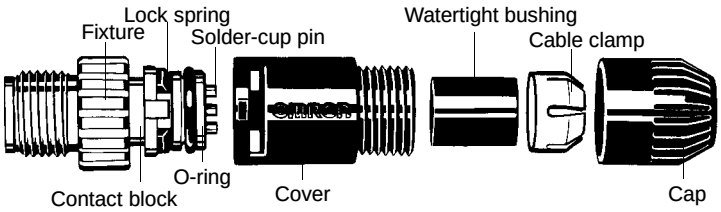
XS2 Series Sensor I/O Connectors (M12)

Water- and Environment-resistive FA Connector Saves Wiring and Maintenance Effort

- Compact FA connector meets IP67 requirements and ensures a 94V-0 fire retardant rating.
- A wide array of connectors makes a wiring system more modular, simplifies maintenance, and reduces down-time.
- Cables with connectors and connector assemblies are available.

■ Construction (Assembly Type)



■ Specifications

Rated current	3 A
Rated voltage	125 VDC, 250 VAC
Contact resistance	40 mΩ max. (20 mV max., 100 mA max.) (See note 1)
Insulation resistance	1,000 MΩ min. (at 500 VDC)
Withstand voltage	1,500 VAC for 1 min (leakage current: 1 mA max.) (See note 2)
Enclosure rating	IP67 (IEC529)
Insertion tolerance	200 times min.
Vibration resistance	At 10 to 500 Hz, 1.5 mm (0.059 in.) amplitude (or 10 G), no current shut-off for more than 1 μs.
Assembled fixture strength	Tensile: 98 N {10 kgf}/15 sec. Torsion: 0.98 N S m {10 kgf S cm{/15 sec.
Cable hold strength	Cable diameter: 6 mm 98 N {10 kgf} for 15 sec. 4 to 5 mm 49 N {5 kgf} for 15 sec. 3 mm 29 N {3 kgf} for 15 sec.
Ambient temperature	Operating: −25°C to 70°C

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

■ Materials/Finish

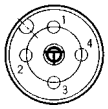
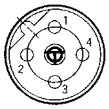
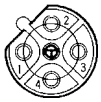
Contact block	PBT resin (UL94V-0); for DC: light grey; for AC: dark grey (see note 1)
Contact	Brass/nickel base, 0.4-μm gold plating (See note 2)
Fixtures	Brass with nickel plating (See note 3)
Cap	Black PBT resin (UL94V-0)
Cable clamp	Polyamide resin (UL94-0); 6-mm: white; 4-/3-mm: black
Pin clamp	White polyamide resin (UL94V-0)
Lock spring	LCP resin
Watertight bushing	Rubber
Cover	Assembled: PBT resin (UL94V-0)/black Molded: Polyvinyl chloride (UL94V-0)/black
Ring	Steel
O-ring	Rubber

Note: 1. The pin blocks of the XS2R, XS2M, and XS2P are made of polyamide resin (UL94V-0).
2. The contact of the XS2F, XS2H, and XS2W is made of phosphorus bronze.
3. The thread bracket of the XS2R is made of white aluminum.

■ Recommended Cables

Cable outer diameter		**Conductor sizes**		
		Crimping models	**Soldering models**	**Screw-on models**
6 mm	5 to 6 mm	Two types of pins are available. • 0.18 to 0.3 mm^2 • 0.5 to 0.75 mm^2	0.5 mm^2 max.	0.18 to 0.75 mm^2
4 mm	4 to 5 mm			
3 mm	3 to 4 mm			

■ Socket Appearance

DC type		**AC type**	
Male contact	**Female contact**	**Male contact**	**Female contact**
			

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

XS2W Sensor I/O Connectors (M12) with Socket and Plug Used for Both Cable Ends

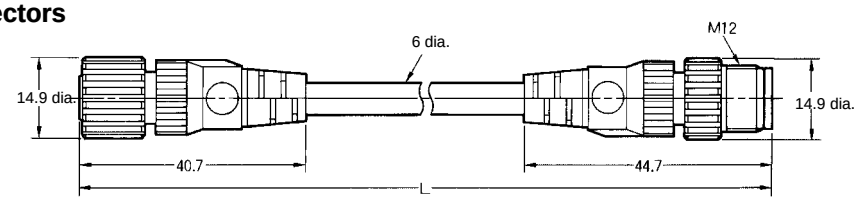
■ Ordering Information

Orders are accepted in multiples of the minimum order.

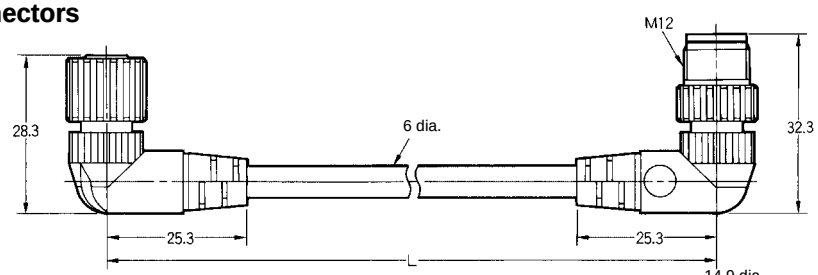
Item	Cable pulling direction	No. of cable conductors	Cable length (m)	DC	
				Model	Minimum order
Standard cable	Straight/Straight	4	1	XS2W-D421-C81-A	10
			2	XS2W-D421-D81-A	
			5	XS2W-D421-G81-A	5
			10	XS2W-D421-J81-A	
	L-shaped/L-shaped		2	XS2W-D422-D81-A	10
			5	XS2W-D422-G81-A	5
	Straight/L-shaped		2	XS2W-D423-D81-A	10
			5	XS2W-D423-G81-A	5
	L-shaped/Straight		2	XS2W-D424-D81-A	10
			5	XS2W-D424-G81-A	5
Vibration-proof robot cable	Straight/Straight		1	XS2W-D421-C81-R	10
			2	XS2W-D421-D81-R	
			5	XS2W-D421-G81-R	5
			10	XS2W-D421-J81-R	

■ Dimensions

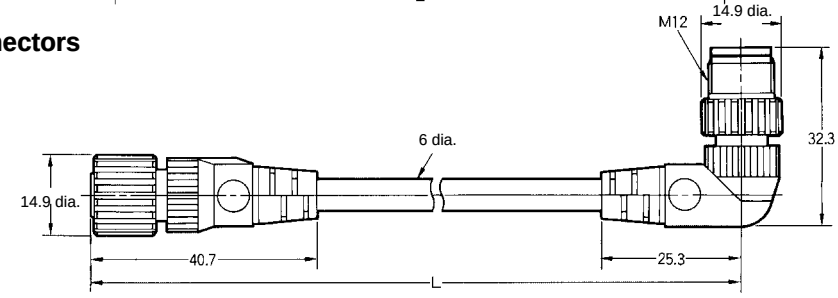
XS2W-D421
Straight/Straight Connectors



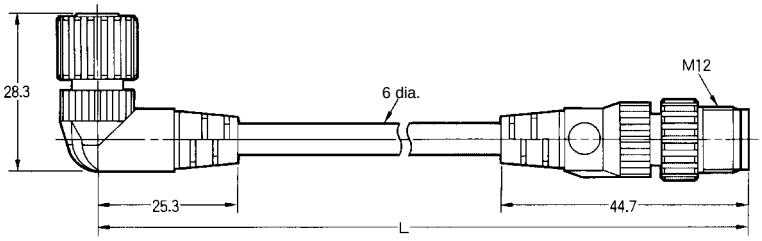
XS2W-D422
L-shaped/L-shaped Connectors



XS2W-D423
Straight/L-shaped Connectors

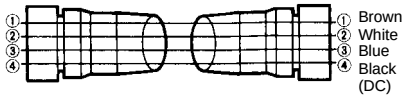


XS2W-D424
L-shaped/Straight Connectors



■ Wiring Diagram

4-conductor Model

Wiring diagram	No. of cable conductors
Contact No.  Cable conductor color	4

XS2F Sensor I/O Connectors (M12) with Socket Used for Single Cable End

Standard Cable/Vibration-proof Robot Cable Types

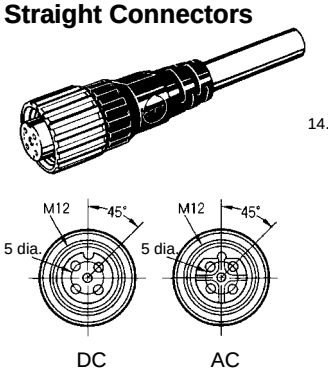
■ Ordering Information

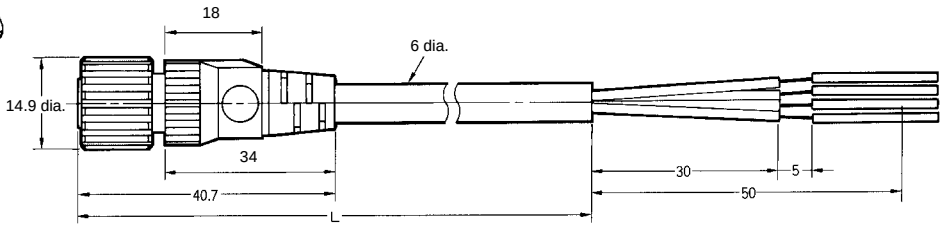
Orders are accepted in multiples of the minimum order.

