

# Round Water-resistant Connectors (M8/S8)

# XS3

## Small Round Water-resistant Connectors

- Water-resistant, compact connector meets IP67 requirements.
- Conventional M8 screw-on models are available along with S8 snap-in models that connect and disconnect with one touch.
- XS3-R Series; connectors with cables are available. M8 models are UL certified.
- Oil-resistant Polyurethane Robot Cables added.
- M8-M12 conversion cables are also available.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Refer to *Safety Precautions* on page 26.

## Model Number Legend

### Connectors with Cables Model Number Legend

Connector	Cable specifications	XS3: M8 screw connection		Reference page		
		Cable length (m)	Model			
Connectors on both cable ends	Robot cable	1	XS3W-M421-401-R	3		
		2	XS3W-M421-402-R			
		5	XS3W-M421-405-R			
		10	XS3W-M421-410-R			
		20	XS3W-M421-420-R			
	Oil-resistant polyurethane robot cable	1	XS3W-M421-401-PR			
		2	XS3W-M421-402-PR			
		5	XS3W-M421-405-PR			
		10	XS3W-M421-410-PR			
		20	XS3W-M421-420-PR			
Connector on one cable end (Socket)	Standard cable	2	XS3F-M421-402-A	10		
		5	XS3F-M421-405-A			
		10	XS3F-M421-410-A			
	Robot cable	1	XS3F-M421-401-R			
		2	XS3F-M421-402-R			
		5	XS3F-M421-405-R			
	Oil-resistant polyurethane robot cable	10	XS3F-M421-410-R			
		2	XS3F-M421-402-PR			
		5	XS3F-M421-405-PR			
	PUR (low-temperature use) cable	10	XS3F-M421-410-PR			
		2	XS3F-M421-402-L			
	Connector on one cable end (Plug)	Robot cable	5		XS3F-M421-405-L	16
			0.3		XS3H-M421-4C3-R	
			1		XS3H-M421-401-R	
10			XS3H-M421-410-R			
Oil-resistant polyurethane robot cable		20	XS3H-M421-420-R			
		1	XS3H-M421-401-PR			
		2	XS3H-M421-402-PR			
		5	XS3H-M421-405-PR			
		10	XS3H-M421-410-PR			
		20	XS3H-M421-420-PR			

Note: Only DC, straight, and 4-core types are shown in this table. Refer to the relevant pages for other products.

## Ratings and Specifications

Item	Model	XS3F/H/W/P/M	XS3F-M52□-5□□-A	XS3M-M524-1□	XS3R
Rated current		1 ADC	3 ADC		1 ADC
Rated voltage		125 VDC *2	30 VDC		125 VDC
Contact resistance (connector)		40 mΩ max. (20 mV max., 100mA max.)			60 mΩ max. (20 mV max., 100 mA max.)
Insulation resistance		1,000 MΩ min. (at 500 VDC)			
Dielectric strength (connector)		1,000 VAC for 1 min (leakage current: 1 mA max.)	650 VAC for 1 min (leakage current: 1 mA max.)		1,000 VAC for 1 min (leakage current: 1 mA max.)
Degree of protection		IP67 (IEC60529)			
Insertion tolerance		200 times			
Cable tensile strength *1		49 N/15 s			
Ambient operating temperature range		-25 to 70°C *3	-25 to 85°C		-25 to 70°C
Ambient humidity range		20 to 85%RH			

\*1. Models with cable only

\*2. Except 5 poles

\*3. Use the robot cable within a temperature range between 0°C and 70°C to prevent the wires inside the cable from being broken when bending it.

## Materials and Finish

### Connector

Item	Type Model	M8			S8	
		XS3F/H/W/R	XS3P/M *1	XS3M-M524-1□	XS3F/W (Socket side)	XS3H/W (Plug side)
Contacts		Phosphor bronze/nickel base, gold plating	Brass/nickel base, gold plating		Phosphor bronze/nickel base, gold plating	Brass/nickel base, gold plating
Fixture		Brass/nickel plating or SUS316L		—	Brass/nickel plating	—
Contact block		PBT resin (UL94 V-0)				
O-ring		Rubber				
Cover		Soft PBT resin *2	—		TPEE	—

\*1. Except 5 poles

\*2. Except XS3R-M426-4050-PR. Material of the cover of XS3R-M426-4050-PR: PBT resin

Note: The XS3M is for both M8 and S8.

### Cables

Item	Poles	3 poles	4 poles	5 poles
Standard cable		4 mm dia, AWG24 (0.2 mm <sup>2</sup> )		4.7 mm dia, AWG24 (0.2 mm <sup>2</sup> )
Robot Cable		4 mm dia, AWG24		—
Oil-resistant polyurethane robot cable		—	4.7 mm dia, AWG23 (0.3 mm <sup>2</sup> )	—

Note: Only the XS3F (socket) is available with 5 poles.

### Pin Arrangement (Engaged Side)

Item	Poles	3 poles	4 poles	5 poles
DC	Male (plug) contacts			
	Female (socket) contacts			

# XS3W Connectors with Cables, Connectors on Both Cable Ends (Socket/Plug)

## Model Number Structure

### Model Number Legend

Use this model number legend to identify products from their model number. 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-**     **2**   -       -  

1
2
3
4
5
6

#### 1. Fastening Method

M: M8  
S: S8

#### 2. Connector Poles

3: 3 poles  
4: 4 poles

#### 3. Cable Connection Direction

1: Straight (socket)/  
Straight (plug)  
2: Right-angle (socket)/  
Right-angle (plug)  
3: Straight (socket)/  
Right-angle (plug)  
4: Right-angle (socket)/  
Straight (plug)

#### 4. Connections (Numbers inside circles are terminal numbers)

3: ① Brown, ② Blue, ③ Black  
4: ① Brown, ② White,  
③ Blue, ④ Black

#### 5. Cable Length

01: 1 m  
02: 2 m  
05: 5 m  
10: 10 m  
20: 20 m

#### 6. Cable Specifications

R : Robot cable  
PR : Oil-resistant polyurethane  
robot cable

## Ordering Information

### M8 Screw-on Connectors

Cable specifications	No. of cable cores	Cable connection direction	Cable length L (m)	Model	UL
Robot cable	3	Straight (Socket)/Straight (Plug)	1	XS3W-M321-301-R	UL2238 certified (File no. E207683)
			2	XS3W-M321-302-R	
			5	XS3W-M321-305-R	
			10	XS3W-M321-310-R	
	4	Straight (Socket)/Straight (Plug)	1	XS3W-M421-401-R	
			2	XS3W-M421-402-R	
			5	XS3W-M421-405-R	
			10	XS3W-M421-410-R	
			20	XS3W-M421-420-R	
		Right-angle (Socket)/Right-angle (plug)	1	XS3W-M422-401-R	
			2	XS3W-M422-402-R	
			5	XS3W-M422-405-R	
			10	XS3W-M422-410-R	
			20	XS3W-M422-420-R	
		Straight (Socket)/Right-angled (Plug)	1	XS3W-M423-401-R	
			2	XS3W-M423-402-R	
			5	XS3W-M423-405-R	
			10	XS3W-M423-410-R	
			20	XS3W-M423-420-R	
		Right-angle (Socket)/Straight (Plug)	1	XS3W-M424-401-R	
2	XS3W-M424-402-R				
5	XS3W-M424-405-R				
10	XS3W-M424-410-R				
20	XS3W-M424-420-R				
Oil-resistant polyurethane robot cable	4	Straight (Socket)/Straight (plug)	1	XS3W-M421-401-PR	---
			2	XS3W-M421-402-PR	
			5	XS3W-M421-405-PR	
			10	XS3W-M421-410-PR	
			20	XS3W-M421-420-PR	

Cable specifications	No. of cable cores	Cable connection direction	Cable length L (m)	Model	UL
Oil-resistant polyurethane robot cable	4	Right-angle (Socket)/Right-angle (Plug)	1	XS3W-M422-401-PR	---
			2	XS3W-M422-402-PR	
			5	XS3W-M422-405-PR	
			10	XS3W-M422-410-PR	
			20	XS3W-M422-420-PR	
		Straight (Socket)/Right-angled (Plug)	1	XS3W-M423-401-PR	
			2	XS3W-M423-402-PR	
			5	XS3W-M423-405-PR	
			10	XS3W-M423-410-PR	
			20	XS3W-M423-420-PR	
		Right-angle (socket)/Straight (Plug)	1	XS3W-M424-401-PR	
			2	XS3W-M424-402-PR	
			5	XS3W-M424-405-PR	
			10	XS3W-M424-410-PR	
			20	XS3W-M424-420-PR	

**S8 Snap-in Connectors**

Cable specifications	No. of cable cores	Cable connection direction	Cable length L (m)	Model	UL
Robot cable	4	Straight (Socket)/Straight (Plug)	1	XS3W-S421-401-R	---
			2	XS3W-S421-402-R	
			5	XS3W-S421-405-R	
		Right-angle (Socket)/Right-angle (Plug)	2	XS3W-S422-402-R	
			5	XS3W-S422-405-R	
		Straight (Socket)/Right-angled (Plug)	2	XS3W-S423-402-R	
			5	XS3W-S423-405-R	
		Right-angle (Socket)/Straight (Plug)	2	XS3W-S424-402-R	
			5	XS3W-S424-405-R	

Note: Ask your OMRON representative about other cable lengths.

