or shock, secure them near the mating sections. The Connectors may become loose or fall off, and the degree of protection (IP67) may be lost.
- Connectors are of resin mold construction. Do not impose excessive force on them.

#### Storage

Do not store Connectors for long periods of time in the following locations.

- Locations subject to dust or high humidity
- Locations subject to ammonia gas or sulfide gas

# Changes in Standards Accompanying International Standardization

## ■ Changes in Standards for Sensor I/O Connectors Accompanying International Standardization

Changes in standards are progressing to enable international standardization of control components in line with movements in trade friction and EC unification. In Japan as well, domestic standards and regulations are being revised in the face of international standardization. OMRON is working positively to achieve internationalization of standards, and the pin number and lead wire colors of one-piece Sensor I/O Connectors have been changed as described below. We know that this will create extra work for our customers, but we ask for your understanding and cooperation in making the required changes.

### Changes in Pin Numbers and Lead Colors for XS2 Sensor I/O Connectors

- Accompany the establishment of IEC standards, JIS standards for proximity and photoelectric sensors (JIS C4524 (High-frequency Proximity Switches) and JIS C4525 (Photoelectric Switches) were revised in 1992, resulting in changes to the lead wire color standards. Also, the standards of the Nippon Electric Control Equipment Industries Association (NECA) were also revised in line with JIS standards. Following these changes, OMRON has changed the cable pin numbers and lead wire colors for XS2 Sensor I/O Connectors.

### Excerpt from General Rules on External Lead Colors for Control Devices (NECA 0402)

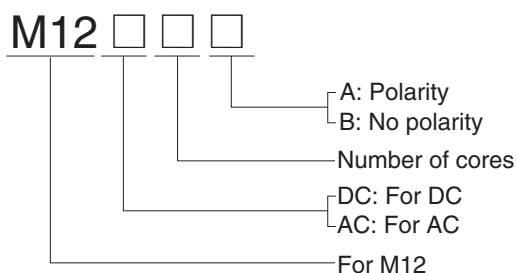
3.5 As a rule, the contact numbers and lead wire colors of connectors for FA sensors shall combine the lead wire colors given in *Table 6* and the contact number meanings given in *Table 7* for non-contact detection switches and limit switches with connectors.

**Table 6 Lead Wire Colors, M12**

| Applicable cable outer diameter |         | Contact number |       |       |       |
|---------------------------------|---------|----------------|-------|-------|-------|
|                                 |         | 1              | 2     | 3     | 4     |
| AC                              | M12AC2  | ---            | ---   | Brown | Blue  |
|                                 | M12AC4  | Brown          | White | Blue  | Black |
| DC                              | M12DC2A | Brown          | ---   | ---   | Blue  |
|                                 | M12DC2B | ---            | ---   | Black | White |
|                                 | M12DC3  | Brown          | ---   | Blue  | Black |
|                                 | M12DC4  | Brown          | White | Blue  | Black |

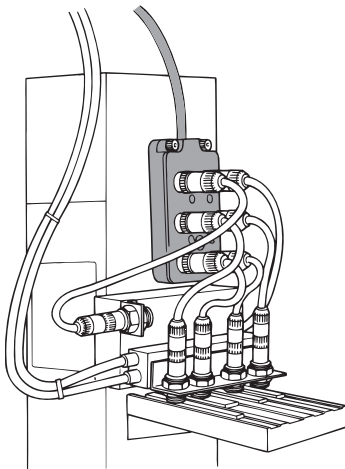
- Note:**
- The above is only an excerpt from *Table 6*.
  - Production of products using the previous colors was terminated in September 1994.

### Lead Wire Color Model Number Standards



**Series Includes New Lightweight, Low-profile Connector Terminal Boxes for Use Outside of Control Boxes to Centralize Sensor I/O Connectors with Reduced Labor and Greater Environmental Resistance.**

- Tough model with a significantly lower profile satisfies IP67.
- Available for Photoelectric Sensors, Proximity Sensors, and Limit Switches with Sensor I/O Connectors (M12).
- Incorporates power and operation indicators.
- Uses a single mounting method regardless of the number of ports, which ensures easy system expansion.



### Materials and Finish

| Item       | Part name  | Materials and finish  |
|------------|------------|---|
| Connectors | Anchor     | Brass/nickel plated   |
|            | Contacts   | Brass/nickel base, 0.4- $\mu$ m gold plating                |
| Cable      | Cable      | Sheath color: gray<br>Core size: AWG18/AWG22<br>(See note.) |
| Case       | Case       | PBT resin (UL94V-0)/light gray                              |
|            | Bushing    | Rubber  |
|            | PCB        | Glass-epoxy board   |
|            | Seal resin | Urethane resin  |

**Note:** The positive power supply, negative power supply, and ground lines are AWG18. Signal lines are AWG22.

### Ratings and Characteristics

|                       |  |
|-----------------------|--|
| Rated current         | 4 A/port (signal lines)<br>12 A/box (power lines)                  |
| Rated voltage         | 10 to 30 VDC   |
| Contact resistance    | 40 M $\Omega$ max. (with 100 mA max.,<br>20 mV max.) (See note 1.) |
| Insulation resistance | 100 M $\Omega$ min. (at 500 VDC)                                   |
| Dielectric strength   | 500 VAC for 1 min (leakage current:<br>1 mA max.) (See note 2.)    |
| Degree of protection  | IP67 (IEC529)  |
| Cable retention force | 98 N/15 s  |
| Insertion tolerance   | 200 times  |
| Operating temperature | -25 to 70°C  |

**Note:** 1. The contact resistance of the Connector.  
2. The dielectric strength of the Connector.

### Compatible Connectors

|      |  |
|------|--|
| XS2G | Connector Plug Assemblies (crimping, soldering, or screw-on) |
| XS2W | Connectors on cable ends (Sockets or Plugs)                  |
| XS2H | Connectors on one cable end (Plugs)                          |

# XW3B-P□5□-G11 Connector Terminal Box

## Ordering Information

| Sensor type and connections |                  | 3-wire DC NPN/2-wire 3-4 | 2-wire DC1-4/without polarity 3-4 | 3-wire DC PNP/2-wire DC 1-4 |
|-----------------------------|------------------|--------------------------|-----------------------------------|-----------------------------|
| Actuator connections        |                  | Actuator connections 1-4 |                                   | Actuator connections 3-4    |
| No. of ports                | Cable length (m) | Model                    | Model                             | Model                       |
| 4                           | 5                | XW3B-P455-G11            | XW3B-P452-G11                     | XW3B-P453-G11               |
| 6                           | 5                | XW3B-P655-G11            | XW3B-P652-G11                     | XW3B-P653-G11               |
| 8                           | 5                | XW3B-P855-G11            | XW3B-P852-G11                     | XW3B-P853-G11               |

Note: Here 1-4 and 3-4 are connector pin numbers.

### Waterproof Cover (Sold Separately)

XW2Z-12



| Model   | Minimum order | Materials           |
|---------|---------------|---------------------|
| XW2Z-12 | 50            | Brass/nickel plated |

Note: The XW3B/XW3A comes with a dust cover. Use the optional XW2Z-12 Waterproof Cover when an IP67 degree of protection is required.

## Connection Diagram

**Standard Japanese Specification**  
**XW3B-P□55-G11 for 3-wire DC NPN,**  
**2-wire DC (without polarity 3-4), and**  
**Actuator (1-4)**

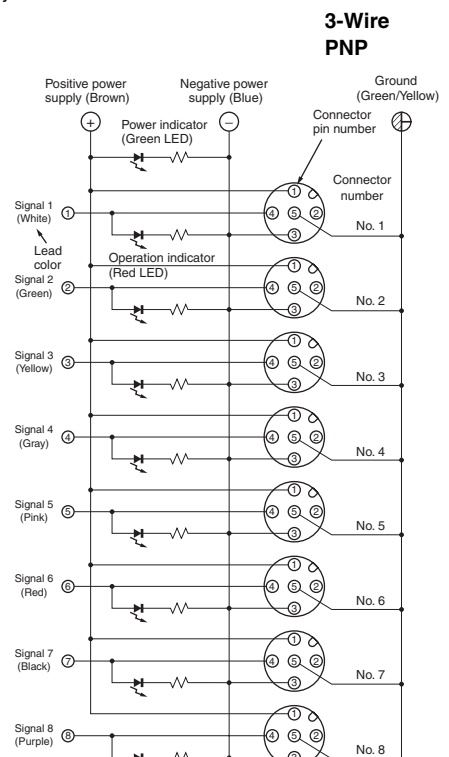
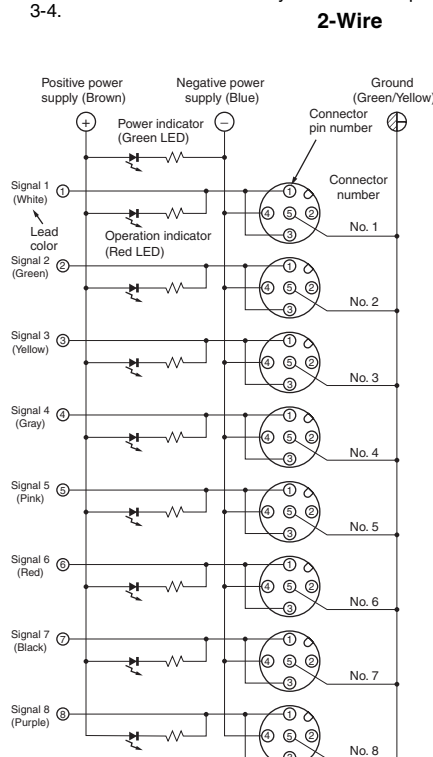
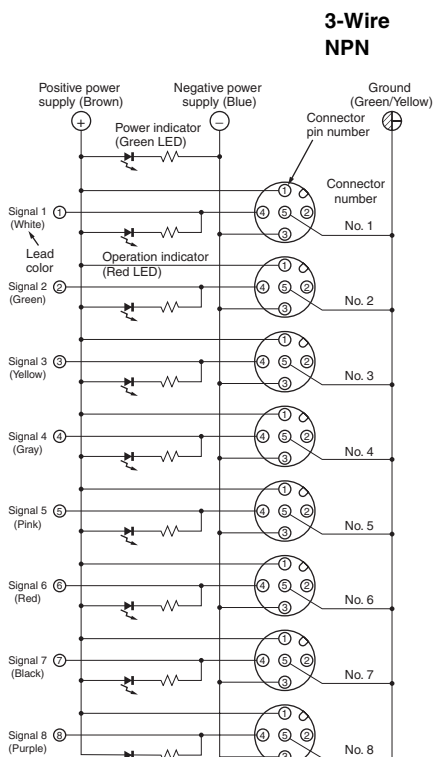
**Japanese Specification**

**XW3B-P□52-G11 for 2-wire DC (with polarity 1-4,**  
**without polarity 3-4)**

Note: Cannot be used with NPN-type Photoelectric and Proximity Sensors.  
 Cannot be used with Proximity Sensors with polarity 3-4.

**European Specification**

**XW3B-P□53-G11 for 3-wire DC PNP,**  
**2-wire DC (with polarity 1-4), and**  
**Actuator (3-4)**



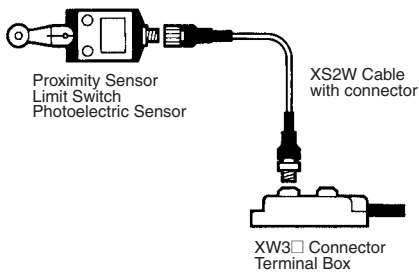
- Note: 1. The above wiring diagrams are for eight-port use.  
 2. Figures in parentheses indicate lead colors.  
 3. The expression "white/red" means white and red stripes.  
 4. Here 1-4 and 3-4 are pin numbers.  
 5. Contact numbers 5 through 8 in the above diagrams do not exist on Terminal Boxes with four inputs. The lead colors for signals 1 through 4, power supply, and ground are the same.  
 6. Contact numbers 7 and 8 in the above diagrams do not exist on Terminal Boxes with six inputs. The lead colors for signals 1 through 6, power supply, and ground are the same.

Note: Refer to pages 36 to 37 for input devices that can be connected through the above connectors.

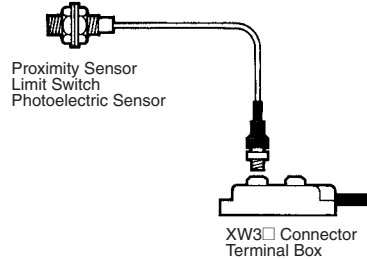


# Input Device Connections Using Sensor I/O Connectors

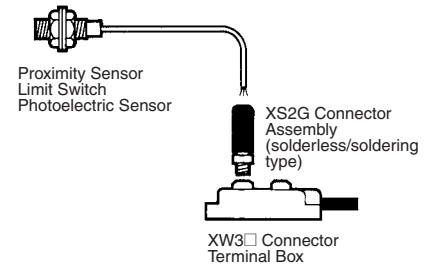
Direct Connection Type



Connector-Terminal Connection Type



Pre-wired Type



## Input Devices Using Sensor I/O Connectors

| Connector Terminal Box | Cable           | Input devices using Sensor I/O Connectors |                                    |  |  |
|------------------------|-----------------|---|------------------------------------|--|--|
| XW3B-P□52-G11          | ---             | 2-wire DC Proximity Sensor                | Connector-Terminal connection type | E2E-X3D1-M1GJ, E2E-X3D1-M1J-T, E2E-X7D1-M1GJ, E2E-X7D1-M1J-T, E2E-X10D1-M1GJ, and E2E-X10D1-M1J-T      |  |
|                        |                 |   |                                    | E2E-X8MD1-M1GJ, E2E-X14MD1-M1GJ, and E2E-X20MD1-M1GJ   |  |
|                        | XS2W-D42□-□81-A | ---                                       | Limit Switch                       | Connector-Terminal connection type   | WL□-□DK1EJ□ (See note 1.), WL□-□-M1GJ (See note 1.), and D4C-□0□□-DK1EJ□ (See note 2.) |
|                        |                 |   |                                    |  | Direct connection type   |
| XW3B-P□53-G11          | XS2W-D42□-□81-A | 3-wire DC Proximity Sensor (PNP)          | Direct connection type             | E2E-X2F1-M1, E2E-X5F1-M1, and E2E-X10F1-M1<br>E2E-X5MF1-M1, E2E-X10MF1-M1, and E2E-X18MF1-M1           |  |
|                        | XS2W-D42□-□81-A | Photoelectric Sensor (PNP)                | Direct connection type             | E3S-AT36, E3S-AT86, E3S-AD36, E3S-AD37, E3S-AD38, E3S-AD86, E3S-AD87, E3S-AD88, E3S-AR36, and E3S-AR86 |  |
| XW3B-P□55-G11          | ---             | 2-wire DC Proximity Sensor                | Connector-Terminal connection type | E2E-X3D1-M1J-T, E2E-X7D1-M1J-T, and E2E-X10D1-M1J-T  |  |
|                        |                 |   | Direct connection type             | E2E-X□D1-M1  |  |
|                        | XS2W-D42□-□81-A | 3-wire DC Proximity Sensor (NPN)          | Direct connection type             | E2E-X2E1-M1, E2E-X5E1-M1, and E2E-X10E1-M1   |  |
|                        |                 |   |                                    | E2E-X5ME1-M1, E2E-X10ME1-M1, and E2E-X18ME1-M1   |  |
|                        | XS2W-D42□-□81-A | Photoelectric Sensor (NPN)                | Direct connection type             | E3S-AT16, E3S-AT66, E3S-AD16, E3S-AD17, E3S-AD18, E3S-AD66, E3S-AD67, E3S-AD68, E3S-AR16, and E3S-AR66 |  |
| XS2W-D42□-□81-A        | ---             | Limit Switch                              | Connector-Terminal connection type | WL□-□DK1EJ□ (See note 1.), WL□-□-M1J (See note 1.), and D4C-□0□□-DK1EJ□ (See note 2.)                  |  |
|                        |                 |   | Direct connection type             | WL□-□K13 (See note 1.), and D4E-□□10N (See note 2.)  |  |

- Note:**
1. Any of these models is available provided that only its SPST-NO contact is used.
  2. Any of these models is available provided that it uses an NO connection.
  3. Use the XS2G Connector assembly in combination with a pre-wired input device.

