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 34.

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

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, PVC robot cable	0.5	XS2W-D421-B81-F	5	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	XS2W-D421-F81-F		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
		15	XS2W-D421-K81-F		15	XS5W-D421-K81-F
		20	XS2W-D421-L81-F		20	XS5W-D421-L81-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, PVC robot cable	1	XS2F-D421-C80-F	7	1	XS5F-D421-C80-F
		2	XS2F-D421-D80-F		2	XS5F-D421-D80-F
		3	XS2F-D421-E80-F		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
		15	XS2F-D421-K80-F		15	XS5F-D421-K80-F
		20	XS2F-D421-L80-F		20	XS5F-D421-L80-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, PVC robot cable	0.3	XS2H-D421-A80-F	14	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 m V 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.

Materials and Finish

Item Model		XS2F/H/W	XS2F-LED	XS2M/R/P	XS2C/G
Contacts		Copper alloy/Gold plating		Brass	
Thread bracket		Copper alloy/Nickel plated *			
Pin block		PBT resin		PA resin	PBT resin
O-ring		Rubber			
Cover		PBT resin	TPU resin	—	PBT resin
Cable	**Fire-retardant, PVC robot cable**	UL AWM2464 CL3, 6 mm dia. AWG20 Sheath color: light gray	—	—	—
	Non-polar DC Connectors with Standard PVC cable	6 mm dia. AWG20 Sheath color: light gray	—	—	—
	E2E models with conventional connector pin with Fire-retardant, PVC robot cable	UL AWM2464 CL3, 6 mm dia. AWG20 Sheath color: light gray	—	—	—
	Standard PVC cable up to 105°C	6 mm dia. AWG20 Sheath color: light gray	—	—	—
	Spatter-resistant cable	6.6 mm dia. AWG20 Sheath color: blue	—	—	—
	Standard PVC cable (XS2F-LED)	—	UL AWM2464 5.0 mm dia. (3 conductors) 5.4 mm dia. (4 conductors) 0.34 mm^2 Sheath color: black	—	—

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

Pin Arrangement (Engaged Side)

Item		No. of poles	4 poles	5 poles
DC type	**Male (plug) contacts**			
	Female (socket) contacts			
AC type	**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.

Connections

Connection Combinations

OMRON model No.		M12 Plug Connectors	Smartclick Plug Connectors
		XS2H, XS2G, XS2W (plug side), XS2R (plug side), XS2M	XS5H, XS5G, XS5W (plug side), XS5R (plug side), XS5M
M12 Socket Connectors	XS2F, XS2C, XS2W (socket side), XS2R (socket side), XS2P	○	○
Smartclick Socket Connectors	XS5F, XS5C, XS5W (socket side), XS5R (socket side), XS5P	○	◎

◎: Connected by twisting.
○: Connected by screwing.
Note: The XS☐M and XS☐P cannot mate with each other.

XS2W Sockets and Plugs on Both Cable Ends

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*.

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: Gold plating

5. 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)

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

7. Connections (Numbers inside circles are terminal numbers)

8 : ① Brown, ② White, ③ Blue, ④ Black (for DC)
G : ① Brown, ② White, ③ Blue, ④ Black, ⑤ Gray

8. Connectors on One End/Both Ends

1: Both ends

9. Cable Specifications

F : Fire-retardant, PVC robot cable
SA : Spatter-resistant cable
S : Standard PVC cable

XS2W Sockets and Plugs on Both Cable Ends

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	UL
Fire-retardant, PVC robot cable	Straight (Plug)/ Straight (Socket)	4	6.0 dia.	0.5	0.5	XS2W-D421-B81-F	UL 2238 certified (File No. E207683)
					1	XS2W-D421-C81-F	
					2	XS2W-D421-D81-F	
					3	XS2W-D421-E81-F	
					4	XS2W-D421-F81-F	
					5	XS2W-D421-G81-F	
					10	XS2W-D421-J81-F	
					15	XS2W-D421-K81-F	
	Right-angle (Plug)/ Right-angle (Socket)				20	XS2W-D421-L81-F	
					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)				1	XS2W-D424-C81-F	
					2	XS2W-D424-D81-F	
					5	XS2W-D424-G81-F	
					10	XS2W-D424-J81-F	
Standard Cable	Straight (Plug)/ Straight (Socket)	5		0.3	2	XS2W-D521-DG1-A	—
					5	XS2W-D521-GG1-A	
Spatter-resistant cable	Straight (Plug)/ Straight (Socket)	4	6.6 dia.	0.5	2	XS2W-D421-D81-SA	—
					5	XS2W-D421-G81-SA	

Note: Ask your OMRON representative about other cable lengths.

