

Round Water-resistant Connectors (M8)

XS3

Compact, Watertight, Round Connectors

- Water-resistive, compact connector meets IP67 requirements.
- 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.



■ Ratings and Specifications

| | |
|-----------------------|--|
| Rated current | 3A |
| Rated voltage | 125 VDC |
| Contact resistance | 60 mΩ max. (20 mV max., 100 mA max.) |
| Insulation resistance | 1,000 MΩ min. (at 500 VDC) |
| Dielectric strength | 1,000 VAC for 1 min (leakage current: 1 mA max.) |
| Degree of protection | IP67 (IEC60529) |
| Insertion tolerance | 200 times min. |

■ Material

| | |
|-------------------|--------------------------------------|
| Contact / Surface | Copper Alloy / Nickel base, Au0.4 μm |
| Connector housing | PBT resin (UL94V-0) |
| Nut / Surface | Copper Alloy / Nickel plated |
| Cover | PBT resin (UL94V-0) |

■ PVC Cable

| Item | 3 cores | 4 cores |
|-------------------|---------------------------------------|---------------------------------|
| Color | Black | |
| Outer diameter | 5 mm dia. | 4.8 mm dia. |
| Conductor size | AWG22 0.34 mm ² (43 × 0.1) | 0.25 mm ² (32 × 0.1) |
| Approvals | AWM | |
| Features | Flame retardant | |
| Temperature range | -25 to +70°C | |

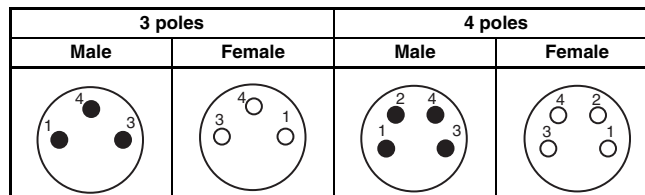
■ PVC Cable(For IP69K)

| Item | Standard |
|-------------------|---------------------------------------|
| Color | Dark Gray |
| Outer diameter | 4 mm dia. |
| Conductor size | AWG24 0.2 mm ² (18 × 0.12) |
| Approvals | - - - |
| Features | - - - |
| Temperature range | -25 to +70°C |

■ PUR Cable

| Item | 3 cores | 4 cores |
|-------------------|---|-------------|
| Color | Black | |
| Outer diameter | 4.3 mm dia. | 4.7 mm dia. |
| Conductor size | AWG22 0.34 mm ² (43 × 0.1) | |
| Approvals | AWM | |
| Features | Flame retardant Halogen free Oil resistance | |
| Temperature range | Cable fixed: -50 to +80°C / Cable moved: -25 to +80°C | |

■ Socket Appearance



Connectors with Cable Attached

■ XS3F - M8 Socket on One Cable End

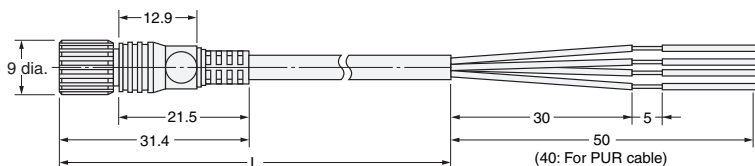
XS3F-M8PVC□□□□M PVC Cable
 XS3F-M8PUR□□□□M PUR Cable



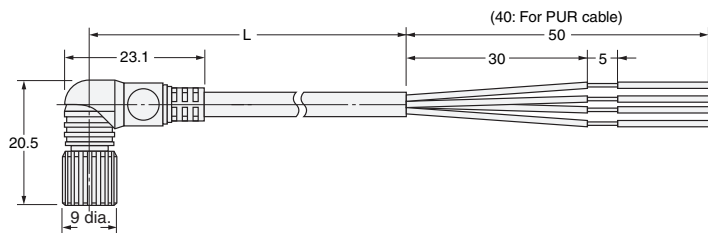
Dimensions

(Unit: mm)

