Chipsmall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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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.
- Connectors with Cables are UL certified.
- Based on IEC61076-2-101 (IEC60947-5-2) and NECA 4202.

⚠ Refer to *Safety Precautions* on page 30.

Model Number Legend

Connectors with Cables Model Number Legend

Connector	Cable specifications	XS2: M12 Screw Connection			XS5: One-touch Smartclick Connection * (compatible with M12 connectors)	
		Cable length (m)	Model	Reference page	Cable length (m)	Model
Connectors on both cable ends	Fire-retardant, robot cable	0.5	—	4	0.5	XS5W-D421-B81-F
		1	XS2W-D421-C81-F		1	XS5W-D421-C81-F
		2	XS2W-D421-D81-F		2	XS5W-D421-D81-F
		3	XS2W-D421-E81-F		3	XS5W-D421-E81-F
		4	—		4	XS5W-D421-F81-F
		5	XS2W-D421-G81-F		5	XS5W-D421-G81-F
		10	XS2W-D421-J81-F		10	XS5W-D421-J81-F
	Spatter-resistant cable	2	XS2W-D421-D81-SA		2	XS5W-D421-D81-SA
		5	XS2W-D421-G81-SA		5	XS5W-D421-G81-SA
Connector on one cable end (Socket)	Fire-retardant, robot cable	1	XS2F-D421-C80-F	5	1	XS5F-D421-C80-F
		2	XS2F-D421-D80-F		2	XS5F-D421-D80-F
		3	—		3	XS5F-D421-E80-F
		5	XS2F-D421-G80-F		5	XS5F-D421-G80-F
		10	XS2F-D421-J80-F		10	XS5F-D421-J80-F
	Spatter-resistant cable	2	XS2F-D421-D80-SA		2	XS5F-D421-D80-SA
		5	XS2F-D421-G80-SA		5	XS5F-D421-G80-SA
Connector on one cable end (Plug)	Fire-retardant, robot cable	0.3	XS2H-D421-A80-F	11	0.3	XS5H-D421-A80-F
		0.5	XS2H-D421-B80-F		0.5	XS5H-D421-B80-F
		1	XS2H-D421-C80-F		1	XS5H-D421-C80-F
		2	XS2H-D421-D80-F		2	XS5H-D421-D80-F
		3	—		3	XS5H-D421-E80-F
		5	XS2H-D421-G80-F		5	XS5H-D421-G80-F
	Spatter-resistant cable	0.3	XS2H-D421-A80-SA		0.3	XS5H-D421-A80-SA
		1	XS2H-D421-C80-SA		1	XS5H-D421-C80-SA

*For details, refer to the data sheet of the XS5 Round Water-resistant Connectors (M12 Smartclick).
Note 1. Only DC, straight, 4-core types, and common cable specifications are shown above. Refer to the relevant pages for other products.
2. Other than the M12 sizes introduced above, M8-sized (XS3) products are also available.
For details, refer to the data sheet of the XS3 Round Water-resistant Connectors (M8/S8).

XS2: M12 Screw Connection

Socket side

Plug side

XS5: One-touch Smartclick Connection*
(compatible with M12 screws)
Note: Screw connections will be made if connecting with a screw type.

Socket side

Plug side

Turn approx. 1/8 of a turn to connect | Connections can be checked using markings

*For details, refer to the data sheet of the XS5 Round Water-resistant Connectors (M12 Smartclick).

Ratings and Specifications

Rated current	4 A
Rated voltage	250 VAC/VDC
Contact resistance (Connector)	40 mΩ max. (20 mV max. and 100 mA max.)
Insulation resistance	1,000 MΩ min. (at 500 VDC)
Dielectric strength (Connector)	1,500 VAC for 1 min (leakage current: 1 mA max.)
Degree of protection	IP67 (IEC60529)
Insertion tolerance	200 times
Cable holding strength	Cable diameter: 6 mm 98 N/15 s 4 to 5 mm 49 N/15 s 3 mm 29 N/15 s
Ambient operating temperature range	−25 to 70°C *
Ambient humidity range	20% to 85%

*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.

Socket Appearance

DC type		AC type	
Male (plug) contacts	Female (socket) contacts	Male (plug) contacts	Female (socket) contacts

Note: The AC and DC mating section forms are different as shown here and therefore cannot be connected together.

Materials and Finish

Item	Model	XS2F/H/W	XS2F-LED	XS2M/R/P	XS2C/G
Contacts	Materials	Phosphor bronze		Brass	
	Finish	Nickel base, 0.4-μm gold plating			
Thread bracket	Materials	Brass *			
	Finish	Nickel plated *			
Pin block	Materials	PBT resin (UL94V-0)		PA resin (UL94V-0)	PBT resin (UL94V-0)
	Color	For DC: light gray; for AC: dark gray			
O-ring		Rubber			
Cover		Soft PBT resin (UL94V-0)	TPU resin (UL94HB)	—	PBT resin (UL94V-0)
Cable	Fire-retardant, Robot cable	UL AWM2464 CL3, 6 mm dia. AWG20 (0.5 mm^2) Structure: 0.08 mm/110 wires	—	—	—
	Non-polar DC Connectors with Standard cable	6 mm dia. AWG20 (0.5 mm^2) Structure: 0.12 mm/45 wires	—	—	—
	E2E models with conventional connector pin with Fire-retardant, Robot cable	UL AWM2464 CL3, 6 mm dia. AWG20 (0.5 mm^2) Structure: 0.08 mm/110 wires	—	—	—
	Heat-resistant cable up to 105°C	6 mm dia. AWG20 (0.5 mm^2) Structure: 0.12 mm/45 wires	—	—	—
	Spatter-resistant cable	6.6 mm dia. AWG20 (0.5 mm^2) Structure: 0.08 mm/100 wires	—	—	—
	Standard cable (XS2F-LED)	—	UL AWM2464 5.0 mm dia. (3 conductors) 5.4 mm dia. (4 conductors) 0.34 mm^2 Structure: 0.1 mm/43 wires	—	—

*The T-joint of the XS2R is aluminum/white.

XS2W Sockets and Plugs on Both Cable Ends

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*.

XS2W-D☐2☐-☐☐1-☐☐
  1   2 3 4 5   6 7 8   9

1. Type

W: Connectors with cables, socket and plug on both 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: Right-angle/Right-angle
3: Straight (socket)/Right-angle (plug)
4: Right-angle (socket)/Straight (plug)

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

Terminal No.					Terminal No				
①	②	③	④		①	②	③	④	⑤
8:	Brown	White	Blue	Black (for DC)	G:	Brown	White	Blue	Black	Gray

8. Connectors on One End/Both Ends

1: Both ends

9. Cable Specifications

F: Fire-retardant, Robot cable
SA: Spatter-resistant cable

XS2W Sockets and Plugs on Both Cable Ends

Ordering Information

Cable specifications	Cable connection direction	Cable diameter (mm)	No. of cable cores	Cable core cross-sectional area (mm²)	Cable length L (m)	DC Model	UL
Fire-retardant, Robot cable	Straight/Straight	6.0 dia.	4	0.5	1	XS2W-D421-C81-F	Yes
					2	XS2W-D421-D81-F	
					3	XS2W-D421-E81-F	
					5	XS2W-D421-G81-F	
					10	XS2W-D421-J81-F	
	Right-angle/Right-angle				2	XS2W-D422-D81-F	
					5	XS2W-D422-G81-F	
	Straight (Socket)/Right-angle (Plug)				2	XS2W-D423-D81-F	
					5	XS2W-D423-G81-F	
	Right-angle (Socket)/Straight (Plug)				2	XS2W-D424-D81-F	
					5	XS2W-D424-G81-F	
Spatter-resistant cable	Straight/Straight	6.6 dia.			2	XS2W-D421-D81-SA	—
					5	XS2W-D421-G81-SA	

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

Dimensions

(Unit: mm)

Straight/Straight
Fire-retardant, Robot cable
XS2W-D421-□81-F

Spatter-resistant cable
XS2W-D421-D81-SA

14.9 dia. — 40.7 — L — 44.7 — 14.9 dia.
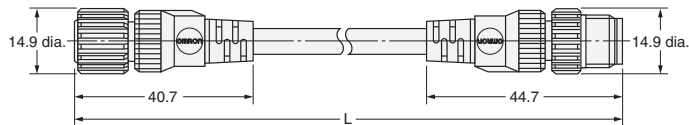
Right-angle/Right-angle
Fire-retardant, Robot cable
XS2W-D422-□81-F

14.9 dia. — 28.3 — 25.3 — L — 25.3 — 32.3 — 14.9 dia.
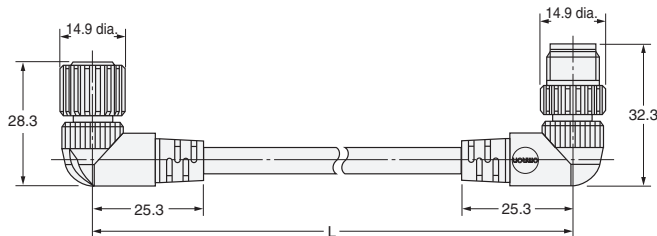
Straight (Socket)/Right-angle (Plug)
Fire-retardant, Robot cable
XS2W-D423-□81-F

14.9 dia. — 40.7 — L — 25.3 — 32.3 — 14.9 dia.
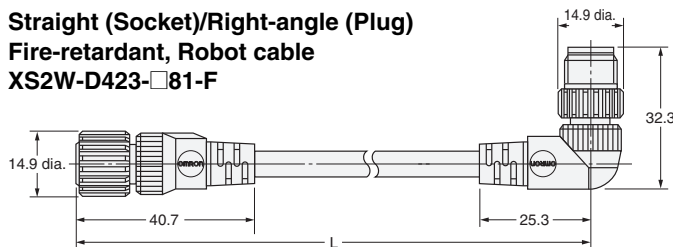
Right-angle (Socket)/Straight (Plug)
Fire-retardant, Robot cable
XS2W-D421-□81-F

14.9 dia. — 28.3 — 25.3 — L — 44.7 — 14.9 dia.
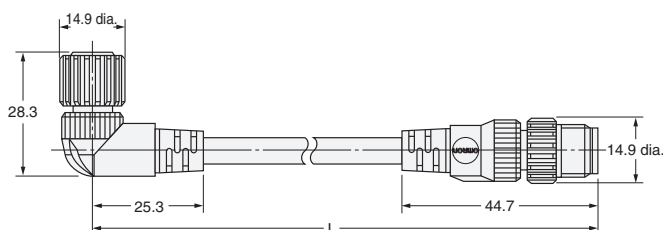
Wiring Diagram for 4 Cores

Contact No.
① ② ③ ④

Cable lead colors
① Brown
② White
③ Blue
④ Black (DC)
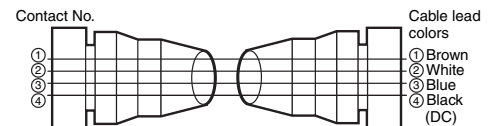
Wiring Diagram for 5 Cores

Contact No.
① ② ③ ④ ⑤

Cable lead colors
① Brown
② White
③ Blue
④ Black
⑤ Gray
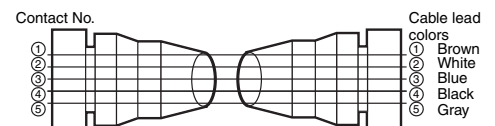
XS2F Socket on One Cable End

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.*

XS2F-☐☐2☐-☐☐0-☐☐
 1   2 3 4 5   6 7 8   9
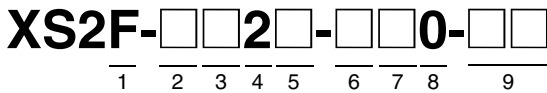
1. Type

F: Connector with cables, socket on one cable end

2. AC/DC (Mating Section Form)

A: For AC
D: For DC
E: For DC, stainless steel lock

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: Right-angle

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), 5 m (G) and 10 m (J) cables are available for cables with 5 poles.