Dimensions

(Unit: mm)

Straight (Socket)/Straight (Plug)
Fire-retardant, PVC robot cable
XS2W-D421-□81-F
Spatter-resistant cable
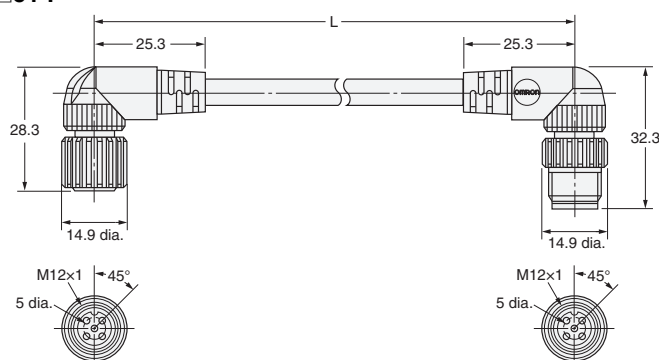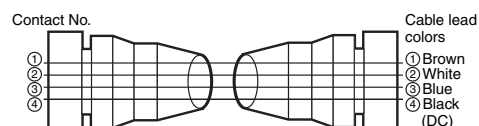**XS2W-D421-D81-SA**
Standard cable (5 cores)
XS2W-D521-□G1-A

M12×1   45°
5 dia.
14.9 dia.
40.7
44.7
L
M12×1   45°
5 dia.
14.9 dia.
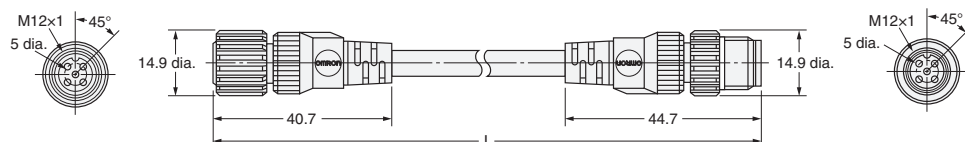
Right-angle/Right-angle
Fire-retardant, PVC robot cable
XS2W-D422-□81-F

L
25.3
25.3
28.3
32.3
14.9 dia.
14.9 dia.
M12×1   45°
5 dia.
M12×1   45°
5 dia.

Wiring Diagram for 4 Cores

Contact No.
① ② ③ ④

Cable lead colors
① Brown
② White
③ Blue
④ Black
(DC)

Straight (Socket)/Right-angle (Plug)
Fire-retardant, PVC robot cable
XS2W-D423-□81-F

M12×1   45°
5 dia.
40.7
25.3
L
14.9 dia.
32.3
14.9 dia.
M12×1   45°
5 dia.
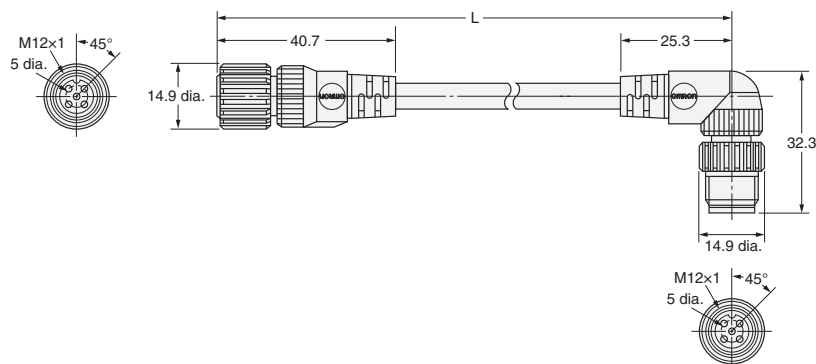
Wiring Diagram for 5 Cores
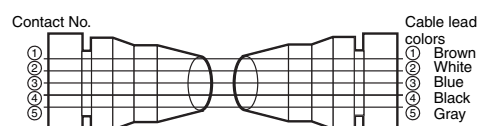
Contact No.
① ② ③ ④ ⑤

Cable lead colors
① Brown
② White
③ Blue
④ Black
⑤ Gray

Right-angle (Socket)/Straight (Plug)
Fire-retardant, PVC robot cable
XS2W-D424-□81-F

L
25.3
44.7
M12×1   45°
5 dia.
14.9 dia.
28.3
14.9 dia.
M12×1   45°
5 dia.
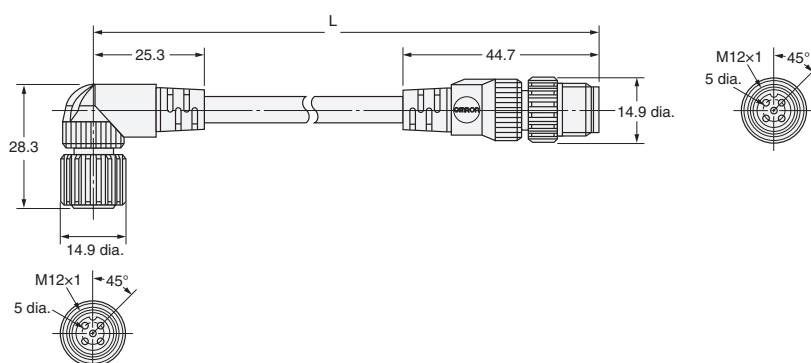
XS2F Socket on One Cable End

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*.