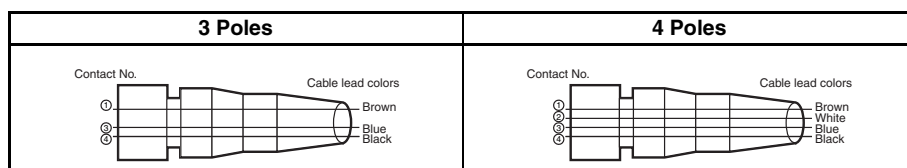
Straight



Angled



Wiring Diagram



Ordering Information

| Connector | Size | Cable material | Poles | Type | Length (m) | Product description |
|-----------|------|----------------|----------|--------|-----------------|---------------------|
| Socket | M8 | PVC | 3 | Angled | 2 | XS3F-M8PVC3A2M |
| | | | | | 5 | XS3F-M8PVC3A5M |
| | | | | | 10 | XS3F-M8PVC3A10M |
| | | | Straight | 2 | XS3F-M8PVC3S2M | |
| | | | | 5 | XS3F-M8PVC3S5M | |
| | | | | 10 | XS3F-M8PVC3S10M | |
| | | PUR | 3 | Angled | 2 | XS3F-M8PUR3A2M |
| | | | | | 5 | XS3F-M8PUR3A5M |
| | | | | | 10 | XS3F-M8PUR3A10M |
| | | | Straight | 2 | XS3F-M8PUR3S2M | |
| | | | | 5 | XS3F-M8PUR3S5M | |
| | | | | 10 | XS3F-M8PUR3S10M | |
| | | PUR | 4 | Angled | 2 | XS3F-M8PUR4A2M |
| | | | | | 5 | XS3F-M8PUR4A5M |
| | | | | | 10 | XS3F-M8PUR4A10M |
| | | | Straight | 2 | XS3F-M8PUR4S2M | |
| | | | | 5 | XS3F-M8PUR4S5M | |
| | | | | 10 | XS3F-M8PUR4S10M | |

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 - M8 **M**

1 2 3 4 5

1. Screw Type

M8: M8 size

2. Cable type

PVC: PVC cable

PUR: PUR cable

3. Number of Poles

3: 3 poles

4: 4 poles

4. Shape

A: Angled

S: Straight

5. Cable Length

2M: 2 m

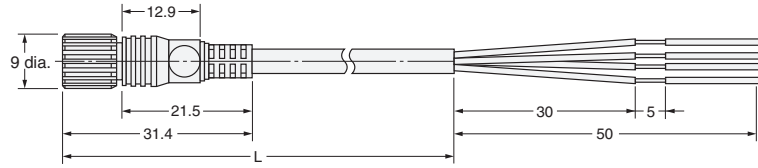
5M: 5 m

10M: 10 m

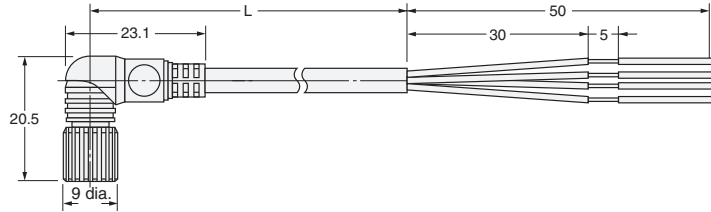
■ XS3F - Sockets on One Cable End with IP69K rating

Dimensions

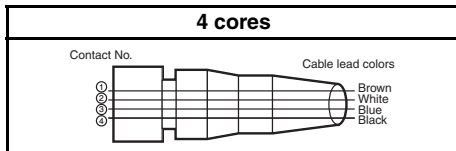
Straight



Angled



Wiring Diagram



Ordering Information

| Connector | Size | Cable material | Cores | Shape | Length (m) | Product description |
|-----------|------|----------------|-------|----------|------------|---------------------|
| Socket | M8 | PVC | 4 | Angled | 2 | XS3F-E422-402-A |
| | | | | | 5 | XS3F-E422-405-A |
| | | | | | 10 | XS3F-E422-410-A |
| | | | | Straight | 2 | XS3F-E421-402-A |
| | | | | | 5 | XS3F-E421-405-A |
| | | | | | 10 | XS3F-E421-410-A |

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 - E42□□ - 4□□□ - A
1 2 3 4 5 6 7