**Ratings and Specifications**

**Pin Arrangement (Engaged Side)**

Item	No. of poles	3 poles	4 poles
DC type	Male (plug) contacts		
	Female (socket) contacts		

**Connections**

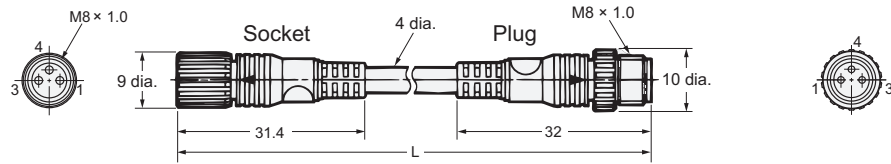
Model	Socket side	Plug side
XS3W (M8)	XS3M (M8/S8) XS3H (M8)	XS3F (M8) XS3W (M8) XS3P (M8)
XS3W (S8)	XS3M (M8/S8) XS3H (S8)	XS3F (S8) XS3W (S8) XS3P (S8)

- 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.
- 3. Only plugs and sockets with the same poles can be connected to each other.

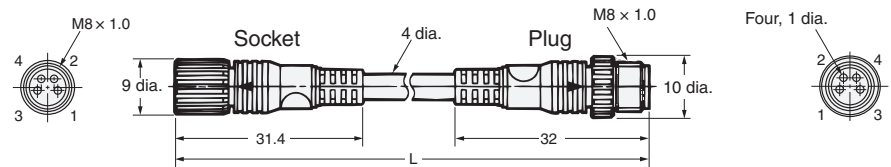
Dimensions

M8 Screw-on Connectors with Robot Cable

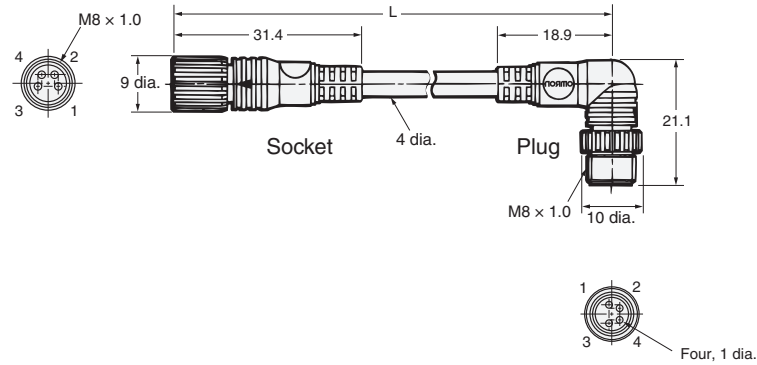
Straight (Socket)/Straight (Plug)  
XS3W-M321-3□□-R (3 poles)



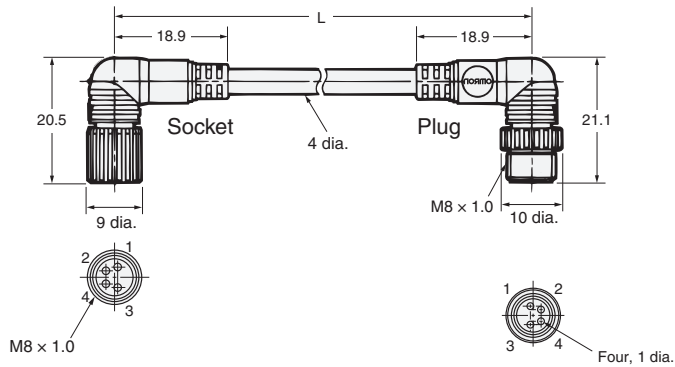
XS3W-M421-4□□-R (4 poles)



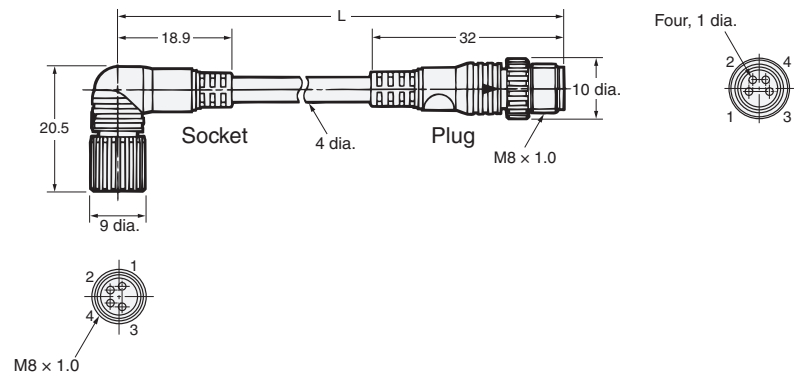
Straight (Socket)/Right-angle (Plug)  
XS3W-M423-4□□-R (4 poles)



Right-angle (Socket)/Right-angle (Plug)  
XS3W-M422-4□□-R (4 poles)

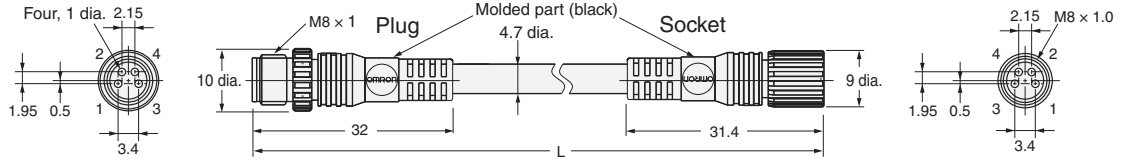


Right-angle (Socket)/Straight (Plug)  
XS3W-M424-4□□-R (4 poles)

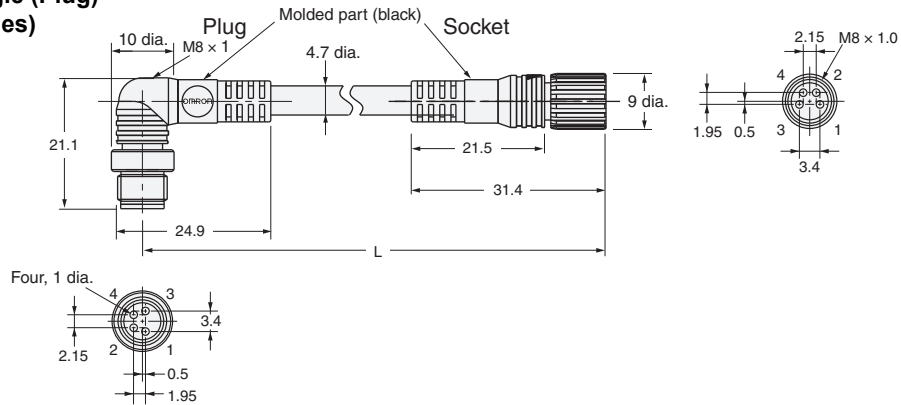


M8 Screw-on Connectors with Oil-resistant Polyurethane Robot Cable

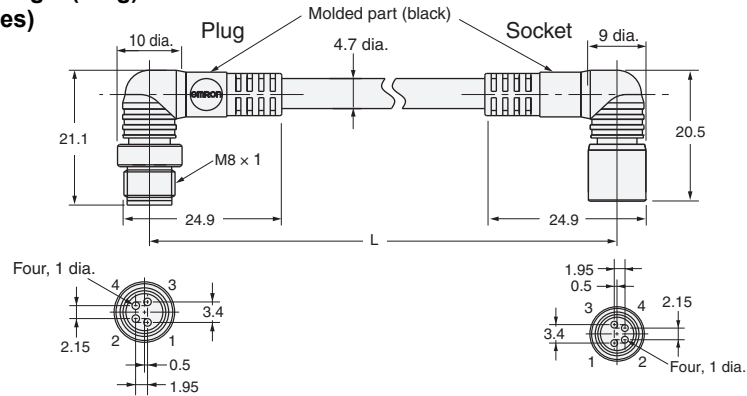
Straight (Socket)/Straight (Pug)  
XS3W-M421-4□□-PR (4 poles)



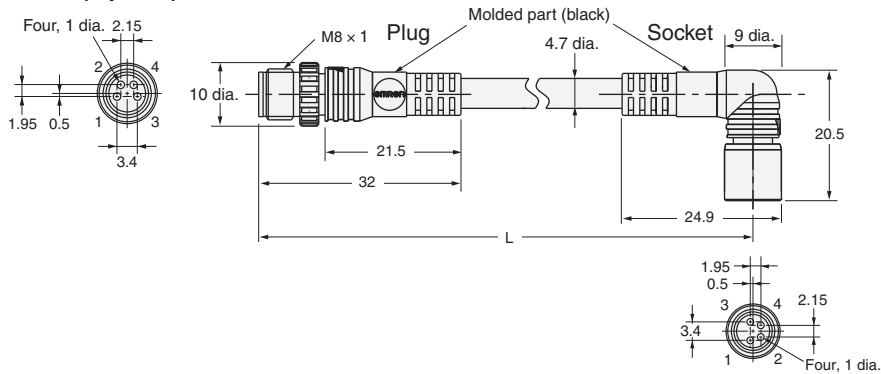
Straight (Socket)/Right-angle (Plug)  
XS3W-M423-4□□-PR (4 poles)



Right-angle (Socket)/Right-angle (Plug)  
XS3W-M422-4□□-PR (4 poles)

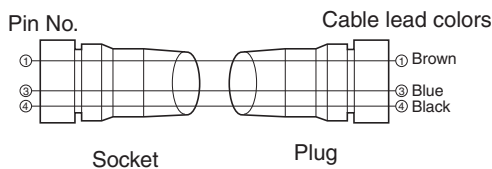


Right-angle (Socket)/Straight (Plug)  
XS3W-M424-4□□-PR (4 poles)