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: 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
Note: Only the 2 m (D), 5 m (G) and 10 m (J) cables are available for cables with 5 poles.

7. Connections
(Numbers inside circles are terminal numbers)

A : ① Brown, ② ---,   ③ ---,   ④ Blue (for DC)
B : ① ---,   ② ---,   ③ Brown, ④ Blue (for AC)
C : ① Brown, ② ---,   ③ Blue,   ④ Black
D : ① ---,   ② ---,   ③ Blue,   ④ Brown
8 : ① Brown, ② White, ③ Blue,   ④ Black (for DC)
9 : ① Brown, ② White, ③ Blue,   ④ Black (for AC)
G : ① Brown, ② ---, ③ Blue, ④ Black, ⑤ Gray

8. Connectors on One End/Both Ends

0: One end

9. Cable Specifications

F: Fire-retardant, PVC robot cable
E: Heat-resistant cable up to 105°C
SA: Spatter-resistant cable
A: Standard PVC cable
Note: 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
(Numbers inside circles are terminal numbers)

1: ① ---, ② ---, ③ Black, ④ White

8. Connectors on One End/Both Ends

0: One end

9. Cable Specifications

Not designated.

Note: DC non-polarity models have different specific codes. (6, 7 and 9)

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, PVC robot cable	Straight	2	6.0 dia.	0.5	1	XS2F-D421-CA0-F	XS2F-A421-CB0-F	UL 2238 certified (File No. E207683)
		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	
		4			3	XS2F-D421-E80-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	
		4			15	XS2F-D421-K80-F	—	
		4			20	XS2F-D421-L80-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	—	
		4			3	XS2F-D422-E80-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 PVC 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	—	
		2			5	XS2F-D422-410	XS2F-A422-410	
E2E models with conventional connector pin with Fire-retardant, PVC 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	—	
Standard PVC cable	Straight	5	6.0 dia.	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.
*The heat-resistant fixture material is SUS316L stainless steel without surface treatment.

Dimensions

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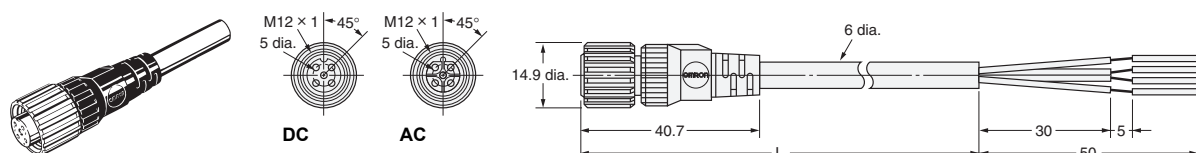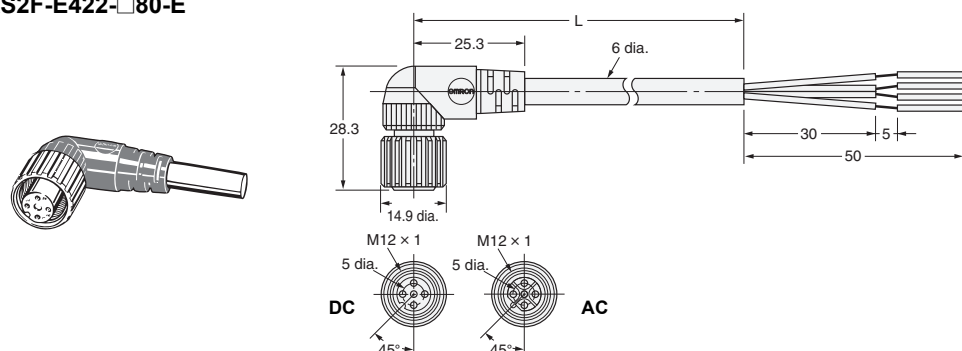**E2E models with conventional connector pin with Fire-retardant, PVC robot cable**
XS2F-D421-□□0
Heat-resistant cable up to 105°C
XS2F-E421-□80-E
Spatter-resistant cable
XS2F-D421-□80-SA

Right-angle Connectors
Fire-retardant, PVC robot cable
XS2F-D422-□□0-F
XS2F-A422-□□0-F
Non-polar DC Connectors with Standard PVC cable
XS2F-D422-□□0
XS2F-A422-□□0
E2E models with conventional connector pin with Fire-retardant, PVC robot cable
XS2F-D422-□□0
Heat-resistant cable up to 105°C
XS2F-E422-□80-E