1. Nut Material

E: Stainless

2. Number of Poles

4: 4 cores

3. Contact Plating

2: 0.4-μm gold plating

4. Shape

1: Straight

2: Angled

5. Connections

4: Brown, White, Blue, Black

6. Cable Length

02: 2 m

05: 5 m

10: 10 m

7. Cable Specification

A: Standard Cable

■ XS3H - M8 Plugs on One Cable End

XS3H-M8PVC□□□□M PVC Cable

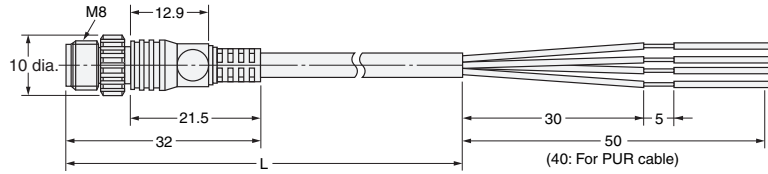
XS3H-M8PUR□□□□M PUR Cable



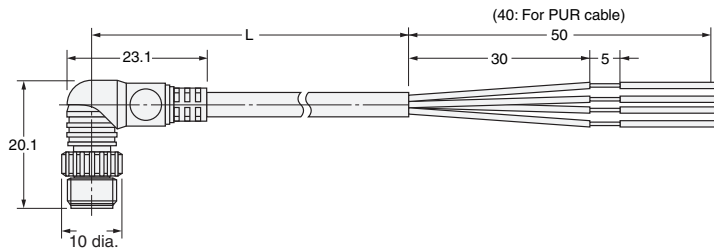
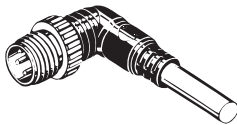
Dimensions

(Unit: mm)

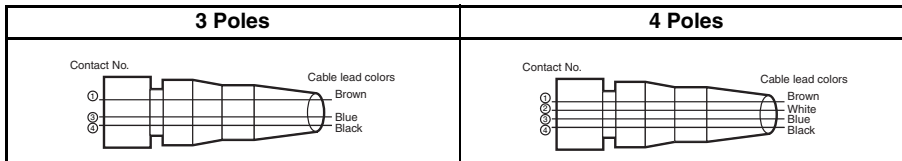
Straight



Angled



Wiring Diagram



Ordering Information

| Connector | Size | Cable material | Poles | Type | Length (m) | Product description |
|-----------|------|----------------|-------|----------|------------|---------------------|
| plug | M8 | PVC | 3 | Angled | 0.3 | XS3H-M8PVC3A03M |
| | | | | | 1 | XS3H-M8PVC3A1M |
| | | | | Straight | 0.3 | XS3H-M8PVC3S03M |
| | | | | | 1 | XS3H-M8PVC3S1M |
| | | | 4 | Angled | 0.3 | XS3H-M8PVC4A03M |
| | | | | | 1 | XS3H-M8PVC4A1M |
| | | | | Straight | 0.3 | XS3H-M8PVC4S03M |
| | | | | | 1 | XS3H-M8PVC4S1M |
| | | PUR | 3 | Angled | 0.3 | XS3H-M8PUR3A03M |
| | | | | | 1 | XS3H-M8PUR3A1M |
| | | | | Straight | 0.3 | XS3H-M8PUR3S03M |
| | | | | | 1 | XS3H-M8PUR3S1M |
| | | | 4 | Angled | 0.3 | XS3H-M8PUR4A03M |
| | | | | | 1 | XS3H-M8PUR4A1M |
| | | | | Straight | 0.3 | XS3H-M8PUR4S03M |
| | | | | | 1 | XS3H-M8PUR4S1M |

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 - M8 **M**

1 2 3 4 5

1. Screw Type

M8: M8 size

2. Cable type

PVC: PVC cable

PUR: PUR cable

3. Number of Poles

3: 3 poles

4: 4 poles

4. Shape

A: Angled

S: Straight

5. Cable Length

03M: 0.3 m

1M: 1 m

■ XS3W - M8 Sockets and M8 Plugs on Cable Ends

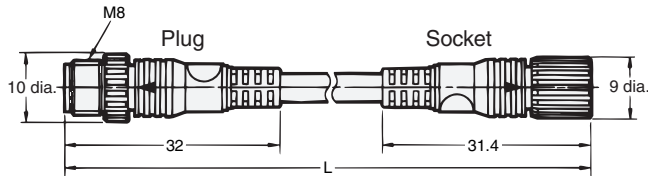
XS3W-M8PVC□□□□M PVC Cable
 XS3W-M8PUR□□□□M PUR Cable