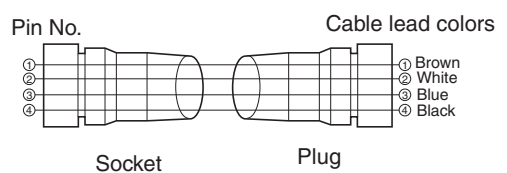


Wiring Diagram

3 Cores

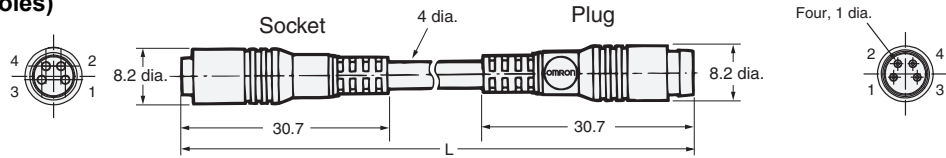


4 Cores

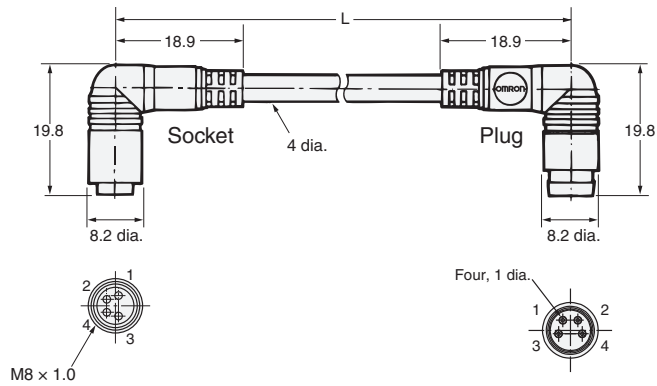


S8 Snap-in Connectors with Robot Cable

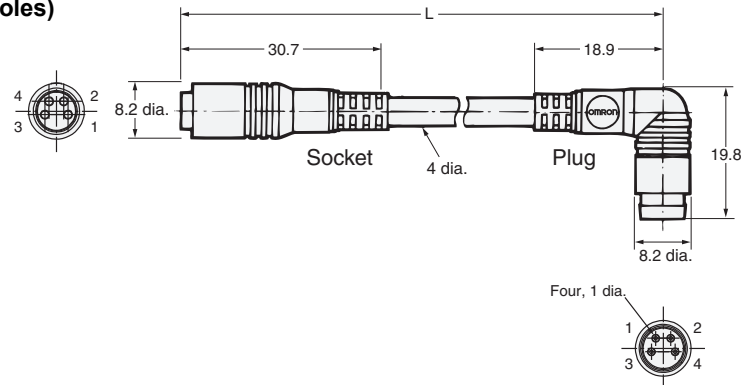
Straight (Socket)/Straight (Plug)  
XS3W-S421-4□□-R (4 poles)



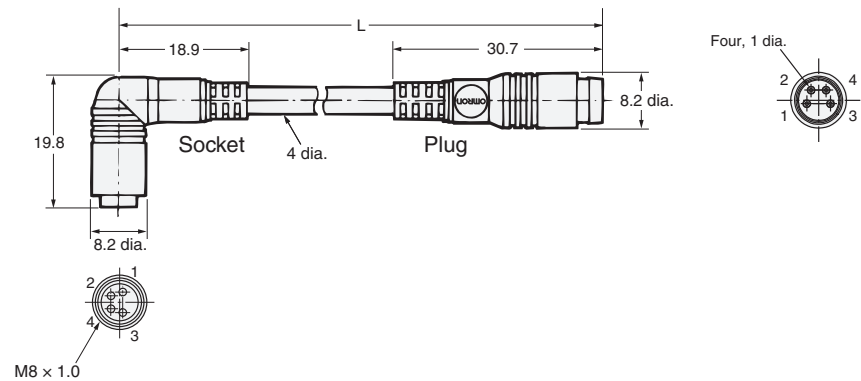
Right-angle (Socket)/Right-angle (Plug)  
XS3W-S422-4□□-R (4 poles)



Straight (Socket)/Right-angle (Plug)  
XS3W-S423-4□□-R (4 poles)

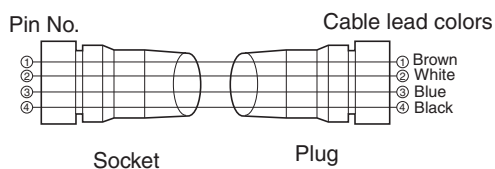


Right-angle (Socket)/Straight (Plug)  
XS3W-S424-4□□-R (4 poles)



Wiring Diagram

4 Cores



# XS3W Connectors with Cables, Connectors on Both Cable Ends (M8 Socket/M12 Plug or M8 Plug/M12 Socket)

## Model Number Structure

### Model Number Legend

Use this model number legend to identify products from their model number. 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-M** **2** **-** **C2-A**

1
2
3
4
5
6

#### 1. Fastening Method

M: M8

#### 2. Connector Poles

3: 3 poles

4: 4 poles

#### 3. Cable Connection Direction

C: M8 screw-on, straight (socket)

/M12 Smartclick, straight (plug)

D: M12 Smartclick, straight (socket)

/M8 screw-on, straight (plug)

#### 4. Connections (Numbers inside circles are terminal numbers)

3: ① Brown, ② Blue, ③ Black

4: ① Brown, ② White, ③ Blue, ④ Black

#### 5. Cable Length

C2: 20 cm

#### 6. Cable Specifications

A: Standard cable

## Ordering Information

Cable specifications	No. of cable cores	Cable connection direction	Cable length L (m)	Model	UL
Standard cable	3	M8 screw-on, straight (Socket)/ M12 Smartclick, straight (Plug)	0.2	<b>XS3W-M32C-3C2-A</b>	---
		M12 Smartclick, straight (Socket)/ M8 screw-on, straight (Plug)		<b>XS3W-M32D-3C2-A</b>	
	4	M8 screw-on, straight (Socket)/ M12 Smartclick, straight (Plug)		<b>XS3W-M42C-4C2-A</b>	
		M12 Smartclick, straight (Socket)/ M8 screw-on, straight (Plug)		<b>XS3W-M42D-4C2-A</b>	

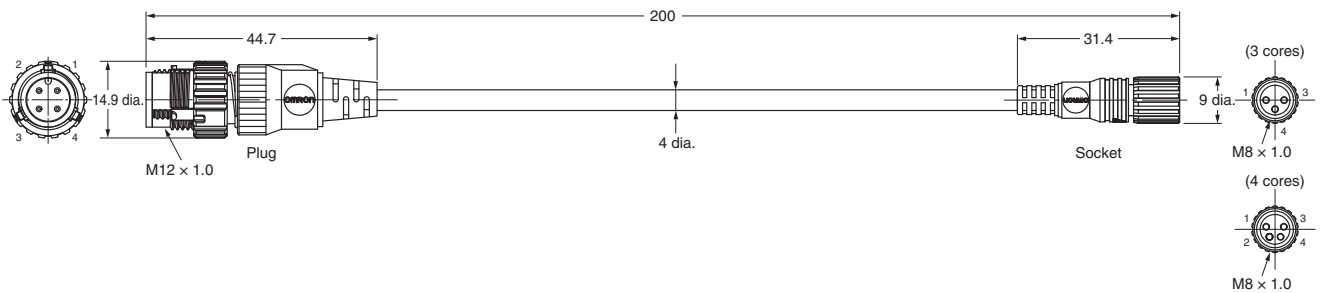
Smartclick is a trademark or registered trademark of OMRON Corporation in Japan and other countries.



Dimensions

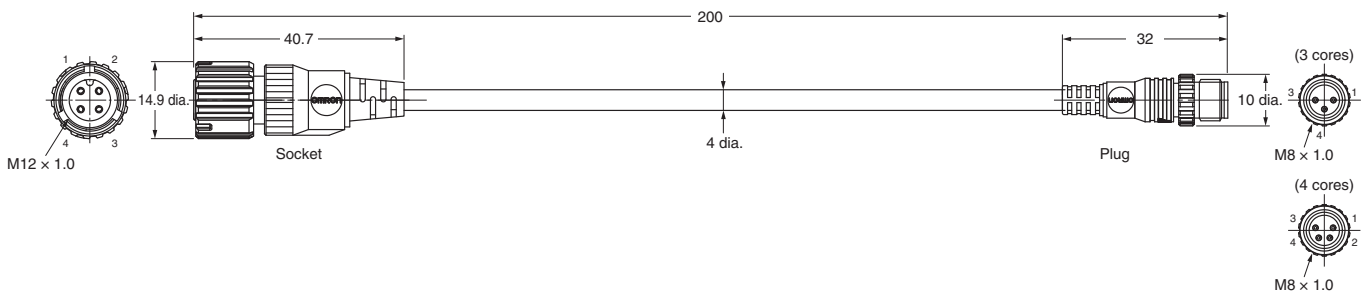
M8 Screw-on Connectors, Straight (Socket)/M12 Smartclick Connectors, Straight (Plug)

XS3W-M32C-3C2-A (3 poles)  
 XS3W-M42C-4C2-A (4 poles)



M12 Smartclick Connectors, Straight (Socket)/M8 screw-on Connectors, Straight (Plug)

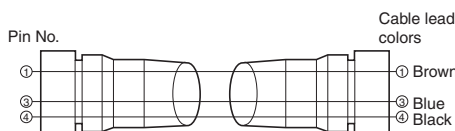
XS3W-M32D-3C2-A (3 poles)  
 XS3W-M42D-4C2-A (4 poles)



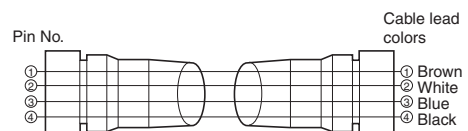
Note: For 3-core, M12 connectors, pin 2 is not connected internally.