## ■ Attaching the XS2G Connector to Pre-wired Input Device

| Connector Terminal Box | Input devices and connector pin number      |   |   |                                      |              |   |
|------------------------|---|---|---|--------------------------------------|--------------|---|
|                        | 3-wire DC (NPN)<br>1: +, 3: -,<br>4: output | 2-wire DC (with polarity)<br>1: +, 4: - | 2-wire DC (with polarity)<br>3: -, 4: + | 2-wire DC (with no polarity)<br>3, 4 | Limit Switch | 3-wire DC (PNP)<br>1: +, 3: -,<br>4: output |
| XW3B-P□52-G11          | No  | Yes                                     | No                                      | Yes                                  | Yes          | No  |
| XW3B-P□53-G11          | No  | No                                      | No                                      | No                                   | No           | Yes   |
| XW3B-P□55-G11          | Yes   | No                                      | Yes                                     | Yes                                  | Yes          | No  |

## ■ Connector Terminal Boxes for Input Devices with Sensor I/O Connectors

|                       |             |                                    | Input device   |  | Cable           | Connector Terminal Box         |                 |               |  |
|-----------------------|-------------|------------------------------------|--|--|-----------------|--------------------------------|-----------------|---------------|--|
| Type                  |             | Connection method                  | Model  |  |                 |                                |                 |               |  |
| Photoelectric Sensors | NPN         | Direct connection type             | E3S-AT16/66, E3S-AR16/66, and E3S-AD16/17/18/66/67/68                                |  | XS2W-D42□-□81-A | XW3B-P□55-G11                  |                 |               |  |
|                       | PNP         |                                    | E3S-AT36/86, E3S-AR36/86, and E3S-AD36/37/38/86/87/88                                |  |                 | XW3B-P□53-G11                  |                 |               |  |
| Proximity Sensors     | 2-wire DC   | Connector-Terminal connection type | E2E-X□D1-M1J-T   |  |                 | XS2W-D42□-□81-A                | XW3B-P□55-G11   |               |  |
|                       |             |                                    | E2E-X□D1-M1GJ and E2E-X□D1-M1J-T   |  |                 |                                | XW3B-P□52-G11   |               |  |
|                       |             |                                    | E2E-X□MD1-M1GJ   |  |                 |                                | XS2W-D42□-□81-A | XW3B-P□55-G11 |  |
|                       |             |                                    | E2EQ-X□D1-M1GJ   |  |                 |                                |                 |               |  |
|                       |             |                                    | Direct connection type   | E2E-X□D1-M1G                                       |                 |                                |                 |               |  |
|                       |             |                                    |  | E2E-X□MD1-M1G                                      |                 |                                |                 |               |  |
|                       | E2E-X□D1-M1 |                                    |  |  |                 |                                |                 |               |  |
|                       | E2E-X□E1-M1 |                                    |  |  |                 |                                |                 |               |  |
|                       | 3-wire DC   | NPN                                | E2E-X□ME1-M1   |  | XS2W-D42□-□81-A | XW3B-P□55-G11                  |                 |               |  |
|                       |             |                                    | E2E-X□F1-M1  |  |                 |                                |                 |               |  |
| PNP                   |             | E2E-X□MF1-M1                       |  | XS2W-D42□-□81-A                                    |                 |                                | XW3B-P□53-G11   |               |  |
|                       |             |                                    |  |  |                 |                                |                 |               |  |
| Limit Switches        |             | Connector-Terminal connection type | WL□-□DK1EJ□ (See note 1.), WL□-□-M1J (See note 1), and D4C-□0□□-DK1EJ□ (See note 2.) |  | XS2W-D42□-□81-A | XW3B-P□52-G11<br>XW3B-P□55-G11 |                 |               |  |
|                       |             |                                    | Direct connection type   | WL□-□K13 (See note 1.) and D4E-□□10N (See note 2.) |                 |                                |                 |               |  |
|                       |             | D4CC-□□□□ (See note 2.)            |  | XW3B-P□52-G11                                      |                 |                                |                 |               |  |

- Note:**
1. Any of these models is available provided that only its SPST-NO contact is used.
  2. Any of these models is available provided that it uses an NO connection.
  3. See the models above for components that are compatible with Sensor I/O Connectors.



## ■ Precautions

### Correct Use

#### Connector Connection or Disconnection

- Before using a Sensor or Limit Switch, check this catalog and be sure that the Sensor or Limit Switch can be connected.
- Be sure to turn OFF the power supplied to the XW3A before Connector connection or disconnection.
- Do not touch the engaged side of any Connector with a wet hand.
- If a Connector is wet with water, wipe the Connector and be sure that the connector is completely dry.
- Be sure that there is no metal plate or power on the engaged side of any Connector.

#### Cable Connection

- Be sure to wire the cable correctly according to the wiring diagram so that the blue wire will be connected to the negative power supply terminal and the brown wire will be connected to the positive power supply terminal.
- If there is any wiring mistake, the load will not operate or the operation indicator will not light.
- Be sure to connect a load to the signal lines to operate the Sensor.

#### Applicable Connectors

- Applicable Connectors are the XS2G (assembly type), XS2H (monoblock type), and XS2W (monoblock type).
- After a Connector is engaged, tighten the Connector securely with a mounting bracket.
- Be sure to put the XS2Z-12 Waterproof Cover or XS2Z-15 Dust Cover on any Connector that is not used.

#### Power Supply and Operation Indicators

- When power is supplied, the green power indicator will be lit. When the Sensors and Actuators are operating, the corresponding red operation indicators will be lit.
- Only DC Sensors and Actuators can be connected to the XW3B. Do not connect AC Sensors or Actuators. Connector Terminal Boxes are internally wired with 2 or 3 wires. The type is marked on the case.

|               |
|---------------|
| 3-WIRE<br>NPN |
|---------------|

|               |
|---------------|
| 3-WIRE<br>PNP |
|---------------|

|        |
|--------|
| 2-WIRE |
|--------|

**More Compact than the Popular XS2 Sensor I/O Connectors.**

**Saves Wiring Effort and Ideal for Compact Machines and Installations**

- Water-resistive, compact connector meets IP67 requirements.
- Conventional M8 screw-mounting models are available along with S8 snap-in models that connect and disconnect with one touch.
- Greatly saves installation space, such as terminal box or conduit space.
- Ideal for a wide variety of FA and OA applications.
- Using connectors for wiring ensures ease of equipment maintenance and reduces downtime required for equipment maintenance.
- Connectors on cable ends require no harness work.



### ■ Specifications

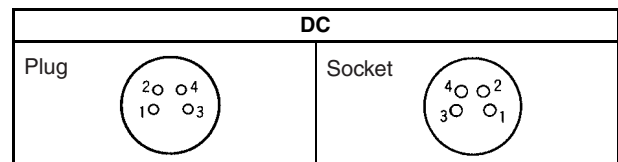
|                        |  |
|------------------------|--|
| Rated current          | 1 A  |
| Rated voltage          | 125 VDC  |
| Contact resistance     | 40 MΩ max. (20 mV max., 10 mA max.) (See note 1.)              |
| Insulation resistance  | 1,000 MΩ min. (at 500 VDC)                                     |
| Dielectric strength    | 1,000 VAC for 1 min (leakage current: 1 mA max.) (See note 2.) |
| Degree of protection   | IP67 (IEC529)  |
| Insertion tolerance    | 200 times  |
| Cable tensile strength | 50 N/15 s)   |
| Ambient temperature    | Operating: - 25°C to 70°C                                      |

- Note:** 1. The contact resistance of the connector.  
2. The dielectric strength of the connector.






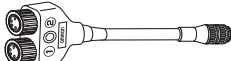
### ■ Materials and Finish

|                                   |  |
|-----------------------------------|--|
| Pin Block                         | PBT resin/light gray or black          |
| Contacts                          | Brass/nickel base, 0.4-μm gold plating |
| Thread bracket (M8)<br>Shell (S8) | Brass/nickel plated                    |
| Cover                             | Thermoplastic elastomer/black          |
| O-ring                            | Rubber                                 |

### ■ Pin Arrangement (Engaged Side)



■ List of Products

| Name   | Model                                | Appearance   | Page     |
|--|--------------------------------------|--|----------|
| Connectors attached to Cable   | XS3W Sockets and Plugs on Cable Ends |  | 41 to 42 |
|  | XS3F Sockets on One Cable End        |  | 43 to 45 |
|  | XS3H Plugs on One Cable End          |  | 46 to 48 |
| Terminal Box Connectors<br>Used to enable using connectors for terminal boxes. | XS3P Sockets                         |  | 49 to 50 |
| Sensor Connector Assemblies<br>Used to enable using connectors in sensors.     | XS3M Plugs                           |  | 51       |
| Y-Joints<br>Used for branching and for daisy-chain connections.                | XS3R Plugs/Sockets                   |  | 52       |

### Model Number Legend

Use this model number legend to identify products from their model number. When ordering, use a model number from the table in *Ordering Information*.

**XS3W** - □42□ - 4□□□ - **R**  
 1 2 3 4 5 6 7 8 9

#### 1. Fastening Method

M: M8  
 S: S8

#### 2. Connector Poles

4: 4 poles

#### 3. Cable Connection Direction

1: Straight/straight  
 2: L-shaped/L-shaped  
 3: Straight (XS3F)/L-shaped (XS3H)  
 4: L-shaped (XS3F)/straight (XS3H)

#### 4. Connections

Pin No.

1 2 3 4

4: Brown White Blue Black

#### 5. Cable Length

01: 1 m  
 02: 2 m  
 05: 5 m

#### 6. Cable Specifications

R: Vibration-proof robot cable

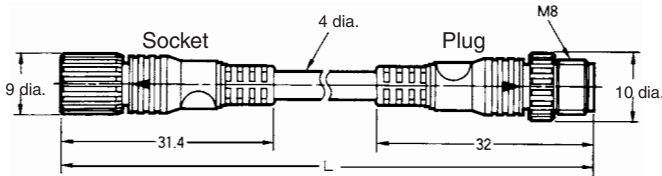
### Ordering Information

| Item   | Cable connection direction | No. of cable cores | Cable length (m)  | Model           |                 |
|--|----------------------------|--------------------|-------------------|-----------------|-----------------|
| M8 Connectors<br>Vibration-proof robot cable | Straight/Straight          | 4                  | 1                 | XS3W-M421-401-R |                 |
|  |                            |                    | 2                 | XS3W-M421-402-R |                 |
|  |                            |                    | 5                 | XS3W-M421-405-R |                 |
|  | L-shaped/L-shaped          |                    | 2                 | XS3W-M422-402-R |                 |
|  |                            |                    | 5                 | XS3W-M422-405-R |                 |
|  |                            |                    | 2                 | XS3W-M423-402-R |                 |
|  | Straight/L-shaped          |                    | 5                 | XS3W-M423-405-R |                 |
|  |                            |                    | 2                 | XS3W-M424-402-R |                 |
|  | L-shaped/Straight          |                    | 5                 | XS3W-M424-405-R |                 |
|  |                            |                    | Straight/Straight | 1               | XS3W-S421-401-R |
|  |                            |                    |                   | 2               | XS3W-S421-402-R |
|  | 5                          |                    |                   | XS3W-S421-405-R |                 |
| S8 Connectors<br>Vibration-proof robot cable | L-shaped/L-shaped          | 2                  | XS3W-S422-402-R   |                 |                 |
|  |                            | 5                  | XS3W-S422-405-R   |                 |                 |
|  |                            | 2                  | XS3W-S423-402-R   |                 |                 |
|  | Straight/L-shaped          | 5                  | XS3W-S423-405-R   |                 |                 |
|  |                            | 2                  | XS3W-S424-402-R   |                 |                 |
|  | L-shaped/Straight          | 5                  | XS3W-S424-405-R   |                 |                 |

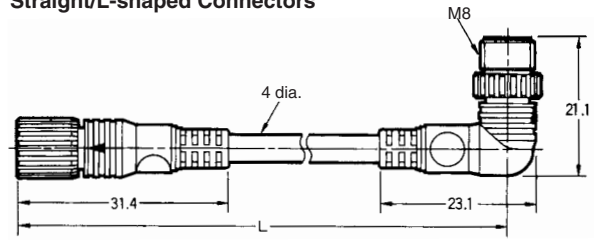
**XS3W-M42□-4□□-R M8 Screw-mounting Connectors with Vibration-proof Robot Cable**

**■ Dimensions**

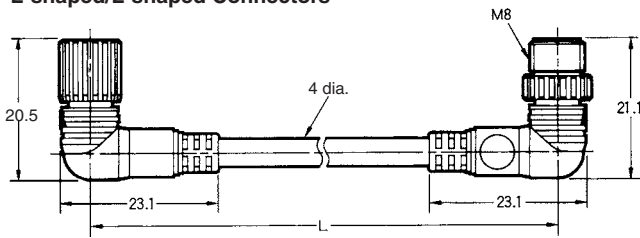
**Straight/Straight Connectors**



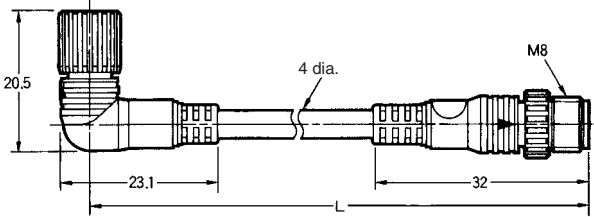
**Straight/L-shaped Connectors**



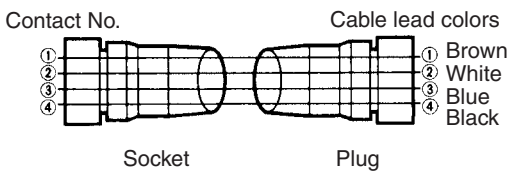
**L-shaped/L-shaped Connectors**



**L-shaped/Straight Connectors**



**Wiring Diagram**



**Mating Connectors**

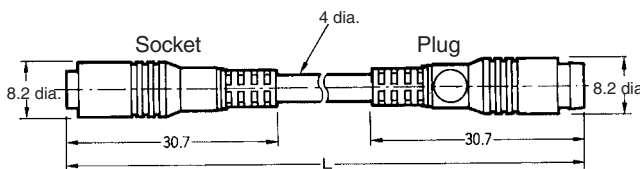
| Item      | Socket side               | Plug side                          |
|-----------|---------------------------|------------------------------------|
| XS3W (M8) | XS3M (M8/S8)<br>XS3H (M8) | XS3F (M8), XS3W (M8),<br>XS3P (M8) |

- Note:** 1. Cables can be extended with more than one XS3W.  
2. M8 screw models and S8 snap-in models cannot be connected to each other.

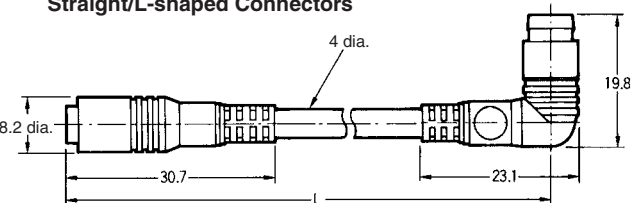
**XS3W-S42□-4□□-R S8 Snap-in Connectors with Vibration-proof Robot Cable**

**■ Dimensions**

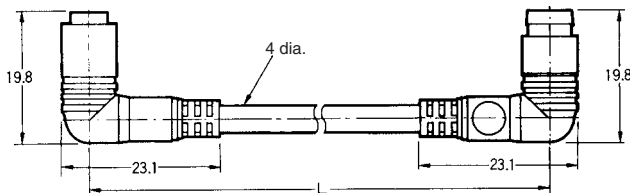
**Straight/Straight Connectors**



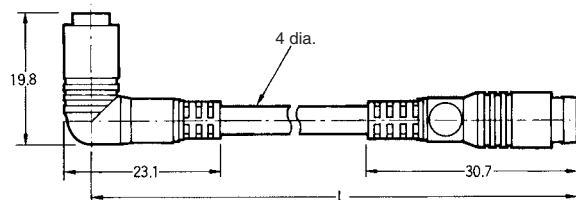
**Straight/L-shaped Connectors**



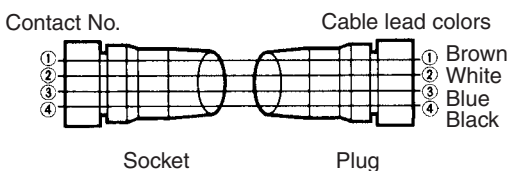
**L-shaped/L-shaped Connectors**



**L-shaped/Straight Connectors**



**Wiring Diagram**



**Mating Connectors**

| Item      | Socket side             | Plug side                          |
|-----------|-------------------------|------------------------------------|
| XS3W (S8) | XS3M (M8/S8), XS3H (S8) | MS3F (S8), XS3W (S8),<br>XS3P (S8) |

- Note:** 1. Cables can be extended with more than one XS3W.  
2. M8 screw-mounting models and S8 snap-in models cannot be connected to each other.