7. Connections

Terminal No.				Terminal No				
①	②	③	④	①	②	③	④	⑤
A: Brown	---	---	Blue (for DC)	G: Brown	White	Blue	Black	Gray
B: ---	---	Brown	Blue (for AC)					
C: Brown	---	Blue	Black					
D: ---	---	Blue	Brown					
8: Brown	White	Blue	Black (for DC)					
9: Brown	White	Blue	Black (for AC)					

8. Connectors on One End/Both Ends

0: One end

9. Cable Specifications

F: Standard cable (Fire-retardant, Robot cable)
E: Heat-resistant cable up to 105°C
SA: Spatter-resistant cable
E type and SA type is a 4-core cable.

Designations for Non-polar DC
(For Limit Switches and Sensors)

6. Cable Length

3: 2 m
4: 5 m

7. Connections

Terminal 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 non-polar DC.

XS2F Socket on One Cable End

Ordering Information

Cable specifications	Cable connection direction	No. of cable cores	Cable diameter (mm)	Cable core cross-sectional area (mm²)	Cable length L (m)	DC Model	AC Model	UL
Fire-retardant, Robot cable	Straight	2	6.0 dia.	0.5	1	XS2F-D421-CA0-F	XS2F-A421-CB0-F	Yes
		3				XS2F-D421-CC0-F	—	
		4				XS2F-D421-C80-F	XS2F-A421-C90-F	
		2			2	XS2F-D421-DA0-F	XS2F-A421-DB0-F	
		3				XS2F-D421-DC0-F	—	
		4				XS2F-D421-D80-F	XS2F-A421-D90-F	
		2			5	XS2F-D421-GA0-F	XS2F-A421-GB0-F	
		3				XS2F-D421-GC0-F	—	
		4				XS2F-D421-G80-F	XS2F-A421-G90-F	
		2			10	XS2F-D421-JA0-F	XS2F-A421-JB0-F	
		3				XS2F-D421-JC0-F	—	
		4				XS2F-D421-J80-F	XS2F-A421-J90-F	
	Right-angle	2			1	XS2F-D422-CA0-F	XS2F-A422-CB0-F	
		3				XS2F-D422-CC0-F	—	
		4				XS2F-D422-C80-F	—	
		2			2	XS2F-D422-DA0-F	XS2F-A422-DB0-F	
		3				XS2F-D422-DC0-F	—	
		4				XS2F-D422-D80-F	—	
		2			5	XS2F-D422-GA0-F	XS2F-A422-GB0-F	
		3				XS2F-D422-GC0-F	—	
		4				XS2F-D422-G80-F	—	
		2			10	XS2F-D422-JA0-F	XS2F-A422-JB0-F	
		3				XS2F-D422-JC0-F	—	
		4				XS2F-D422-J80-F	—	
Non-polar DC Connectors with Standard cable	Straight	2			2	XS2F-D421-310	XS2F-A421-310	—
		2			5	XS2F-D421-410	XS2F-A421-410	
	Right-angle	2			2	XS2F-D422-310	XS2F-A422-310	
		2			5	XS2F-D422-410	XS2F-A422-410	
E2E models with conventional connector pin with Fire-retardant, Robot cable	Straight	2			2	XS2F-D421-DD0	—	—
		2			5	XS2F-D421-GD0	—	
	Right-angle	2			2	XS2F-D422-DD0	—	
		2			5	XS2F-D422-GD0	—	
Heat-resistant cable up to 105°C *	Straight	4			2	XS2F-E421-D80-E	—	—
					5	XS2F-E421-G80-E	—	
	Right-angle				2	XS2F-E422-D80-E	—	
					5	XS2F-E422-G80-E	—	
Spatter-resistant cable	Straight	4	6.6 dia.		2	XS2F-D421-D80-SA	—	—
					5	XS2F-D421-G80-SA	—	

Note: Ask your OMRON representative about other cable lengths.
*The heat-resistant fixture material is SUS316L stainless steel without surface treatment.

Dimensions

(Unit: mm)

Straight Connectors
Fire-retardant, Robot cable
XS2F-D421-□□0-F
XS2F-A421-□□0-F
Non-polar DC Connectors with Standard cable
XS2F-D421-□□0
XS2F-A421-□□0
E2E models with conventional connector pin with Fire-retardant, Robot cable
XS2F-D421-□□0
Heat-resistant cable up to 105°C
XS2F-E421-□80-E
Spatter-resistant cable
XS2F-D421-□80-SA

M12 × 1 ← 45°
5 dia.
M12 × 1 ← 45°
5 dia.
DC **AC**
14.9 dia.
6 dia.
40.7
L
30 5
50
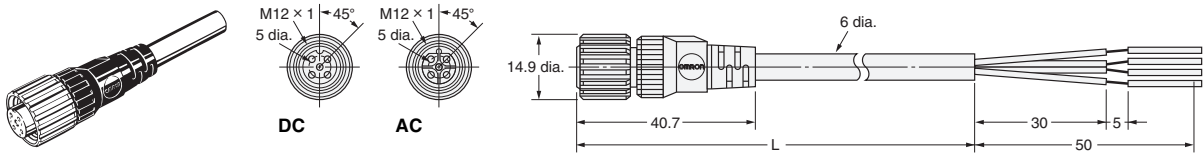
Right-angle Connectors
Fire-retardant, Robot cable
XS2F-D422-□□0-F
XS2F-A422-□□0-F
Non-polar DC Connectors with Standard cable
XS2F-D422-□□0
XS2F-A422-□□0
E2E models with conventional connector pin with Fire-retardant, Robot cable
XS2F-D422-□□0
Heat-resistant cable up to 105°C
XS2F-E422-□80-E
Spatter-resistant cable
XS2F-D421-□80-SA

L
25.3
6 dia.
28.3
30 5
50
14.9 dia.
M12 × 1
5 dia.
M12 × 1
5 dia.
DC 45° 45° **AC**
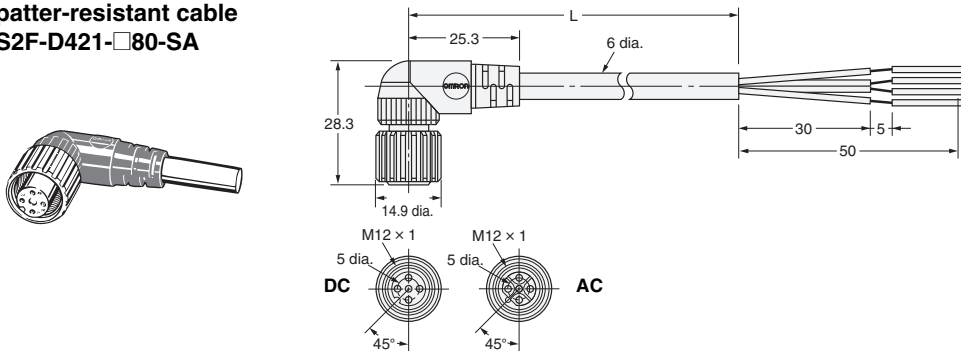
Wiring Diagram

		Two-core model	Three-core model	Four-core model
Fire-retardant, Robot cable	XS2F-□42□-□□0-F	Contact No. ①②③④ — Cable lead colors — Brown Blue (DC)	Contact No. ①②③④ — Cable lead colors — Brown Blue Black (DC)	Contact No. ①②③④ — Cable lead colors — Brown White Blue Black (DC/AC)
Spatter-resistant cable *	XS2F-D421-□80-SA			
Heat-resistant cable up to 105°C *	XS2F-E42□-□80-E	Contact No. ①②③④ — Cable lead colors — Brown Blue (AC)		
Non-polar DC Connectors with Standard cable	XS2F-□42□-□□0	Contact No. ①②③④ — Cable lead colors — Black White	—	—
E2E models with conventional connector pin with Fire-retardant, Robot cable	XS2F-D42□-□D0	Contact No. ①②③④ — Cable lead colors — Blue Brown	—	—

*Spatter-resistant Cables and Heat-resistant Cables (105°C) are available only for four cores and DC.

Ordering Information

Cable connection direction	No. of cable cores	Cable core cross-sectional area (mm^2)	Cable length L (m)	DC
				Model
Straight	5	0.3	2	**XS2F-D521-DG0-A**
			5	**XS2F-D521-GG0-A**
			10	**XS2F-D521-JG0-A**
Right-angle			2	**XS2F-D522-DG0-A**
			5	**XS2F-D522-GG0-A**

Note: Ask your OMRON representative about other cable lengths.

Dimensions

(Unit: mm)

Straight
XS2F-D521-☐G0-A

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

Wiring Diagram

Pin Arrangements (Engagement Side)

Contact No.
① ② ③ ④ ⑤

Cable lead colors
Brown
White
Blue
Black
Gray
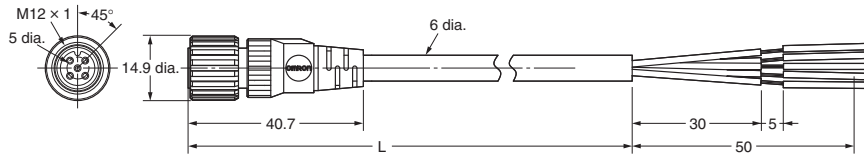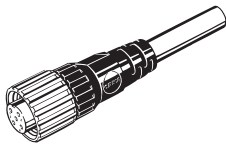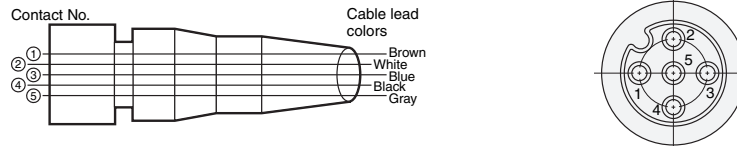
Right-angle
XS2F-D522-☐G0-A
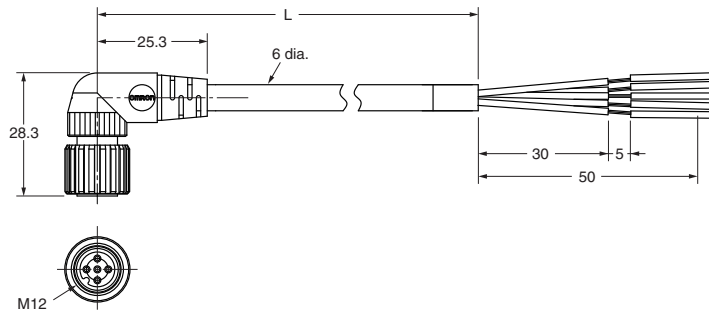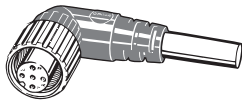
Applicable Proximity Sensors

For details on connecting with E2E Proximity Sensors, refer to E2E Small-diameter Proximity Sensor Data Sheet (Cat. No.: SCEC-044).