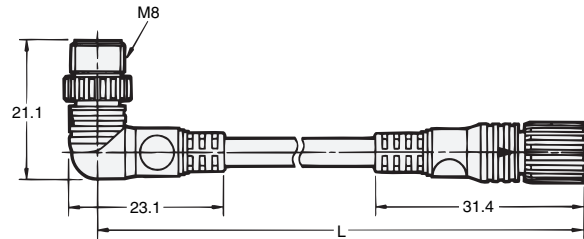
Dimensions

(Unit: mm)

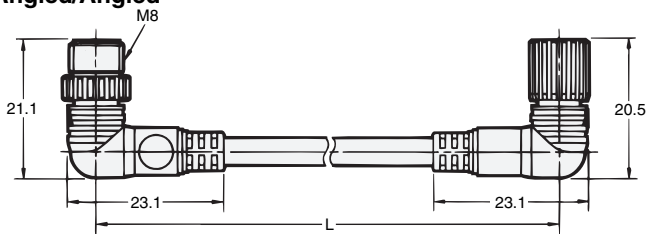
Straight/Straight



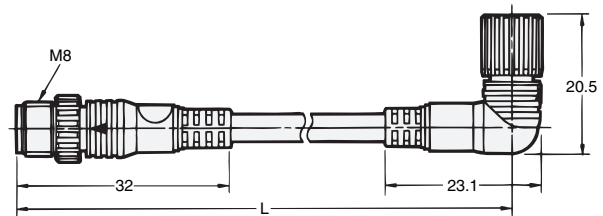
Straight/Angled



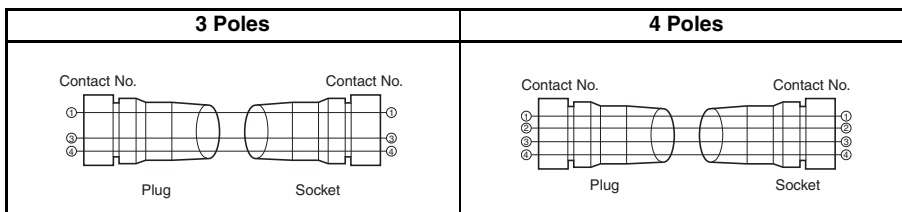
Angled/Angled



Angled/Straight



Wiring Diagram



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 - M8 □□□□ □ □ □ □ M
 1 2 3 4 5