Item	Cable pulling direction	No. of cable conductors	Cable length (m)	Model		Minimum order
				DC	AC	
Standard cable	Straight	2	1	XS2F-D421-CA0-A	XS2F-A421-CB0-A	10
		3		XS2F-D421-CC0-A	---	
		4		XS2F-D421-C80-A	XS2F-A421-C90-A	
		2	2	XS2F-D421-DA0-A	XS2F-A421-DB0-A	10
		3		XS2F-D421-DC0-AZ	---	
		4		XS2F-D421-D80-AZZ	XS2F-A421-D90-A	
		2	5	XS2F-D421-GA0-A	XS2F-A421-GB0-A	5
		3		XS2F-D421-GC0-AZ	---	
		4		XS2F-D421-G80-AZZ	XS2F-A421-G90-A	
		2	10	XS2F-D421-JA0-A	XS2F-A421-JB0-A	5
		3		XS2F-D421-JC0-A	---	
		4		XS2F-D421-J80-A	XS2F-A421-J90-A	
	L-shaped	2	1	XS2F-D422-CA0-A	XS2F-A422-CB0-A	10
		3		XS2F-D422-CC0-A	---	
		4		XS2F-D422-C80-A	---	
		2	2	XS2F-D422-DA0-A	XS2F-A422-DB0-A	10
		3		XS2F-D422-DC0-AZ	---	
		4		XS2F-D422-D80-AZ	---	
		2	5	XS2F-D422-GA0-A	XS2F-A422-GB0-A	5
		3		XS2F-D422-GC0-AZ	---	
		4		XS2F-D422-G80-AZ	---	
		2	10	XS2F-D422-JA0-A	XS2F-A422-JB0-A	5
		3		XS2F-D422-JC0-A	---	
		4		XS2F-D422-J80-A	---	
Vibration-proof robot cable	Straight	2	1	XS2F-D421-CA0-R	XS2F-A421-CB0-R	10
		4		XS2F-D421-C80-R	XS2F-A421-C90-R	
		2	2	XS2F-D421-DA0-R	XS2F-A421-DB0-R	10
		4		XS2F-D421-D80-R	XS2F-A421-D90-R	
		2	5	XS2F-D421-GA0-R	XS2F-A421-GB0-R	5
		4		XS2F-D421-G80-R	XS2F-A421-G90-R	
		2	10	XS2F-D421-JA0-R	XS2F-A421-JB0-R	5
		4		XS2F-D421-J80-R	XS2F-A421-J90-R	
	L-shaped	2	1	XS2F-D422-CA0-R	XS2F-A422-CB0-R	10
		4		XS2F-D422-C80-R	---	
		2	2	XS2F-D422-DA0-R	XS2F-A422-DB0-R	10
		4		XS2F-D422-D80-R	---	
		2	5	XS2F-D422-GA0-R	XS2F-A422-GB0-R	5
		4		XS2F-D422-G80-R	---	
		2	10	XS2F-D422-JA0-R	XS2F-A422-JB0-R	5
		4		XS2F-D422-J80-R	---	
Standard cable (non-polar)	Straight	2	2	XS2F-D421-310	XS2F-A421-310	10
		2	5	XS2F-D421-410	XS2F-A421-410	5
	L-shaped	2	2	XS2F-D422-310	XS2F-A422-310	10
		2	5	XS2F-D422-410	XS2F-A422-410	5

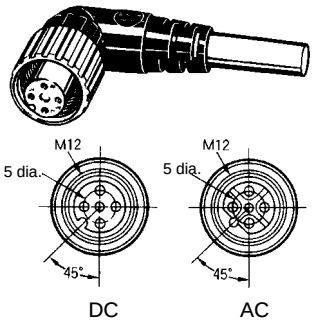
■ Dimensions

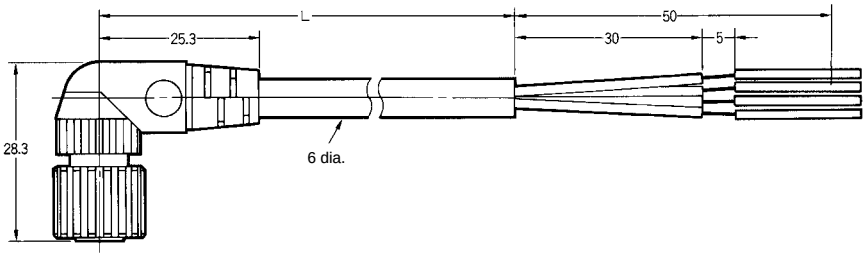
XS2F-D421
Straight Connectors





XS2F-D422
L-shaped Connectors





■ Wiring Diagram

Item	Standard cable Vibration-proof robot cable	Standard cable (non-polar DC)
	XS2F- j **42** j **-** j j **0-A** **XS2F-** j **42** j **-** j j **0-R**	**XS2F-** j **42** j **-** j j **0**
Two-conductor model	Contact No. ①②③④ Brown Blue (DC) Cable conductor color Contact No. ①②③④ Brown Blue (AC) Cable conductor color	Contact No. ①②③④ Black White Cable conductor color
Three-conductor model	Contact No. ①②③④ Brown Blue Black (DC) Cable conductor color	---
Four-conductor model	Contact No. ①②③④ Brown White Blue Black (DC/AC) Cable conductor color	---

Proximity Sensor E2E Connection Cable

■ Ordering Information

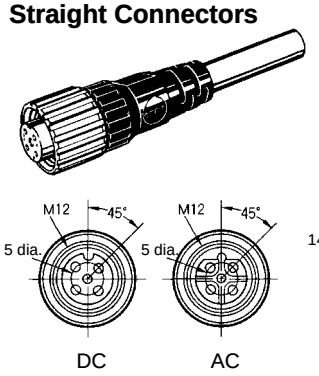
Orders are accepted in multiples of the minimum order.

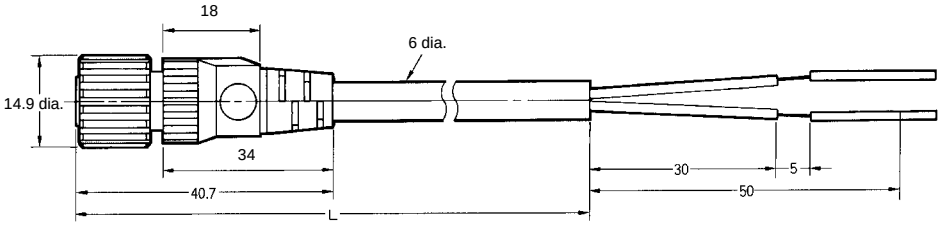
Cable pulling direction	No. of cable conductors	Cable length (m)	Model		Minimum order
			DC	AC	
Straight	2	2	XS2F-D421-DD0-TR	XS2F-A421-DB0-TR	10
		5	XS2F-D421-GD0-TR	XS2F-A421-GB0-TR	5
L-shaped		2	XS2F-D422-DD0-TR	XS2F-A422-DB0-TR	10
		5	XS2F-D422-GD0-TR	XS2F-A422-DB0-TR	5
Straight	3	2	XS2F-D421-DC0-TR	---	10
		5	XS2F-D421-GC0-TR	---	5
L-shaped		2	XS2F-D422-DC0-TR	---	10
		5	XS2F-D422-GC0-TR	---	5

■ Dimensions

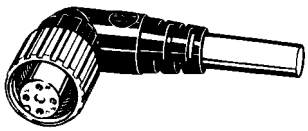
XS2F- j **42** j **-** j j **0-TR E2E Connection Cable**