XS2F-G/H Connectors with Cables, Socket on One Cable End, Screw Loosening-preventing Structure Type

Ordering Information

Cable connection direction	No. of cable cores	Cable length L (m)	DC Model	AC Model
Straight	4	5	**XS2F-G421-G80-F**	XS2F-H421-G90-F
		10	**XS2F-G421-J80-F**	XS2F-H421-J90-F
Right-angle		5	**XS2F-G422-G80-F**	XS2F-H422-G90-F
		10	**XS2F-G422-J80-F**	XS2F-H422-J90-F

Dimensions

(Unit: mm)

Straight Connectors
XS2F-G421-□80-F
XS2F-G421-□90-F

M12 × 1 45°
5 dia.
DC

M12 × 1 45°
5 dia.
AC

14.9 dia.
40.7
L
6 dia.
30
5
50
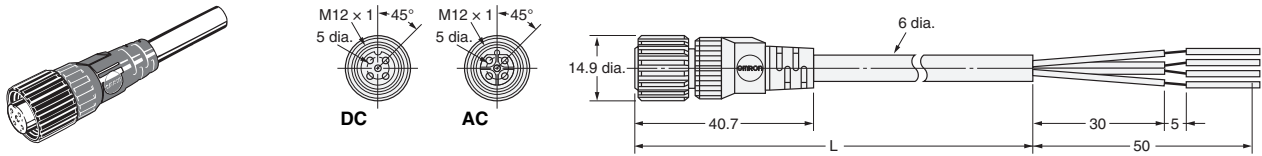
Right-angle
XS2F-G422-□80-F
XS2F-G422-□90-F

L
25.3
6 dia.
28.3
14.9 dia.
30
5
50

M12 × 1
5 dia.
DC
45°

M12 × 1
5 dia.
AC
45°
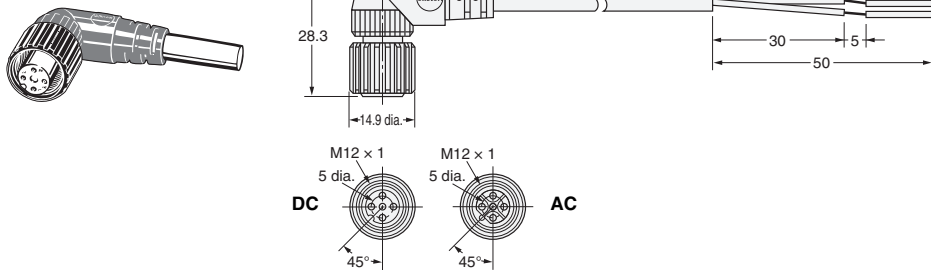
Screw Loosening-preventing Structure

Appearance

Black nickel plating

Structure

Convex and concave portion

Ribbed portion
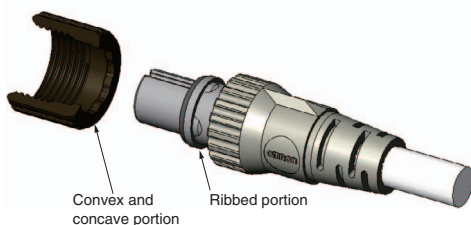
By the above structure, the convex and concave portion of the thread bracket and housing ribs interfere with each other at 45° increments to work as a loosening-preventing mechanism when engaged.

XS2F Sockets on One Cable End with Indicator

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*.

XS2F-M12PVC☐A☐☐M☐LED
1   2   3   4   5   6   7   8

1. Type

F: Connector with cables, sockets on one cable end

2. Mating Section Form

M12: M12

3. Cable Material

PVC: PVC

4. Connector Poles

3: 3 poles
4: 4 poles

5. Cable Connection Direction

A: Right-angle

6. Cable Length

2: 2 m
5: 5 m
10: 10 m

7. Applicable Sensors

P: PNP
N: NPN

8. With indicator

LED: With indicator

Ordering Information

Cable specifications	Cable connection direction	Cable diameter (mm)	No. of cable cores	Cable core cross-sectional area (mm²)	Cable length L (m)	LED	Model	UL
PVC	Right-angle	5 dia.	3	0.34	2	PNP	XS2F-M12PVC3A2MPLED	Yes
					5		XS2F-M12PVC3A5MPLED	
					10		XS2F-M12PVC3A10MPLED	
					2	NPN	XS2F-M12PVC3A2MNLED	
					5		XS2F-M12PVC3A5MNLED	
					10		XS2F-M12PVC3A10MNLED	
		5.4 dia.	4		2	PNP	XS2F-M12PVC4A2MPLED	
					5		XS2F-M12PVC4A5MPLED	
					10		XS2F-M12PVC4A10MPLED	

Dimensions

(Unit: mm)

Right-angle
XS2F-M12PVC3A☐MPLED
XS2F-M12PVC4A☐MPLED

35
28.2
28
9.1
14.9 dia.
L
30
5
50
45° M12×1

Wiring Diagram

3 poles		4 poles
NPN	PNP	PNP

3 poles — NPN

1 + BROWN
YELLOW   GREEN
4 BLACK
3 - BLUE

3 poles — PNP

1 + BROWN
4 BLACK
YELLOW   GREEN
3 - BLUE

4 poles — PNP

1 + BROWN
2 WHITE
4 BLACK
R1   R2   R3
D1   D2   D3
3 - BLUE
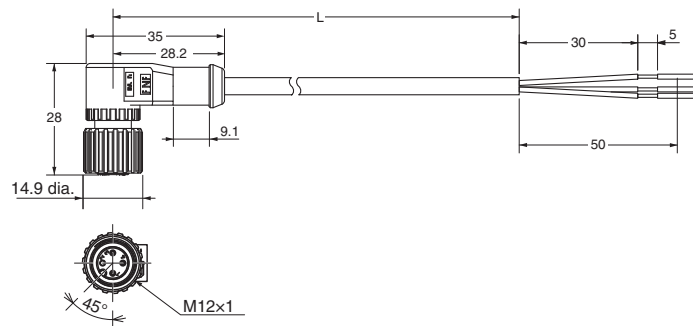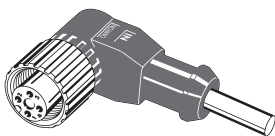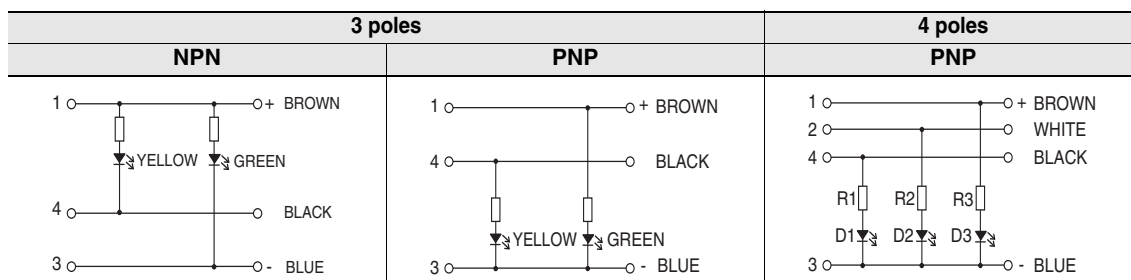
XS2H Plugs on One Cable End

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 with cables, plug on one cable end

2. AC/DC

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

Terminal No.	①	②	③	④		Terminal No.	①	②	③	④		Terminal No.	①	②	③	④	⑤
8:	Brown	White	Blue	Black (for DC)	A:	Brown	---	---	Blue (for DC)		G:	Brown	White	Blue	Black	Gray
9:	Brown	White	Blue	Black (for AC)	B:	---	---	Brown	Blue (for AC)							
					C:	Brown	---	Blue	Black (for DC)							

8. Connectors on One End/Both Ends

0: One end

9. Cable Specifications

A: Standard cable
F: Fire-retardant, Robot cable
SA: Spatter-resistant cable

XS2H Plugs on One Cable End

Ordering Information

Cable specifications	No. of connector poles	Cable connection direction	Cable diameter (mm)	No. of cable cores	Cable core cross-sectional area (mm²)	Cable length L (m)	DC Model	AC Model	UL
Fire-retardant, Robot cable	4	Straight Connectors	6.0 dia.	2	0.5	0.3	XS2H-D421-AA0-F	XS2H-A421-AB0-F	Yes
				3			XS2H-D421-AC0-F	—	
				4			XS2H-D421-A80-F	XS2H-A421-A90-F	
						0.5	XS2H-D421-B80-F	—	
				2		1	XS2H-D421-CA0-F	XS2H-A421-CB0-F	
				3			XS2H-D421-CC0-F	—	
				4			XS2H-D421-C80-F	XS2H-A421-C90-F	
						2	XS2H-D421-D80-F	—	
						5	XS2H-D421-G80-F	—	
Spatter-resistant cable	4		6.6 dia.	4		0.3	XS2H-D421-A80-SA	—	—
						1	XS2H-D421-C80-SA	—	
Standard cable	5		6.0 dia.	5	0.3	0.3	XS2H-D521-AG0-A	—	
						1	XS2H-D521-CG0-A	—	

Note: Ask your OMRON representative about other cable lengths.