### Model Number Legend

Use this model number legend to identify products from their model number. When ordering, use a model number from the table in *Ordering Information*.

XS3F -   42   - 4     -     
           1   2 3 4 5   6 7 8   9

#### 1. Fastening Method

M: M8

S: S8

#### 2. Connector Poles

4: 4 poles

#### 3. Cable Connection Direction

1: Straight

2: L-shaped

#### 4. Connections

Pin No.

1 2 3 4

4: Brown White Blue Black

#### 5. Cable Length

01: 1 m

02: 2 m

05: 5 m

#### 6. Cable Specifications

A: Standard cable

R: Vibration-proof robot cable

### Ordering Information

#### M8 Model

| Item                        | Cable connection direction | No. of cable cores | Cable core cross-sectional area | Cable length (m) | Model           |
|-----------------------------|----------------------------|--------------------|---------------------------------|------------------|-----------------|
| Standard cable              | Straight                   | 4                  | 0.2 mm <sup>2</sup>             | 2                | XS3F-M421-402-A |
|                             |                            |                    |                                 | 5                | XS3F-M421-405-A |
|                             | L-shaped                   |                    |                                 | 2                | XS3F-M422-402-A |
|                             |                            |                    |                                 | 5                | XS3F-M422-405-A |
| Vibration-proof robot cable | Straight                   | 4                  |                                 | 1                | XS3F-M421-401-R |
|                             |                            |                    |                                 | 2                | XS3F-M421-402-R |
|                             |                            |                    |                                 | 5                | XS3F-M421-405-R |
|                             | L-shaped                   |                    |                                 | 1                | XS3F-M422-401-R |
|                             |                            |                    | 2                               | XS3F-M422-402-R  |                 |
|                             |                            |                    | 5                               | XS3F-M422-405-R  |                 |

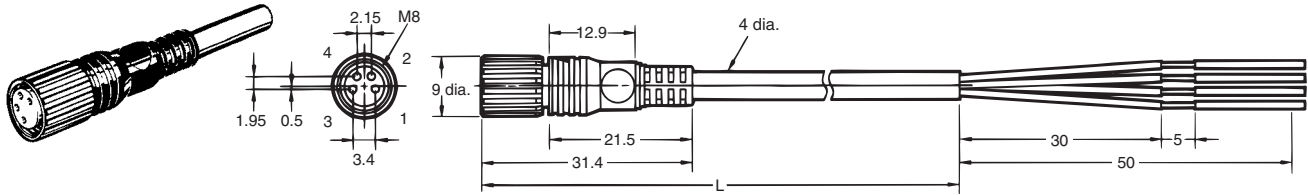
#### S8 Model

| Cable connection direction | No. of cable cores | Cable core cross-sectional area | Cable length (m) | Model           |
|----------------------------|--------------------|---------------------------------|------------------|-----------------|
| Straight                   | 4                  | 0.2 mm <sup>2</sup>             | 1                | XS3F-S421-401-R |
|                            |                    |                                 | 2                | XS3F-S421-402-R |
|                            |                    |                                 | 5                | XS3F-S421-405-R |
| L-shaped                   |                    |                                 | 1                | XS3F-S422-401-R |
|                            |                    |                                 | 2                | XS3F-S422-402-R |
|                            |                    |                                 | 5                | XS3F-S422-405-R |

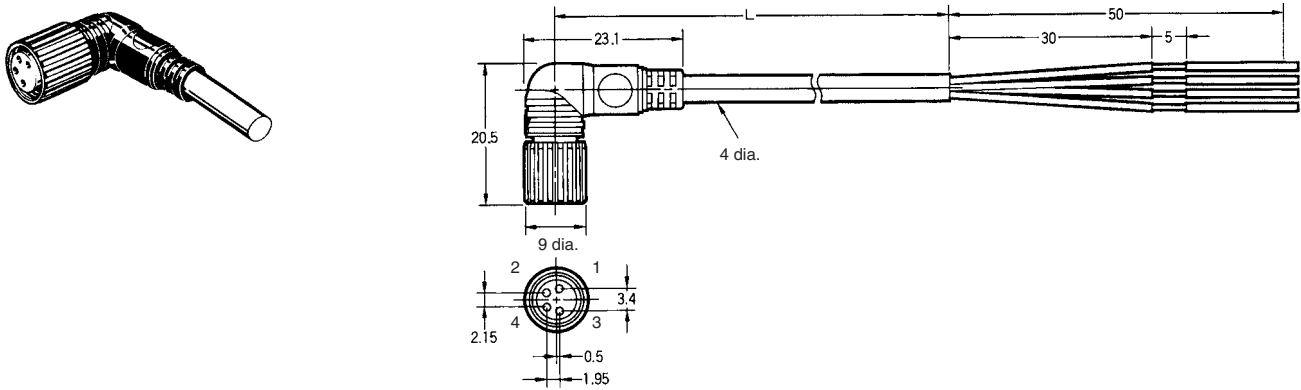
**XS3F-M42□-4□□-□ M8 Screw-on Cables with Vibration-proof Robot Cable/Standard Cable**

**■ Dimensions**

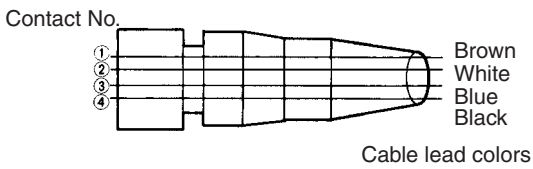
**Straight Connectors**



**L-shaped Connectors**



**Wiring Diagram**



**Mating Connectors**

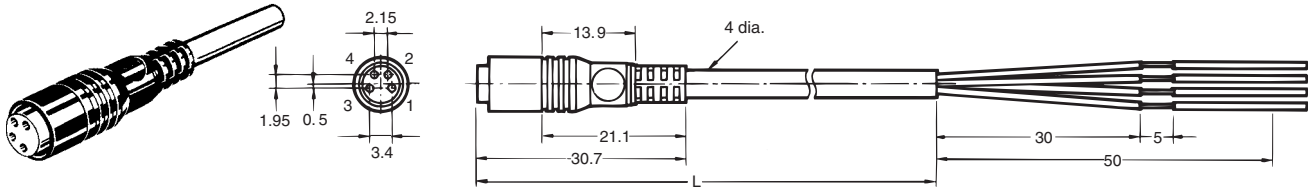
| Item      | Model                              |
|-----------|------------------------------------|
| XS3F (M8) | XS3M (M8/S8), XS3H (M8), XS3W (M8) |

**Note:** M8 screw models and S8 snap-in models cannot be connected to each other.

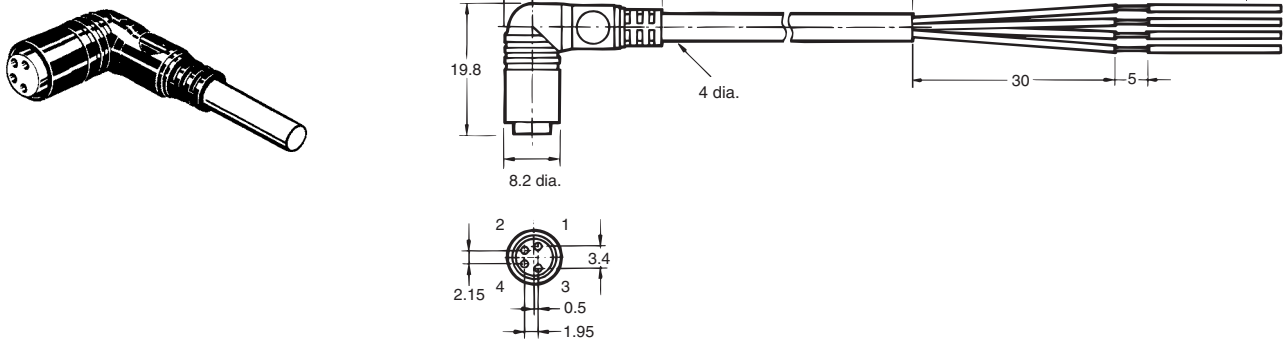
**XS3F-S42□-4□□-R S8 Snap-in Connectors with Vibration-proof Robot Cable**

**■ Dimensions**

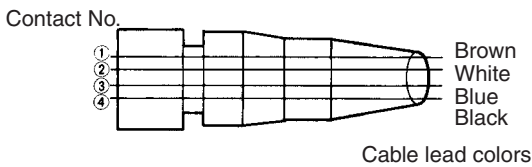
**Straight Connectors**



**L-shaped Connectors**



**Wiring Diagram**



**Mating Connectors**

| Item      | Model                              |
|-----------|------------------------------------|
| XS3F (S8) | XS3M (M8/S8), XS3H (S8), XS3W (S8) |

**Note:** M8 screw models and S8 snap-in models cannot be connected to each other.



## Plugs on One Cable End

## XS3H

### ■ Model Number Legend

Use this model number legend to identify products from their model number. When ordering, use a model number from the table in *Ordering Information*.

**XS3H** - □42□ - **4**□□ - **R**  
 1 2 3 4 5 6 7 8 9

#### 1. Fastening Method

M: M8

S: S8

#### 2. Connector Poles

4: 4 poles

#### 3. Cable Connection Direction

1: Straight

2: L-shaped

#### 4. Connections

Pin No.

1 2 3 4

4: Brown White Blue Black

#### 5. Cable Length

C3: 0.3 m

01: 1 m

#### 6. Cable Specifications

R: Vibration-proof robot cable

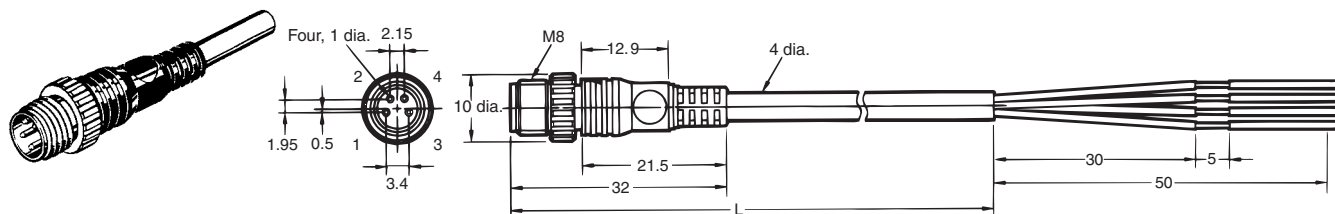
### ■ Ordering Information

| Item                                    | Cable connection direction | No. of cable cores | Cable core cross-sectional area | Cable length (m) | Model           |
|---|----------------------------|--------------------|---------------------------------|------------------|-----------------|
| M8 Model<br>Vibration-proof robot cable | Straight                   | 4                  | 0.2 mm <sup>2</sup>             | 0.3              | XS3H-M421-4C3-R |
|   |                            |                    |                                 | 1                | XS3H-M421-401-R |
|   | L-shaped                   |                    |                                 | 0.3              | XS3H-M422-4C3-R |
|   |                            |                    |                                 | 1                | XS3H-M422-401-R |
| S8 Model<br>Vibration-proof robot cable | Straight                   | 4                  | 0.2 mm <sup>2</sup>             | 0.3              | XS3H-S421-4C3-R |
|   |                            |                    |                                 | 1                | XS3H-S421-401-R |
|   | L-shaped                   |                    |                                 | 0.3              | XS3H-S422-4C3-R |
|   |                            |                    |                                 | 1                | XS3H-S422-401-R |

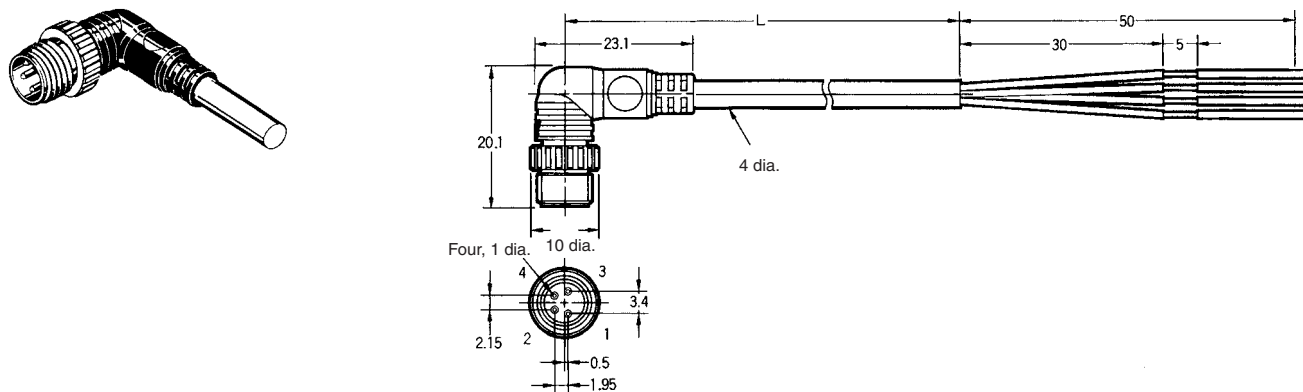
**XS3H-M42□-4□□-R M8 Screw-on Connectors with Vibration-proof Robot Cable**

**■ Dimensions**

**Straight Connectors**

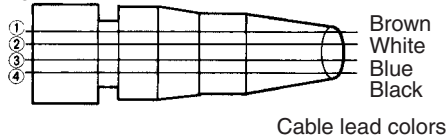


**L-shaped Connectors**



**Wiring Diagram**

Contact No.



**Mating Connectors**

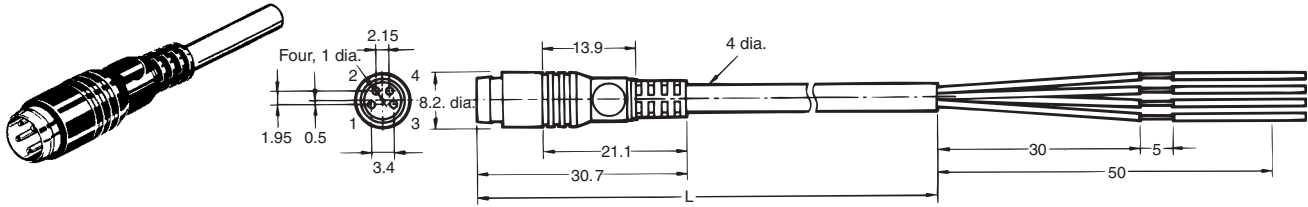
| Item      | Model                           |
|-----------|---------------------------------|
| XS3H (M8) | XS3F (M8), XS3W (M8), XS3P (M8) |

**Note:** M8 screw models and S8 snap-in models cannot be connected to each other.

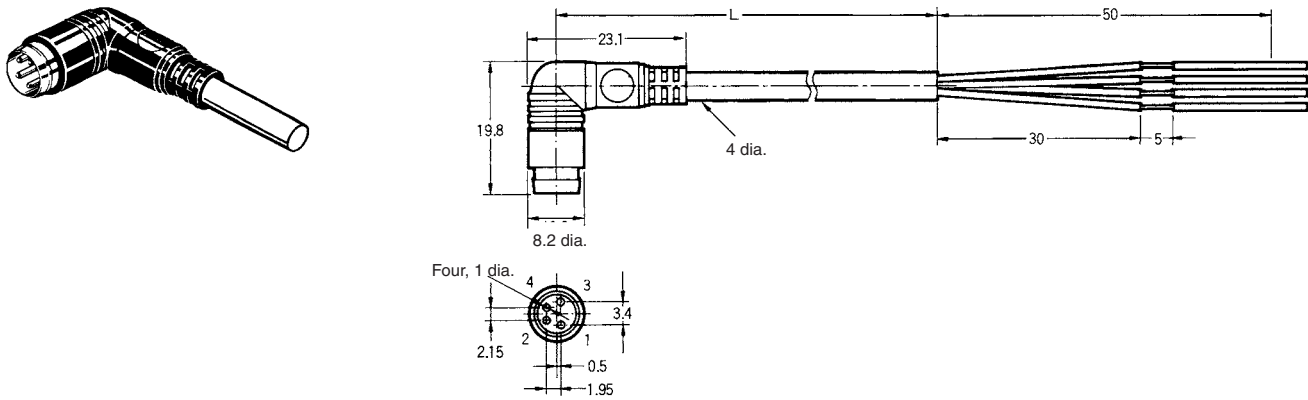
**XS3H-S42□-4□□-R S8 Snap-in Connectors with Vibration-proof Robot Cable**

**■ Dimensions**

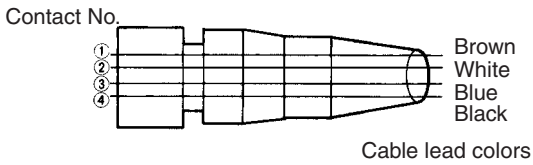
**Straight Connectors**



**L-shaped Connectors**



**Wiring Diagram**



**Mating Connectors**

| Item      | Model                           |
|-----------|---------------------------------|
| XS3H (S8) | XS3F (S8), XS3W (S8), XS3P (S8) |

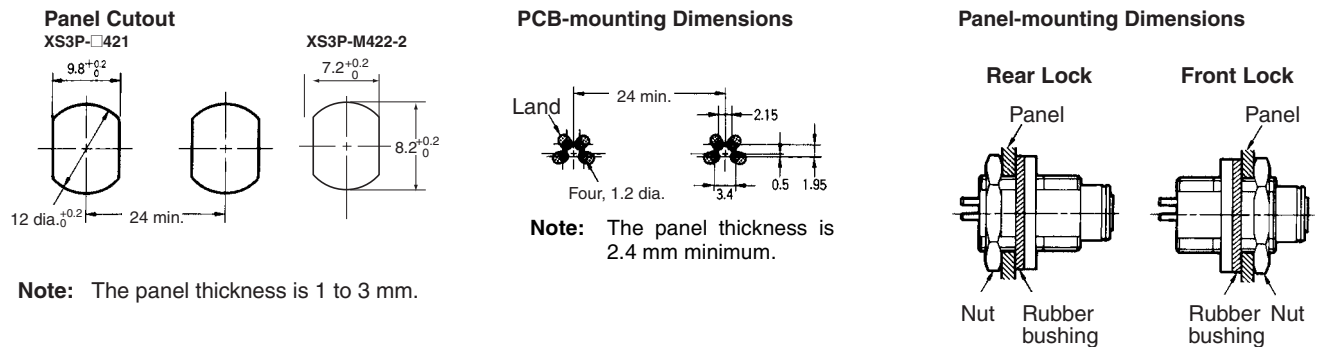
**Note:** M8 screw models and S8 snap-in models cannot be connected to each other.