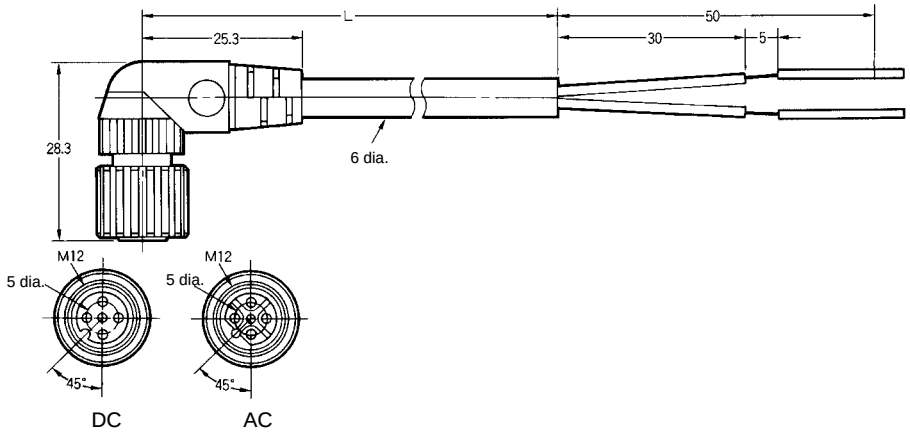
Straight Connectors



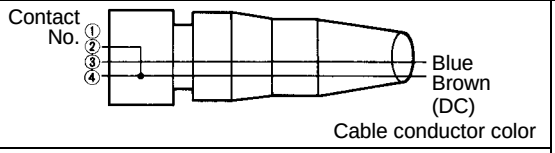
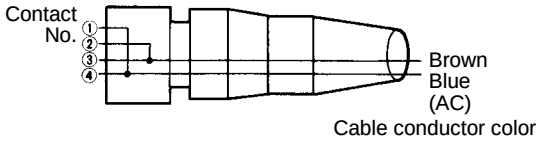
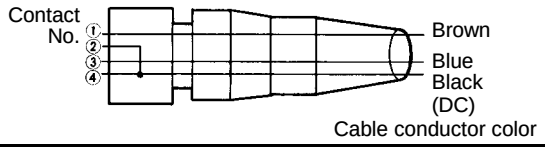


L-shaped Connectors





■ Wiring Diagram

Model	Wiring diagram	No. of cable conductors
XS2F-D42 j - j D0-TR		2
XS2F-A42 j - j B0-TR		
XS2F-D42 j - j C0-TR		3

■ Applicable Proximity Sensors

XS2F model	Proximity Sensor	Old connector model
XS2F-D42 j - j D0-TR	E2E-X j D1-P1 E2E-X j D1-M1J-T E2E-X j D2-P1	Y92E-P1D2 j
XS2F-D42 j - j C0-TR	E2E-X j E1-P1	Y92E-P1D3 j
XS2F-D42 j - j 80- j	E2E-X j D1S-P1	Y92E-P1D4 j
XS2F-A42 j - j B0-TR	E2E-X j Y1-P1 E2E-X j Y2-P1	Y92E-P1A2 j

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

XS2F Sensor I/O Connectors (M12) for DC (5-Poles)

■ Ordering Information

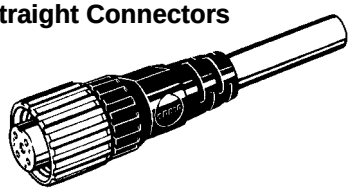
Orders are accepted in multiples of the minimum order.

No. of cable conductors	Cable length (m)	DC	
		Model	Minimum order
5	2	XS2F-D521-DG0-A	10
	5	XS2F-D521-GG0-A	5

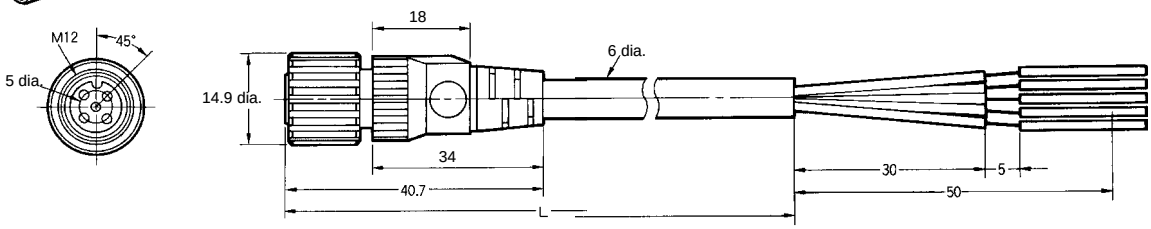
■ Dimensions

XS2F-D521- j **G0-A Sensor I/O Connector (with Five Poles for DC)**

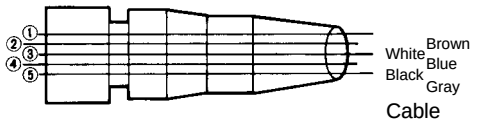
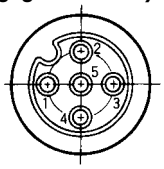
Straight Connectors



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



■ Wiring Diagram

Model	Wiring diagram	No. of cable conductors
XS2F-D521- j G0-A	Contact No.  Cable conductor color **Pin Arrangements (Engagement Side)** 	5

XS2H Sensor I/O Connector with Plug for Single Cable End

■ Ordering Information

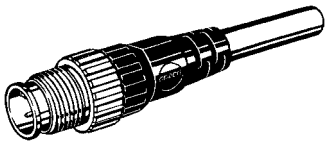
Orders are accepted in multiples of the minimum order.

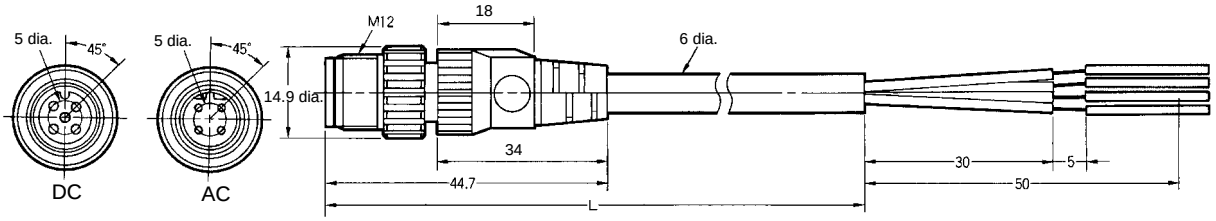
No. of connector poles	Cable pulling direction	No. of cable conductors	Size	Cable length (m)	Model		Minimum order
					DC	AC	
4	Straight	2	0.5 mm^2	0.3	XS2H-D421-AA0-A	XS2H-A421-AB0-A	10
		3			XS2H-D421-AC0-A	---	
		4			XS2H-D421-A80-A	XS2H-A421-A90-A	
		2		1	XS2H-D421-CA0-A	XS2H-A421-CB0-A	
		3			XS2H-D421-CC0-A	---	
		4			XS2H-D421-C80-A	XS2H-A421-C90-A	
5		5	0.3 mm^2	0.3	XS2H-D521-AG0-A	---	
				1	XS2H-D521-CG0-A	---	

■ Dimensions

XS2H- j **421-** j j **0-A Standard Cable (Four Poles) Types**

Straight Connectors

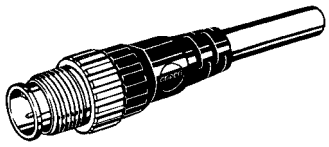


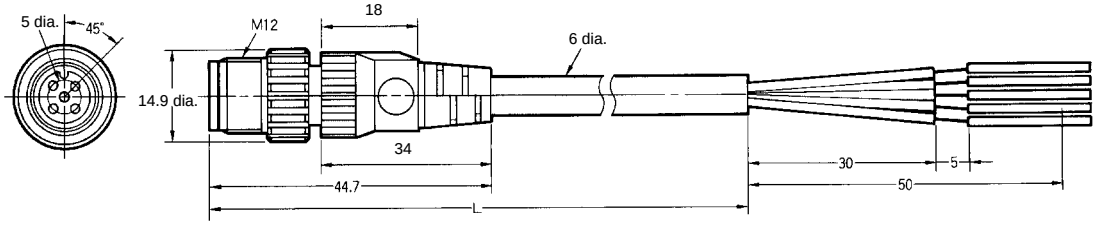


XS2H-D521- j **G0-A DC Cable Types (5 Poles)**

Straight Connectors

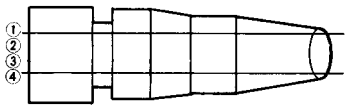
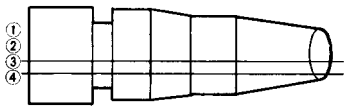
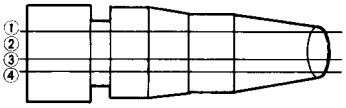
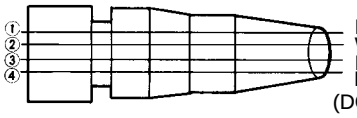
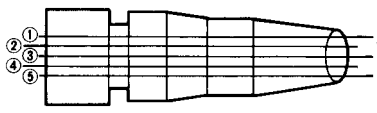
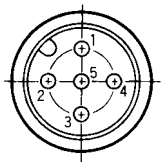
Note: Use the XS2H-D521- j G0-A in combination with the XS2F-D521- j G0-A.