Dimensions
(Unit: mm)

Straight (4 poles)
Fire-retardant, Robot cable XS2H-□421-□□0-F
Spatter-resistant cable XS2H-D421-□80-SA

M12 × 1 ← 45°
5 dia.
DC   AC
14.9 dia.
44.7   6 dia.
30   5   50   L

Wiring Diagram

Contact No. / Cable lead colors
① ② ③ ④ — Brown — Blue (DC)
Two-core

Contact No. / Cable lead colors
① ② ③ ④ — Brown — Blue (AC)

Contact No. / Cable lead colors
① ② ③ ④ — Brown — Blue — Black (DC)
Three-core

Contact No. / Cable lead colors
① ② ③ ④ — Brown — White — Blue — Black (DC/AC)
Four-core
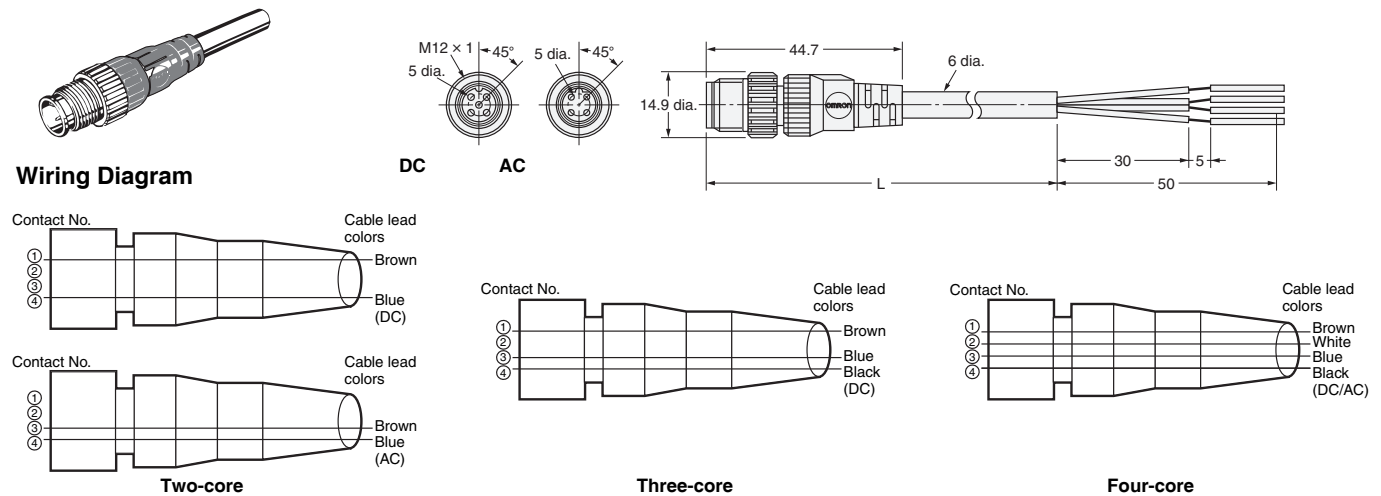
Straight (5 poles)
Standard cable XS2H-D521-□G0-A (For DC)

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

M12 × 1 ← 45°
5 dia.
14.9 dia.
44.7   6 dia.
30   5   50   L

Wiring Diagram   **Pin Arrangements (Engagement Side)**

Contact No. / Cable lead colors
① ② ③ ④ ⑤ — Brown — White — Blue — Black — Gray
Five-core
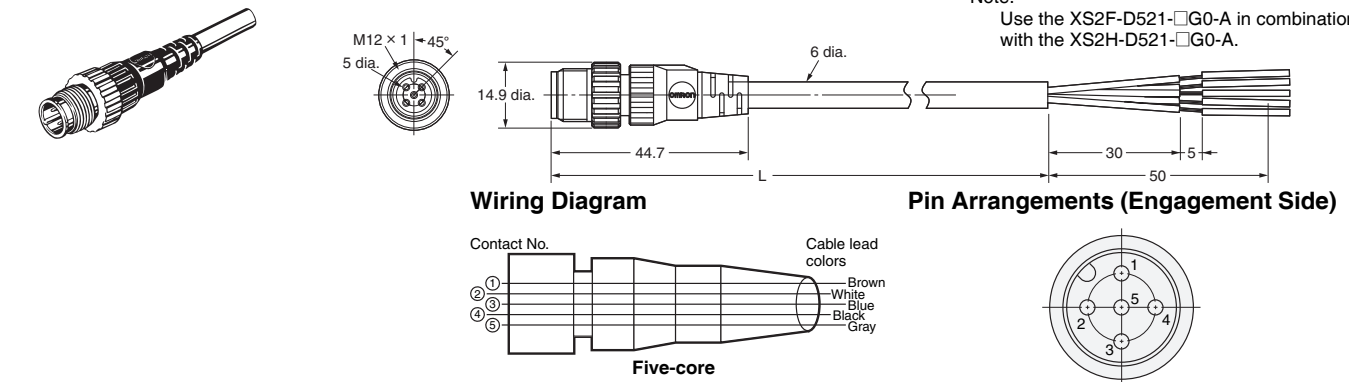
XS2☐ Sensor I/O Connectors on Cables (8-pole)

Ordering Information

Connector type	Cable connection direction	Number of cores	Cable length L (m)	Applicable wire diameter	Model
Panel-mounting socket	—	—	—	AWG22 to 28	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 both cable ends			2		XS2W-D821-DH1-C
			5		XS2W-D821-GH1-C

Note: Ask your OMRON representative about other cable lengths.
Ask your OMRON representative about robot cable models (-R).

Pins and Cable Lead Colors

	Pin No.							
XS2F/XS2H/XS2W cable lead colors	1	2	3	4	5	6	7	8
	White	Brown	Green	Yellow	Gray	Pink	Blue	Shield

Ratings and Specifications

Rated current	1.5 A
Rated voltage	36 VDC
Contact resistance	40 mΩ max. (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 (leakage current: 1 mA max.)
Degree of protection	IP67
Insertion tolerance	200 times min.
Ambient operating temperature range	–25 to 70°C

Materials and Finish

Contacts	Brass/nickel base, 0.4-μm gold plating
Thread Bracket, body, M16 nuts	Brass/nickel plated
Pin block	PBT resin (UL94V-0), light gray
Cover *1	Soft PBT resin (UL94V-0)
Seal rubber and O-ring *2	Rubber
Cable	**Standard cable (8 core)**	6 mm dia. AWG24 (0.25 mm²) Structure: 0.127 mm/20 wires

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

Wiring Example
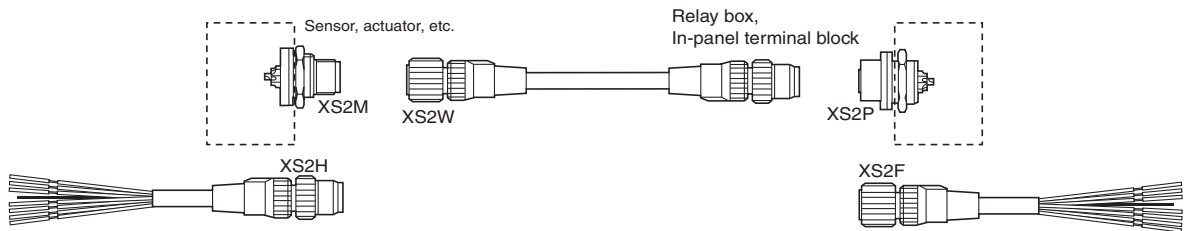
Dimensions

Plug on One Cable End (M12)
XS2H

2 1
3 7
14.9 dia.
4 8 6 5
M12 × 1

6 dia.

44.7
L
30 5
50

Socket on One Cable End (M12)
XS2F

1 2
7 3
14.9 dia.
6 8 4 5
M12 × 1

6 dia.

40.7
L
30 5
50
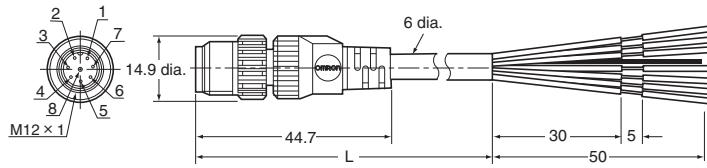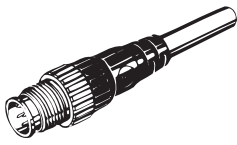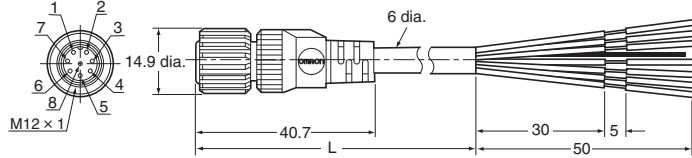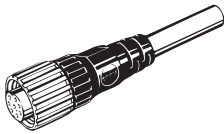
Socket and Plug on Both Cable Ends (M12)
XS2W

1 2
7 3
14.9 dia.
6 8 4 5
M12 × 1

6 dia.

M12 × 1
5 8
6 4
14.9 dia.
7 3
1 2

40.7
44.7
L
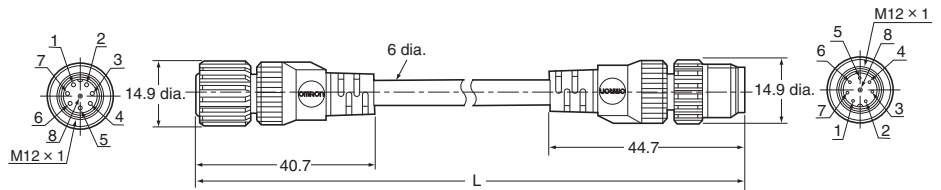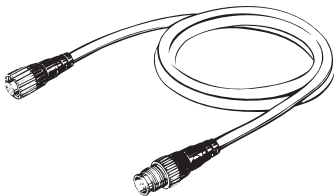
Panel-mounting Socket (M12)
Rear Lock Model
XS2P-D821-2 (with Solder Cup Pins)

1.5 3 Panel
Seal rubber M16 nut
20 dia. 14 dia.
7
M12 × 1
2.5 10.5 3 M16 × 1
20.4
5
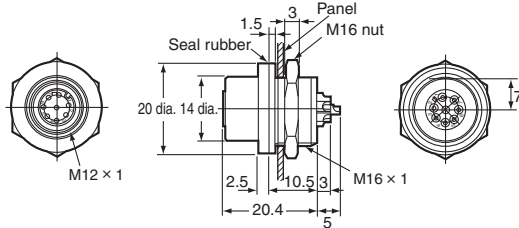
Panel-mounting Plug (M12)
Front Lock Model
XS2M-D824-4 (with Solder Cup Pins)

20.9
8.7 Panel
3 3 3 5
7 20 dia.
10.6 dia.
M12 × 1
M16 × 1
M16 nut
Seal rubber
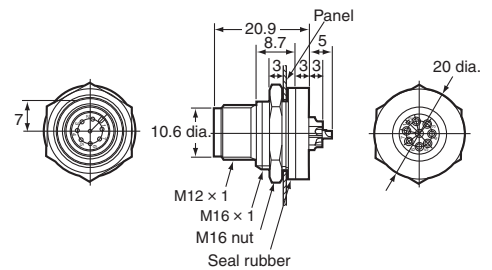
Panel-mounting Socket (M12)
Front Lock Model
XS2P-D822-2 (with Solder Cup Pins)

Panel 3 Seal rubber
M16 nut 1.5
20 dia. 14 dia. 7 14 dia.
M12 × 1 M16 × 1 8.7 6 3
20.4 5

Panel Cutout

$7^{+0.1}_{0}$
$16^{+0.2}_{0}$ dia.
24 min.
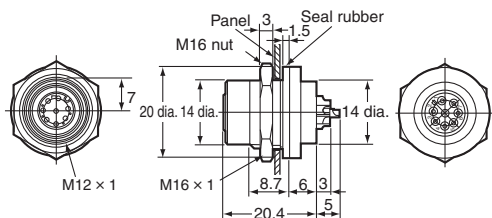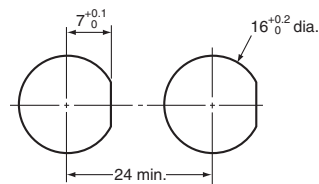
Connector Terminal Numbers (from Connection Side)

2 1
3 7
4 6
5 8
Plug

1 2
7 3
6 4
5 8
Socket
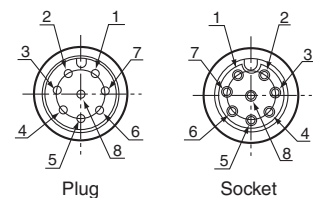
Note: 1. Mounting panel thickness: 1 to 4 mm.
2. Applicable core wire size for solder cup pins: $0.5 \ mm^2$ max.
3. The M16 nut and seal rubber are included.