### Ordering Information

| Connection method | Panel mounting          | Pin shape       | Model       | Minimum order |
|-------------------|-------------------------|-----------------|-------------|---------------|
| M8 screw-mounting | Front lock or rear lock | DIP pins        | XS3P-M421-1 | 50            |
|                   |                         | Solder cup pins | XS3P-M421-2 |               |
|                   | Rear lock               | Solder cup pins | XS3P-M422-2 |               |
| S8 snap-in        | Front lock or rear lock | DIP pins        | XS3P-S421-1 |               |
|                   |                         | Solder cup pins | XS3P-S421-2 |               |

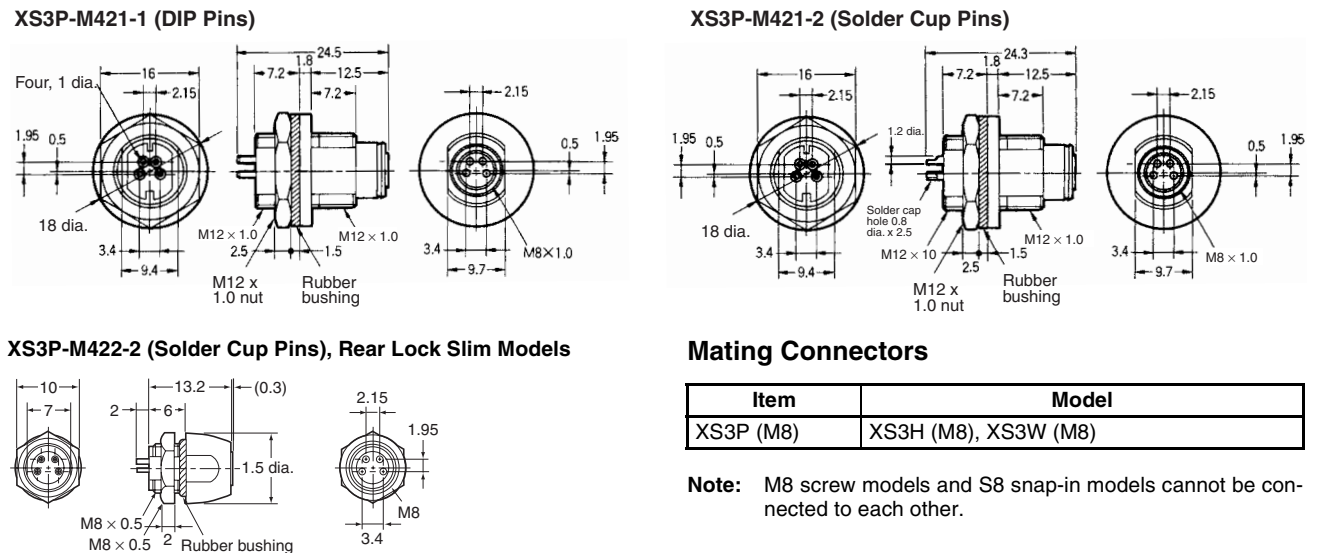
**Note:** Orders are accepted in multiples of the minimum order.

### Dimensions



**XS3P-M421-1 M8 Screw-mounting Sockets with DIP Pins**  
**XS3P-M421-2 M8 Screw-mounting Sockets with Solder Cup Pins**  
**XS3P-M422-2 M8 Screw-mounting Sockets with Solder Cup Pins**

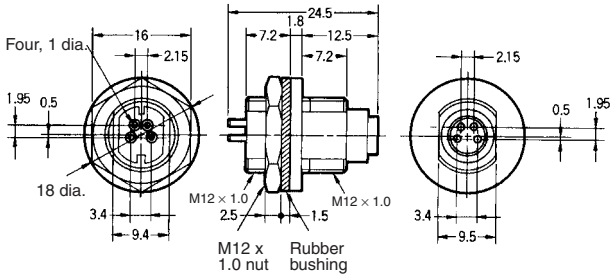
### Dimensions



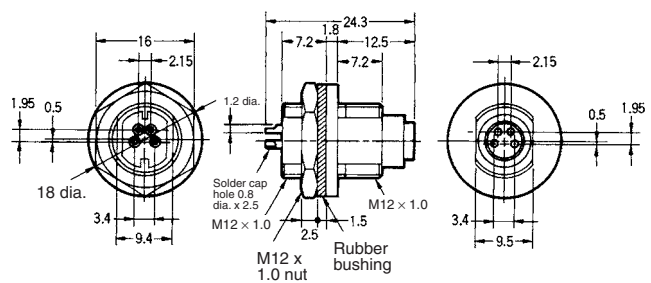
**XS3P-S421-1 S8 Snap-in Sockets with DIP Pins**  
**XS3P-S421-2 S8 Snap-in Sockets with Solder Cup Pins**

■ **Dimensions**

XS3P-S421-1 (DIP Pins)



XS3P-S421-2 (Solder Cup Pins)



**Mating Connectors**

| Item      | Model                |
|-----------|----------------------|
| XS3P (S8) | XS3H (S8), XS3W (S8) |

**Note:** M8 screw models and S8 snap-in models cannot be connected to each other.

■ **Precautions**

**Correct Use**

**Panel Mounting**

When mounting XS3P Panel-mounting Connectors to panels, refer to page 49 and provide rubber bushings and nuts for the Connectors. Apply a tightening torque of between 0.4 and 0.6 N·m to mount the Connectors.

**XS3M-K421-1** Embedded Plugs with Screw Threads and DIP Pins

**XS3M-K421-2** Embedded Plugs with Screw Threads and Solder Cup Pins

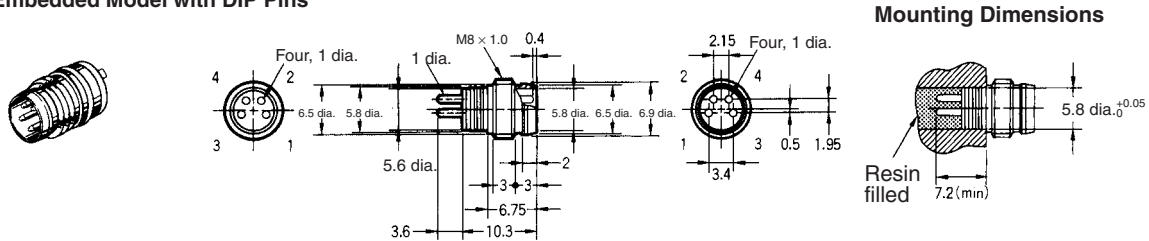
### Ordering Information

| Connection method | Pin shape       | Model       | Minimum order |
|-------------------|-----------------|-------------|---------------|
| Embedded model    | DIP pins        | XS3M-K421-1 | 200           |
|                   | Solder cup pins | XS3M-K421-2 |               |

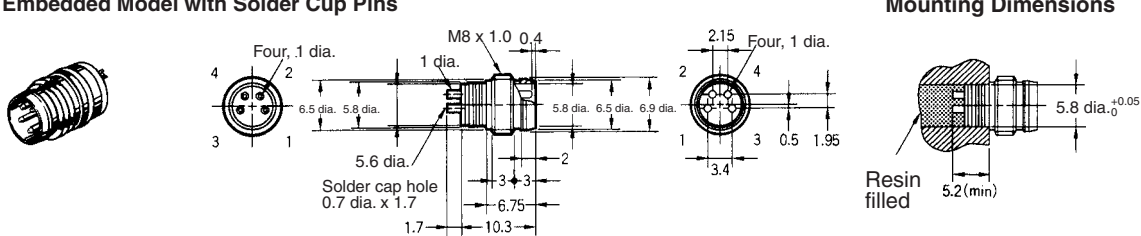
**Note:** Orders are accepted in multiples of the minimum order.

### Dimensions

**XS3M-K421-1**  
Embedded Model with DIP Pins



**XS3M-K421-2**  
Embedded Model with Solder Cup Pins



### Mating Connectors

| Item | Model                      |
|------|----------------------------|
| XS3M | XS3F (M8/S8), XS3W (M8/S8) |

**Note:** The plug can be connected to both M8 screw and S8 snap-in models.

## Y-Joint Plug/Socket Connectors

## XS3R

### ■ Ratings and Characteristics

|                       |  |
|-----------------------|--|
| Rated current         | 1 A  |
| Rated voltage         | 125 VDC  |
| Contact resistance    | 60 M $\Omega$ max. (20 mV max., 100 mA max.) (See note 1.)     |
| Insulation resistance | 1,000 M $\Omega$ min. (at 500 VDC)                             |
| Dielectric strength   | 1,000 VAC for 1 min (leakage current: 1 mA max.) (See note 2.) |
| Degree of protection  | IEC IP67   |
| Insertion tolerance   | 200 times min.   |
| Ambient temperature   | Operating: -25°C to 70°C                                       |

**Note:** 1. The contact resistance of the connector.  
2. The dielectric strength of the connector.

### ■ Materials and Finish

|                                |  |
|--------------------------------|--|
| Pin Block                      | PBT resin (UL94V-0)/light gray                         |
| Contacts                       | Phosphor bronze/nickel base, 0.4- $\mu$ m gold plating |
| Thread bracket (M8) Shell (S8) | Brass/nickel plated                                    |
| Cover                          | Polyester elastomer (UL94-0)/black                     |
| O-ring                         | Rubber   |

### ■ Applicable Connectors

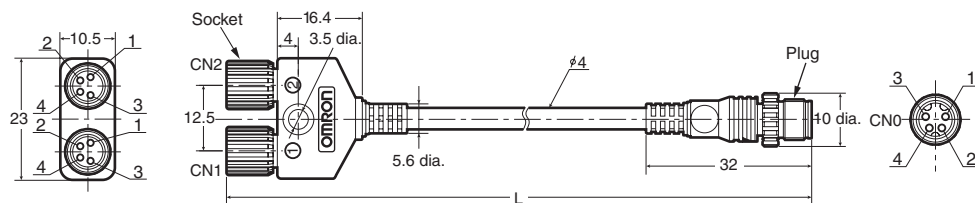
|      |                           |
|------|---------------------------|
| XS3H | Plug on one cable end     |
| XS3F | Socket on one cable end   |
| XS3W | Socket/plug on cable ends |
| XS3P | Panel-mounting socket     |

### ■ Ordering Information

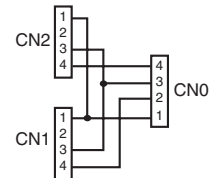
| Cable         | Connector                | For M8 Connectors          |                  |                  |   |
|---------------|--------------------------|----------------------------|------------------|------------------|---|
|               |                          | Cable length L (m)         | Model            | Minimum order    |   |
| With cable    | Connectors on cable ends | 0.5                        | XS3R-M426-1C51-A | 5                |   |
|               |                          | 1                          | XS3R-M426-1011-A | 5                |   |
|               |                          | 2                          | XS3R-M426-1021-A | 5                |   |
|               |                          | 3                          | XS3R-M426-1031-A | 5                |   |
|               |                          | Connector on one cable end | 2                | XS3R-M426-1020-A | 5 |
|               |                          |                            | 5                | XS3R-M426-1050-A | 5 |
| Without cable | Connectors on both ends  | ---                        | XS3R-M426-1      | 10               |   |
|               |                          | ---                        | XS3R-M426-5      | 10               |   |

### ■ Dimensions

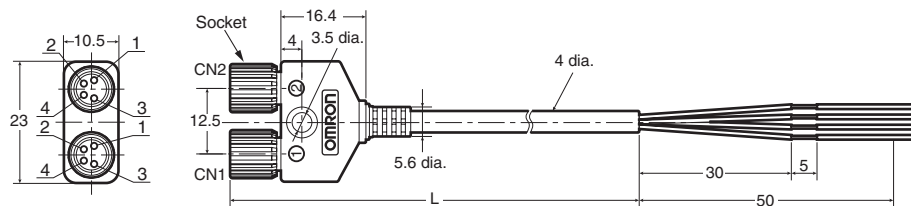
**XS3R-M426-1□□1-A**  
Connectors on Cable Ends (Y-Joint Plug/Socket)



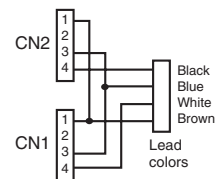
**Wiring Diagram**



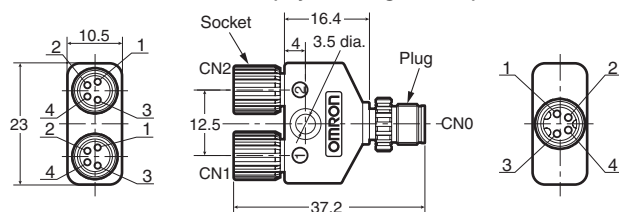
**XS3R-M426-1□□0-A**  
Connector on One Cable End (Y-Joint Plug/Socket)



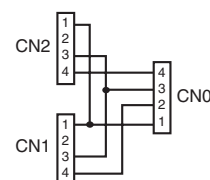
**Wiring Diagram**



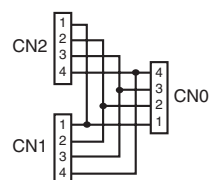
**XS3R-M426-□**  
Connector on Both Ends (Y-joint Plug/Socket) without Cable



**Wiring Diagram**  
XS3R-M426-1



**XS3R-M426-5**

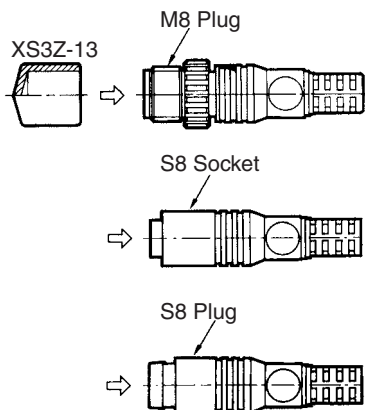


# Accessories

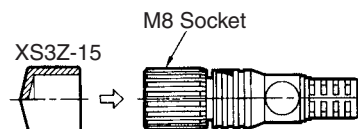
## ■ XS3 M8/S8 Connector Cover (Order Separately)

### Dust Cover

XS3Z-13



XS3Z-15



The Dust Cover is for dust prevention and does not ensure IP67. When mounting the Dust Cover to a Connector, be sure to press the Dust Cover onto the Connector until the Connector is fully inserted into the Dust Cover.