Wiring Diagram

		Two-core	Three-core	Four-core
Fire-retardant, PVC robot cable	XS2F-□42□-□□0-F			
Spatter-resistant cable *	XS2F-D421-□80-SA			
Heat-resistant cable up to 105°C *	XS2F-E42□-□80-E			
Non-polar DC Connectors with Standard PVC cable	XS2F-□42□-□□0		—	—
E2E models with conventional connector pin with Fire-retardant, PVC robot cable	XS2F-D42□-□D0		—	—

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

Dimensions
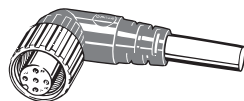
Straight
Standard PVC cable
XS2F-D521-☐G0-A

M12 × 1
5 dia.
45°
14.9 dia.
6 dia.
40.7
L
30
5
50

Wiring Diagram

Contact No.
Cable lead colors
① Brown
② ③ White
④ ⑤ Blue
Black
Gray
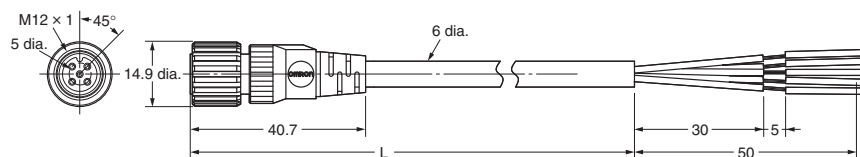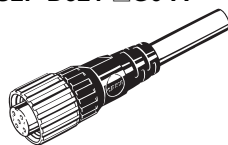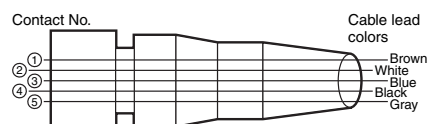
Right-angle
Standard PVC cable
XS2F-D522-☐G0-A

L
25.3
6 dia.
28.3
30
5
50
M12
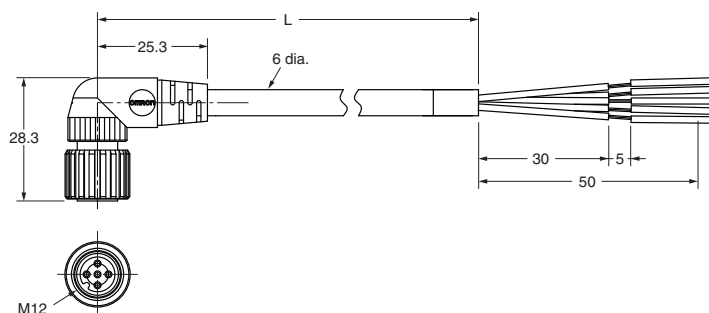
For details on connecting with E2E Proximity Sensors, refer to E2E Small-diameter Proximity Sensor Data Sheet (Cat. No.: SCEC-044).

XS2F-G/H

Connectors with Cables, Socket on One Cable End, Screw Loosening-preventing Structure Type

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*.

XS2F-☐42☐-☐☐☐-F
　　　1　2　　3　　4　　5

1. Type

F: Connector with cables, sockets on one cable end

2. AC/DC

G: For DC
H: For AC

3. Cable Connection Direction

1: Straight
2: Right-angle

4. Cable Length

G80 : 5m (for DC)
G90 : 5m (for AC)
J80　: 10m (for DC)
J90　: 10m (for AC)

5. Structure

Screw Loosening-preventing

Ordering Information

Cable connection direction	No. of cable cores	Cable length L (m)	DC	AC	UL
			Model	Model	
Straight	4	5	XS2F-G421-G80-F	XS2F-H421-G90-F	UL 2238 certified (File No. E207683)
		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

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

M12 × 1 ←45° M12 × 1 ←45°
5 dia. 5 dia.
14.9 dia.
6 dia.

DC **AC**

40.7
L
30
5
50
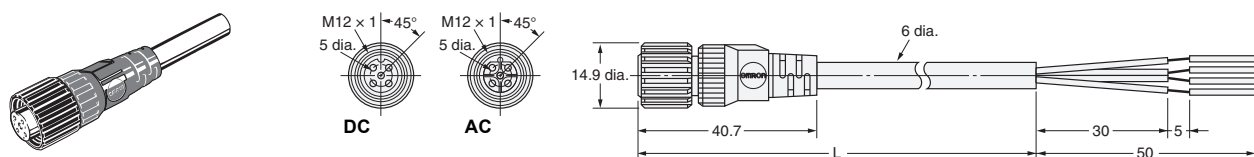
Right-angle
XS2F-G422-□80-F
XS2F-G422-□90-F

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

M12 × 1 M12 × 1
5 dia. 5 dia.
DC **AC**
45° 45°
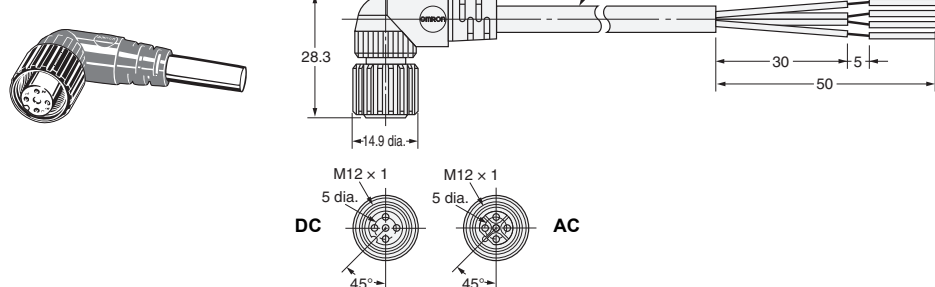
Features