XS2G Crimping/Soldering Plug Assemblies

Ordering Information

Suitable cable (mm)	Core conductor size (mm^2)	Suitable sheath material	Cable connection direction	Connection method	DC Model	AC Model
6 dia. (5 to 6 dia.)	0.18 to 0.3 0.5 to 0.75*	PVC, PE, PUR	Straight	Crimping	XS2G-D4C1	XS2G-A4C1
	0.5 max.			Soldering	XS2G-D421	XS2G-A421
			Right-angle	Soldering	XS2G-D422	—
4 dia. (4 to 5 dia.)	0.18 to 0.3 0.5 to 0.75*		Straight	Crimping	XS2G-D4C3	XS2G-A4C3
	0.5 max.			Soldering	XS2G-D423	XS2G-A423
			Right-angle	Soldering	XS2G-D424	—
3 dia. (3 to 4 dia.)	0.18 to 0.3 0.5 to 0.75*		Straight	Crimping	XS2G-D4C5	XS2G-A4C5
	0.5 max.			Soldering	XS2G-D425	XS2G-A425
			Right-angle	Soldering	XS2G-D426	—

*There are two types of contacts.
Note: Crimping plug pins are sold separately.
    Use a cable of mentioning. If you do not use one of these cables, there is a possibility that the performance can't be met.
    Ask your OMRON representative about selecting a cable of other than above.

Dimensions
(Unit: mm)

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

45° 5 dia. 45° 5 dia. M12 × 1
14.9 dia.   14.2 dia.
DC   AC
47.1
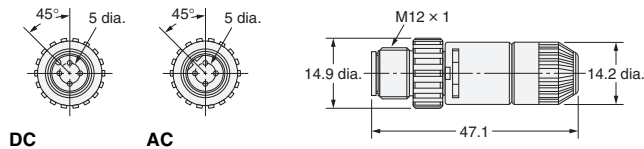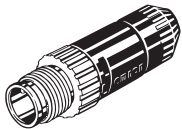
Right-angle
XS2G-D42□ (Soldering Model)

45° 5 dia.   35.7
14.9 dia. M12 × 1
23
DC
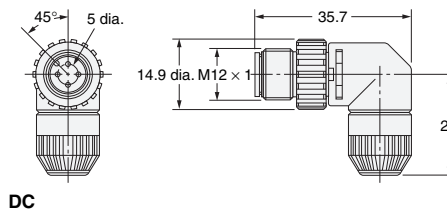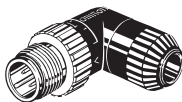
XS2U Crimping Pin for XS2G

Ordering Information

Suitable core size (mm^2)	Model
0.18 to 0.3	XS2U-3121
0.5 to 0.75	XS2U-3122

Dimensions
(Unit: mm)

XS2U-312□

* A special tool must be used for crimping. For details, refer to page 26.

Slit
1 dia.   C dia.   2 dia. 2.3 dia.
1.5
B
A
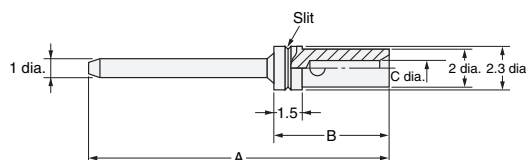
Dimensions

Model	Suitable core size (mm^2)	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

OMRON

XS2C Crimping/Soldering Socket Assemblies

Ordering Information

Suitable cable (mm)	Core conductor size (mm²)	Suitable sheath material	Cable connection direction	Connection method	DC Model	AC Model
6 dia. (5 to 6 dia.)	0.18 to 0.3 0.5 to 0.75*	PVC, PE, PUR	Straight	Crimping	XS2C-D4C1	XS2C-A4C1
	0.5 max.			Soldering	XS2C-D421	XS2C-A421
	0.18 to 0.3 0.5 to 0.75*		Right-angle	Crimping	XS2C-D4C2	XS2C-A4C2
	0.5 max.			Soldering	XS2C-D422	XS2C-A422
4 dia. (4 to 5 dia.)	0.18 to 0.3 0.5 to 0.75*		Straight	Crimping	XS2C-D4C3	XS2C-A4C3
	0.5 max.			Soldering	XS2C-D423	XS2C-A423
	0.18 to 0.3 0.5 to 0.75*		Right-angle	Crimping	XS2C-D4C4	XS2C-A4C4
	0.5 max.			Soldering	XS2C-D424	XS2C-A424
3 dia. (3 to 4 dia.)	0.18 to 0.3 0.5 to 0.75*		Straight	Crimping	XS2C-D4C5	XS2C-A4C5
	0.5 max.			Soldering	XS2C-D425	XS2C-A425
	0.18 to 0.3 0.5 to 0.75*		Right-angle	Crimping	XS2C-D4C6	XS2C-A4C6
	0.5 max.			Soldering	XS2C-D426	XS2C-A426

*There are two types of contacts.
Note: Crimping plug contacts are sold separately.
    Use a cable of mentioning. If you do not use one of these cables, there is a possibility that the performance can't be met.
    Ask your OMRON representative about selecting a cable of other than above.

Dimensions

(Unit: mm)

Straight Connectors

DC   AC

45° 5 dia. M12 × 1   45° 5 dia. M12 × 1

14.9 dia.   14.2 dia.

43.2

Right-angle Connectors

DC   AC

45° 5 dia. M12 × 1   45° 5 dia. M12 × 1

31.8

14.9 dia.

23
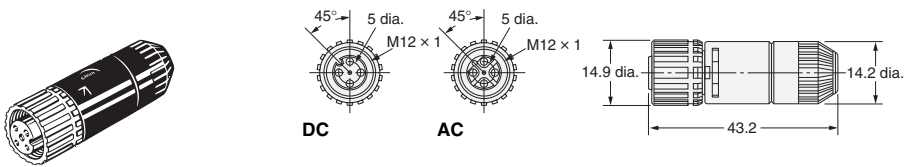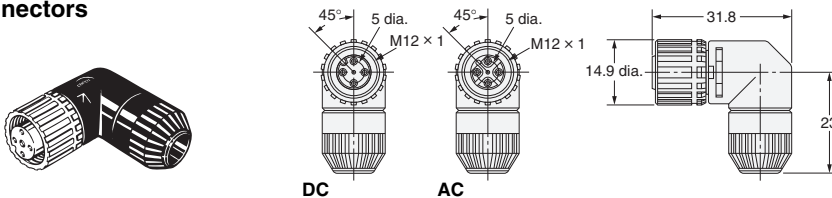
XS2U Crimping Pin for XS2C

Ordering Information

Suitable core size (mm²)	Model
0.18 to 0.3	XS2U-2221
0.5 to 0.75	XS2U-2222

Dimensions

(Unit: mm)

Socket Pin

* A special tool must be used for crimping. For details, refer to page 26.

Slit

C dia.   2 dia. 2.3 dia.

1.5
B
A
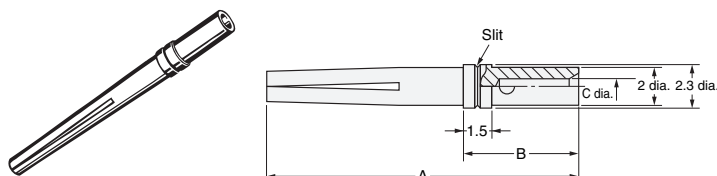
Dimensions

Model	Suitable core size (mm²)	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

XS2G Screw-on Plug Assemblies

Ordering Information

No. of poles	Suitable cable (mm)	Core conductor size (mm²)	Suitable sheath material	Straight connectors (for DC)	Right-angle connectors (for DC)
				Model	Model
5	8 dia. (7 to 8 dia.)	0.18 to 0.75	PVC, PE, PUR	XS2G-D5S7	—
	7 dia. (6 to 7 dia.)			XS2G-D5S9	—
	6 dia. (5 to 6 dia.)			XS2G-D5S1	XS2G-D5S2
4	8 dia. (7 to 8 dia.)			XS2G-D4S7	—
	7 dia. (6 to 7 dia.)			XS2G-D4S9	—
	6 dia. (5 to 6 dia.)			XS2G-D4S1	XS2G-D4S2
	4 dia. (4 to 5 dia.)			XS2G-D4S3	XS2G-D4S4
	3 dia. (3 to 4 dia.)			XS2G-D4S5	XS2G-D4S6

Note: XS2G Screw-on Plugs cannot be connected to side by side to the CN1 and CN2 connectors of XS2R Y-Joint Sockets/Plugs.
Use a cable of mentioning. If you do not use one of these cables, there is a possibility that the performance can't be met.
Ask your OMRON representative about selecting a cable of other than above.

Dimensions

(Unit: mm)

Straight Connectors
Applicable Cable Outer Diameter: 8 mm
XS2G-D5S7 (5poles)
XS2G-D4S7 (4 poles)
Applicable Cable Outer Diameter: 7 mm
XS2G-D5S9 (5poles)
XS2G-D4S9 (4 poles)
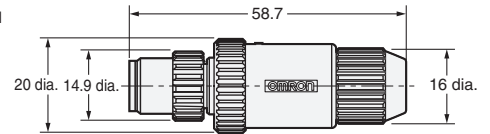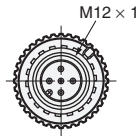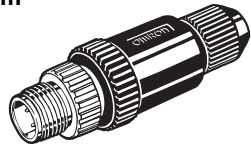
Straight Connectors
Applicable Cable Outer Diameter: 6 mm
XS2G-D5S1 (5poles)
XS2G-D4S1 (4 poles)
Applicable Cable Outer Diameter: 4 mm
XS2G-D4S3 (4 poles)
Applicable Cable Outer Diameter: 3 mm
XS2G-D4S5 (4 poles)
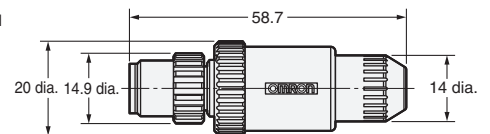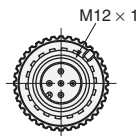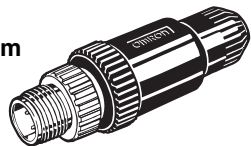
Right-angle Connectors
Applicable Cable Outer Diameter: 6 mm
XS2G-D5S2 (5poles)
XS2G-D4S2 (4 poles)
Applicable Cable Outer Diameter: 4 mm
XS2G-D4S4 (4 poles)
Applicable Cable Outer Diameter: 3 mm
XS2G-D4S6 (4 poles)
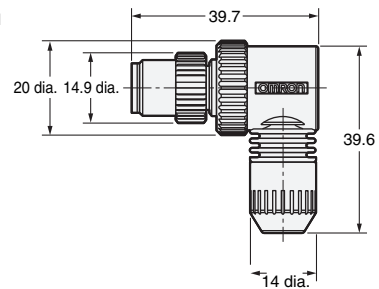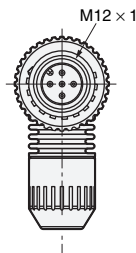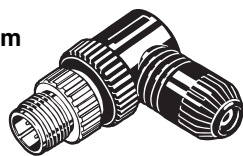
XS2C Screw-on Socket Assemblies

Ordering Information

No. of poles	Suitable cable (mm)	Core conductor size (mm^2)	Suitable sheath material	Straight connectors (for DC) Model	Right-angle connectors (for DC) Model
5	8 dia. (7 to 8 dia.)	0.18 to 0.75	PVC, PE, PUR	XS2C-D5S7	—
	7 dia. (6 to 7 dia.)			XS2C-D5S9	—
	6 dia. (5 to 6 dia.)			XS2C-D5S1	XS2C-D5S2
4	8 dia. (7 to 8 dia.)			XS2C-D4S7	—
	7 dia. (6 to 7 dia.)			XS2C-D4S9	—
	6 dia. (5 to 6 dia.)			XS2C-D4S1	XS2C-D4S2
	4 dia. (4 to 5 dia.)			XS2C-D4S3	XS2C-D4S4
	3 dia. (3 to 4 dia.)			XS2C-D4S5	XS2C-D4S6

Note: Use a cable of mentioning. If you do not use one of these cables, there is a possibility that the performance can't be met.
Ask your OMRON representative about selecting a cable of other than above.