XS2H Sensor I/O Connectors (M12)

■ Wiring Diagram

Model	Wiring diagram	No. of cable conductors
XS2H- j 421- j j 0-A	**Two-conductor Model** Contact No.  Brown Blue (DC) Cable conductor color Contact No.  Brown Blue (AC) Cable conductor color **Three-conductor Model** Contact No.  Brown Blue Black (DC) Cable conductor color **Four-conductor Model** Contact No.  Brown White Blue Black (DC/AC) Cable conductor color	4
XS2H-D521- j G0-A	**Five-conductor Model** Contact No.  White Black Brown Blue Gray Cable conductor color **Pin Arrangements (Engagement Side)** 	5

XS2G Sensor I/O Connector with Crimping/Soldering/Screw-on Plug Assembly

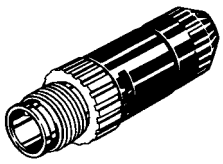
■ Ordering Information

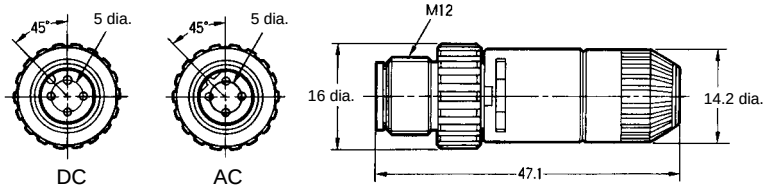
Orders are accepted in multiples of the minimum order.

Suitable cable dia. (mm)	Cable pulling direction	Connection method	Model		Minimum order
			DC	AC	
6-mm-dia. model (5 to 6 mm dia.)	Straight	Crimping	XS2G-D4C1	XS2G-A4C1	50
		Soldering	XS2G-D421	XS2G-A421	
		Screw-on	XS2G-D4S1	---	
	L-shaped	Soldering	XS2G-D422	---	
		Screw-on	XS2G-D4S2	---	
4-mm-dia. model (4 to 5 mm dia.)	Straight	Crimping	XS2G-D4C3	XS2G-A4C3	
		Soldering	XS2G-D423	XS2G-A423	
		Screw-on	XS2G-D4S3	---	
	L-shaped	Soldering	XS2G-D424	---	
		Screw-on	XS2G-D4S4	---	
3-mm-dia. model (3 to 4 mm dia.)	Straight	Crimping	XS2G-D4C5	XS2G-A4C5	
		Soldering	XS2G-D425	XS2G-A425	
		Screw-on	XS2G-D4S5	---	
	L-shaped	Soldering	XS2G-D426	---	
		Screw-on	XS2G-D4S6	---	

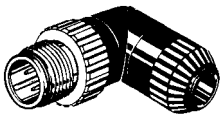
■ Dimensions

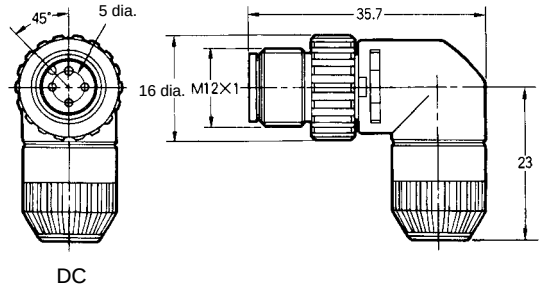
XS2G- j **4C** j **(Crimping Model)**
XS2G- j **42** j **(Soldering Model)**
Straight Connectors





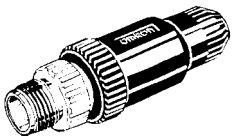
XS2G-D42 j **(Soldering Model)**
L-shaped Connectors

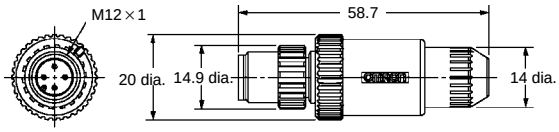




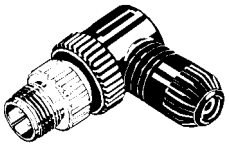
Note: Plug pins for crimping models are sold separately.

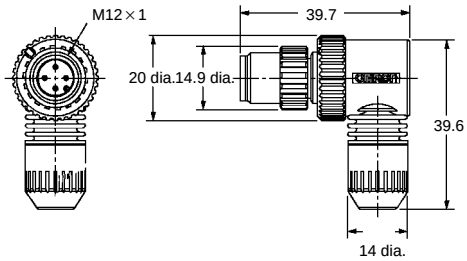
XS2G-D4S j (Screw-on Model)
Straight Connectors





L-shaped Connectors





XS2C Sensor I/O Connector with Crimping/Soldering/Screw-on Socket Assembly

■ Ordering Information

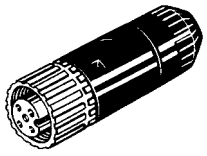
Orders are accepted in multiples of the minimum order.

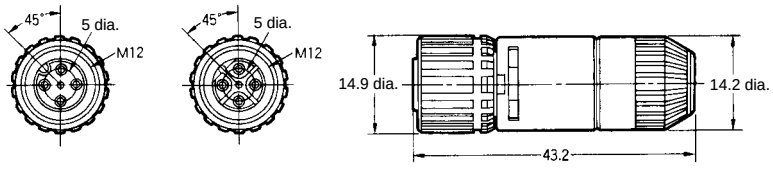
Suitable cable dia. (mm)	Cable pulling direction	Connection method	Model		Minimum order
			DC	AC	
6-mm-dia. model (5 to 6 mm dia.)	Straight	Crimping	XS2C-D4C1	XS2C-A4C1	50
		Soldering	XS2C-D421	XS2C-A421	
		Screw-on	XS2C-D4S1	---	
	L-shaped	Crimping	XS2C-D4C2	XS2C-A4C2	
		Soldering	XS2C-D422	XS2C-A422	
		Screw-on	XS2C-D4S2	---	
4-mm-dia. model (4 to 5 mm dia.)	Straight	Crimping	XS2C-D4C3	XS2C-A4C3	
		Soldering	XS2C-D423	XS2C-A423	
		Screw-on	XS2C-D4S3	---	
	L-shaped	Crimping	XS2C-D4C4	XS2C-A4C4	
		Soldering	XS2C-D424	XS2C-A424	
		Screw-on	XS2C-D4S4	---	
3-mm-dia. model (3 to 4 mm dia.)	Straight	Crimping	XS2C-D4C5	XS2C-A4C5	
		Soldering	XS2C-D425	XS2C-A425	
		Screw-on	XS2C-D4S5	---	
	L-shaped	Crimping	XS2C-D4C6	XS2C-A4C6	
		Soldering	XS2C-D426	XS2C-A426	
		Screw-on	XS2C-D4S6	---	

Note: Plug pins for crimping models are sold separately.

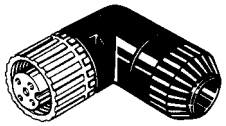
■ Dimensions

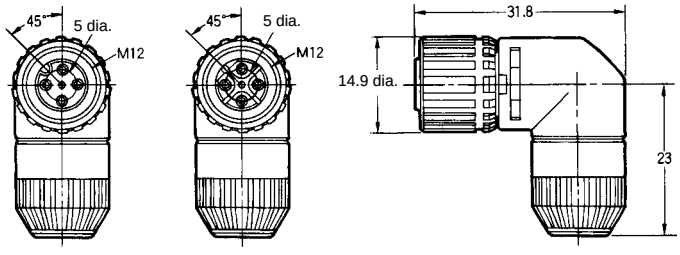
XS2C- j **4C** j **(Crimping Model)**
XS2C- j **42** j **(Soldering Model)**
Straight Connectors



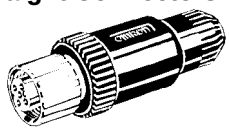


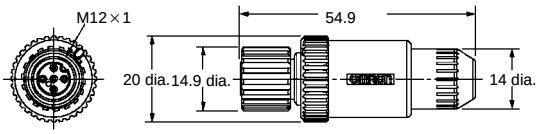
L-shaped Connectors



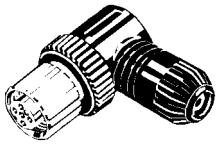


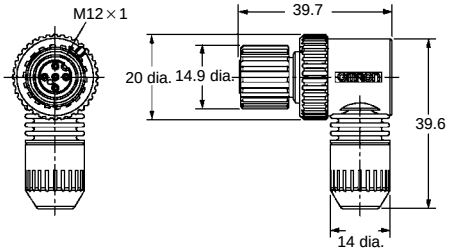
XS2C-D4S j (Screw-on Model)
Straight Connectors





L-shaped Connectors





XS2U Crimping Pin for XS2G

■ Ordering Information

Dimensions

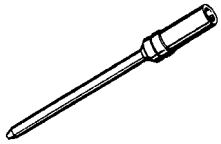
Model	Suitable conductor size (mm^2)	Dimension (mm)			No. of slits
		A	B	C	
XS2U-3121	0.18 to 0.3	20.0	6.1	0.8	1
XS2U-3122	0.5 to 0.75	20.1	6.2	1.3	0

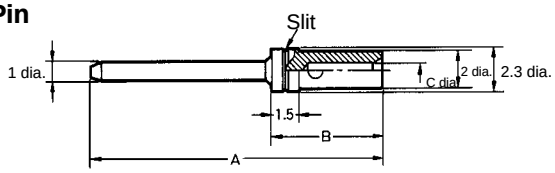
Note: Orders are accepted in multiples of a minimum order of 100 Units.