Screw Loosening-preventing Structure
Appearance

Black nickel plating

Structure

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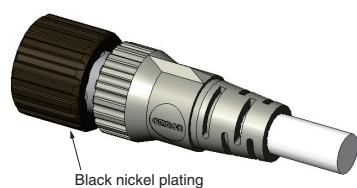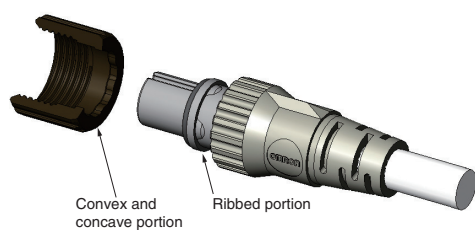
By the above structure, the convex and concave portion of the thread bracket and housing ribs interfere with each other at 45° increments to work as a loosening-preventing mechanism when engaged.

XS2F Sockets on One Cable End with Indicator

Model Number 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*.

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	UL 2238 certified (File No. E207683)
					5	PNP	XS2F-M12PVC3A5MPLED	
					10		XS2F-M12PVC3A10MPLED	
					2	NPN	XS2F-M12PVC3A2MNLED	
					5	NPN	XS2F-M12PVC3A5MNLED	
					10		XS2F-M12PVC3A10MNLED	
		5.4 dia.	4		2	PNP	XS2F-M12PVC4A2MPLED	
					5	PNP	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
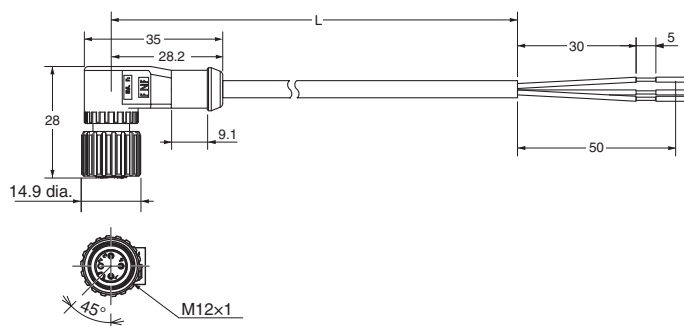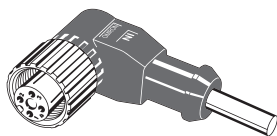
Wiring Diagram

3 poles		4 poles
NPN	**PNP**	**PNP**

NPN
1 + BROWN
YELLOW   GREEN
4   BLACK
3 - BLUE

PNP
1 + BROWN
4   BLACK
YELLOW   GREEN
3 - BLUE

PNP (4 poles)
1 + BROWN
2   WHITE
4   BLACK
R1   R2   R3
D1   D2   D3
3 - BLUE

XS2H 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*.

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: 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 (Numbers inside circles are terminal numbers)

    8 : ① Brown, ② White, ③ Blue,   ④ Black (for DC)
    9 : ① Brown, ② White, ③ Blue,   ④ Black (for AC)
    A : ① Brown, ② ---,   ③ ---,   ④ Blue (for DC)
    B : ① ---,   ② ---,   ③ Brown, ④ Blue (for AC)
    C : ① Brown, ② ---,   ③ Blue, ④ Black (for DC)
    G : ① Brown, ② White, ③ Blue,   ④ Black,   ⑤ Gray

8. Connectors on One End/Both Ends

    0: One end

9. Cable Specifications

    A   :Standard cable
    F   :Fire-retardant, PVC 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, PVC robot cable	4	Straight Connectors	6.0 dia.	2	0.5	0.3	**XS2H-D421-AA0-F**	**XS2H-A421-AB0-F**	UL 2238 certified (File No. E207683)
				3		0.3	**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, PVC robot cable XS2H-☐421-☐☐0-F
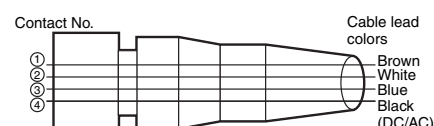**Spatter-resistant cable XS2H-D421-☐80-SA**

M12 × 1
5 dia. — 45°   5 dia. — 45°

DC   **AC**

44.7   6 dia.

14.9 dia.