Dimensions

(Unit: mm)

Straight Connectors
Applicable Cable Outer Diameter: 8 mm
XS2C-D5S7 (5 poles)
XS2C-D4S7 (4 poles)
Applicable Cable Outer Diameter: 7 mm
XS2C-D5S9 (5 poles)
XS2C-D4S9 (4 poles)

M12 × 1
54.9
20 dia. 14.9 dia.
16 dia.
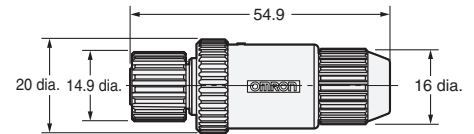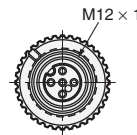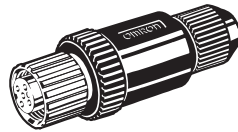
Straight Connectors
Applicable Cable Outer Diameter: 6 mm
XS2C-D5S1 (5 poles)
XS2C-D4S1 (4 poles)
Applicable Cable Outer Diameter: 4 mm
XS2C-D4S3 (4 poles)
Applicable Cable Outer Diameter: 3 mm
XS2C-D4S5 (4 poles)

M12 × 1
54.9
20 dia. 14.9 dia.
14 dia.
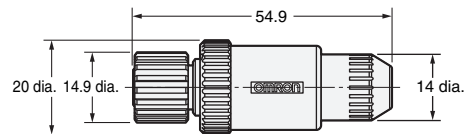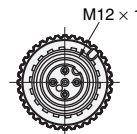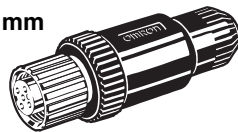
Right-angle Connectors
Applicable Cable Outer Diameter: 6 mm
XS2C-D5S2 (5 poles)
XS2C-D4S2 (4 poles)
Applicable Cable Outer Diameter: 4 mm
XS2C-D4S4 (4 poles)
Applicable Cable Outer Diameter: 3 mm
XS2C-D4S6 (4 poles)

M12 × 1
35.9
20 dia. 14.9 dia.
39.6
14 dia.
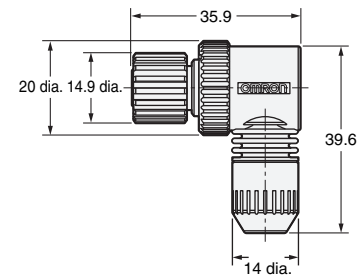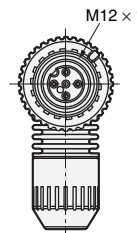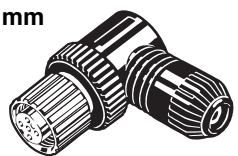
XS2P Panel-mounting Sockets for Terminal Boxes

Ordering Information

No. of poles	Lock method	Pin shape*	Applicable wire diameter	DC Model	AC Model
4	Rear lock	Solder cup pin	AWG20 to 28	XS2P-D421-2	XS2P-A421-2
	Front lock	Solder cup pin		XS2P-D422-2	XS2P-A422-2
		DIP pin		XS2P-D422-1	XS2P-A422-1
5	Front lock	Solder cup pin		XS2P-D522-2	—
		DIP pin		XS2P-D522-1	—

*The solder cup pin is for wire mounting and the DIP pin is for PCB mounting.

Dimensions

(Unit: mm)

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

DC   AC
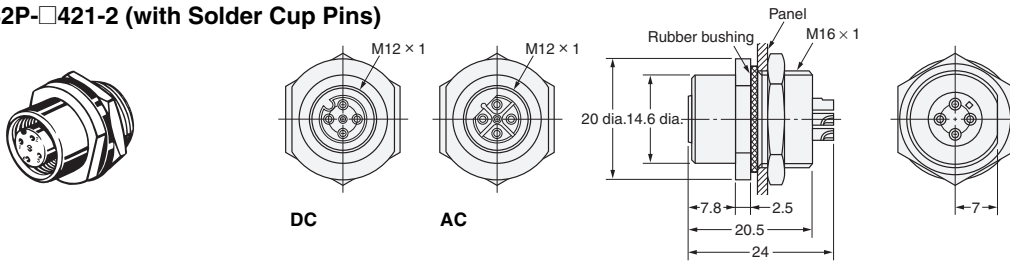
Front Lock Model
XS2P-☐422-1 (with DIP Pins)
XS2P-☐422-2 (with Solder Cup Pins)

With Solder Cup Pins   With DIP Pins

DC   AC
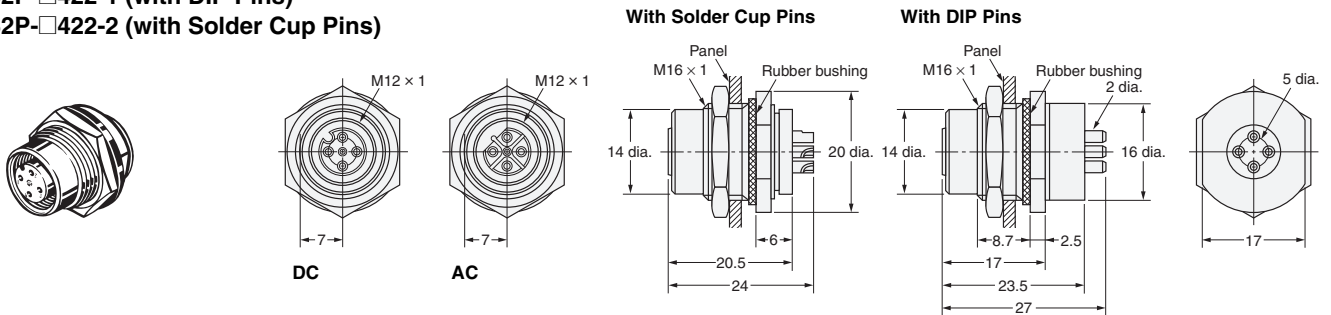
Front Lock Model
XS2P-D522-1 (with DIP Pins)
XS2P-D522-2 (with Solder Cup Pins)

With Solder Cup Pins   With DIP Pins

DC

Panel Cutout

$7^{+0.1}_{0}$ $16^{+0.15}_{0}$ dia.

24 min.
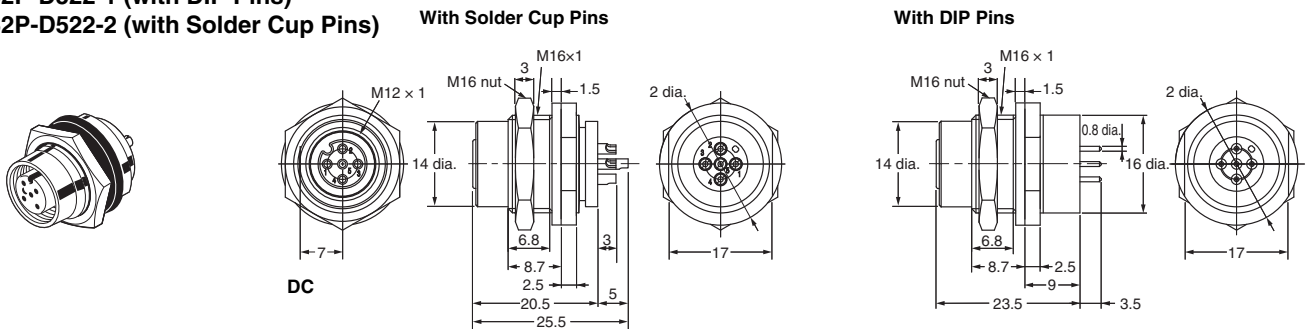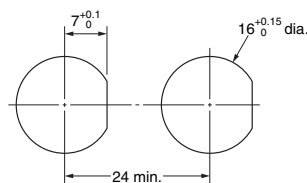
Note: The panel thickness is 1 to 4 mm.

PCB-mounting Dimensions With DIP Pins

Land

Four, 2.2-dia.holes

24 min.
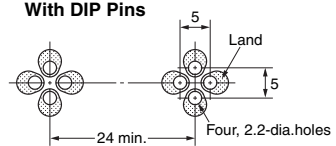
XS2R Y-Joint Plug/Socket Connectors

Ordering Information

Cable	Connector	DC	
		Cable length L (m)	Model
With cable	**Connectors on both cable ends**	0.5	**XS2R-D426-B11-F**
		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**

Cable	Connector	DC	
		Cable length L (m)	Model
Without cable	**Connectors on both cable ends**	—	**XS2R-D426-1**
			XS2R-D426-5
			XS2R-D426-81
			XS2R-D426-82

Note: XS2G Screw-on Plugs cannot be connected side-by-side to the CN1 and CN2 connectors.
Consider using a crimping or soldering model instead. Refer to page 15 for details.