## ■ Ordering Information

| Model   | Material               | Suitable connector |                  |
|---------|------------------------|--------------------|------------------|
|         |                        | Model              | Mounting portion |
| XS3Z-13 | Polyvinyl chloride/red | XS3H/XS3M          | M8 plug          |
|         |                        | XS3F               | S8 socket        |
|         |                        | XS3H               | S8 plug          |
| XS3Z-15 | Polyvinyl chloride/red | XS3F               | M8 socket        |



## ■ Precautions

Refer to *Correct Use* for precautions for individual products.

### Correct Use

#### Connections

- The XS3 and XS2 Sensor I/O Connectors cannot be connected to each other.
- When using Sensors with Connectors or Limit Switches, use the Sensor I/O Connectors specified in the catalog.
- Do not connect M8 screw models and S8 snap-in models together, otherwise the proper degree of protection of the Connectors will not be maintained.

#### Connector Connection and Disconnection

- Before connecting or disconnecting Connectors, make sure that no power is being supplied to the Connectors.
- When connecting or disconnecting Connectors, be sure to hold the Connectors by hand.
- Do not touch the engagement side of any Connector with wet hands. If there is any water on the Connector or near the Connector, be sure to wipe off the water before connecting or disconnecting the Connector, otherwise the Connector may short-circuit internally or not ensure good insulation.
- Make sure that engagement side of any Connector is free of metal dust or power.
- Do not use pliers to tighten mounting the thread bracket, otherwise the thread bracket may be damaged. Be sure to tighten each thread bracket by hand within a torque of 0.3 and 0.4 N·m. If the thread bracket is not tightened securely, the Connector may not maintain its proper degree of protection or the thread bracket may fall off due to vibration.
- Fully insert S8 snap-in models until the Connectors are hidden by the metal casing of the opposite parts, otherwise the Connectors will not maintain their proper degree of protection or the thread brackets may drop off due to vibration.

#### Cable Wire Color

- The M8/S8 Sensor I/O Connectors use the following lead wire colors.

| Model |                  | Pin No. |       |      |       |
|-------|------------------|---------|-------|------|-------|
|       |                  | 1       | 2     | 3    | 4     |
| DC    | 8-mm-dia.<br>DC4 | Brown   | White | Blue | Black |

#### Degree of Protection

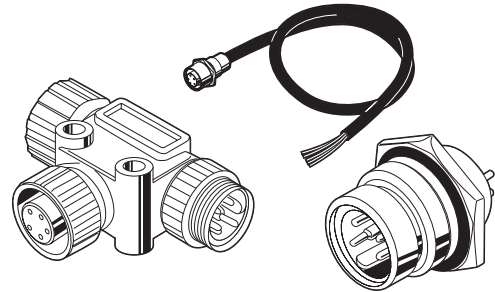
- Do not impose external force continuously on the joints of pin blocks and covers, otherwise the Connectors may not keep its proper degree of protection (i.e., IP67).
- Connectors are not fully watertight. Do not use them underwater.
- The Connectors are not oil-resistant. Do not use them where they would be subject to oil.
- If Connectors are used in places with vibration or shock, secure the engaged side of each Connector, otherwise the Connectors may be disconnected or fail to maintain their proper degree of protection.
- Connectors are of resin mold construction. Do not impose excessive force on them.

#### Storage

Do not store Connectors for long periods of time in the following locations

- Locations subject to dust or high humidity
- Locations subject to ammonia gas or sulfide gas

- Four-pin Connectors ideal for power supply lines.
- Complies with IP67.
- Product line includes T-branch Connectors and cables with Connectors.



### ■ Ratings and Characteristics

| Item                                 | XS4□-D421-1□□-A<br>Cables with Connector  | XS4R-D424-5<br>T-branch Connectors | XS4P-D421-1C5-A<br>Panel Mounting Cables | XS4M-D421-1<br>Panel Mounting Cables |
|--------------------------------------|---|------------------------------------|--|--------------------------------------|
| Rated current                        | 10 A  |                                    |  |                                      |
| Rated voltage                        | 125 VDC   |                                    |  |                                      |
| Contact resistance<br>(See note 1.)  | 30 mΩ max. (at 20 mVDC, 100 mA max.)  |                                    |  |                                      |
| Insulation resistance                | 1,000 MΩ min. (at 500 VDC)  |                                    |  |                                      |
| Dielectric strength<br>(See note 2.) | 1,500 VAC for 1 min (leakage current: 1 mA max.)  |                                    |  |                                      |
| Operating temperature                | -20 to 65°C   |                                    |  |                                      |
| Storage temperature                  | -25 to 70°C   |                                    |  |                                      |
| Enclosure rating                     | IEC IP67  |                                    |  |                                      |
| Insertion durability                 | 200 times   |                                    |  |                                      |
| Cable holding strength               | 98 N/15 s   | ---                                | 98 N/15 s                                | ---                                  |
| Vibration                            | No break in current for simple harmonic motion (10 to 500 Hz, 1.52-mm amplitude or 100 m/s <sup>2</sup> whichever has the smallest amplitude) for more than 1 μs min. |                                    |  |                                      |

- Note:**
1. The contact resistance of the Connector.
  2. The dielectric strength of the Connector.
  3. The rated current between heavy gauge wires is 8 A.

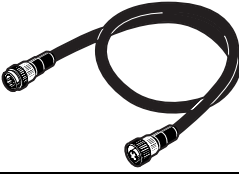
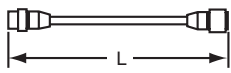
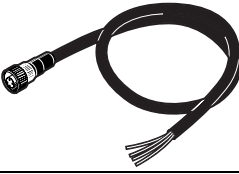
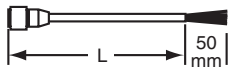
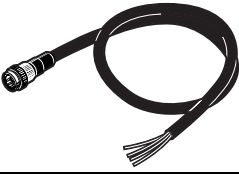
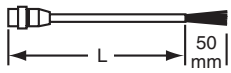
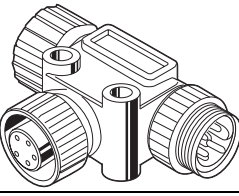
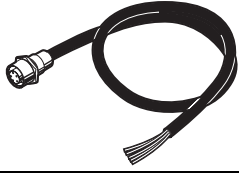
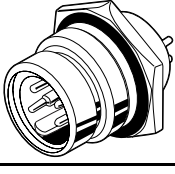
### ■ Materials and Finish

|           |                      | XS4□ (4-pin Type for Power Supplies)              |
|-----------|----------------------|---|
| Connector | Contact block        | Polyester elastomer (UL94V-0)/light gray          |
|           | Contact              | Brass/1.5-μm nickel base, 0.4-μm gold plating     |
|           | Anchor               | Copper/nickel plated                              |
|           | Body (See note.)     | Brass/nickel plated                               |
|           | Cover                | Polyester elastomer (UL94V-0)/black               |
|           | O ring               | Rubber  |
| Cable     | Model (manufacturer) | UL STO cable (Shinagawa Densen) or the equivalent |
|           | Cores                | AWG16 × 4 cores (black, white, red, and green)    |
|           | Diameter             | Approximately 11 dia.                             |
|           | Sheath color         | Black   |

**Note:** Only panel-mounted bodies are used.

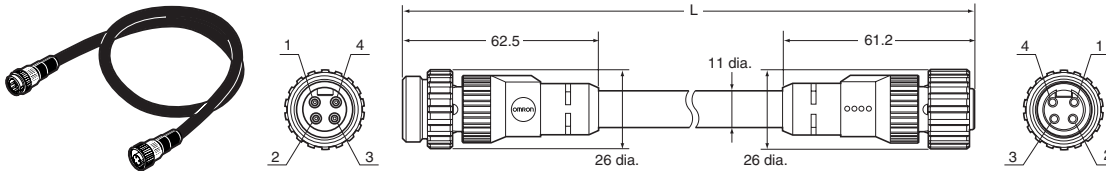
## ■ Ordering Information

### For Power Supplies (4-pin Type)

| Appearance  | Type  | Cable length (m) | Model           |
|---|---|------------------|-----------------|
|    |  | 1                | XS4W-D421-101-A |
|   |   | 2                | XS4W-D421-102-A |
|   |   | 5                | XS4W-D421-105-A |
|   |   | 10               | XS4W-D421-110-A |
|    |  | 1                | XS4F-D421-101-A |
|   |   | 2                | XS4F-D421-102-A |
|   |   | 5                | XS4F-D421-105-A |
|   |   | 10               | XS4F-D421-110-A |
|    |  | 1                | XS4H-D421-101-A |
|   |   | 2                | XS4H-D421-102-A |
|   |   | 5                | XS4H-D421-105-A |
|   |   | 10               | XS4H-D421-110-A |
|   | T-branch Connectors   | ---              | XS4R-D424-5     |
|  | Panel-mounted Connectors (Sockets) with 50-cm cable                               | ---              | XS4P-D421-1C5-A |
|  | Panel-mounted Connectors (Plugs) with DIP terminals                               | ---              | XS4M-D421-1     |

## ■ Dimensions

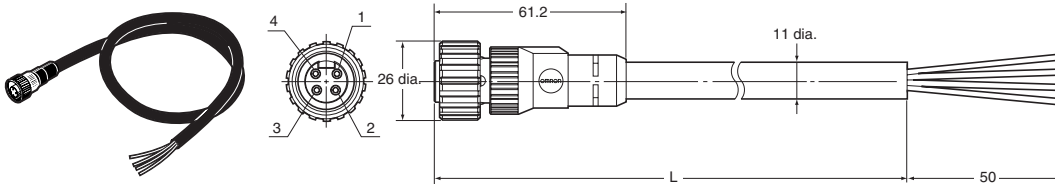
### XS4W-D421-1□□-A Cables with Connectors at Both Ends (4-pin Type for Power Supplies)



#### Wiring

| Terminal No. | Color |
|--------------|-------|
| 1            | Black |
| 2            | White |
| 3            | Red   |
| 4            | Green |

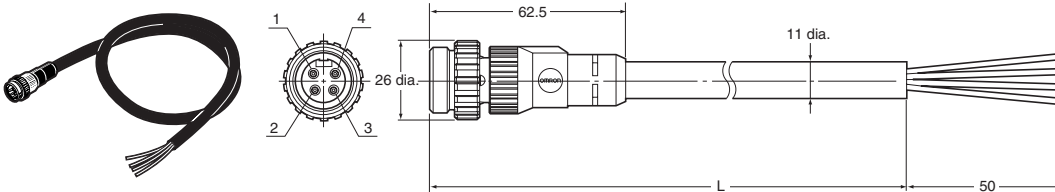
### XS4F-D421-1□□-A Cables with a Connector on One End (4-pin Sockets for Power Supplies)



#### Wiring

| Terminal No. | Color |
|--------------|-------|
| 1            | Black |
| 2            | White |
| 3            | Red   |
| 4            | Green |

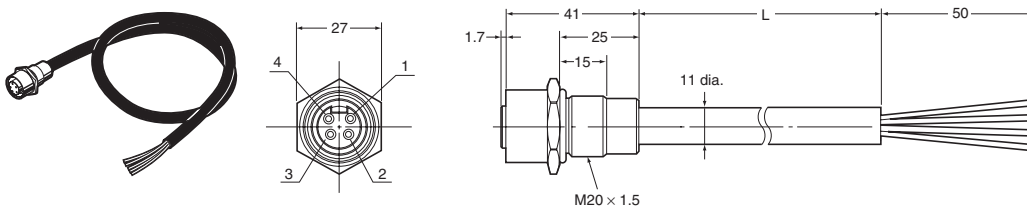
### XS4H-D421-1□□-A Cables with a Connector on One End (4-pin Plugs for Power Supplies)



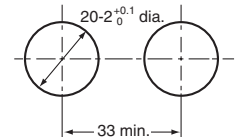
#### Wiring

| Terminal No. | Color |
|--------------|-------|
| 1            | Black |
| 2            | White |
| 3            | Red   |
| 4            | Green |

### XS4P-D421-1C5-A Panel Mounting Connectors (4-pin Sockets for Power Supplies)



#### Panel dimensions

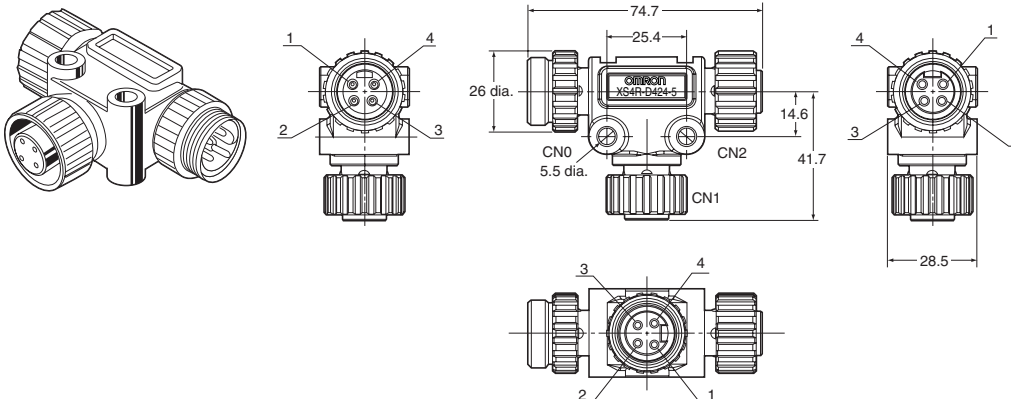


**Note:** The rubber bushing and nut used for in-panel mounting are supplied.

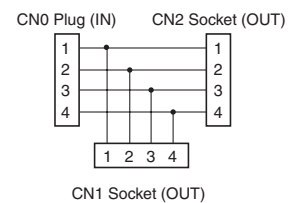
#### Wiring

| Terminal No. | Color |
|--------------|-------|
| 1            | Black |
| 2            | White |
| 3            | Red   |
| 4            | Green |

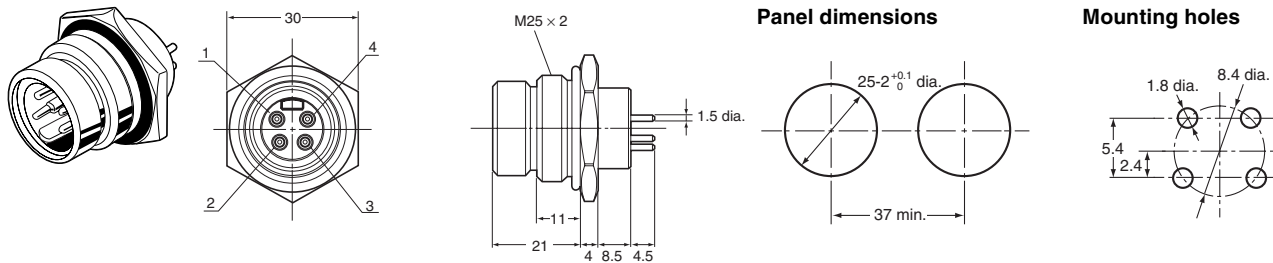
### XS4R-D424-5 T-branch Connectors (4-pin Type for Power Supplies)



#### Wiring Diagram

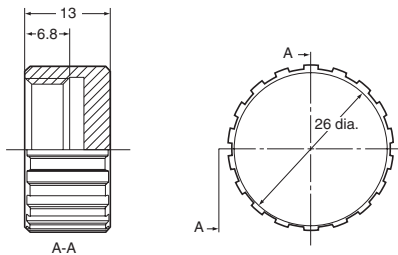


**XS4M-D421-1 Panel Mounting Connectors (4-pin Plugs for Power Supplies)**

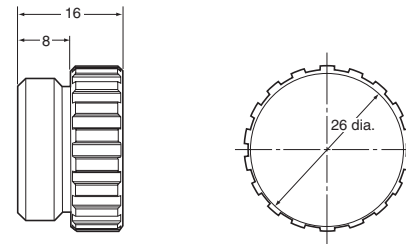


**Note:** The rubber bushing and nut used for in-panel mounting are supplied.

**XS4Z-11 Waterproof Caps (for Plugs)**



**XS4Z-12 Waterproof Caps (for Sockets)**



**■ Precautions**

**Correct Use**

**Handling**

- Do not connect or disconnect Connectors with the power turned ON.
- Hold the Connector when connecting or disconnecting Connectors.
- Never pull on the cable to disconnect a Connector.
- Before mating Connectors, insert the matable parts fully. Use a torque of 0.7 to 0.8 N·m to tighten the Anchor, and do so carefully to prevent damage to the threads. Do not use pliers or other tools because they may damage the Anchor. Anchors that are not properly tightened cannot maintain the enclosure rating and may become loose with vibration.
- The body is made of molded resin. Do not step on it or place heavy objects on top of it.

**Enclosure Rating**

- The IP67 enclosure rating is not completely waterproof. Do not use the product in locations where it will be continually under water.