30   5

L   50

Wiring Diagram

Two-cores

Contact No.   Cable lead colors
① ② ③ ④   Brown
Blue (DC)

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

Three-cores

Contact No.   Cable lead colors
① ② ③ ④   Brown
Blue
Black (DC)

Four-cores

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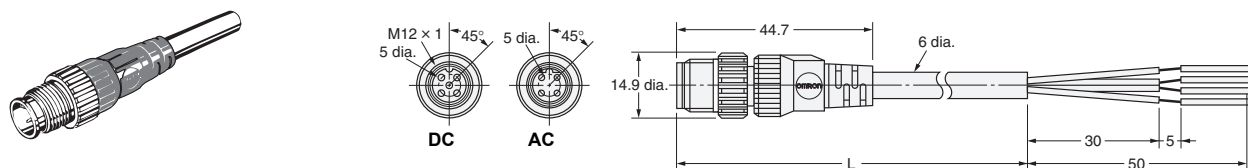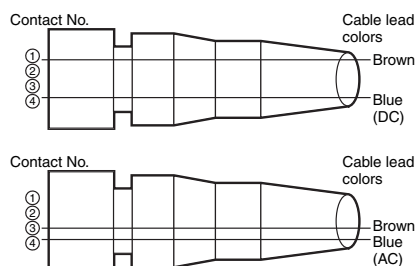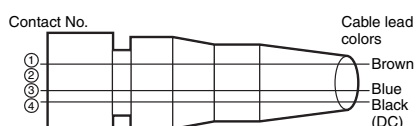
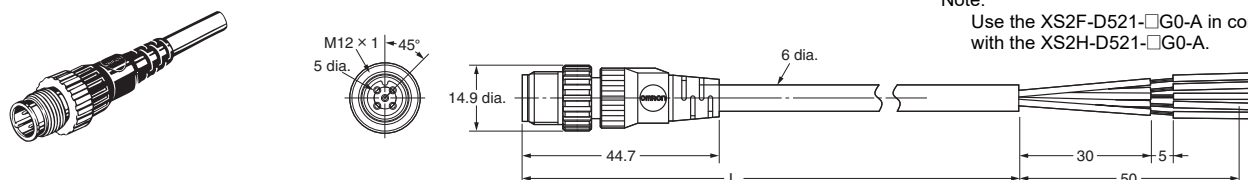**Straight (5 poles)**
Standard cable XS2H-D521-☐G0-A (For DC)

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

L   50

Wiring Diagram

Five-cores

Contact No.   Cable lead colors
② ① ③ ④ ⑤   Brown
White
Blue
Black
Gray

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	UL
Panel-mounting Plug	—	—	—	AWG22 to 28	XS2M-D824-4	—
Panel-mounting socket					XS2P-D821-2	UL 2238 certified (File No. E207683)
					XS2P-D822-2	
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 PVC robot cable models (-R).

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, gold plating
Thread Bracket, body, M16 nuts		Brass/nickel plated
Pin block		PBT resin, light gray
Cover *1		Soft PBT resin
Seal rubber and O-ring *2		Rubber
Cable	Standard cable (8 core, shielded)	6 mm dia. AWG24

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

Pins and Cable Lead Colors

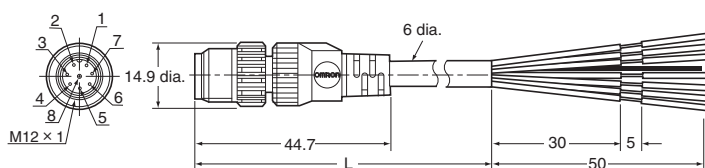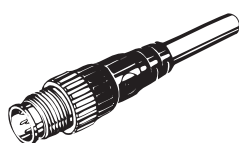|	Pin No.							
XS2F/XS2H/XS2W cable lead colors	1	2	3	4	5	6	7	8
	White	Brown	Green	Yellow	Gray	Pink	Blue	Shield

Wiring

Wiring Example
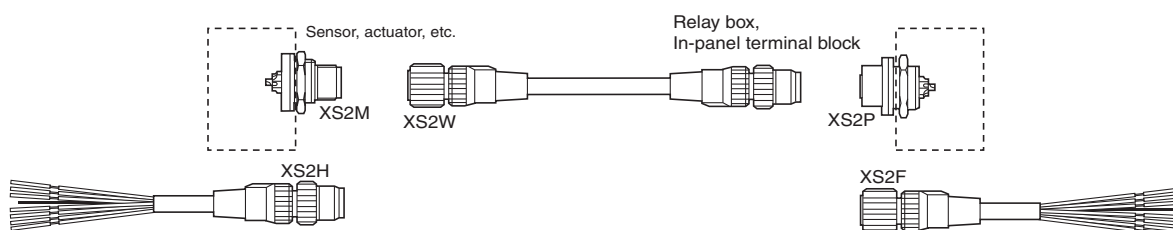
Dimensions

(Unit: mm)

Plug on One Cable End (M12)
XS2H

2 1
3 7
14.9 dia.
4 6
8 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 4
8 5
M12 × 1

6 dia.