1. Screw Type

M8: M8 size

2. Cable type

PVC: PVC cable

PUR: PUR cable

3. Number of Poles

3: 3 poles

4: 4 poles

4. Shape

SS: Straight / Straight

AA: Angled / Angled

SA: Straight / Angled

AS: Angled / Straight

5. Cable Length

2M: 2 m

5M: 5 m

1M: 10 m

Ordering Information

| Connector | Size | Cable material | Poles | Shape | | Length (m) | Product description |
|-----------|------|----------------|-------|----------|----------|------------|---------------------|
| | | | | Plug | Socket | | |
| Both | M8 | PVC | 3 | Angled | Angled | 2 | XS3W-M8PVC3AA2M |
| | | | | | | 5 | XS3W-M8PVC3AA5M |
| | | | | | | 10 | XS3W-M8PVC3AA10M |
| | | | | Straight | Straight | 2 | XS3W-M8PVC3SS2M |
| | | | | | | 5 | XS3W-M8PVC3SS5M |
| | | | | | | 10 | XS3W-M8PVC3SS10M |
| | | | | Angled | Straight | 2 | XS3W-M8PVC3AS2M |
| | | | | | | 5 | XS3W-M8PVC3AS5M |
| | | | | | | 10 | XS3W-M8PVC3AS10M |
| | | | | Straight | Angled | 2 | XS3W-M8PVC3SA2M |
| | | | | | | 5 | XS3W-M8PVC3SA5M |
| | | | | | | 10 | XS3W-M8PVC3SA10M |
| | | | 4 | Angled | Angled | 2 | XS3W-M8PVC4AA2M |
| | | | | | | 5 | XS3W-M8PVC4AA5M |
| | | | | | | 10 | XS3W-M8PVC4AA10M |
| | | | | Straight | Straight | 2 | XS3W-M8PVC4SS2M |
| | | | | | | 5 | XS3W-M8PVC4SS5M |
| | | | | | | 10 | XS3W-M8PVC4SS10M |
| | | | | Angled | Straight | 2 | XS3W-M8PVC4AS2M |
| | | | | | | 5 | XS3W-M8PVC4AS5M |
| | | | | | | 10 | XS3W-M8PVC4AS10M |
| | | | | Straight | Angled | 2 | XS3W-M8PVC4SA2M |
| | | | | | | 5 | XS3W-M8PVC4SA5M |
| | | | | | | 10 | XS3W-M8PVC4SA10M |
| | | PUR | 3 | Angled | Angled | 2 | XS3W-M8PUR3AA2M |
| | | | | | | 5 | XS3W-M8PUR3AA5M |
| | | | | | | 10 | XS3W-M8PUR3AA10M |
| | | | | Straight | Straight | 2 | XS3W-M8PUR3SS2M |
| | | | | | | 5 | XS3W-M8PUR3SS5M |
| | | | | | | 10 | XS3W-M8PUR3SS10M |
| | | | | Angled | Straight | 2 | XS3W-M8PUR3AS2M |
| | | | | | | 5 | XS3W-M8PUR3AS5M |
| | | | | | | 10 | XS3W-M8PUR3AS10M |
| | | | | Straight | Angled | 2 | XS3W-M8PUR3SA2M |
| | | | | | | 5 | XS3W-M8PUR3SA5M |
| | | | | | | 10 | XS3W-M8PUR3SA10M |
| | | | 4 | Angled | Angled | 2 | XS3W-M8PUR4AA2M |
| | | | | | | 5 | XS3W-M8PUR4AA5M |
| | | | | | | 10 | XS3W-M8PUR4AA10M |
| | | | | Straight | Straight | 2 | XS3W-M8PUR4SS2M |
| | | | | | | 5 | XS3W-M8PUR4SS5M |
| | | | | | | 10 | XS3W-M8PUR4SS10M |
| | | | | Angled | Straight | 2 | XS3W-M8PUR4AS2M |
| | | | | | | 5 | XS3W-M8PUR4AS5M |
| | | | | | | 10 | XS3W-M8PUR4AS10M |
| | | | | Straight | Angled | 2 | XS3W-M8PUR4SA2M |
| | | | | | | 5 | XS3W-M8PUR4SA5M |
| | | | | | | 10 | XS3W-M8PUR4SA10M |

Y-Joint M8 Plug / M8 Socket Connectors

■ XS3R

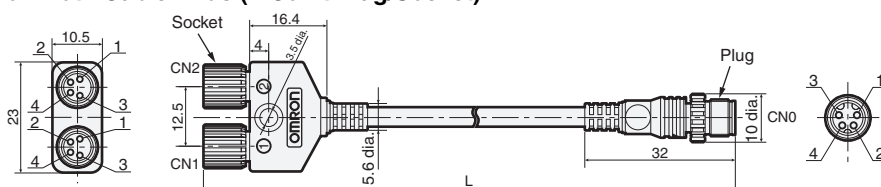
XS3R-M426-1□□□-A With Standard Cable
XS3R-M426-□ Without Cable

Dimensions

(Unit: mm)

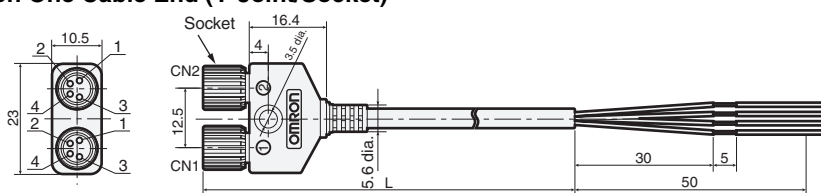
XS3R-M426-1□□1-A

Connectors on Both Cable Ends (Y-Joint Plug/Socket)



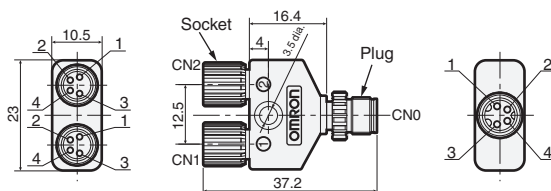
XS3R-M426-1□□0-A

Connector on One Cable End (Y-Joint/Socket)