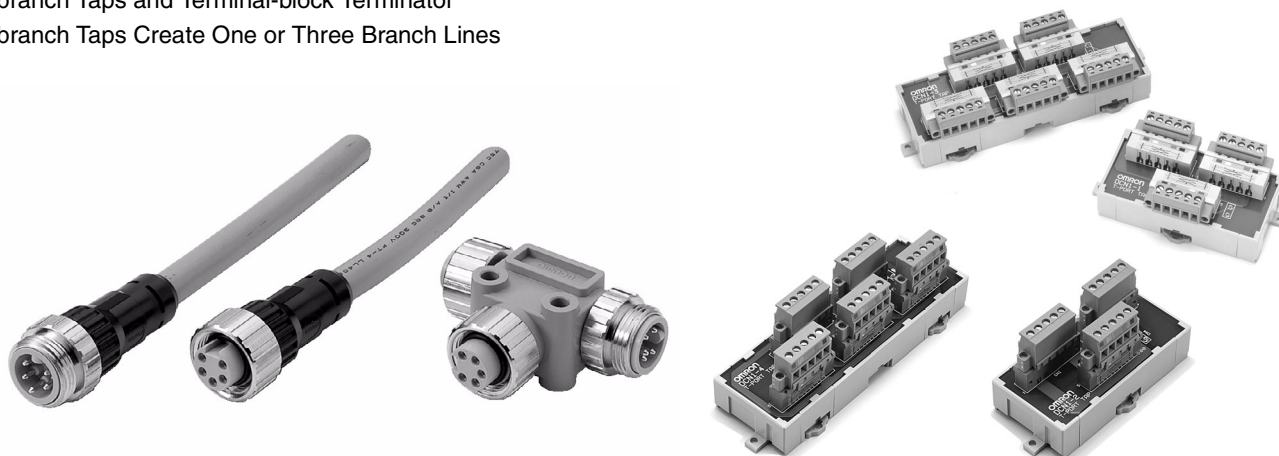
**Storage**

Observe the following long-term storage precautions.

1. Make sure the storage location is dust- and moisture-proof.
2. Do not store near locations generating ammonia gas, sulfurized gas, or other harmful gases.

# Peripheral Devices for DeviceNet Communications

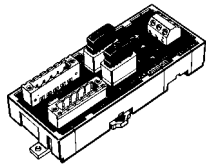

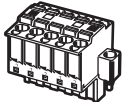
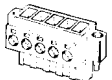
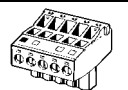
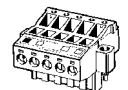
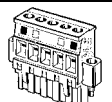
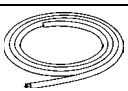
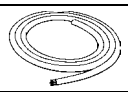

- T-branch Taps and Terminal-block Terminator
- T-branch Taps Create One or Three Branch Lines



## Ordering Information

### General-purpose Models

| Product                         | Appearance | Model    | Specification  |  |
|---------------------------------|------------|----------|--|--|
| T-branch Tap for 1 branch line  |            | DCN1-1NC | Cable wiring direction: Toward top<br>Cable lock direction: From top<br>Connector screw direction: From top    | Provided with 3 parallel connectors with clamps (XW4G-05C1-H1-D), standard terminating resistor          |
|                                 |            | DCN1-1C  | Cable wiring direction: Toward side<br>Cable screw direction: From top<br>Connector screw direction: From side | Provided with 3 parallel connectors with screws (XW4B-05C1-H1-D), standard terminating resistor          |
|                                 |            | DCN1-2C  | Cable wiring direction: Toward top<br>Cable screw direction: From side<br>Connector screw direction: From top  |  |
|                                 |            | DCN1-2R  | Cable wiring direction: From side<br>Cable screw direction: From top<br>Connector screw direction: From top    | Provided with 3 orthogonal connectors with screws (XW4B-05C1-VIR-D), standard terminating resistor       |
| T-branch Tap for 3 branch lines |            | DCN1-3NC | Cable wiring direction: Toward top<br>Cable lock direction: From top<br>Connector screw direction: From top    | Provided with 5 parallel clamp connectors with screws (XW4G-05C1-H1-D), standard terminating resistor    |
|                                 |            | DCN1-3C  | Cable wiring direction: Toward side<br>Cable screw direction: From top<br>Connector screw direction: From side | Provided with 5 parallel connectors with screws (XW4B-05C1-H1-D), standard terminating resistor          |
|                                 |            | DCN1-4C  | Cable wiring direction: Toward top<br>Cable screw direction: From side<br>Connector screw direction: From top  |  |
|                                 |            | DCN1-4R  | Cable wiring direction: Toward side<br>Cable screw direction: From top<br>Connector screw direction: From top  | Provided with 5 orthogonal clamp connectors with screws (XW4B-05C1-VIR-D), standard terminating resistor |

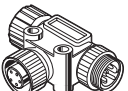
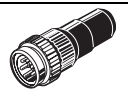

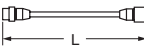

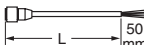

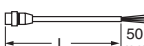





| Product                   |              | Appearance  | Model           | Specification   |
|---------------------------|--------------|---|-----------------|---|
| Power Supply Tap          |              |    | DCN1-1P         | One-branch tap provided with 2 connectors, standard terminating resistor, and fuse                                  |
| Connectors                |              |    | XW4G-05C1-H1-D  | Parallel clamp connector with screws<br>Connector insertion and wiring both performed horizontally.                 |
|                           |              |    | XW4G-05C4-TF-D  | Parallel multi-branching clamp connector with screws<br>Connector insertion and wiring performed in same direction. |
|                           |              |    | XW4B-05C1-H1-D  | Parallel connector with screws<br>Connector insertion and wiring performed in same direction.                       |
|                           |              |    | XW4B-05C4-T-D   | Parallel, screwless, multi-branching connector<br>Connector insertion and wiring performed in same direction.       |
|                           |              |    | XW4B-05C4-TF-D  | Parallel, multi-branching connector with screws<br>Connector insertion and wiring performed in same direction.      |
|                           |              |    | XW4B-05C1-VIR-D | Orthogonal connector with screws<br>Connector insertion and wiring performed at a right angle.                      |
| DeviceNet Cables          | Thin Cables  |   | DCA1-5C10       | Outer diameter: 7.00 mm<br>Length: 100 m  |
|                           | Thick Cables |  | DCA2-5C10       | Outer diameter: 11.6 mm<br>Length: 100 m  |
| Terminal-block Terminator |              |  | DRS1-T          | Resistance of 121 Ω   |

### Environment-resistive Models for Thin Wires and M12 Micro Connectors

| Product                                    | Appearance | Model        | Specifications   |  |
|--|------------|--------------|--|--|
| Sealed Assembling-type Connector (male)    |            | XS2G-D5S7    | For communications (plug)  |  |
| Sealed Assembling-type Connector (female)  |            | XS2C-D5S7    | For communications (socket)  |  |
| Sealed T-branch Connector                  |            | DCN2-1       | For 1 branch line  |  |
| Sealed Connector with Terminating Resistor |            | DRS2-1       | Plug   |  |
|  |            | DRS2-2       | Socket   |  |
| Cables with Sealed Connectors              |            | DCA1-5CNC5W1 | Length (L): 0.5 m  | Cable with connectors on both ends     |
|  |            | DCA1-5CN01W1 | Length (L): 1 m  |  |
|  |            | DCA1-5CN02W1 | Length (L): 2 m  |  |
|  |            | DCA1-5CN03W1 | Length (L): 3 m  |  |
|  |            | DCA1-5CN05W1 | Length (L): 5 m  |  |
|  |            | DCA1-5CN10W1 | Length (L): 10 m   |  |
|  |            | DCA1-5CNC5F1 | Length (L): 0.5 m  | Cable with connector socket on one end |
|  |            | DCA1-5CN01F1 | Length (L): 1 m  |  |
|  |            | DCA1-5CN02F1 | Length (L): 2 m  |  |
|  |            | DCA1-5CN03F1 | Length (L): 3 m  |  |
|  |            | DCA1-5CN05F1 | Length (L): 5 m  |  |
|  |            | DCA1-5CN10F1 | Length (L): 10 m   |  |
|  |            | DCA1-5CNC5H1 | Length (L): 0.5 m  | Cable with connector plug on one end   |
|  |            | DCA1-5CN01H1 | Length (L): 1 m  |  |
|  |            | DCA1-5CN02H1 | Length (L): 2 m  |  |
|  |            | DCA1-5CN03H1 | Length (L): 3 m  |  |
|  |            | DCA1-5CN05H1 | Length (L): 5 m  |  |
|  |            | DCA1-5CN10H1 | Length (L): 10 m   |  |
| Shielded Panel-mounting Connector, female  |            | DCA1-5CNC5P1 | Connector socket for Panel-mounting Cable: 0.5 m                         |  |
|  |            | XS2P-D522-2  | Connector socket for Panel-mounting Cable: 0.5 m<br>Solder-cup terminals |  |
| Shielded Panel-mounting Connector, male    |            | DCA1-5CNC5M1 | Connector plug for Panel-mounting Cable: 0.5 m                           |  |
|  |            | XS2M-D524-4  | Connector plug for Panel-mounting Solder-cup terminals                   |  |



## Environment-resistive Models for Thick Wires with 7/8-16UN Mini Connectors

| Product                                    | Appearance  | Model   | Specifications                                      |                  |  |
|--|---|---|---|------------------|--|
| Sealed T-branch Connector                  |    | DCN3-11   | T-branch Connector                                  |                  |  |
|  |   | DCN3-12   | T-branch Connector<br>(Branch connector is M12.)    |                  |  |
| Sealed Connector with Terminating Resistor |    | DRS3-1  | Plug  |                  |  |
| Cables with Sealed Connectors              |    |  | DCA2-5CN01W1  | Length (L): 1 m  | Cable with connectors on both ends                             |
|  |   |   | DCA2-5CN02W1  | Length (L): 2 m  |  |
|  |   |   | DCA2-5CN05W1  | Length (L): 5 m  |  |
|  |   |   | DCA2-5CN10W1  | Length (L): 10 m |  |
|  |    |  | DCA2-5CN01F1  | Length (L): 1 m  | Cable with connector socket on one end                         |
|  |   |   | DCA2-5CN02F1  | Length (L): 2 m  |  |
|  |   |   | DCA2-5CN05F1  | Length (L): 5 m  |  |
|  |   |   | DCA2-5CN10F1  | Length (L): 10 m |  |
|  |    |  | DCA2-5CN01H1  | Length (L): 1 m  | Cable with connector plug on one end                           |
|  |   |   | DCA2-5CN02H1  | Length (L): 2 m  |  |
|  |   |   | DCA2-5CN05H1  | Length (L): 5 m  |  |
|  |   |   | DCA2-5CN10H1  | Length (L): 10 m |  |
|  |    |  | DCA1-5CN01W5  | Length (L): 1 m  | Cable with connectors on both ends<br>Thin cable<br>M12 socket |
|  |   |   | DCA1-5CN02W5  | Length (L): 2 m  |  |
|  |   |   | DCA1-5CN05W5  | Length (L): 5 m  |  |
|  |   |   | DCA1-5CN10W5  | Length (L): 10 m |  |
| Panel-mounting Connector (female)          |   | DCA2-5CNC5P1  | Connector socket for panel mounting<br>Cable: 0.5 m |                  |  |
| Panel-mounting Connector (male)            |  | DCA2-5CNC5M1  | Connector plug for panel mounting<br>Cable: 0.5 m   |                  |  |
| Panel-mounting Connector (male)            |  | XS4M-D521-1   | Connector plug for panel mounting<br>DIP terminals  |                  |  |

## ■ Specifications

### General-purpose Models (T-branch Taps)

#### Ratings/Characteristics

|                              |   |
|------------------------------|---|
| <b>Rated current</b>         | Between main lines: 8 A (power supply line) and 2 A (signal line)<br>Between main and branch lines: 3 A (power supply line) and 1 A (signal line) |
| <b>Insulation resistance</b> | 100 MΩ min. (at 500 VDC)  |
| <b>Dielectric strength</b>   | 500 VAC for 1 min, leakage current: 1 mA max.   |
| <b>Ambient temperature</b>   | Operating: 0°C to 55°C  |

#### Materials

| Item                                 | Component                | Materials                           |
|--------------------------------------|--------------------------|-------------------------------------|
| Unit                                 | Main and Expansion Units | PBT resin with glass (UL14V-0)/gray |
|                                      | DIN track lock           | POM resin/yellow                    |
| Terminal block connector (See note.) | Housing                  | PA66 resin (UL94V-0)                |
|                                      | Contact                  | Phosphor bronze/gold plated         |
| PCB                                  |                          | Glass epoxy resin                   |

**Note:** The terminal block connector is a product of Phoenix Contact.

## Environment-resistive Models (Thin Wire Communications Connectors)

### Ratings/Characteristics

| Item                            | DCA1-5CN□□□1<br>Connectors with Cables  | DCN2-1<br>T-branch Connector | XS2□-D5S7<br>Assembling-type<br>Connector | DRS2-□<br>Connectors with<br>Terminating Resistor |
|---------------------------------|---|------------------------------|---|---|
| Rated current                   | 3 A   |                              |   |   |
| Rated voltage                   | 125 VDC   |                              |   |   |
| Contact resistance (connector)  | 40 mΩ max. (at 20 mVDC max. and 100 mA max.)  |                              |   |   |
| Insulation resistance           | 1,000 MΩ min. (at 500 VDC)  |                              |   |   |
| Dielectric strength (connector) | 1,500 VAC for 60 seconds (leakage current: 1 mA max.)   |                              |   |   |
| Ambient temperature range       | -20 to 65°C   |                              |   |   |
| Storage temperature range       | -25 to 70°C   |                              |   |   |
| Enclosure rating                | IEC IP67  |                              |   |   |
| Insertion durability            | 200 times   |                              |   |   |
| Cable strength                  | 98 N for 15 s   | ---                          |   |   |
| Vibration resistance            | No current interruptions of more than 1 μm while performing simple vibrations at either 10 to 500 Hz with 1.52-mm full amplitude or at acceleration 100 m/s <sup>2</sup> , whichever is smaller |                              |   |   |

## Environment-resistive Models (Thick Wire Communications Connectors)

### Ratings/Characteristics

| Item                            | DCA2-5CN□□□1<br>Connectors with Thick Wires   | DCA1-5CN□□W5<br>Connectors with Thick Wires | DCN3-11<br>T-branch Connector | DCN3-12<br>T-branch Connector | DRS3-1<br>Connectors with Terminating Resistor | DCA2-5CNC5P1<br>Panel Mounting Connector | XS4M-D521-1<br>Panel Mounting Connector |
|---------------------------------|---|---|-------------------------------|-------------------------------|--|--|---|
| Rated current                   | 8 A   | 3 A   | 8 A                           | 3 A (See note.)               | 8 A  |  |   |
| Rated voltage                   | 125 VDC   |   |                               |                               |  |  |   |
| Contact resistance (connector)  | 30 mΩ max. (at 20 mVDC max. and 100 mA max.)  |   |                               |                               |  |  |   |
| Insulation resistance           | 1,000 MΩ min. (at 500 VDC)  |   |                               |                               |  |  |   |
| Dielectric strength (connector) | 1,500 VAC for 60 seconds (leakage current: 1 mA max.)   |   |                               |                               |  |  |   |
| Ambient temperature range       | -20 to 65°C   |   |                               |                               |  |  |   |
| Storage temperature range       | -25 to 70°C   |   |                               |                               |  |  |   |
| Enclosure rating                | IEC IP67  |   |                               |                               |  |  |   |
| Insertion durability            | 200 times   |   |                               |                               |  |  |   |
| Cable strength                  | 98 N for 15 s   |   | ---                           |                               |  | 98 N for 15 s                            | ---                                     |
| Vibration resistance            | No current interruptions of more than 1 μm while performing simple vibrations at either 10 to 500 Hz with 1.52-mm full amplitude or at acceleration 100 m/s <sup>2</sup> , whichever is smaller |   |                               |                               |  |  |   |

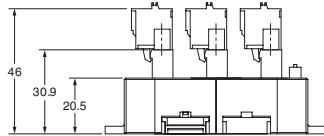
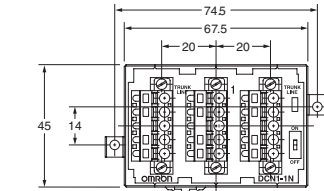
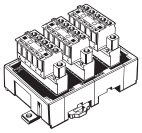
Note: The rated current between thick wires is 8 A.