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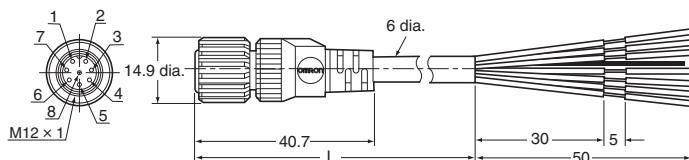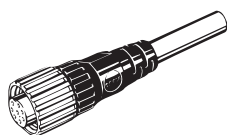
Socket and Plug on Both Cable Ends (M12)
XS2W

M12 × 1
5 8
6 4
14.9 dia.
7 3
1 2

1 2
7 3
14.9 dia.
6 4
8 5
M12 × 1

6 dia.

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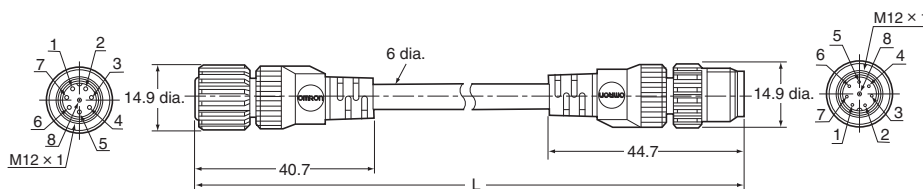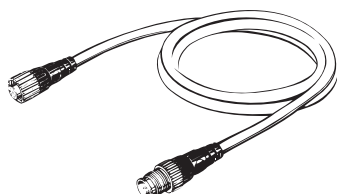
Panel-mounting Socket (M12)
Rear Lock Model
XS2P-D821-2 (with Solder Cup Pins)

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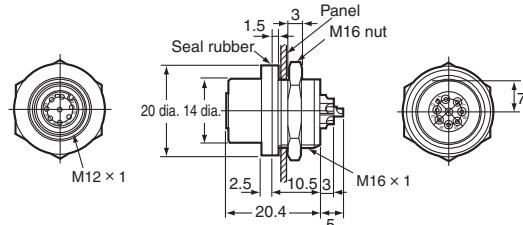
Panel-mounting Plug (M12)
Front Lock Model
XS2M-D824-4 (with Solder Cup Pins)

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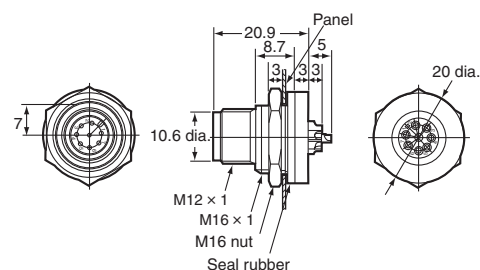
Panel-mounting Socket (M12)
Front Lock Model
XS2P-D822-2 (with Solder Cup Pins)

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

Panel Cutout

$7^{+0.1}_{0}$
$16^{+0.15}_{0}$ dia.
24 min.
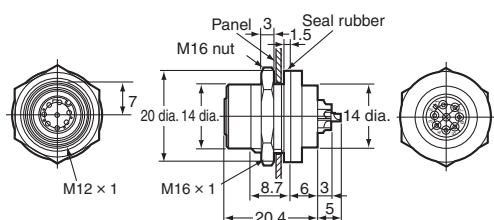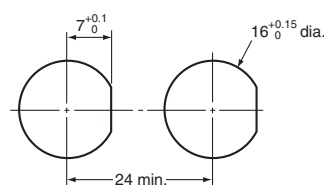
Connector Terminal Numbers
(from Connection Side)

2 1
3 7
4 6
5 8
Plug

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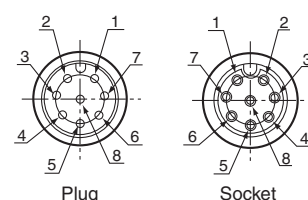
Note: 1. Mounting panel thickness: 1 to 4 mm.
2. Applicable core wire size for solder cup pins: 0.5 mm^2 max.
3. The M16 nut and seal rubber are included.

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	UL
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	UL 2238 certified (File No. E207683)
	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.
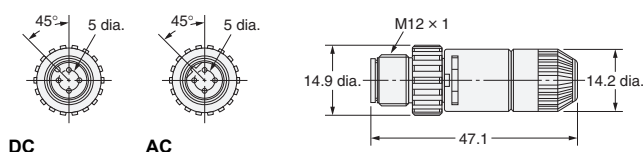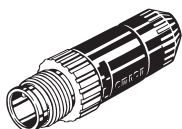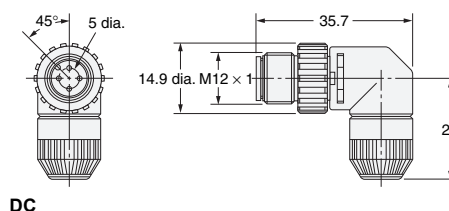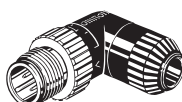
Dimensions
(Unit: mm)

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 33.