Wiring Diagram

3 Cores

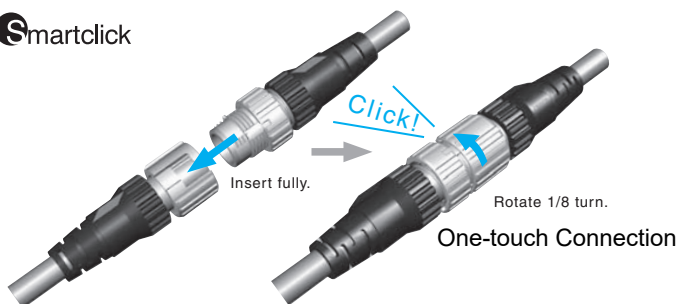


4 Cores



For the M12 connectors, one-touch (Smartclick) connectors that are compatible with previous screw-on M12 connectors are used. Refer to your OMRON website for details.

XS5 Series



# XS3F Connectors with Cables, Sockets on One Cable End

## Model Number Structure

### 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-**  **2** **-**   **-** 

1
2
3
4
5
6

#### 1. Fastening Method

M: M8  
S: S8  
E: M8  
SUS316L Lock

#### 2. Connector Poles

3: 3 poles  
4: 4 poles  
5: 5 poles

#### 3. Cable Connection Direction

1: Straight  
2: Right-angle

#### 4. Connections (Numbers inside circles are terminal numbers)

3: ① Brown, ② Blue, ③ Black  
4: ① Brown, ② White, ③ Blue, ④ Black  
5: ① Brown, ② White, ③ Blue, ④ Black, ⑤ Gray

#### 5. Cable Length

01: 1 m  
02: 2 m  
05: 5 m  
10: 10 m

#### 6. Cable Specifications

A: Standard cable  
L: PUR cable (low-temperature use)  
R: Robot cable  
PR: Oil-resistant polyurethane robot cable

## Ordering Information

### M8 Screw-on Connectors

Cable specifications	No. of cable cores	Cable connection direction	Cable length L (m)	Model	UL	
Standard cable	3	Straight	2	XS3F-M321-302-A	---	
			5	XS3F-M321-305-A		
		Right-angle	2	XS3F-M322-302-A		
			5	XS3F-M322-305-A		
Robot cable		Straight	1	XS3F-M321-301-R	UL2238 certified (File no. E207683)	
			2	XS3F-M321-302-R		
			5	XS3F-M321-305-R		
			10	XS3F-M321-310-R		
	Right-angle		2	XS3F-M322-302-R		
			5	XS3F-M322-305-R		
10		XS3F-M322-310-R				
Standard cable	4	Straight	2	XS3F-M421-402-A	---	
			5	XS3F-M421-405-A		
			10	XS3F-M421-410-A		
		Right-angle	2	XS3F-M422-402-A		
			5	XS3F-M422-405-A		
			10	XS3F-M422-410-A		
Standard SUS316L cable lock		Straight	2	XS3F-E421-402-A	---	
			5	XS3F-E421-405-A		
			Right-angle	2		XS3F-E422-402-A
				5		XS3F-E422-405-A
Robot cable		Straight	1	XS3F-M421-401-R	UL2238 certified (File no. E207683)	
			2	XS3F-M421-402-R		
	5		XS3F-M421-405-R			
	10		XS3F-M421-410-R			
	Right-angle		1	XS3F-M422-401-R		
			2	XS3F-M422-402-R		
			5	XS3F-M422-405-R		
			10	XS3F-M422-410-R		
Oil-resistant polyurethane robot cable	Straight	2	XS3F-M421-402-PR	---		
		5	XS3F-M421-405-PR			
		10	XS3F-M421-410-PR			
		Right-angle	1		XS3F-M422-401-PR	
			2		XS3F-M422-402-PR	
			5		XS3F-M422-405-PR	
PUR cable (low-temperature use)	Straight	2	XS3F-M421-402-L	---		
		5	XS3F-M421-405-L			
		Right-angle	2		XS3F-M422-402-L	
			5		XS3F-M422-405-L	
Standard cable	5	Straight	2	XS3F-M521-502-A	---	
			5	XS3F-M521-505-A		
			10	XS3F-M521-510-A		
		Right-angle	2	XS3F-M522-502-A		
			5	XS3F-M522-505-A		
			10	XS3F-M522-510-A		

### S8 Snap-in Connectors

Cable specifications	No. of cable cores	Cable connection direction	Cable length L (m)	Model	UL
Robot cable	4	Straight	1	XS3F-S421-401-R	---
			2	XS3F-S421-402-R	
			5	XS3F-S421-405-R	
		Right-angle	1	XS3F-S422-401-R	
			2	XS3F-S422-402-R	
			5	XS3F-S422-405-R	

Note: Ask your OMRON representative about other cable lengths.

## Connections

Model	Mating Connectors
XS3F (M8)	XS3M (M8/S8), XS3H (M8), XS3W (M8)
XS3F (S8)	XS3M (M8/S8), XS3H (S8), XS3W (S8)

Note 1. M8 screw models and S8 snap-in models cannot be connected to each other.  
 2. Only plugs and sockets with the same poles can be connected to each other.

## Dimensions

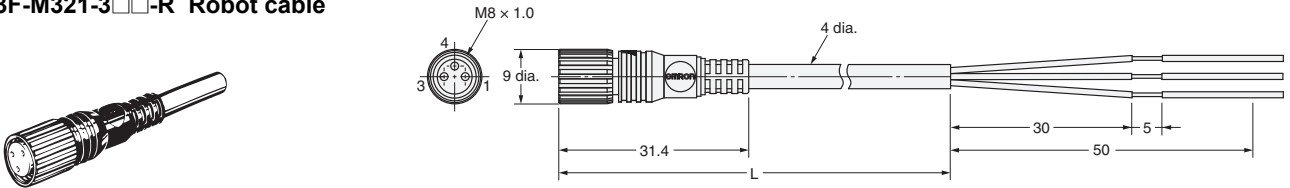
(Unit: mm)

### M8 Screw-on Connectors (3 poles)

#### Straight

XS3F-M321-3□□-A Standard cable

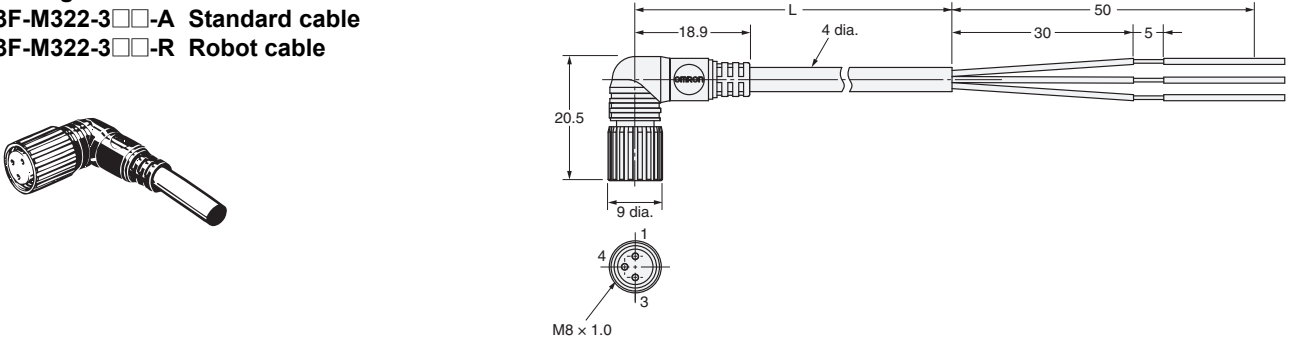
XS3F-M321-3□□-R Robot cable



#### Right-angle

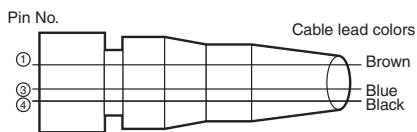
XS3F-M322-3□□-A Standard cable

XS3F-M322-3□□-R Robot cable



## Wiring Diagram

### 3 Cores

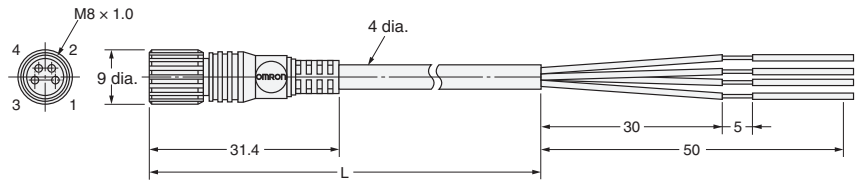


**M8 Screw-on Connectors (4 poles)**

**Straight**

XS3F-M421-4□□-A Standard cable

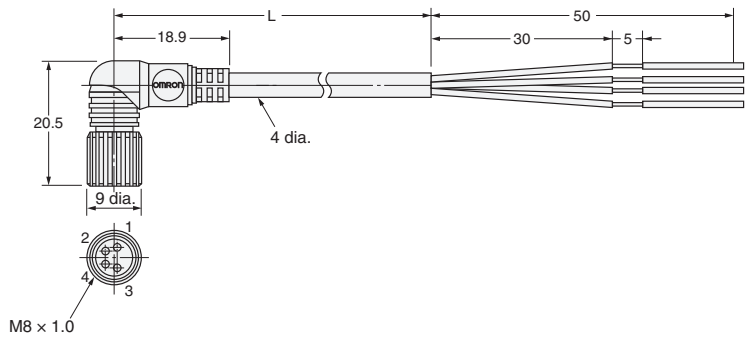
XS3F-M421-4□□-R Robot cable



**Right-angle**

XS3F-M422-4□□-A Standard cable

XS3F-M422-4□□-R Robot cable

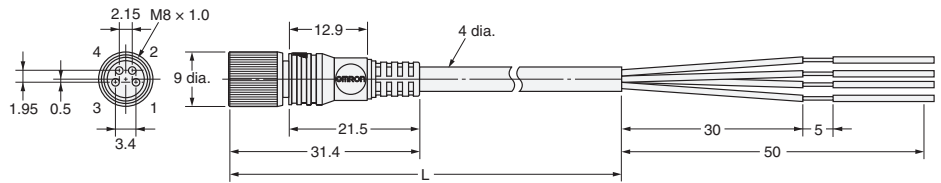
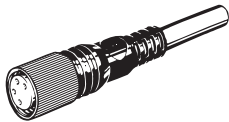