## ■ Dimensions

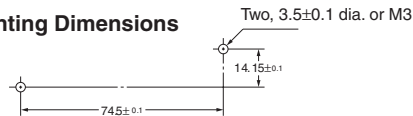
**Note:** All units are in millimeters unless otherwise indicated.

### General-purpose Models

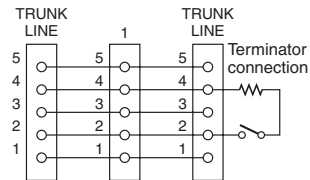
#### DCN1-1NC T-branch Tap for 1 Branch Line (With Three Branching Connectors)



**Mounting Dimensions**

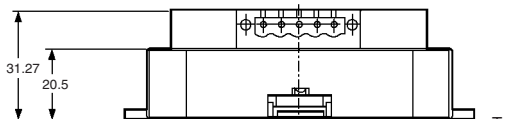
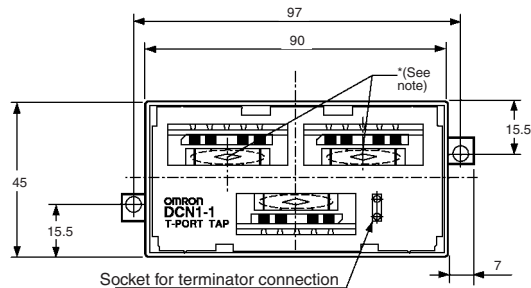
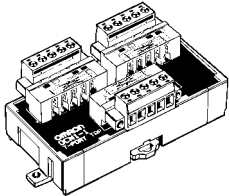


#### Internal Circuit

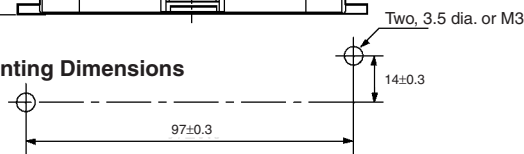


| Terminal No. | Name  |
|--------------|-------|
| 1            | V-    |
| 2            | CAN-L |
| 3            | DRAIN |
| 4            | CAN-H |
| 5            | V+    |

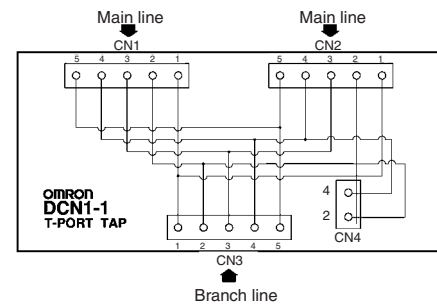
#### DCN1-1C T-branch Tap for 1 Branch Line (With Three Branching Connectors)



**Mounting Dimensions**



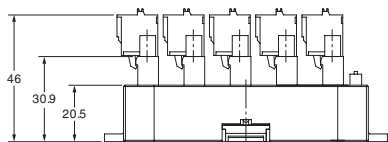
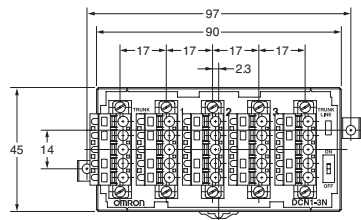
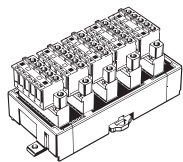
#### Internal Circuit



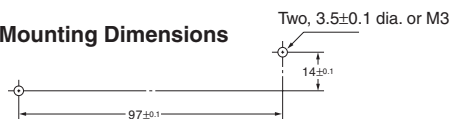
| Terminal No. | Name  |
|--------------|-------|
| 1            | V-    |
| 2            | CAN-L |
| 3            | DRAIN |
| 4            | CAN-H |
| 5            | V+    |

**Note:** When connecting a branch line to the main line, connect the main line to the connector marked with an asterisk because the resistance between the asterisks is minimal.

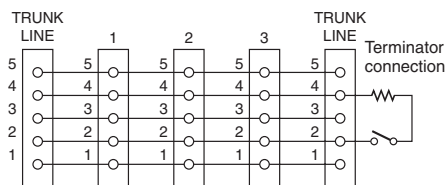
**DCN1-3NC**  
**T-branch Tap for 3 Branch Lines**  
**(With Five Branching Connectors)**



**Mounting Dimensions**

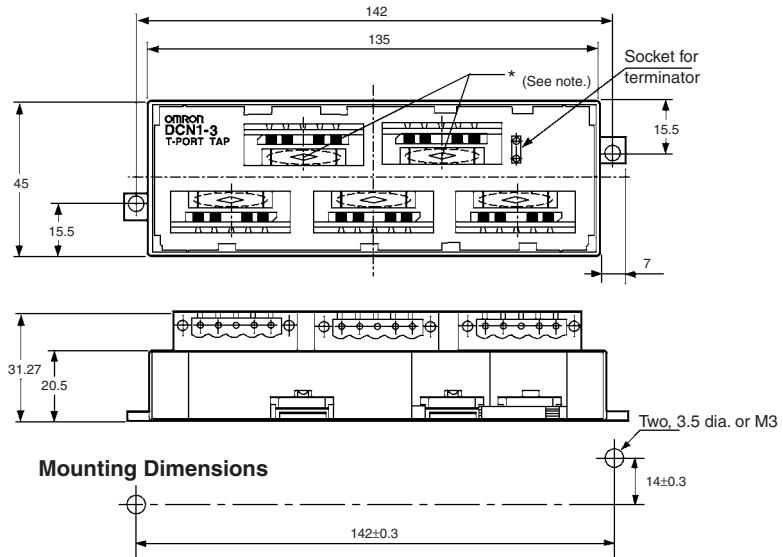
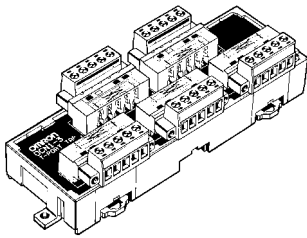


**Internal Circuit**

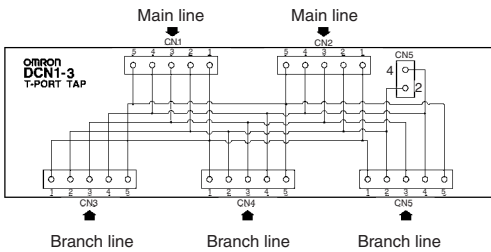


| Terminal No. | Name  |
|--------------|-------|
| 1            | V-    |
| 2            | CAN-L |
| 3            | DRAIN |
| 4            | CAN-H |
| 5            | V+    |

**DCN1-3C**  
T-branch Tap for 3 Branch Lines  
(With Five Branching Connectors)



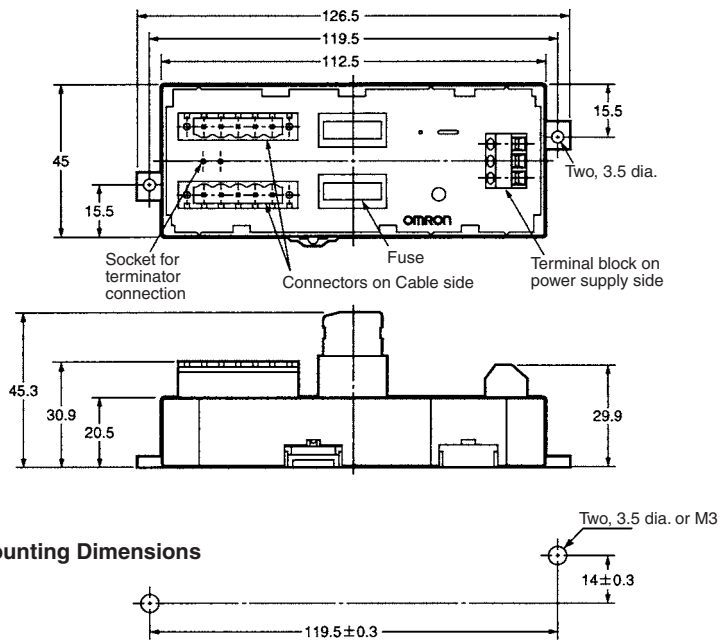
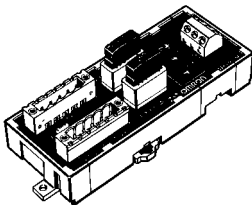
**Internal Circuit**



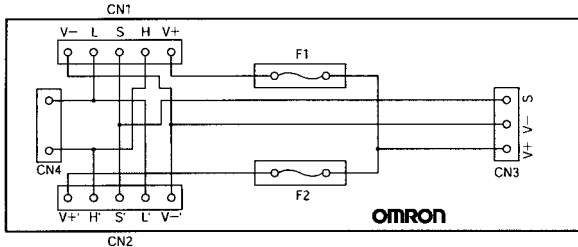
| Terminal No. | Name  |
|--------------|-------|
| 1            | V-    |
| 2            | CAN-L |
| 3            | DRAIN |
| 4            | CAN-H |
| 5            | V+    |

**Note:** When connecting a branch line to the main line, connect the main line to the connector marked with an asterisk because the resistance between the asterisked portion is minimal.

**DCN1-1P**  
Power Supply Tap  
(With Two Branching Connectors)

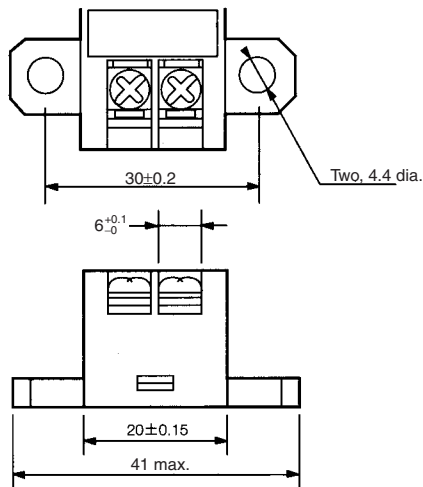
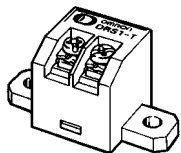


**Internal Circuit**

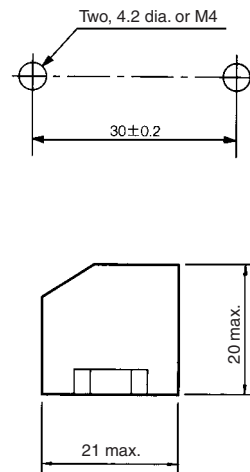


| Terminal No. | Name  |
|--------------|-------|
| V-           | V-    |
| L            | CAN-L |
| S            | DRAIN |
| H            | CAN-H |
| V+           | V+    |

**DRS1-T Terminal-block Terminator**



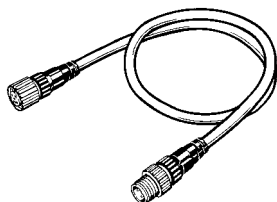
**Mounting Holes**



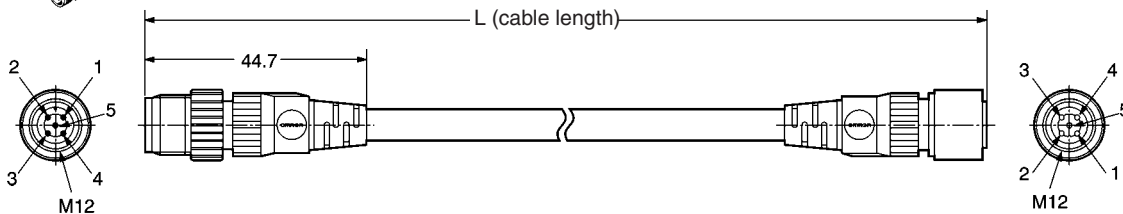
**Environment-resistive Models for Thin Wires**

**DCA1-5CN□□W1**

Cables with Connectors on Both Ends

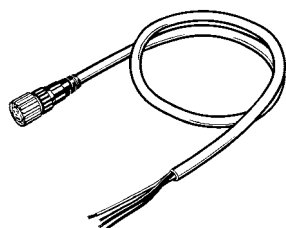


| Terminal No. | Color | Name  |
|--------------|-------|-------|
| 1            | ---   | DRAIN |
| 2            | Red   | V+    |
| 3            | Black | V-    |
| 4            | White | CAN-H |
| 5            | Blue  | CAN L |

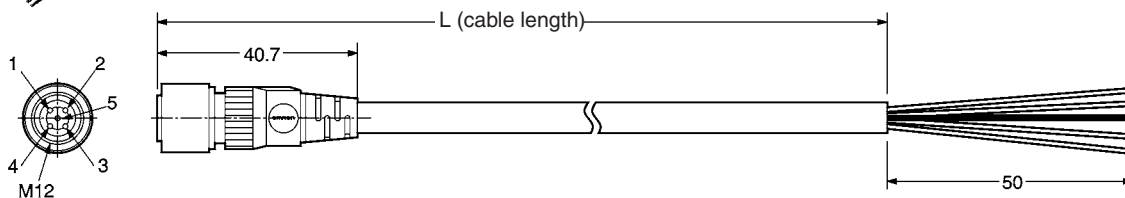


**DCA1-5CN□□F1**

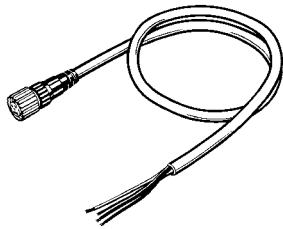
Cables with Connector (Socket) on Single End



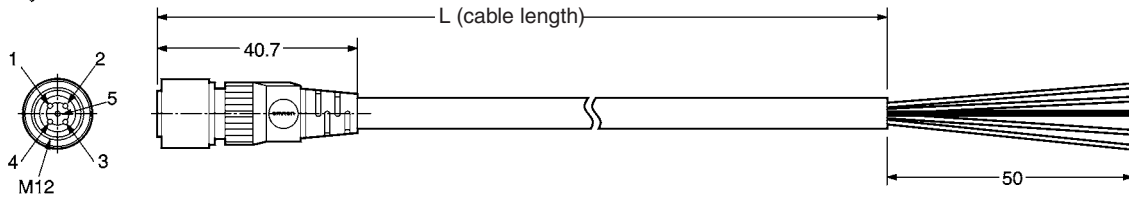
| Terminal No. | Color | Name  |
|--------------|-------|-------|
| 1            | ---   | DRAIN |
| 2            | Red   | V+    |
| 3            | Black | V-    |
| 4            | White | CAN-H |
| 5            | Blue  | CAN L |



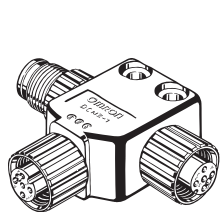
**DCA1-5CN□□F1**  
Cables with Connector (Socket) on Single End



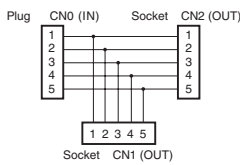
| Terminal No. | Color | Name  |
|--------------|-------|-------|
| 1            | ---   | DRAIN |
| 2            | Red   | V+    |
| 3            | Black | V-    |
| 4            | White | CAN-H |
| 5            | Blue  | CAN L |



**DCN2-1**  
T-branch Connector



Connections Diagram



Wiring

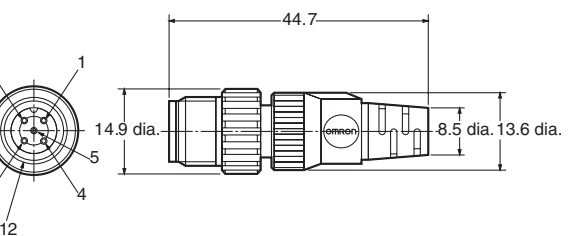
| Terminal No. | Name   |
|--------------|--------|
| 1            | SHIELD |
| 2            | V+     |
| 3            | V-     |
| 4            | CAN-H  |
| 5            | CAN-L  |

**DRS2-1 (Plug)**  
**DRS2-2 (Socket)**  
Connectors with Terminating Resistance

Wiring

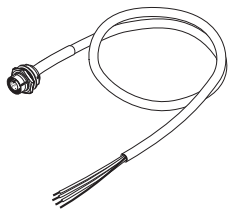
| Terminal No. | Name          |
|--------------|---------------|
| 1            | DRAIN: NC     |
| 2            | V+: NC        |
| 3            | V-: NC        |
| 4            | CAN-H:  121 Ω |
| 5            | CAN-L:  121 Ω |