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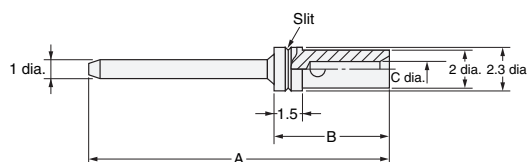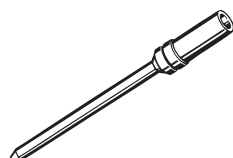
Dimensions

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

XS2C Crimping/Soldering Socket Assemblies

Ordering Information

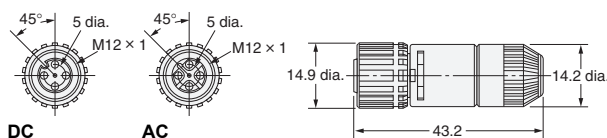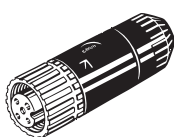| Suitable cable (mm)	Core conductor size (mm²)	Suitable sheath material	Cable connection direction	Connection method	DC Model	AC Model	UL
6 dia. (5 to 6 dia.)	0.18 to 0.3 0.5 to 0.75*	PVC, PE, PUR	Straight	Crimping	XS2C-D4C1	XS2C-A4C1	UL 2238 certified (File No. E207683)
	0.5 max.			Soldering	XS2C-D421	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.
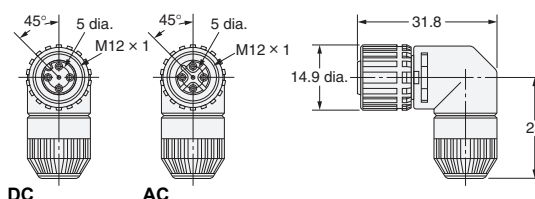
Dimensions

(Unit: mm)

Straight Connectors

45° 5 dia. M12 × 1   45° 5 dia. M12 × 1   14.9 dia.   14.2 dia.   43.2
DC   AC

Right-angle Connectors

45° 5 dia. M12 × 1   45° 5 dia. M12 × 1   31.8   14.9 dia.   23
DC   AC

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 33.

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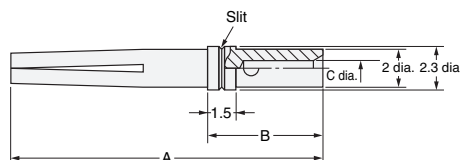
Dimensions

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) Model	Right-angle connectors (for DC) Model	UL
5	8 dia. (7 to 8 dia.)	0.18 to 0.75	PVC, PE, PUR	XS2G-D5S7	—	UL 2238 certified (File No. E207683)
	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.

Dimensions
(Unit: mm)

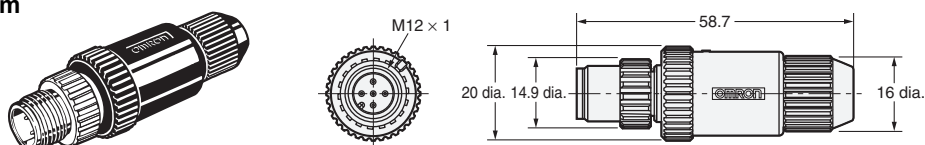**Straight Connectors**
Applicable Cable Outer Diameter: 8 mm
XS2G-D5S7 (5poles)
XS2G-D4S7 (4 poles)
Applicable Cable Outer Diameter: 7 mm
XS2G-D5S9 (5poles)
XS2G-D4S9 (4 poles)

M12 × 1
58.7
20 dia. 14.9 dia.
16 dia.

Straight Connectors
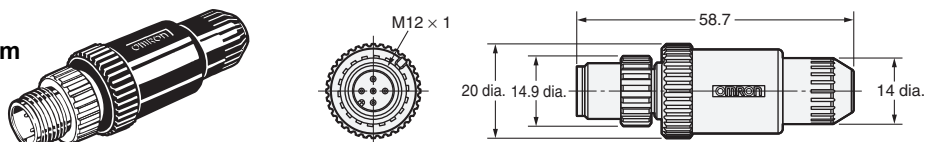**Applicable Cable Outer Diameter: 6 mm**
XS2G-D5S1 (5poles)
XS2G-D4S1 (4 poles)
Applicable Cable Outer Diameter: 4 mm
XS2G-D4S3 (4 poles)
Applicable Cable Outer Diameter: 3 mm
XS2G-D4S5 (4 poles)

M12 × 1
58.7
20 dia. 14.9 dia.
14 dia.

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)

M12 × 1
39.7
20 dia. 14.9 dia.
39.6
14 dia.