Dimensions

(Unit: mm)

Connectors on Both Cable Ends (Y-Joint Plug/Socket)
XS2R-D426-□11-F
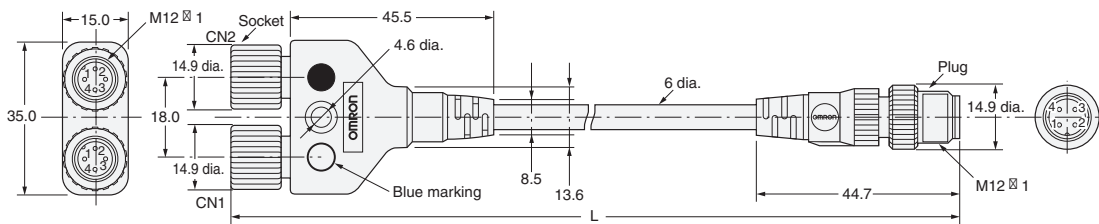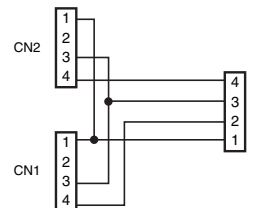
Connectors on One Cable End (Y-Joint Socket)
XS2R-D426-□10-F
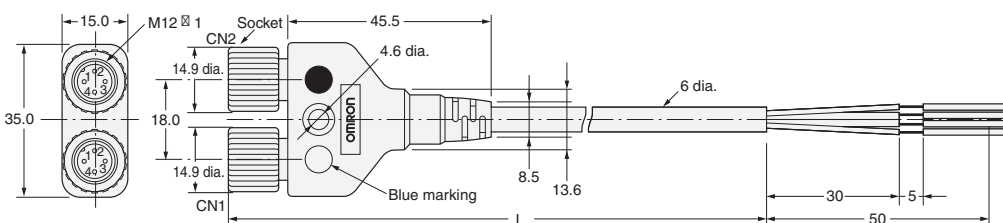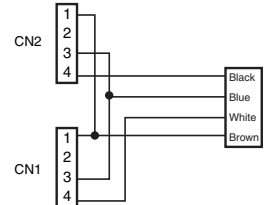
Y-Joint Plug/Socket without Cable
XS2R-D426-1

20

OMRON
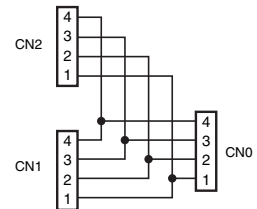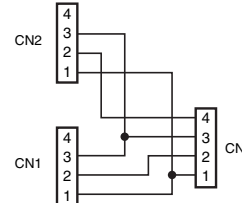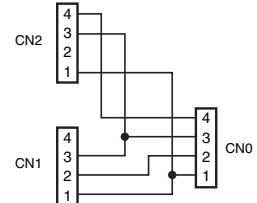
XS2R T-Joint Plug/Socket Connectors

Ordering Information

Type	DC	
	Model	
Aggregate model	**XS2R-D422-1**	
	XS2R-D422-5	
Bifurcated model	**XS2R-D423-1**	
Daisy-chain model	**XS2R-D424-1**	

Dimensions

(Unit: mm)

Aggregate model
XS2R-D422-1
XS2R-D422-5
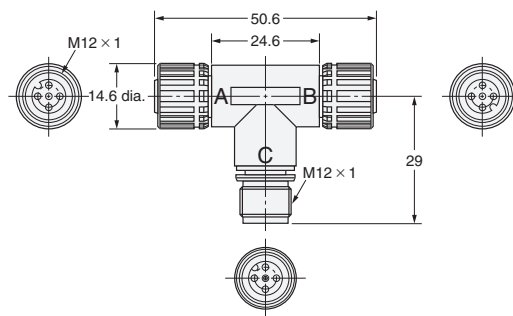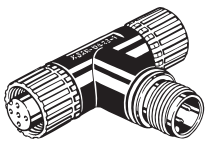
Wiring Diagram
XS2R-D422-1
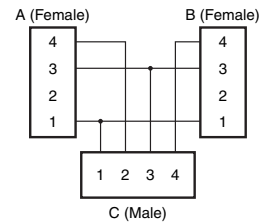
XS2R-D422-5
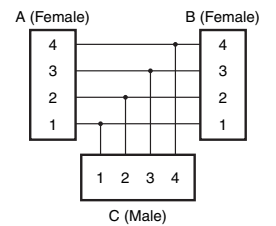
Bifurcated model
XS2R-D423-1
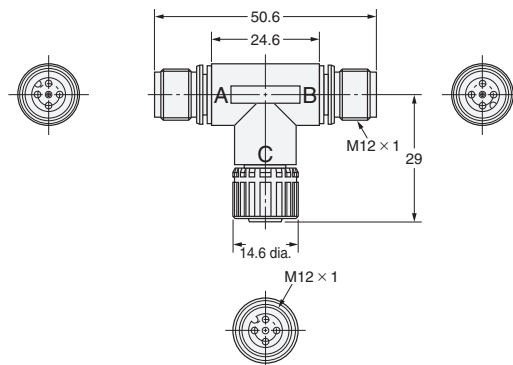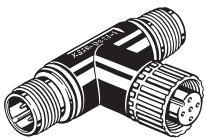
Wiring Diagram
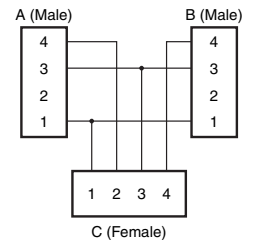
Daisy-chain model
XS2R-D424-1
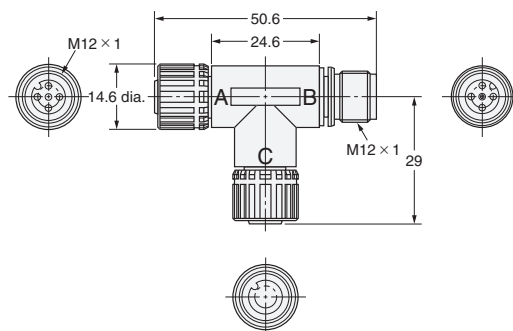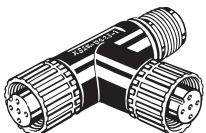
Wiring Diagram
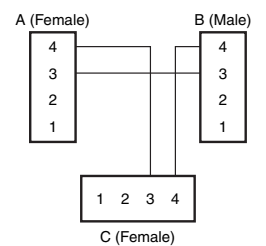
XS2R Application Examples

XS2R-D422-1 (Aggregate Model)
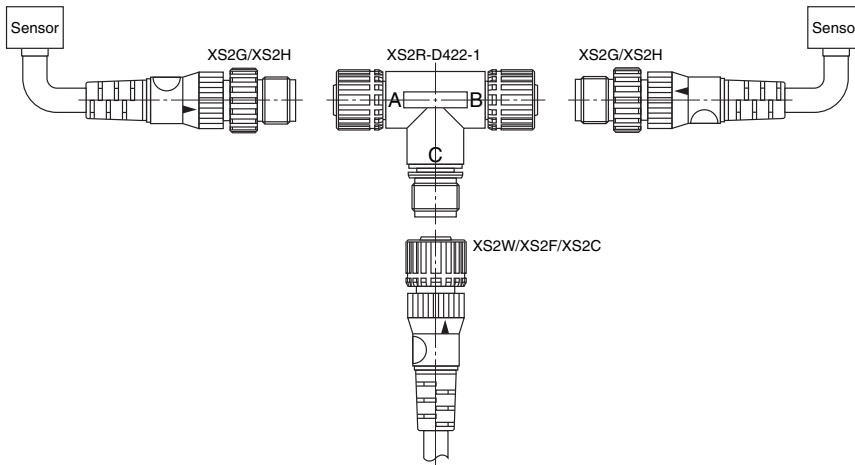
- A pair of Two-wire Sensors or Three-wire Sensors can be connected as shown in the illustration.
- The XS2R-D422-5 has feed through connections, thus working as a connector for the extension cable.
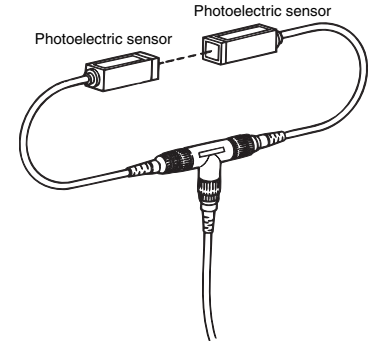
XS2R-D423-1 (Bifurcated Model)
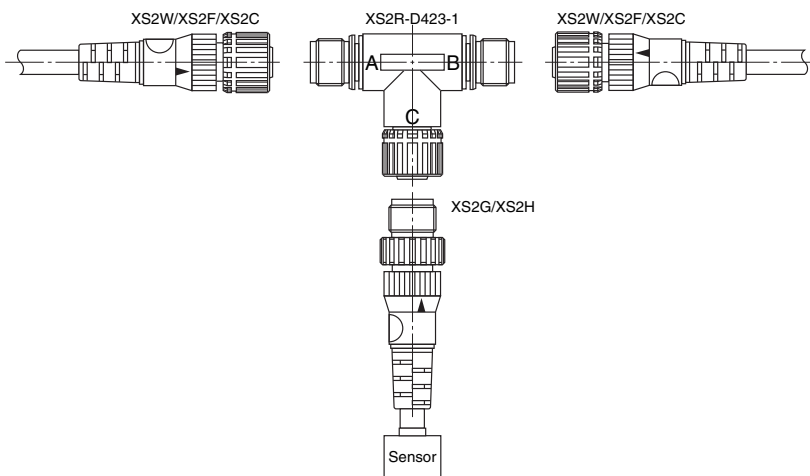
- Two or Three-wire Sensor signals can be bifurcated.
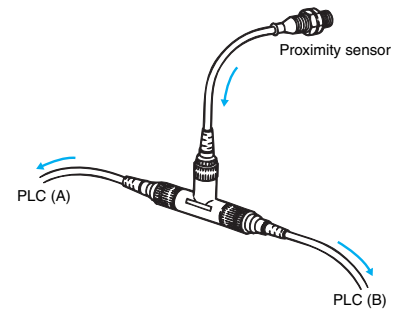
XS2R-D424-1 (Daisy Chain Model)
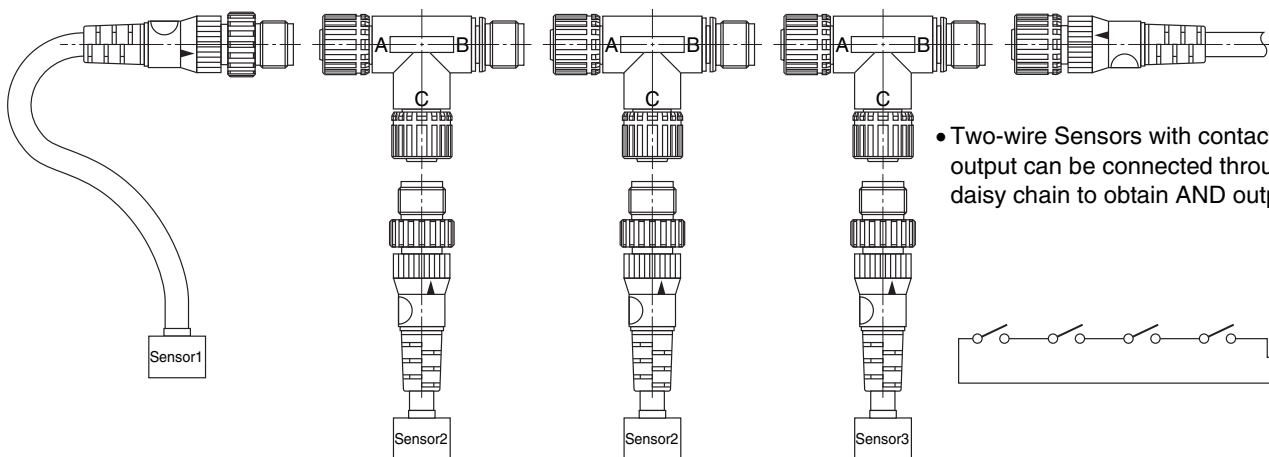
- Two-wire Sensors with contact output can be connected through a daisy chain to obtain AND output.
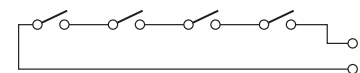
Safety Precautions

Precautions for Correct Use

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

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

XS2M Sensor-embedded Plugs

Ordering Information

No. of poles	Mounting method	Pin shape	Applicable wire diameter	DC Model	AC Model
4	Embedded with screw threads	Solder cup pin	AWG22 to 28	XS2M-D421	XS2M-A421
	Embedded without screw threads			XS2M-D422	XS2M-A422

Dimensions

(Unit: mm)

Embedded with screw threads
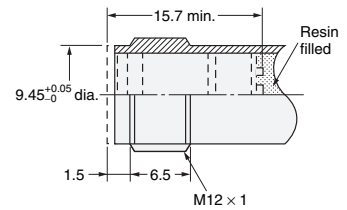**XS2M-D421 (For DC)**
XS2M-A421 (For AC)

Mounting Dimensions

Resin filled

$9.45^{+0.05}_{-0}$ dia.