**Note:** Terminating resistance (121 Ω) is connected between terminals 4 and 5.

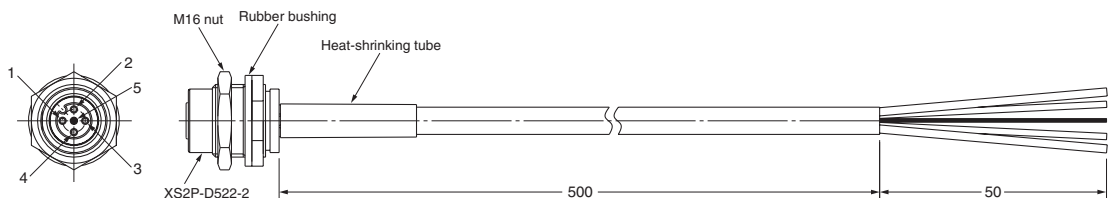


**Note:** The diagram shows the DRS2-1 (plug).

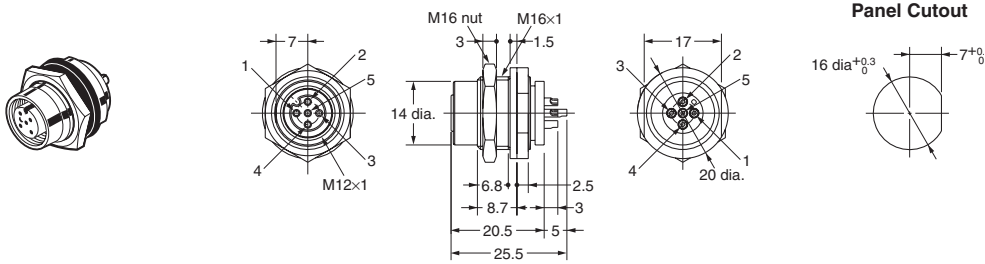
**DCA1-5CNC5P1**  
Panel-mounting Connector Socket with 0.5 m Cable



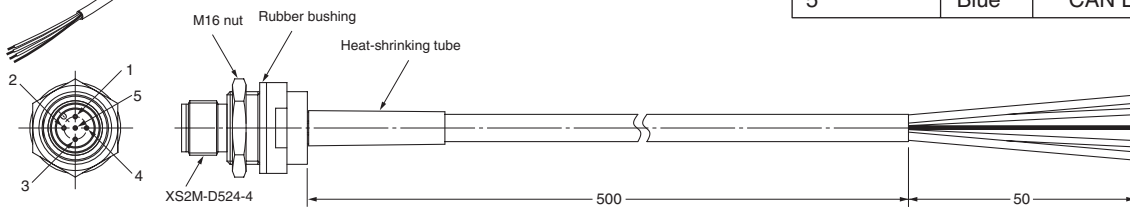
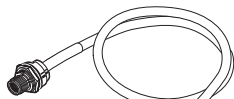
| Terminal No. | Color | Name  |
|--------------|-------|-------|
| 1            | ---   | DRAIN |
| 2            | Red   | V+    |
| 3            | Black | V-    |
| 4            | White | CAN-H |
| 5            | Blue  | CAN L |



**XS2P-D522-2**  
**Panel-mounting Connector Socket, Solder-cup Terminals**

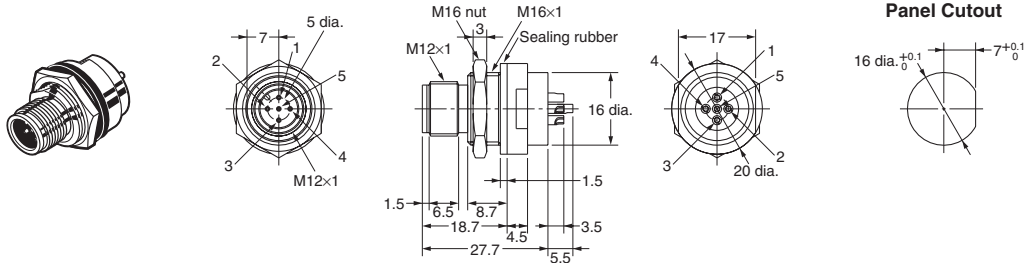


**DCA1-5CNC5M1**  
**Panel-mounting Connector Plug with 0.5 m Cable**



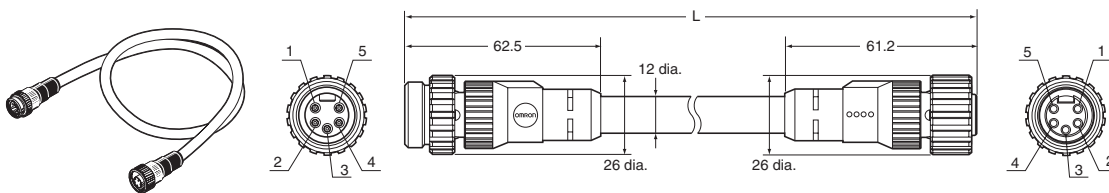
| Terminal No. | Color | Name  |
|--------------|-------|-------|
| 1            | ---   | DRAIN |
| 2            | Red   | V+    |
| 3            | Black | V-    |
| 4            | White | CAN-H |
| 5            | Blue  | CAN L |

**XS2M-D524-4**  
**Panel-mounting Connector Plug, Solder-cup Terminals**



**Environment-resistive Models for Thick Wires**

**DCA2-5CN□□W1**  
**Thick Cable with Connectors on Both Ends**  
**(5 Conductors for Communications)**

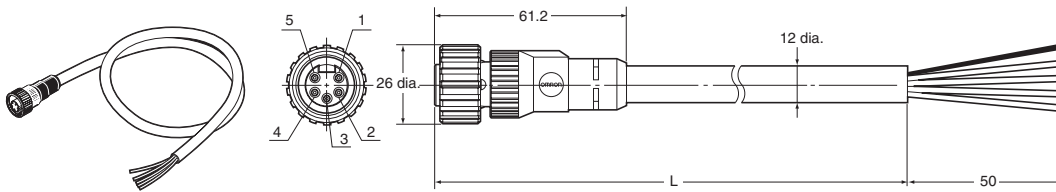


**Wiring**

| Terminal No. | Color | Name  |
|--------------|-------|-------|
| 1            | ---   | DRAIN |
| 2            | Red   | V+    |
| 3            | Black | V-    |
| 4            | White | CAN-H |
| 5            | Blue  | CAN-L |



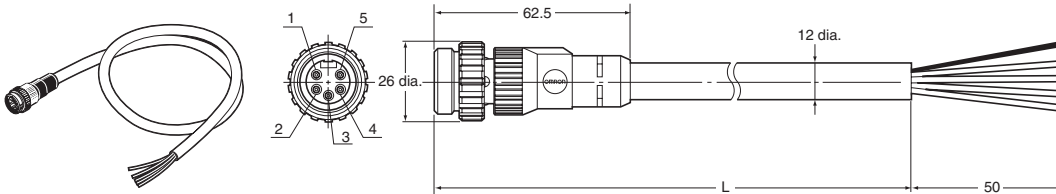
**DCA2-5CN□□F1**  
**Thick Cable with Connector Socket on One End**  
**(5 Conductors for Communications)**



**Wiring**

| Terminal No. | Color | Name  |
|--------------|-------|-------|
| 1            | ---   | DRAIN |
| 2            | Red   | V+    |
| 3            | Black | V-    |
| 4            | White | CAN-H |
| 5            | Blue  | CAN-L |

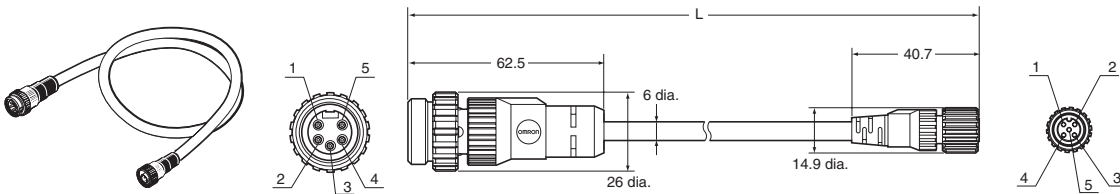
**DCA2-5CN□□H1**  
**Thick Cable with Connector Plug on One End**  
**(5 Conductors for Communications)**



**Wiring**

| Terminal No. | Color | Name  |
|--------------|-------|-------|
| 1            | ---   | DRAIN |
| 2            | Red   | V+    |
| 3            | Black | V-    |
| 4            | White | CAN-H |
| 5            | Blue  | CAN-L |

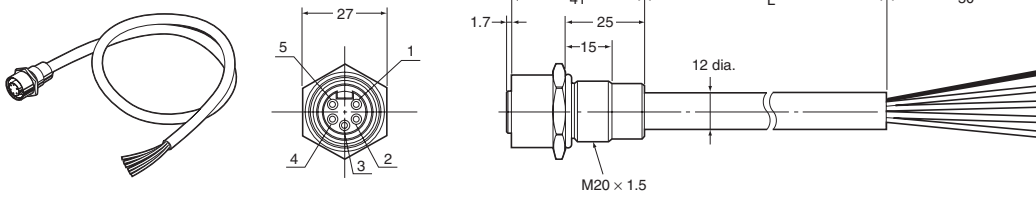
**DCA1-5CN□□W5**  
**Thin Cable with Connectors on Both Ends**  
**(5 Conductors for Communications)**



**Wiring**

| Terminal No. | Color | Name  |
|--------------|-------|-------|
| 1            | ---   | DRAIN |
| 2            | Red   | V+    |
| 3            | Black | V-    |
| 4            | White | CAN-H |
| 5            | Blue  | CAN-L |

**DCA2-5CNC5P1**  
Thin Cable with Panel-mounting Connector Socket on One End  
(5 Conductors for Communications)

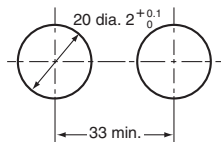


**Wiring**

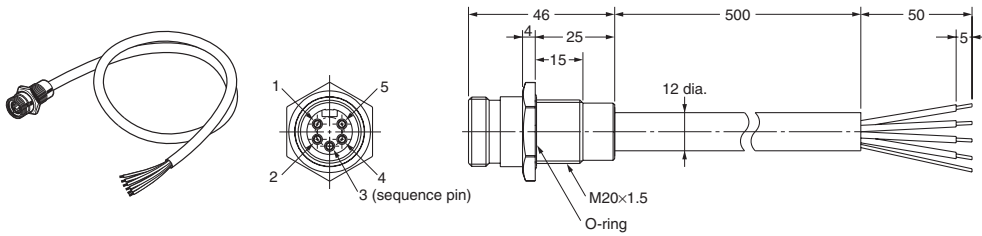
| Terminal No. | Color | Name  |
|--------------|-------|-------|
| 1            | ---   | DRAIN |
| 2            | Red   | V+    |
| 3            | Black | V-    |
| 4            | White | CAN-H |
| 5            | Blue  | CAN-L |

**Note:** A rubber seal and nut for panel mounting are included.

**Panel Cutout Dimensions**



**DCA2-5CNC5M1**  
Panel-mounting Connector Plug with 0.5 m Cable

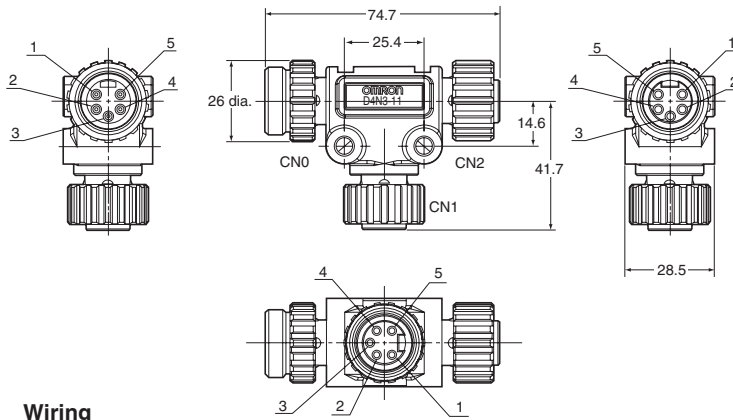
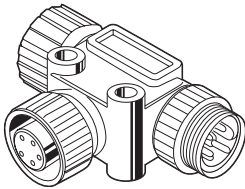


**Wiring**

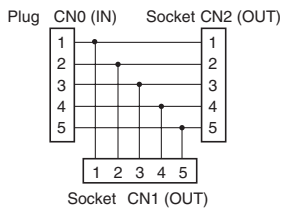
| Terminal No. | Color | Name  |
|--------------|-------|-------|
| 1            | ---   | DRAIN |
| 2            | Red   | V+    |
| 3            | Black | V-    |
| 4            | White | CAN-H |
| 5            | Blue  | CAN-L |

**Note:** A nut is included.

**DCN3-11**  
**T-branch Connector (5 Conductors for Communications,**  
**Thick Wire Branch Line)**



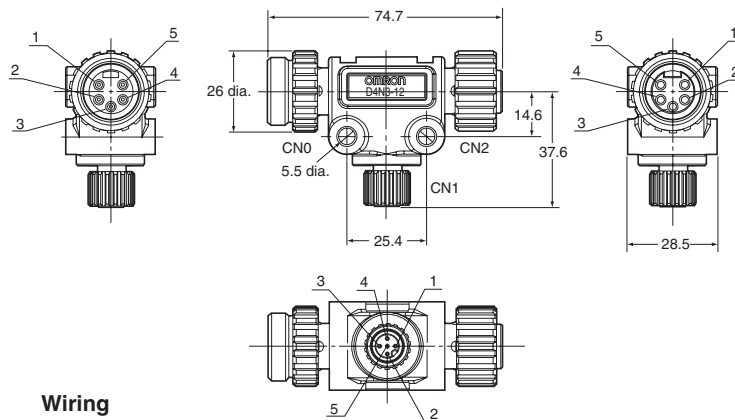
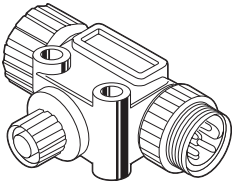
**Connections Diagram**



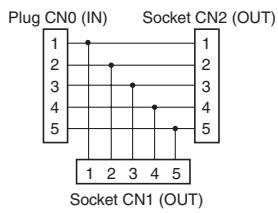
**Wiring**

| Terminal No. | Name  |
|--------------|-------|
| 1            | DRAIN |
| 2            | V+    |
| 3            | V-    |
| 4            | CAN-H |
| 5            | CAN-L |

**DCN3-12**  
**T-branch Connector (5 Conductors for Communications)**



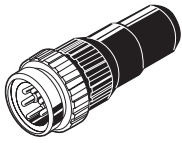
**Connections Diagram**



**Wiring**

| Terminal No. | Name  |
|--------------|-------|
| 1            | DRAIN |
| 2            | V+    |
| 3            | V-    |
| 4            | CAN-H |
| 5            | CAN-L |

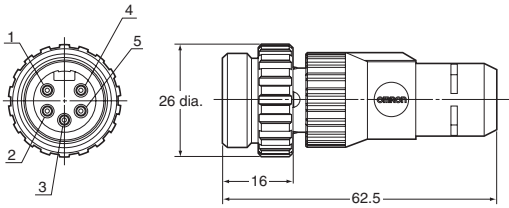
**DRS3-1**  
Connector Plug with Terminating Resistance



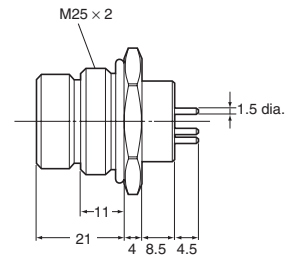
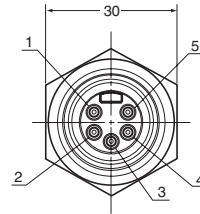
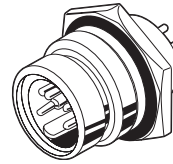
**Wiring**

| Terminal No. | Name   |
|--------------|--|
| 1            | DRAIN: NC  |
| 2            | V+: NC   |
| 3            | V-: NC   |
| 4            | CAN-H: $\text{---} \text{---} \text{---} 121 \Omega$ |
| 5            | CAN-L: $\text{---} \text{---} \text{---} 121 \Omega$ |

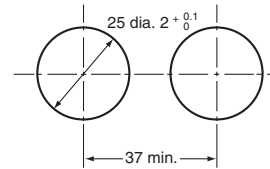
**Note:** Terminating resistance (121  $\Omega$ ) is connected between terminals 4 and 5.



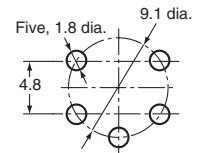
**XS4M-D521-1**  
Panel-mounting Connector Plug  
(5 Pins for Communications)



**Panel Cutout Dimensions**



**PCB Processing Dimensions**



**Note:** A rubber seal and nut for panel mounting are included.



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1. Each of OMRON Sales offices has its branch offices.
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