■ Dimensions

A dedicated tool is required to press-fit wires to the XS2U. Refer to page 23.

XS2U-312 j Plug Pin





XS2U Crimping Pin for XS2C

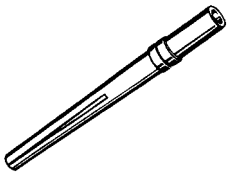
■ Ordering Information

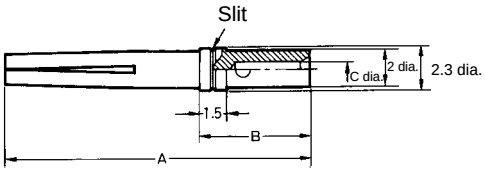
Suitable conductor size (mm^2)	Model	Minimum order
0.18 to 0.3	XS2U-2221	100
0.5 to 0.75	XS2U-2222	

Note: Orders are accepted in multiples of a minimum order of 100 Units.

■ Dimensions

XS2U-222 j Socket Pin





Dimensions

Model	Suitable conductor size (mm^2)	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

XS2P Sensor I/O Connector with Panel-mounting Socket for Terminal Boxes

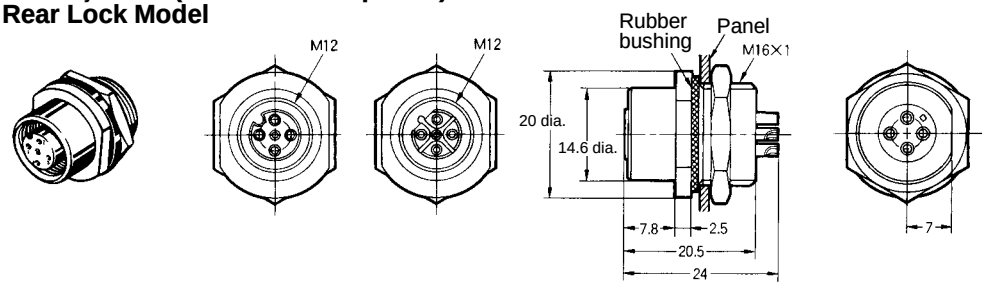
■ Ordering Information

Orders are accepted in multiples of the minimum order.

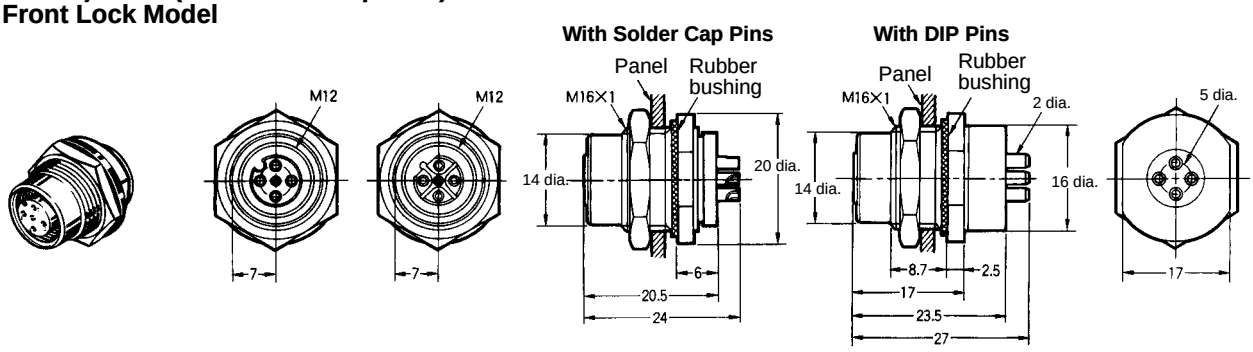
Lock method	Pin shape	Model		Minimum order
		DC	AC	
Rear lock	Solder cap pin	XS2P-D421-2	XS2P-A421-2	50
Front lock	Solder cap pin	XS2P-D422-2	XS2P-A422-2	
	DIP pin	XS2P-D422-1	XS2P-A422-1	

■ Dimensions

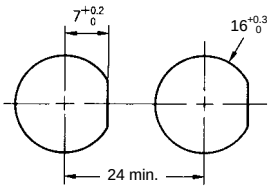
XS2P- j **421-2 (with Solder Cap Pins)**
Rear Lock Model



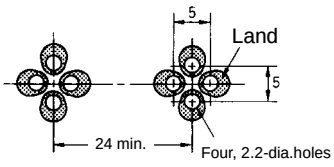
XS2P- j **422-1 (with DIP Pins)**
XS2P- j **422-2 (with Solder Cap Pins)**
Front Lock Model



Panel Cutout



PCB-mounting Dimensions



Note: The panel thickness is 1 to 4 mm.

XS2R Sensor I/O Connector with Y-joint Plug/Socket

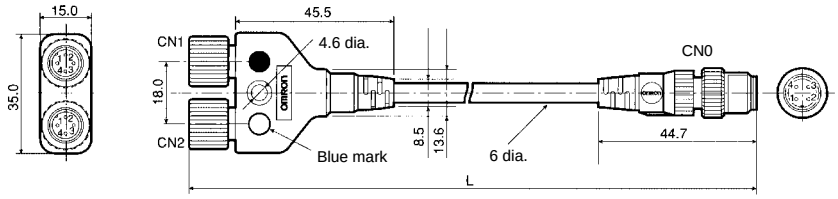
■ Ordering Information

Orders are accepted in multiples of the minimum order.

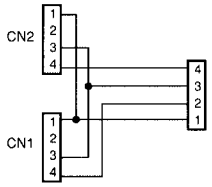
Type	Connector	DC		Minimum order
		Cable length L (m)	Model	
With cable	Connector for both cable ends	0.5	XS2R-D426-B11-F	5
		1	XS2R-D426-C11-F	
		2	XS2R-D426-D11-F	
		3	XS2R-D426-E11-F	
	Connector for single cable end	2	XS2R-D426-D10-F	
		5	XS2R-D426-G10-F	
Without cable	Connecter for both ends	---	XS2R-D426-1	10
			XS2R-D426-5	
			XS2R-D426-81	
			XS2R-D426-82	

■ Dimensions

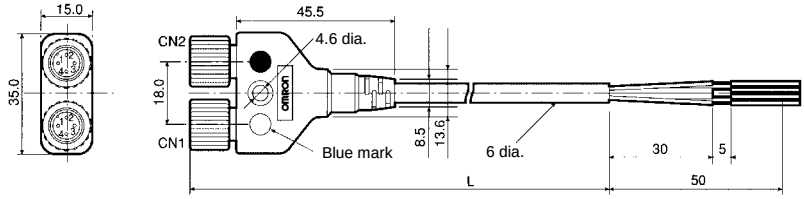
XS2R-D426- j **11-F**
Connector for Both Cable Ends with Y-joint Plug/Socket



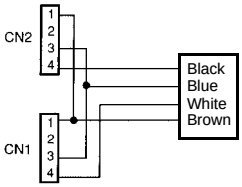
Internal Connections



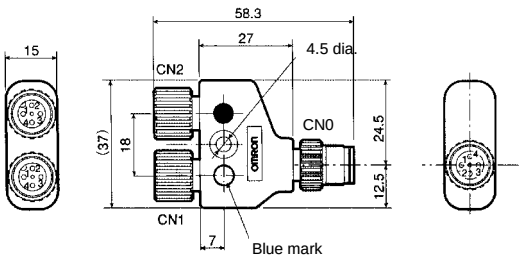
XS2R-D426- j **10-F**
Connector for Single Cable End with Y-joint Plug/Socket



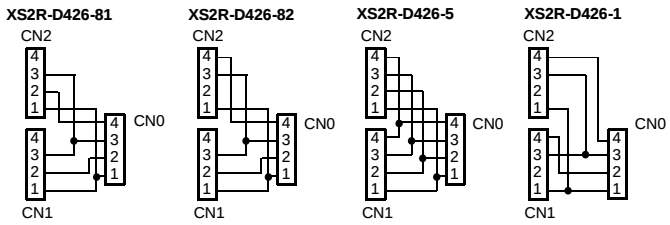
Internal Connections



XS2R-D426- j **-1**
Connector for Both Ends with Y-joint Plug/Socket without Cable



Internal Connections



XS2R Sensor I/O Connector with T-joint Plug/Socket

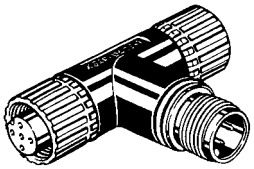
■ Ordering Information

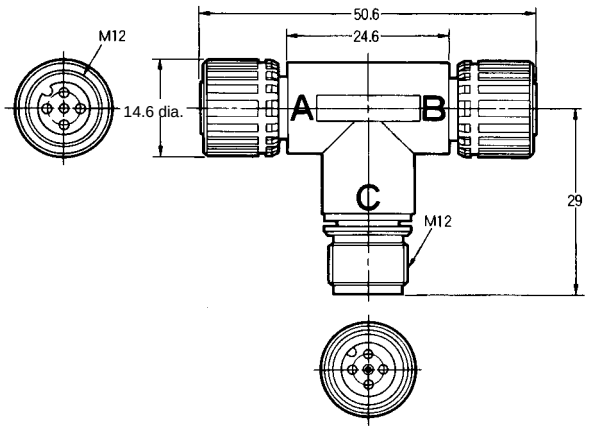
Orders are accepted in multiples of the minimum order.