**M8 SUS316L Lock (4 poles)**

**Straight**

XS3F-E421-402-A Standard cable

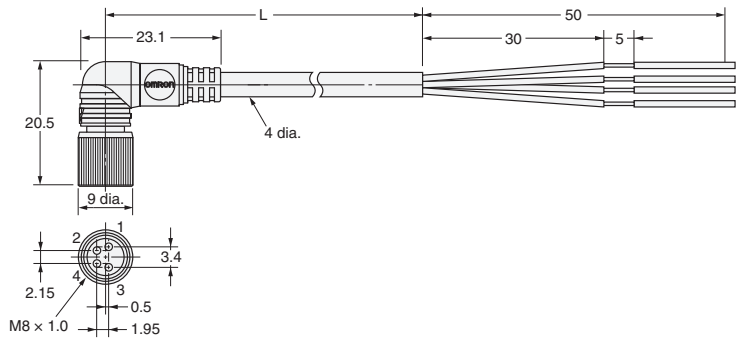
XS3F-E421-405-A Standard cable



**Right-angle**

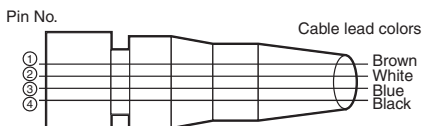
XS3F-E422-402-A Standard cable

XS3F-E422-405-A Standard cable



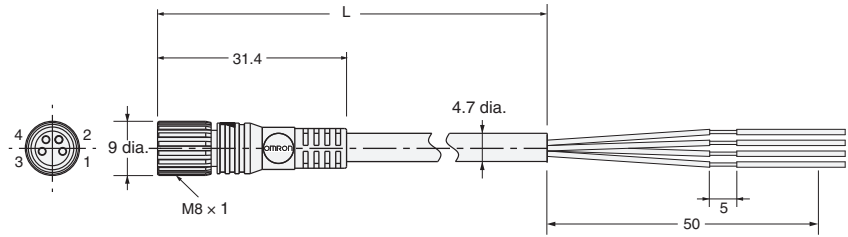
**Wiring Diagram**

**4 Cores**

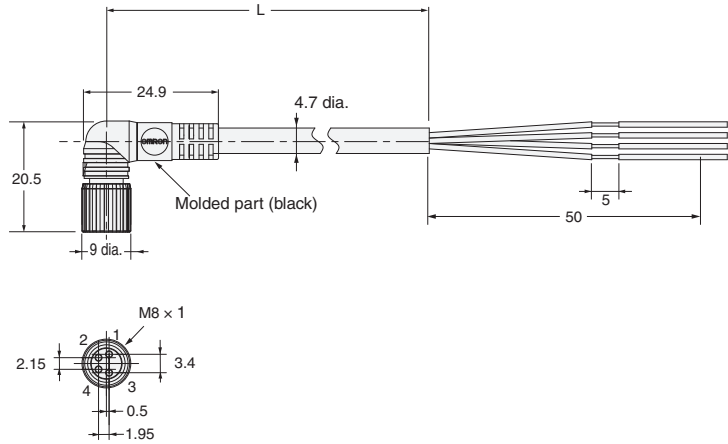


**M8 Screw-on Connectors (4 poles)**

**Straight**  
 Oil-resistant polyurethane robot cable  
 XS3F-M421-4□□-PR  
 PUR cable  
 XS3F-M421-4□□-L

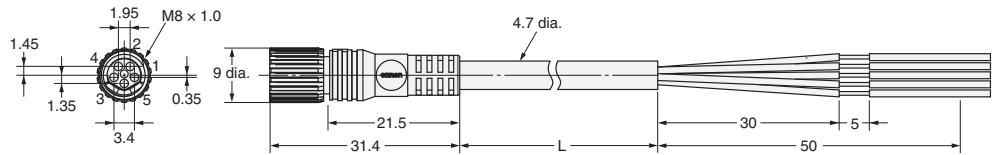


**Right-angle**  
 Oil-resistant polyurethane robot cable  
 XS3F-M422-4□□-PR  
 PUR cable  
 XS3F-M422-4□□-L

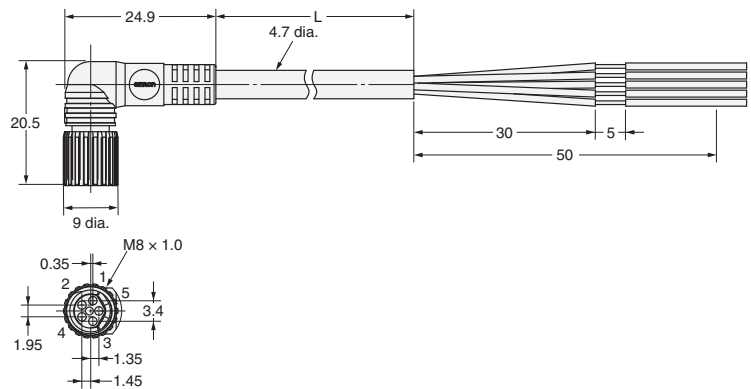


**M8 Screw-on Connectors (5 poles)**

**Straight**  
 XS3F-M521-5□□-A Standard cable

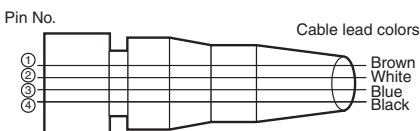


**Right-angle**  
 XS3F-M522-5□□-A Standard cable

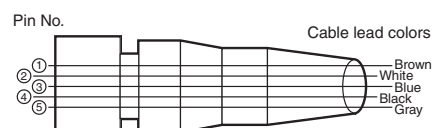


**Wiring Diagram**

**4 Cores**



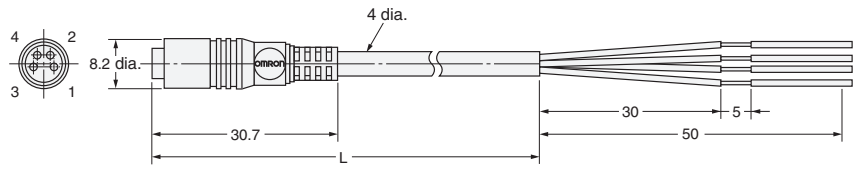
**5 Cores**



S8 Snap-in Connectors (4 poles)

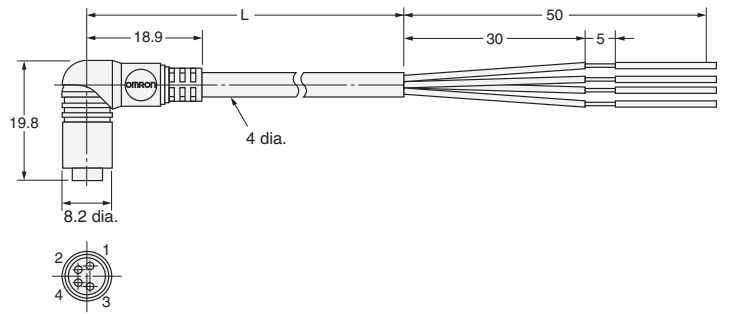
Straight

XS3F-S421-4□□-R Robot cable



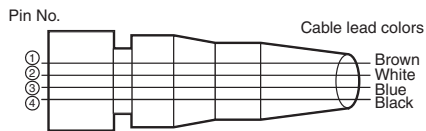
Right-angle

XS3F-S422-4□□-R Robot cable



Wiring Diagram

4 Cores



# XS3H Plugs on One Cable End

## Model Number Structure

### 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-**  **2** **-**   **-** 

1
2
3
4
5
6

#### 1. Fastening Method

M: M8  
S: S8

#### 2. Connector Poles

3: 3 poles  
4: 4 poles

#### 3. Cable Connection Direction

1: Straight  
2: Right-angle

#### 4. Connections (Numbers inside circles are terminal numbers)

3: ① Brown, ② Blue, ③ Black  
4: ① Brown, ② White, ③ Blue, ④ Black

#### 5. Cable Length

C3: 0.3 m  
01: 1 m  
02: 2 m  
05: 5 m  
10: 10 m  
20: 20 m

#### 6. Cable Specifications

R: Robot cable  
PR: Oil-resistant polyurethane robot cable

## Ordering Information

### M8 Screw-on Connectors

Cable specifications	No. of cable cores	Cable connection direction	Cable length L (m)	Model	UL
Robot cable	3	Straight	0.3	XS3H-M321-3C3-R	UL2238 certified (File no. E207683)
			1	XS3H-M321-301-R	
	4	Straight	0.3	XS3H-M421-4C3-R	
			1	XS3H-M421-401-R	
			10	XS3H-M421-410-R	
			20	XS3H-M421-420-R	
		Right-angle	0.3	XS3H-M422-4C3-R	
			1	XS3H-M422-401-R	
			10	XS3H-M422-410-R	
			20	XS3H-M422-420-R	
Oil-resistant polyurethane robot cable	4	Straight	1	XS3H-M421-401-PR	---
			2	XS3H-M421-402-PR	
			5	XS3H-M421-405-PR	
			10	XS3H-M421-410-PR	
			20	XS3H-M421-420-PR	
		Right-angle	1	XS3H-M422-401-PR	
			2	XS3H-M422-402-PR	
			5	XS3H-M422-405-PR	
			10	XS3H-M422-410-PR	
			20	XS3H-M422-420-PR	

Note: Ask your OMRON representative about other cable lengths.