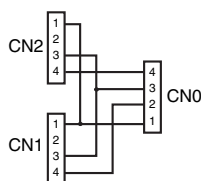
XS3R-M426-□

Connector on Both Ends (Y-Joint Plug/Socket) without Cable

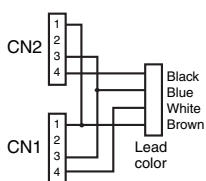


Wiring Diagram

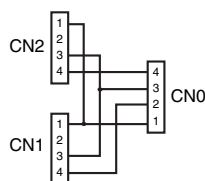
XS3R-M426-1□□1-A



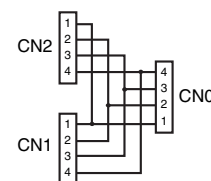
XS3R-M426-1□□0-A



XS3R-M426-1



XS3R-M426-5



Mating Connectors

| Item | Model |
|----------|----------|
| XS3R(M8) | XS3F(M8) |
| | XS3H(M8) |
| | XS3W(M8) |
| | XS3P(M8) |

Ordering Information For M8 Connectors

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

Panel-mount Connectors

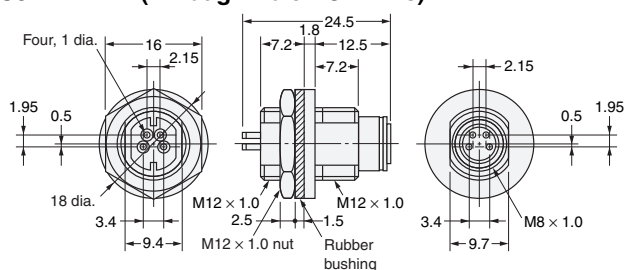
■ XS3P - M8 Sockets

XS3P-M421-1 M8 Screw-mount sockets with Through-hole PCB Pins (front or rear lock)
XS3P-M421-2 M8 Screw-mount sockets with Solder Cup Pins (front or rear lock)
XS3P-M422-2 M8 Screw-mount sockets with Solder Cup Pins (rear lock, slim model)

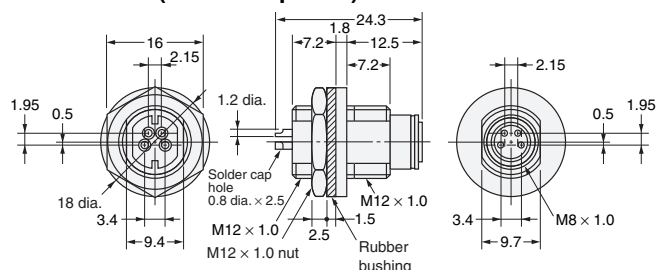
Dimensions

(Unit: mm)

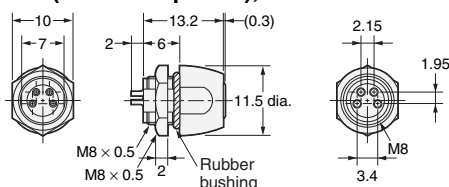
XS3P-M421-1 (Through-hole PCB Pins)



XS3P-M421-2 (Solder Cup Pins)



XS3P-M422-2 (Solder Cup Pins), Rear Lock Slim Models

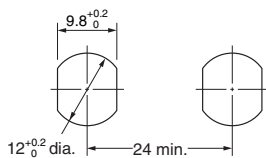


Mounting Dimensions for XS3P Screw-on Models and Snap-in Models

(Unit: mm)

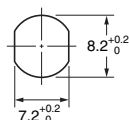
Panel Cutouts

XS3P-□421

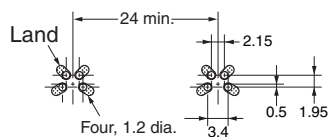


Note: The panel thickness is 1 to 3 mm.

XS3P-M422-2



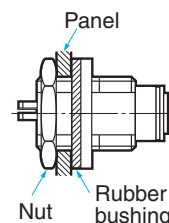
PCB-mounting Dimensions



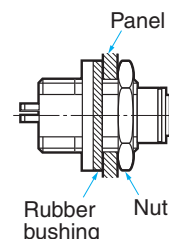
Note: The panel thickness is 2.4 mm maximum.