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

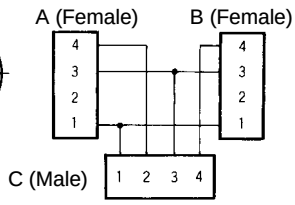
■ Dimensions

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

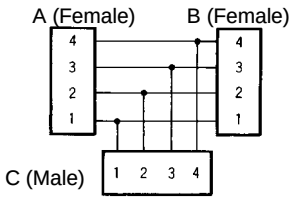




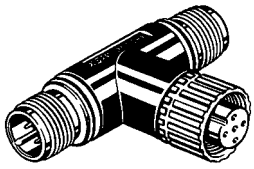
Internal Connections
XS2R-D422-1

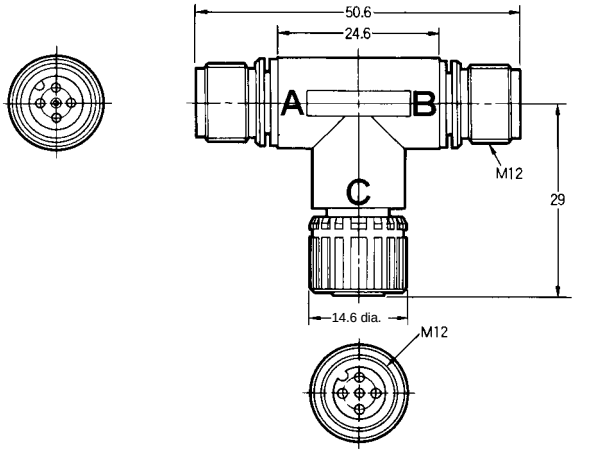


XS2R-D422-5

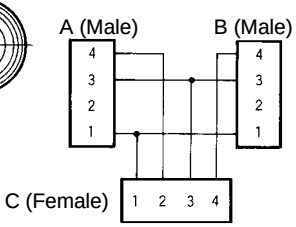


XS2R-D423-1
Bifurcated Model

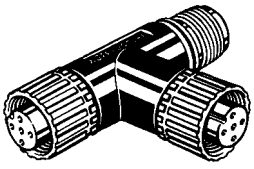


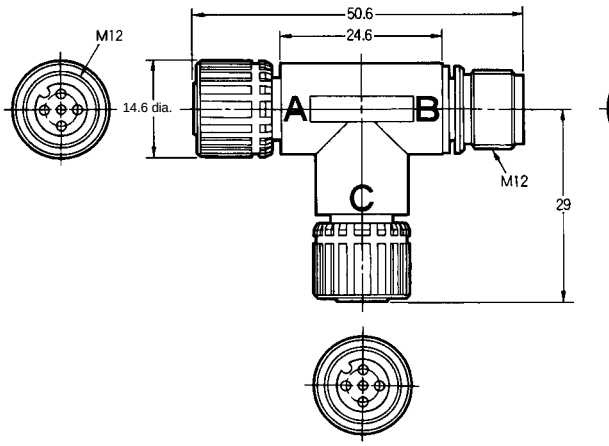


Internal Connections

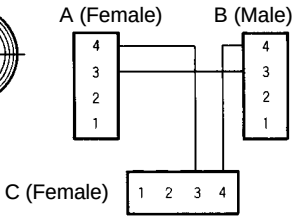


XS2R-D424-1
Daisy-chain Model



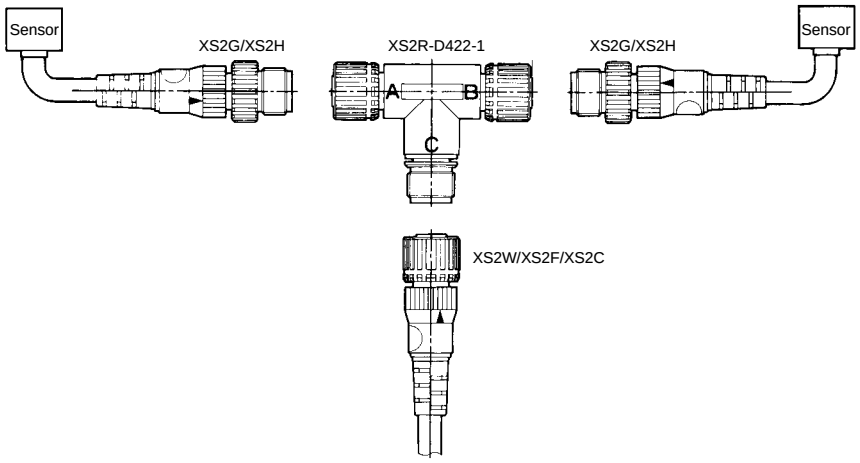


Internal Connections



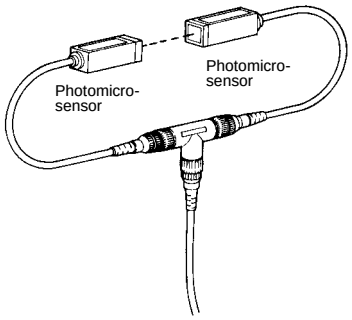
■ XS2R Application Examples

XS2R-D422-1 (Aggregate Model)

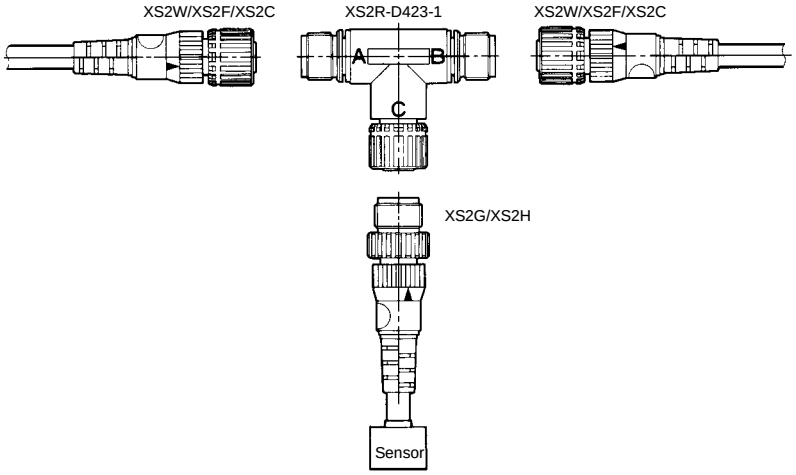


A pair of Two-wire Sensors or Three-wire Sensors can be connected as shown in the illustration.

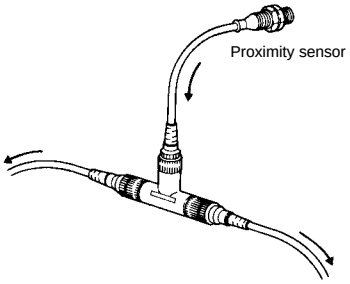
The XS2R-D422-5 has feed-through connections, thus working as a connector for the extension cable.



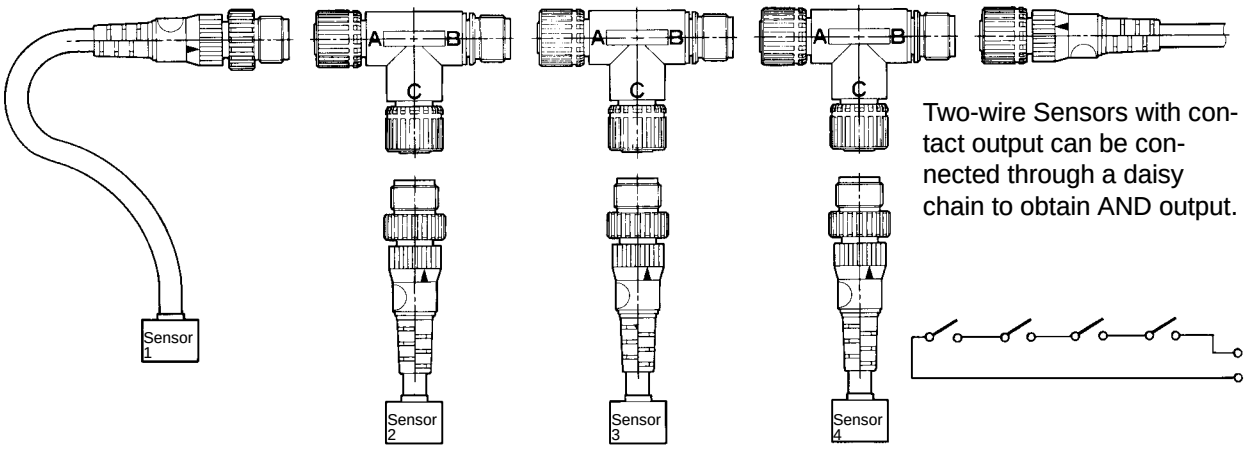
XS2R-D423-1 (Bifurcated Model)



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.