### S8 Snap-in Connectors

Cable specifications	No. of cable cores	Cable connection direction	Cable length L (m)	Model	UL
Robot cable	4	Straight	0.3	XS3H-S421-4C3-R	---
			1	XS3H-S421-401-R	
		Right-angle	0.3	XS3H-S422-4C3-R	
			1	XS3H-S422-401-R	



## Connections

Model	Mating Connectors
XS3H (M8)	XS3F (M8), XS3W (M8), XS3P (M8)
XS3H (S8)	XS3F (S8), XS3W (S8), XS3P (S8)

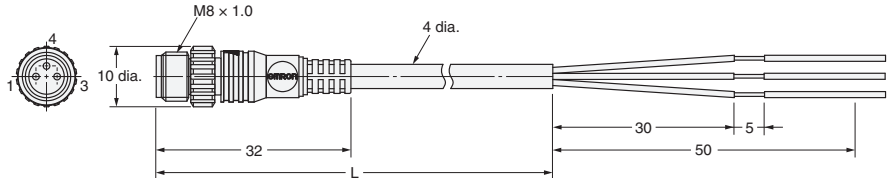
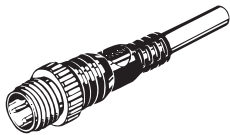
Note 1. M8 screw models and S8 snap-in models cannot be connected to each other.  
 2. Only plugs and sockets with the same poles can be connected to each other.

## Dimensions

(Unit: mm)

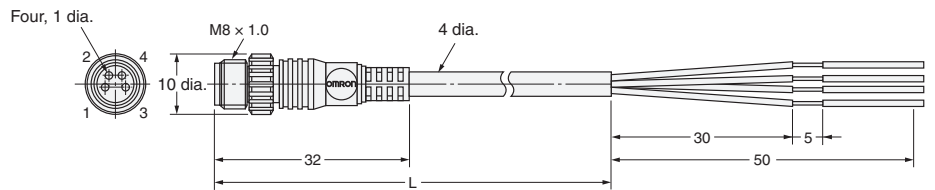
### M8 Screw-on Connectors (3 poles)

**Straight**  
**XS3H-M321-3□□-R Robot Cable**

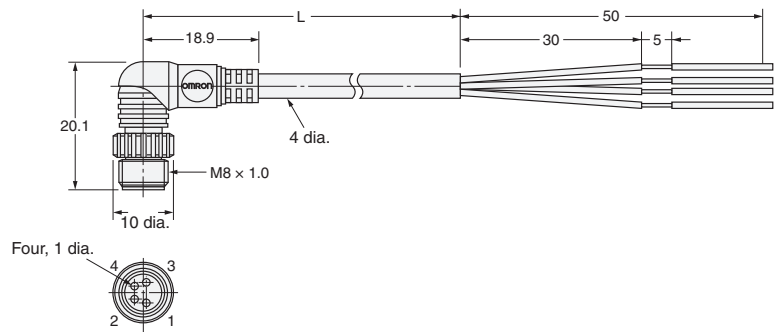
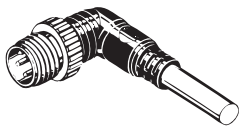


### M8 Screw-on Connectors (4 poles)

**Straight**  
**XS3H-M421-4□□-R Robot Cable**

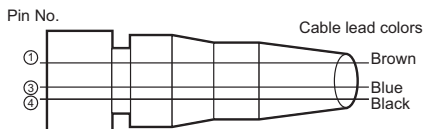


**Right-angle**  
**XS3H-M422-4□□-R Robot Cable**

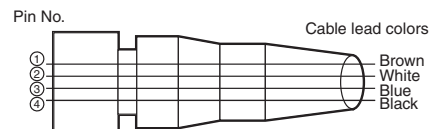


## Wiring Diagram

**3 Cores**

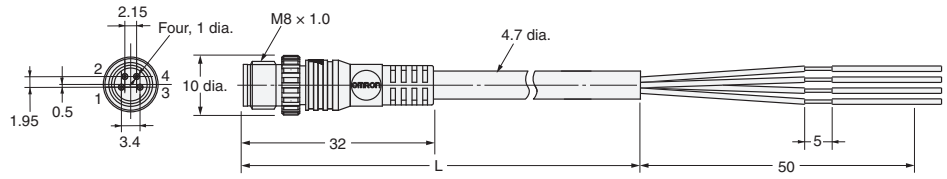


**4 Cores**

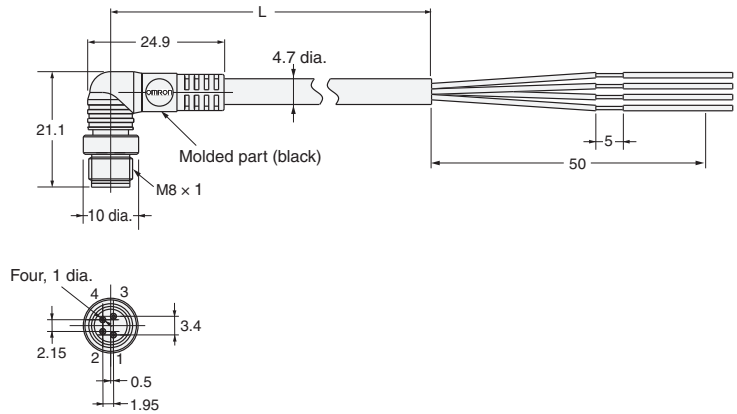


**M8 Screw-on Connectors (4 poles)**

**Straight**  
**XS3H-M421-4□□-PR Oil-resistant Polyurethane Robot Cable**

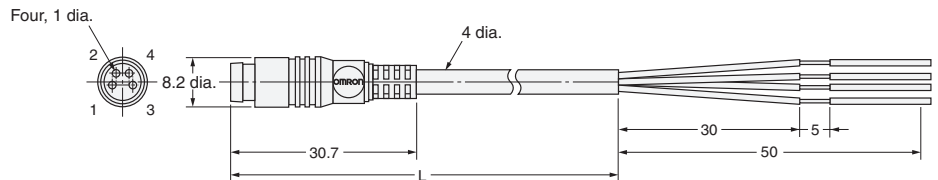


**Right-angle**  
**XS3H-M422-4□□-PR Oil-resistant Polyurethane Robot Cable**

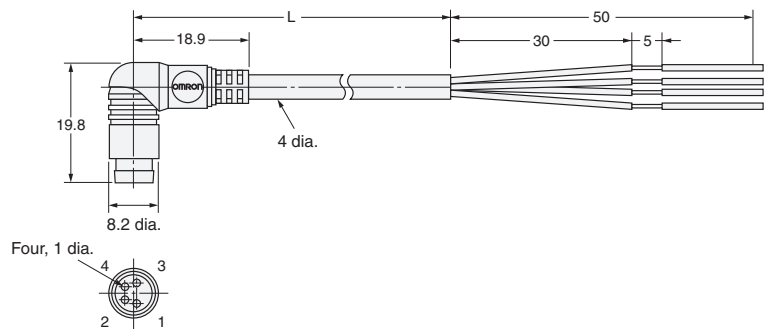


**S8 Snap-in Connectors (4 poles)**

**Straight**  
**XS3H-S421-4□□-R Robot Cable**

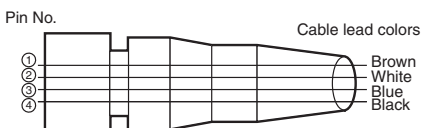


**Right-angle**  
**XS3H-S422-4□□-R Robot Cable**



**Wiring Diagram**

**4 Cores**



# XS3P Panel-mounting Sockets for Terminal Boxes

## Ordering Information

Connection method	Connector Poles	Panel mounting	Pin shape	Applicable wires	Model	UL
M8 screw-on	4	Front lock or rear lock	DIP pins	—	<b>XS3P-M421-1</b>	---
			Solder cup pins	AWG24 max.	<b>XS3P-M421-2</b>	
		Rear lock	Solder cup pins	AWG24 max.	<b>XS3P-M422-2</b>	
S8 snap-in		Front lock or rear lock	DIP pins	—	<b>XS3P-S421-1</b>	
			Solder cup pins	AWG24 max.	<b>XS3P-S421-2</b>	

## Connections

Model	Mating Connectors
XS3P (M8)	XS3H (M8), XS3W (M8)
XS3P (S8)	XS3H (S8), XS3W (S8)

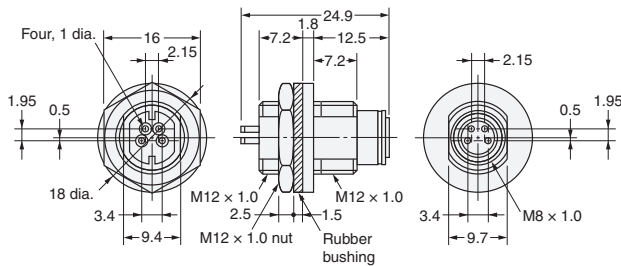
Note 1. M8 screw models and S8 snap-in models cannot be connected to each other.  
 2. Only plugs and sockets with the same poles can be connected to each other.