Panel-mounting Configuration

Rear Lock



Front Lock



Ordering Information

| Connection method | Panel mounting | Pin shape | Model | Minimum order |
|-------------------|-------------------------|-----------------------|--------------------|---------------|
| M8 screw-mounting | Front lock or rear lock | Through-hole PCB pins | XS3P-M421-1 | 50 |
| | | Solder cup pins | XS3P-M421-2 | |
| | Rear lock | Solder cup pins | XS3P-M422-2 | |

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

Safety Precautions

In addition to the following information, also refer to the 'Precautions' section at the end of this datasheet

■ Correct Use - Panel Mounting

- When mounting XS3P Panel-mount Connectors to panels, refer to *Panel-mounting Configuration* 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.

Connectors for Embedding in Sensors

■ XS3M - Plugs

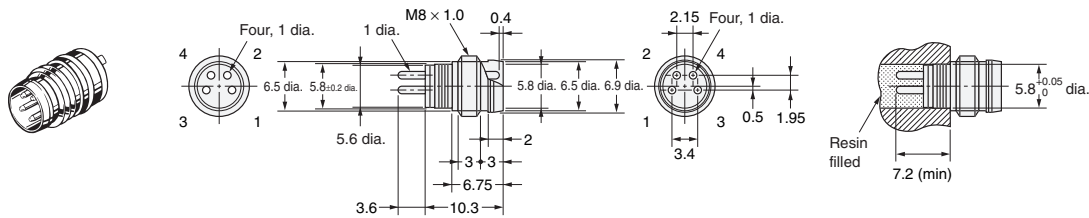
XS3M-K421-1 Embedded Plugs with Screw Threads and Through-hole PCB Pins
XS3M-K421-2 Embedded plugs with Screw Threads and Solder Cup Pins

Dimensions

(Unit: mm)

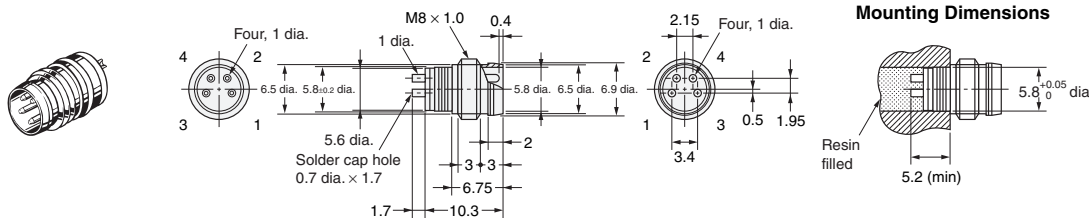
XS3M-K421-1

Embedded Model with Through-hole PCB Pins



XS3M-K421-2

Embedded Model with Solder Cup Pins



Mating Connectors

| Item | Model |
|------|------------|
| XS3M | XS3F, XS3W |

Ordering Information

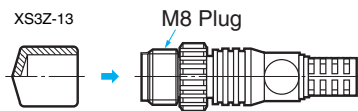
| Connection method | Pin shape | Model | Minimum order |
|-------------------|-----------------------|--------------------|---------------|
| Embedded model | Through-hole PCB pins | XS3M-K421-1 | 200 |
| | Solder cup pins | XS3M-K421-2 | |

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

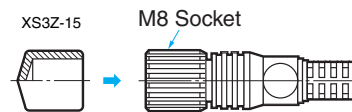
Accessories

Dust Covers

XS3Z-13



XS3Z-15



| Model | Material | Suitable connector | |
|----------------|---------------------------|--------------------|------------------|
| | | Model | Mounting portion |
| XS3Z-13 | Acrylic resin/transparent | XS3H/XS3M | M8 plug |
| XS3Z-15 | | XS3F | M8 socket |

Note: The Dust Covers are for dust prevention and do not ensure IP67 sealability. When mounting a 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.

Precautions

■ Correct Use

Do not use the product in atmospheres or environments that exceed product ratings.

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.

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 disconnect the Connectors by pulling the cable.
- 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 0.2 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.

Cable Wire Color

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

| Model | | Pin No. | | | |
|--------|---------------|---------|-------|------|-------|
| | | 1 | 2 | 3 | 4 |
| For DC | 8-mm-dia. 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

Installation

- Do not make any cable bends near the base of the Unit.
- Any bends made must have a minimum radius of 36 mm.

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ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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