■ Precautions

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

XS2M Embedding/Panel-mounting Connectors

■ Ordering Information

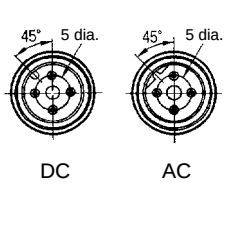
Orders are accepted in multiples of the minimum order.

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

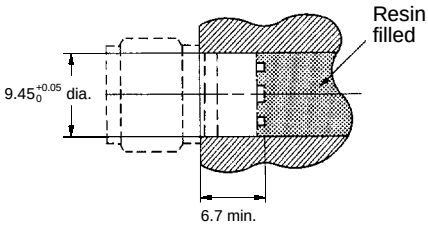
■ Dimensions

● XS2M Sensor Connector with Male Contact

XS2M-D421 (DC)
XS2M-A421 (AC)
(Screw-embedding Type)

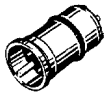


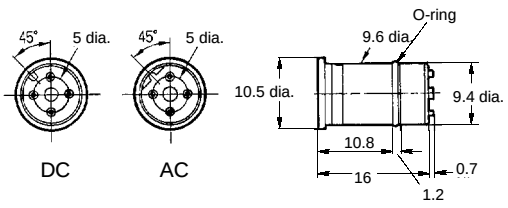
Mounted Dimensions



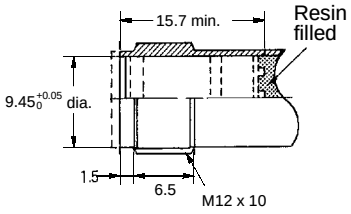
Note: After mounting, anchor the solder-cups by injecting resin.

XS2M-D422 (DC)
XS2M-A422 (AC)
(Non-screw Embedding Type)





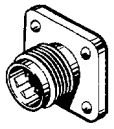
Mounted Dimensions

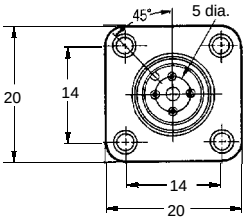


Note: After mounting, anchor the solder-cups by injecting resin.

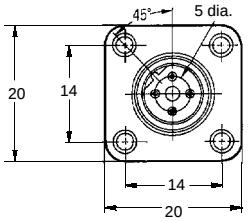
XS2M Panel-mounting Connector Plug

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

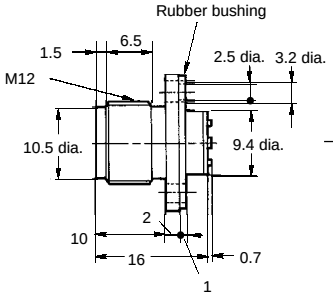




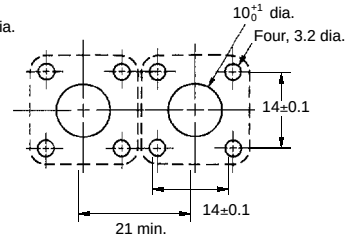
DC



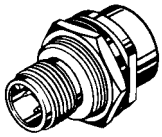
AC

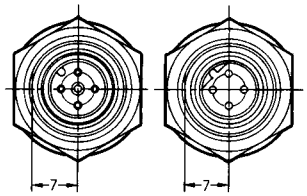


Panel Dimensions

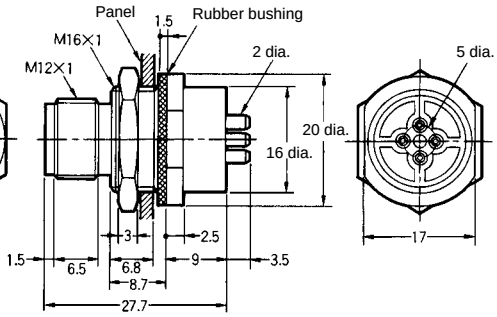


XS2M- j 424-1 (With DIP Pins)
XS2M- j 424-2 (With Solder Cap Pins)
(Screw-mounting Model)

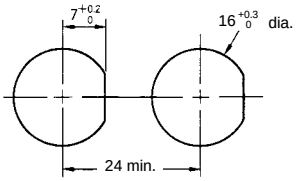




DC AC

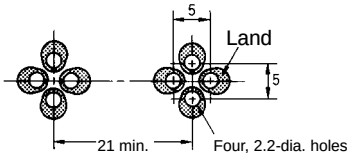


Panel Cutout



Note: The panel thickness is 1 to 4 mm.

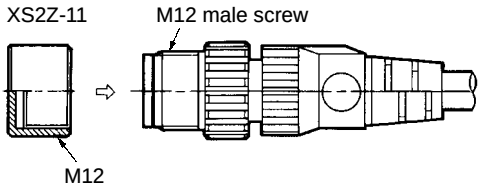
PCB-mounting Dimensions



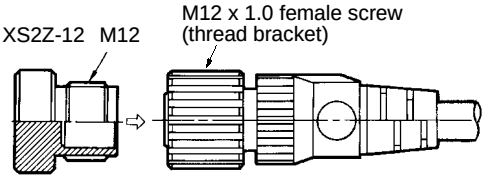
Accessories

■ Connector Covers

Water-resistive Covers
XS2Z-11



XS2Z-12

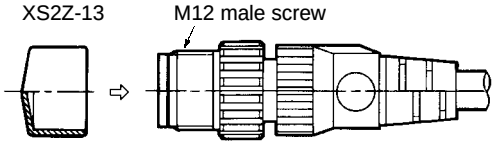


The Water-resistive Cover ensures IP67. When mounting the Water-resistive Cover to a Connector, be sure to apply a torque range between 0.39 and 0.49 N • m {4 and 5 kgf • cm} to tighten the Water-resistive Cover.

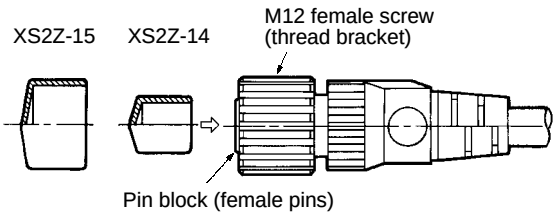
Orders are accepted in multiples of the minimum order.

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

Dust Covers
XS2Z-13



XS2Z-15/XS2Z-14



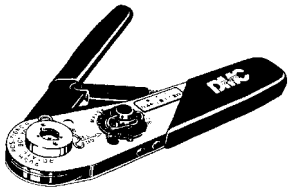
The Dust Cover is for dust prevention and does not ensure IP67. When mounting the Dust Cover to a connector, be sure to press the Dust Cover onto the Connector until the Connector is fully inserted into the Dust Cover.

Orders are accepted in multiples of the minimum order.

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

■ Tools

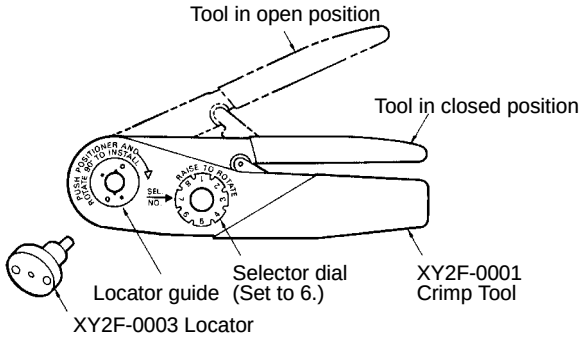
Crimp Tool
XY2F-0002



Locator
XY2F-0003

The XY2F-0002 Crimp Tool is DMC's AFM8 (M22520/2-01).

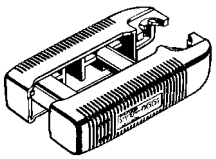
Mount the XY2F-0003 Locator (sold separately) to the locator guide of the Crimp Tool with a screw provided with the XY2F-0003 Locator.



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

Pin-block Extraction Tool
XY2F-0001

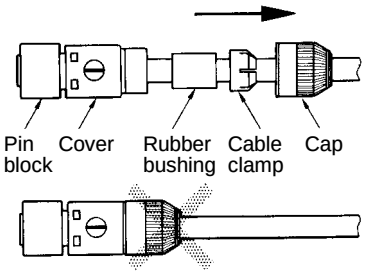
Use this tool to extract pin blocks from covers mounted to the pin blocks in order to make wiring changes of pin blocks.