6.7 min.

45° 5 dia. 45° 5 dia.

DC AC

6.5 M12 × 1 O-ring
10.5 dia. 8 dia. 9.4 dia.
1.2 4 0.7
10
16
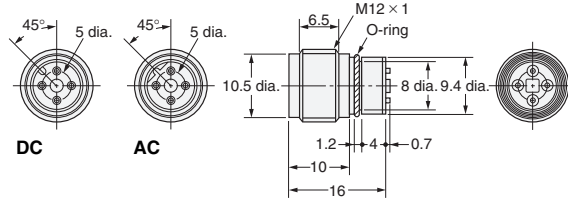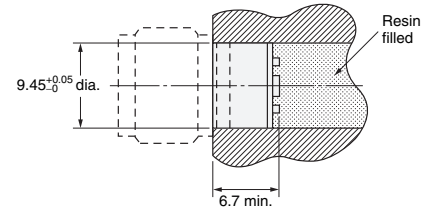
Note: After mounting, anchor the solder cup pins by injecting resin.

Embedded without screw threads
XS2M-D422 (For DC)
XS2M-A422 (For AC)

Mounting Dimensions

15.7 min.

Resin filled

$9.45^{+0.05}_{-0}$ dia.

1.5 6.5

M12 × 1

45° 5 dia. 45° 5 dia.

DC AC

9.6 dia. O-ring
10.5 dia. 9.4 dia.
10.8 1.2
16 0.7
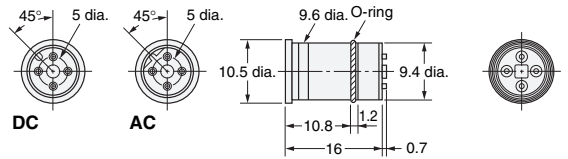
Note: After mounting, anchor the solder cup pins by injecting resin.

XS2M Panel-mounting Plugs

Ordering Information

No. of poles	Mounting method	Pin shape*1	Applicable wire diameter	DC Model	AC Model
4	Flange-mounting	Solder cup pin	AWG22 to 28	XS2M-D423	XS2M-A423
	Screw-mounting	DIP pin	—	XS2M-D424-1	XS2M-A424-1
		Solder cup pin		XS2M-D424-2	XS2M-A424-2
5	Screw-mounting	Solder cup pin	AWG20 to 28	XS2M-D524-2	—
		Solder cup pin		XS2M-D524-4 *2	—

*1. The solder cup pin is for wire mounting and the DIP pin is for PCB mounting.
*2. XS2M-D524-4 plugs have a metal body.
Note: 4-pole DC screw-mounting models (XS2M-D424-□) with metal bodies are also available.
    Ask your OMRON representative for details.

Dimensions

(Unit: mm)

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

Panel Cutouts
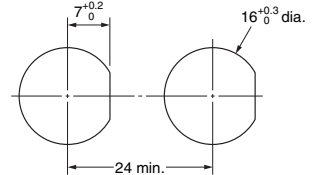
DC   **AC**
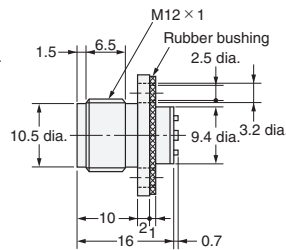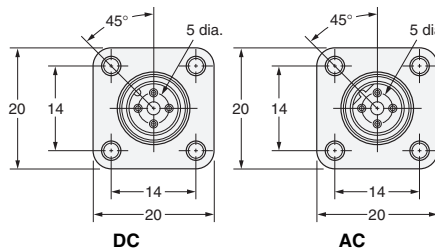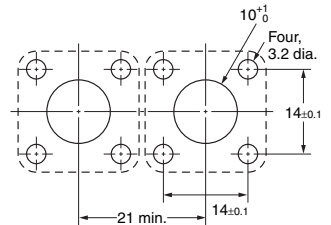
Screw-mounting
XS2M-□424-1 For DIP (Resin Body)
XS2M-□424-2 Solder Cup Pins (Resin Body)
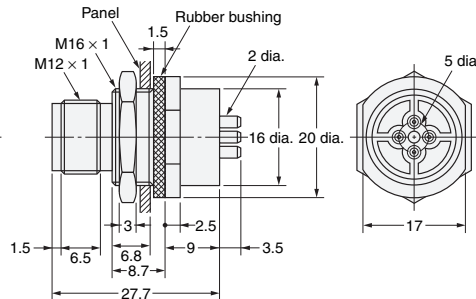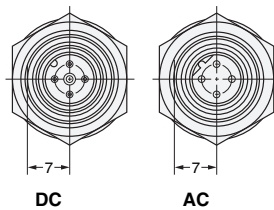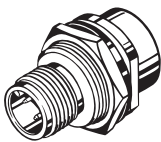
Panel Cutout

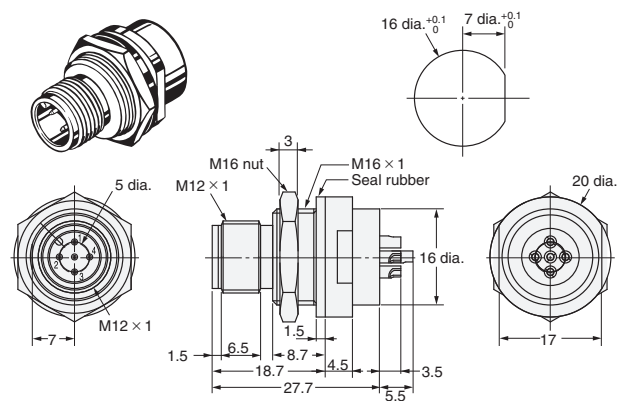Note: The panel thickness is 1 to 4 mm.

PCB-mounting Dimensions

DC   **AC**
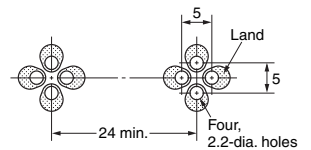
Solder Cup Pins (Resin Body)
XS2M-D524-2

Panel Cutout
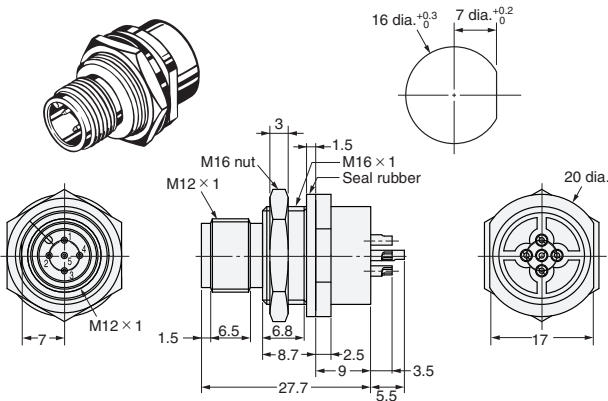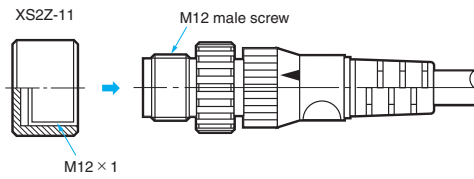
Solder Cup Pins (Metal Body)
XS2M-D524-4

Panel Cutout

XS2Z Connector Covers

Waterproof Covers

XS2Z-11

XS2Z-11

9.4
14.9 dia.
M12 × 1 (female screw)
M12 × 1

M12 male screw

XS2Z-22

15.7
9.2
10.6 dia.
14.9 dia.
M12 × 1

XS2Z-22 M12 × 1
M12 × 1 female screw (thread bracket)
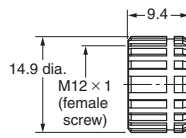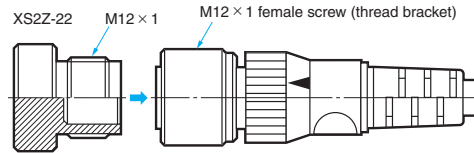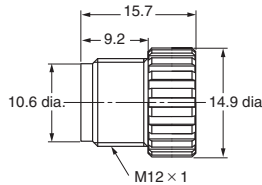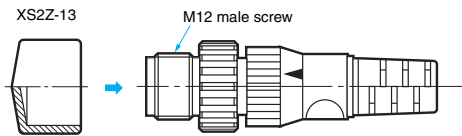
Application Example: XS2Z-11

You can use the Waterproof Cover when the connector is not connected to ensure an IP67 degree of protection. When mounting the Water-resistive Cover to a Connector, be sure to apply a torque range between 0.39 and 0.49 N·m to tighten the Water-resistive Cover.

Model	Materials	Suitable connector	
		Model	Mounting portion
XS2Z-11	Brass/nickel plated	XS2G/XS2H/XS2M/XS2R/XS2W/XS5H/XS5M/XS5W	M12 male screw
XS2Z-22		XS2C/XS2R/XS2F/XS2P/XS2W/XW3B/XS5F/XS5W/XS5R/XS5P/XW3D	M12 female screw (thread bracket)

Dust Covers

XS2Z-13

XS2Z-13 M12 male screw

XS2Z-15/XS2Z-14

XS2Z-15 XS2Z-14
M12 female screw (thread bracket)
Pin block (female pins)

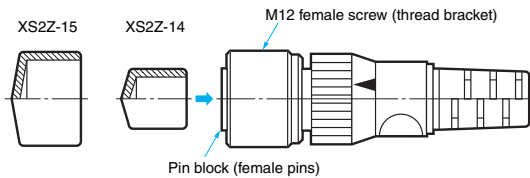### Application Example: XS2Z-13

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.

Model	Materials	Suitable connector	
		Model	Mounting portion
XS2Z-13	Rubber/black	XS2G/XS2H/XS2M/XS2R	M12 male screw
XS2Z-14		XS2C/XS2R/XS2F/XS2P/XW3A/XW3B	Pin block (female pins)
XS2Z-15			M12 female screw (thread bracket)