## Dimensions

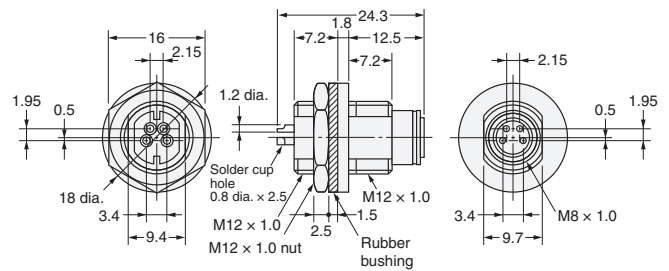
(Unit: mm)

### M8 Screw-on Connectors

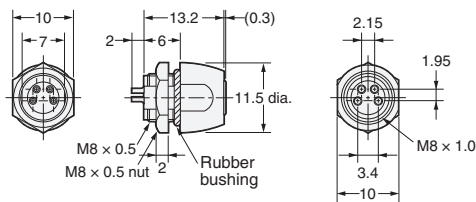
#### XS3P-M421-1 (DIP Pins) Front lock or rear lock



#### XS3P-M421-2 (Solder Cup Pins) Front lock or rear lock

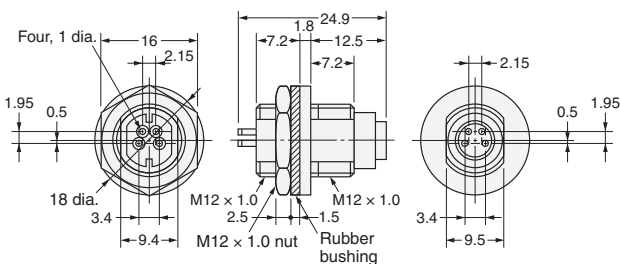


#### XS3P-M422-2 (Solder Cup Pins), Rear Lock Slim Models

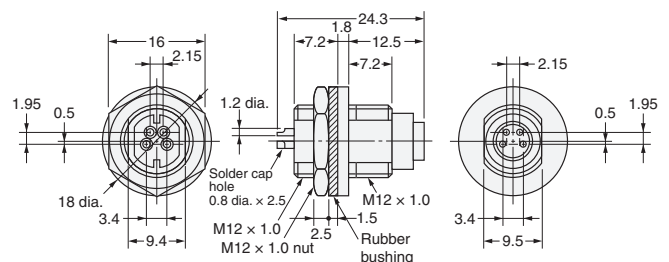


### S8 Snap-in Connectors

#### XS3P-S421-1 (DIP Pins) Front lock or rear lock

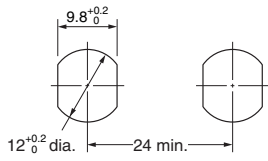


#### XS3P-S421-2 (Solder Cup Pins) Front lock or rear lock



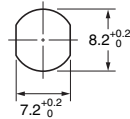
**Mounting Dimensions for XS3P Screw-on Models and Snap-in Models**

**Panel Cutout**  
XS3P-□421-□

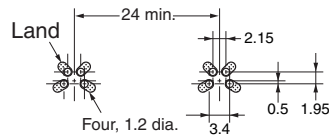


Note: The panel thickness is 1 to 3 mm.

**XS3P-M422-2**



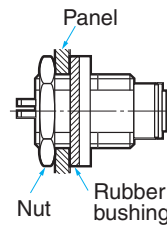
**PCB-mounting Dimensions**



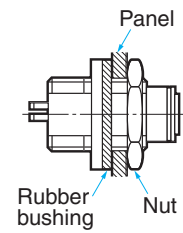
Note: The panel thickness is 2.4 mm maximum.

**Panel-mounting Dimensions**

**Rear lock**



**Front Lock**



**Safety Precautions**

Refer to *Safety Precautions* on page 26.

**Precautions for Correct Use**

**Panel-Mounting**

- When mounting XS3P Panel-mounting Connectors to panels, refer to Panel-mounting Dimensions 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 Sensor-Embedded Plugs

## Ordering Information

Mounting method	Connector Poles	Pin shape	Applicable wires	Model	UL
Embedded model	4	DIP pins	—	<b>XS3M-K421-1</b>	—
		Solder cup pins	AWG26 max.	<b>XS3M-K421-2</b>	

## Connections

Model	Mating Connectors
XS3M	XS3F (M8/S8), XS3W (M8/S8)

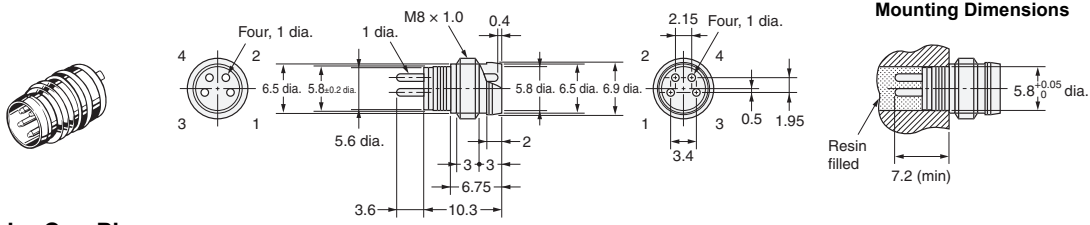
Note 1. The plug can be connected to both M8 screw and S8 snap-in models.  
 2. Only plugs and sockets with the same poles can be connected to each other.

## Dimensions

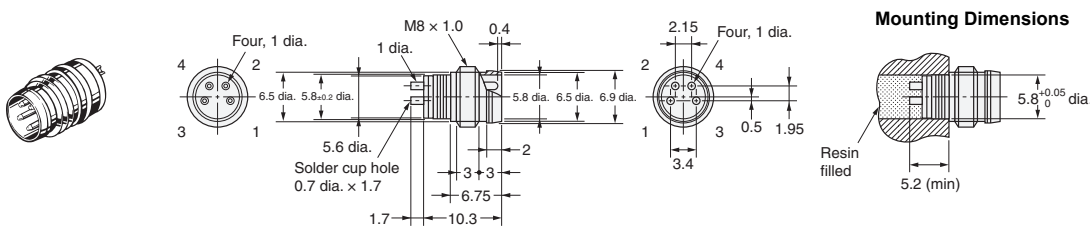
(Unit: mm)

### Embedded Plug with Screw Threads

#### DIP Pins XS3M-K421-1



#### Solder Cup Pins XS3M-K421-2



# XS3M Panel-mounting Plugs

## Ordering Information

Mounting method	Connector Poles	Pin shape	Shield pin	Applicable wires	Model	UL
Front Lock	5	DIP pins 4.5 mm (for either round holes or solder cups)	No	AWG26 max.	<b>XS3M-M524-10</b>	—
			Yes		<b>XS3M-M524-11</b>	

## Connections

Model	Mating Connectors
XS3M-M524-1□	XS3F-M52□-5□□-A

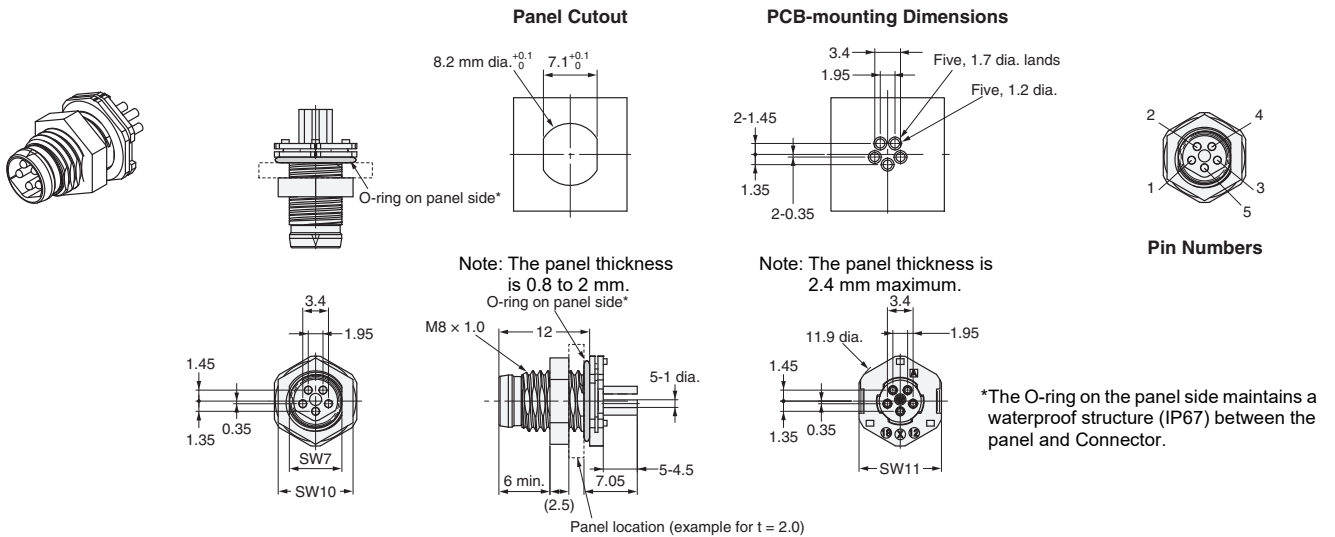
Note: Only plugs and sockets with the same poles can be connected to each other.