■ Extraction Procedure

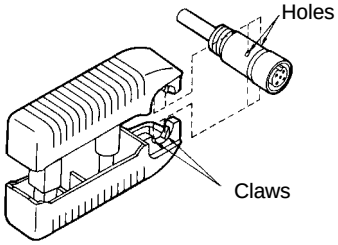
1. Disconnecting Components

Disconnect all components on the cap side from the cover.

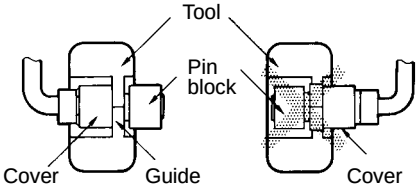


2. Extracting Pin Block

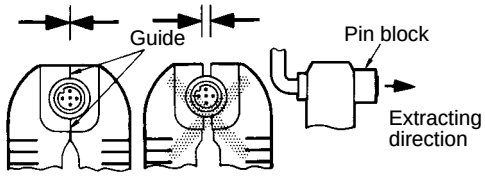
Insert the claws of the Tool into the four holes of the cover.



Make sure that the pin block is outside the Tool.



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



■ Precautions

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

■ Assembly Procedure for XS2C/XS2G Connector Assemblies

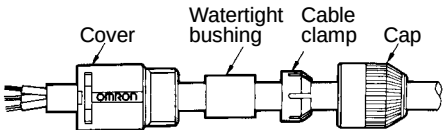
1. Connector and Cable External Diameters

Connectors for 6-, 4-, and 3-mm-diameter Cables (i.e., Cables that are 5 to 6, 4 to 5, and 3 to 4 mm in diameter respectively) are available. When assembling a Connector used with a cable, make sure that the external diameter of the Connector is suited to that of the cable.

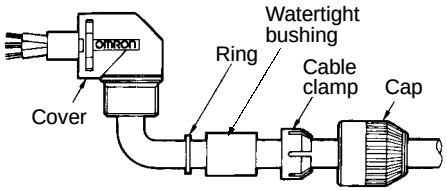
Connectors for 6-mm-diameter Cables use white cable clamps. Connectors for 4 and 3-mm-diameter Cables use black cable clamps.
A watertight bushing for 6-mm-diameter Cable has no stripe, that for 4-mm-diameter Cable has a single stripe, and that for 3-mm-diameter Cable has two stripes.

2. Component Insertion

Straight Model



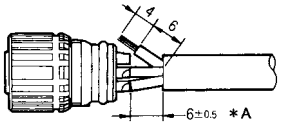
L-shaped model



As shown in the above illustration, connect the above components to the Cable with its end processed.

3. Wiring (Processing Cable End)

1) Soldering Model



Strip 10 mm of the Cable sheath and 4 mm of each conductor.

Before soldering conductors and solder cap pins together, solder-coat each of them.

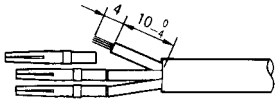
The following conditions are recommended for soldering each solder cap pin.

Soldering iron:	30 to 60 W
Soldering temperature:	280°C to 340°C
Soldering period:	3 s max.

The length marked *A should be 6.5 mm max., otherwise the proper enclosure rating of the connector will not be maintained.

2) Crimping Model

• Crimping



Strip 14 mm of the Cable sheath and 4 mm of each conductor.

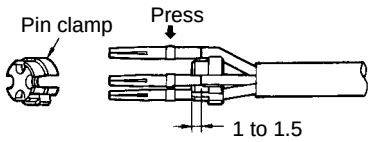
Make sure that each conductor is not damaged and its end strands are not spread out.

Mount the XY2F-0003 Locator to DMC's AFM8 (M25520/2-01) Press-fit Tool, both of which are sold separately, and set the selector dial of the Crimp Tool to 6.

After mounting the crimping pins to the Locator, fully insert the conductors to the crimping pins.

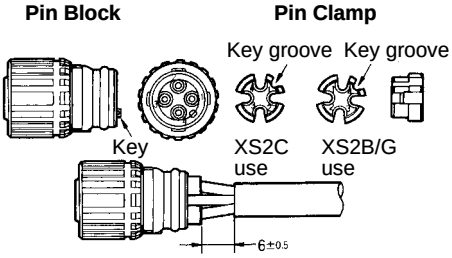
Squeeze the handle of the Crimp Tool to press-fit the conductors to the crimping pins.
(Squeeze the handle firmly until the handle automatically returns to the release position.)

• Crimping Cable Conductors to Pin Clamp



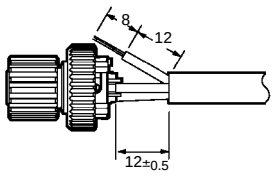
After press-fitting the conductors to the pins, insert the pins into the pin clamp as shown in the illustration. Then make sure that the conductor colors correspond to the pin clamp numbers that are identical to the connector pin numbers.

• Mounting Pin Clamp to Pin Block

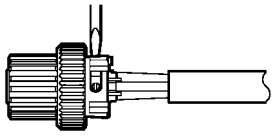


Tentatively insert the pins to the pin block holes so that the key on the pin block will coincide with the key groove on the pin clamp. Then insert the cable along with the pin clamp.

3) Screw-on Model

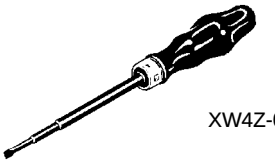


Loosen the screws and then match wires with terminal numbers and insert the wires in place.



Confirm that the wires are in place and then tighten the screws within a torque of 0.15 and 0.2 N • m {1.5 and 2 kgf • cm} using a dedicated screwdriver.

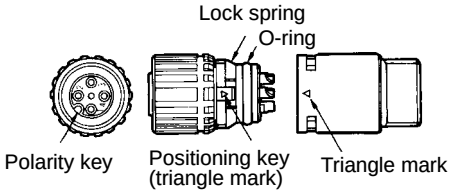
Note: When tightening the screws, use the dedicated XW4Z-00B Screwdriver that matches with the screw-slot dimensions.



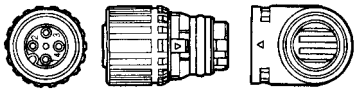
XW4Z-00B Screwdriver

4. Inserting Pin Block

Pin Block (Soldering Model) **Cover (Straight Model)**



(Crimping Model) **(L-shaped Model)**



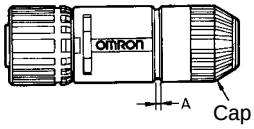
Mount the cover to the pin block so that the triangle mark on the pin block will coincide with the triangle mark on the cover.

If the L-shaped cover is used, the relationship between the position of the polarity key on the engaged side and cable pulling direction will be determined by the direction in which the positioning key is inserted into the cover, which can be rotated by 90°.

Fully insert the positioning key until the positioning key is hidden by the casing.

5. Mounting Cap

After mounting the cover to the pin block and the cover snaps into place, tighten the cap securely by hand within a torque of 0.39 and 0.49 N • m {4 and 5 kgf • cm}.



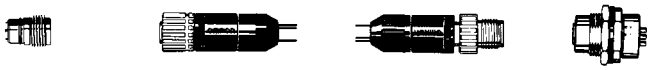
After fully tightening the cap, length A should be approximately one of the following according to the cable external diameter and the Connector model.

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

■ Connector Arrangement

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

Sensor Side **Connecting Cable** **Panel Side (Power-supply Side)**



(Plug) (Socket) (Plug) (Socket)

■ Precautions

Tightening Cap (Connector Assembly)

1. Do not use pliers to tighten caps, otherwise the caps may be damaged. Be sure to tighten each cap by hand within a torque range between 0.39 and 0.49 N • m {4 and 5 kgf • c}).
2. If caps are not tightened securely, the Connectors may not maintain their proper enclosure rating (i.e., IP67) or the caps may drop off due to vibration.

Connector Connection and Disconnection

When connecting or disconnecting Connectors, be sure to hold the Connectors by hand.

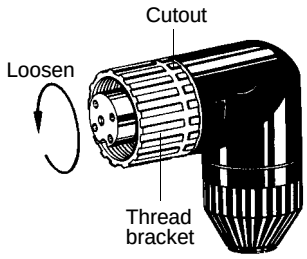
Do not hold the cable part when disconnecting Connectors.

Connectors engaged with sockets must be fully inserted into the sockets. Then tighten the thread brackets carefully so that the threads will not be damaged.

Fully tighten thread brackets within a torque range between 0.39 and 0.49 N • m {4 and 5 kgf • cm} and be sure that the threads of the opposite parts are hidden by the thread brackets.

When disconnecting Connectors, be sure so loosen the thread brackets. Do not loosen the caps.

Thread brackets must be loosened in the cutout direction.



Enclosure Rating

Do not impose external force continuously on the joints of pin blocks and covers, otherwise the Connectors may not keep its proper enclosure rating (i.e., IP67).

Connectors are not fully watertight. Do not use them underwater.

Connectors are of resin mold construction. Do not impose excessive force on them.