## Dimensions

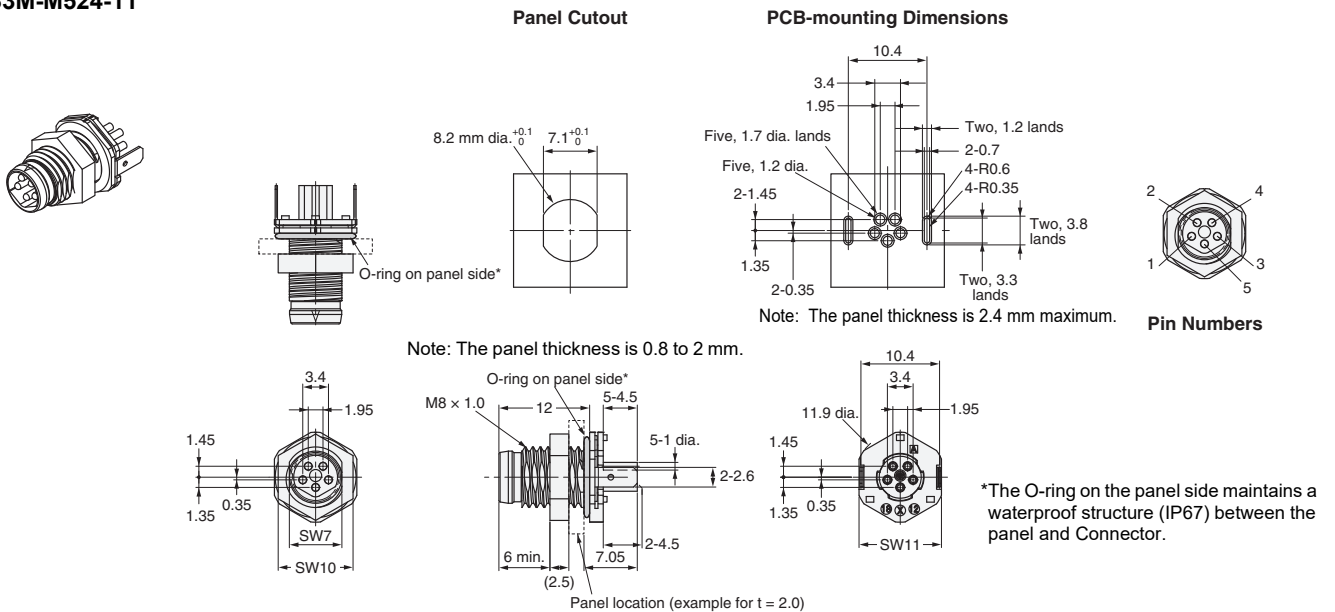
(Unit: mm)

### Front lock (5 pins)

#### DIP Pins 4.5 mm (for Either Round Holes or Solder Cups), Without Shield Pin XS3M-M524-10



#### DIP Pins 4.5 mm (for Either Round Holes or Solder Cups), With Shield Pin XS3M-M524-11



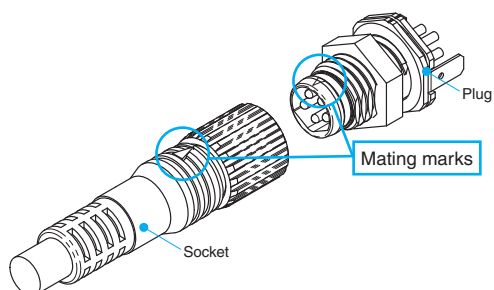
## Safety Precautions

Refer to *Safety Precautions* on page 26.

### Precautions for Correct Use

#### XS3M-M524-□□ Connection

To mate the Connectors, align the mating marks on the Plug and Socket (see following figure), insert the Connectors completely, and tighten the lock nut, being careful not to damage the threads.



#### XS3M-M524-□□ Panel Mounting

After you mount the Connector to the panel, attach the nut and tighten it to a suitable torque (0.4 N·m).

# XS3R Y-Joint Plug/Socket Connectors

## Ordering Information

For M8 Connectors

Cable	Connector	Cable length L (m)	Model	UL
With cable	Connectors on both cable ends	0.5	XS3R-M426-1C51-A	—
		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	
Robot cable	Connector on one cable end	5	XS3R-M426-1050-R	UL2238 certified (File no. E207683)
Oil-resistant polyurethane robot cable	Connector on one cable end	5	XS3R-M426-4050-PR *	—
Without cable	Connectors on both cable ends	—	XS3R-M426-1	—
		—	XS3R-M426-5	

\*XS3R-M426-4050-PR is dedicated to wiring of 2-wire sensors.

## Connections

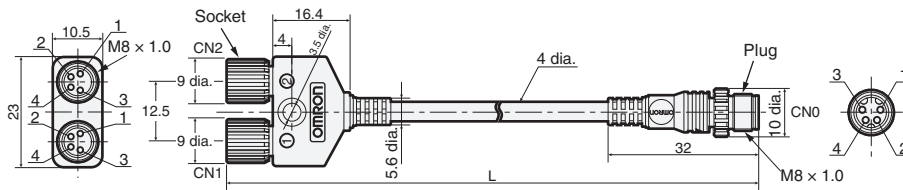
Model	Mating Connectors
XS3R (M8)	XS3F (M8)
	XS3H (M8)
	XS3W (M8)
	XS3P (M8)
	XS3R (M8)

## Dimensions

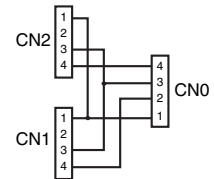
(Unit: mm)

### M8 Screw-on Connectors

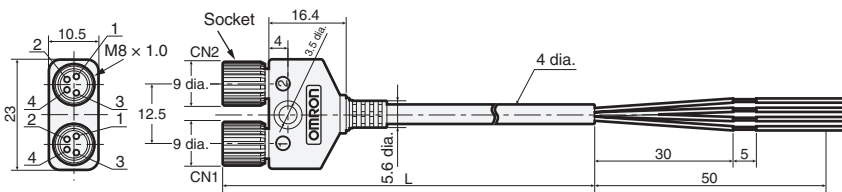
#### Connectors on Both Cable Ends (Y-Joint Plug/Socket) XS3R-M426-1□□1-A With cable



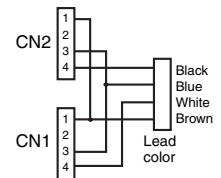
#### Wiring Diagram



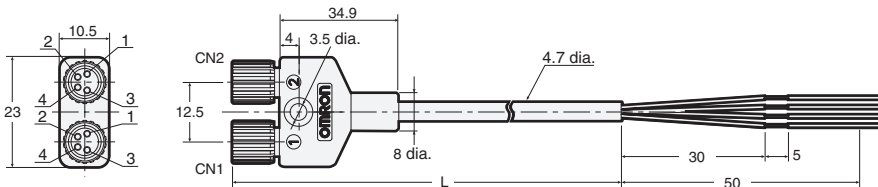
#### Connector on One Cable End (Y-Joint Plug/Socket) XS3R-M426-1□□0-A With cable XS3R-M426-1□□0-R Robot cable



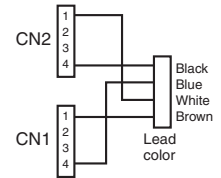
#### Wiring Diagram



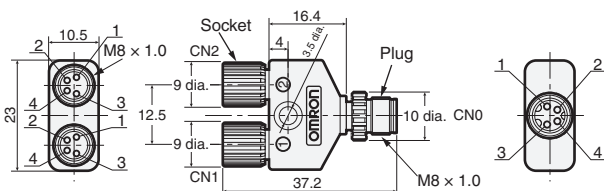
#### Connector on One Cable End (Y-Joint Plug/Socket) XS3R-M426-4□□0-PR Oil-resistant polyurethane robot cable



#### Wiring Diagram

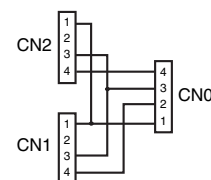


#### Connector on Both Ends (Y-Joint Plug/Socket) without Cable XS3R-M426-□

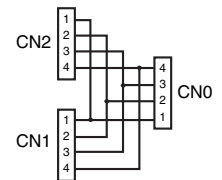


#### Wiring Diagram

##### XS3R-M426-1



##### XS3R-M426-5



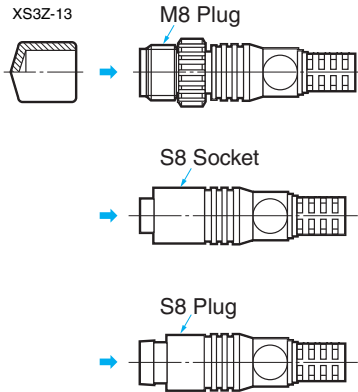


**Common Accessories and Tools (Order Separately)**

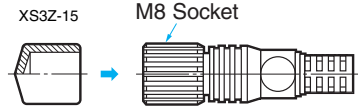
**Ordering Information**

**Dust Covers**

**XS3Z-13**



**XS3Z-15**



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.

Model	Material	Suitable connector	
		Model	Mounting portion
XS3Z-13	PVC resin/red	XS3H/XS3W/XS3R	M8 plug
		XS3F/XS3W	S8 socket
		XS3H/XS3W	S8 plug
		XS3M	M8/S8 plug
XS3Z-15		XS3F/XS3W/XS3R	M8 socket

## Safety Precautions

### Precautions for 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.
- You cannot mate Connectors that have a different number of poles.
- When using Sensors with Connectors or Limit Switches, use the Sensor I/O Connectors specified in the catalog.
- Do not connect M8 screw-on 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 disconnect the Connectors by pulling the cable.
- Do not touch the mating surface of the connectors 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 mating section 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.
- When you tighten or loosen a thread bracket, hold onto only the thread bracket.  
If you hold onto the cover or cable, excessive rotational force will be applied to the Connector and may damage it.
- 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 become loose due to vibration.

#### 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 mating section 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

#### Setup

- 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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**Note: Do not use this document to operate the Unit.**

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**CSM\_8\_1**

**Cat. No. G147-E1-06 1224 (0820)**