

Round Water-resistive Smartclick Connectors That Reduce Installation Work

- A newly developed lock mechanism that is compatible with round M12 connectors.
- Simply insert the Connectors, then turn them approximately 1/8 of a turn to lock.
- A positive click indicates locking.
- Features the same degree of protection (IP67) as M12 connectors.
- A full line-up of models is planned.
- UL approval pending



Refer to *Safety Precautions* on page 8.

Ratings and Specifications

Rated current	4 A
Rated voltage	250 VDC
Contact resistance (connector)	40 mΩ max. (20 mV max., 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	50 times min.
Lock strength	Tensile: 100 N/15 s, Torsion: 1 N·m/15 s
Cable holding strength	100 N/15 s (for cable diameter of 6 mm)
Lock operating force	0.1 N·m to 0.25 N·m
Ambient operating temperature range	-25 to 70°C

Materials and Finish

Item	Model	XS5F/H/W/R	XS5M/P
Contacts		Phosphor bronze/nickel base, 0.4-μm gold plating	
Fixtures		Nickel-plated zinc alloy	
Pin block		PBT resin (UL94V-0)	
Cover		Polyester elastomer (UL94V-0)	
Seal resin		---	Epoxy resin (UL94V-0)
O-ring		Rubber	
Cable	Standard cable	UL AWM2464, 6-mm dia. 4 cores × AWG20 (0.12/49)	---
	Vibration-proof robot cable	UL AWM2464, 6-mm dia. 4 cores × AWG20 (0.08/110)	---
	Oil-resistant polyurethane cable	6 dia. 4 cores × 0.5 mm ² (0.12/45)	---
Power supply wires		---	UL1007 AWG20

Connection Combinations

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

⊙: Connected by twisting.
○: Connected by screwing.

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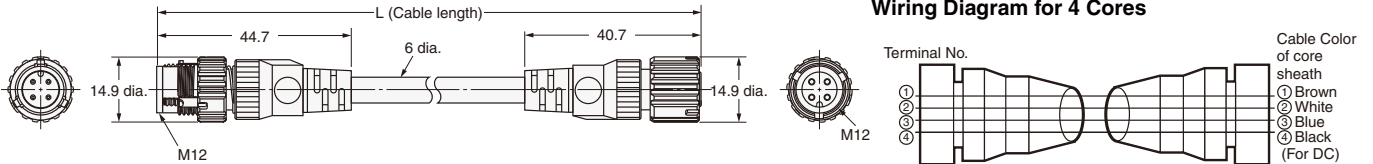
XS5W Connectors Connected to Cable, Socket and Plug on Cable Ends

- Standard Cable
- Vibration-proof Robot Cable
- Oil-resistant Polyurethane Cable

XS5W-D421-□81-A
 XS5W-D421-□81-F
 XS5W-D421-□81-P

Dimensions

(Unit: mm)



Note: The cover of the Standard Cable (XS5W-D421-□81-A) and the Oil-resistant Polyurethane Cable (XS5W-D421-□81-P) is black, and the cover of the Vibration-proof Robot Cable (XS5W-D421-□81-F) is warm gray.

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*.

XS5W-D □ **2** □ - □ □ **1** - □

1 2 3 4 5 6 7 8 9

1. Type

W: Connectors connected to cable, socket and plug on cable ends

2. AC/DC (Mating Section Form)

D: DC

3. Connector Poles

4: 4 poles

4. Contact Plating

2: 0.4-μm gold plating

5. Cable Connection Directions

1: Straight/straight

6. Cable Length

A: 0.3 m E: 3 m J: 10 m
 B: 0.5 m F: 4 m K: 15 m
 C: 1 m G: 5 m L: 20 m
 D: 2 m H: 7 m

7. Connections

8: ① Brown, ② White, ③ Blue, ④ Black
 (Numbers inside circles are terminal numbers.)

8. Connectors on One End/Both Ends

1: Both ends

9. Cable Specifications

A: Standard cable
 F: Vibration-proof robot cable
 P: Oil-resistant polyurethane cable

Ordering Information

Cable type	Cable connection directions	No. of cable cores	Cable length (m)	Model	Minimum order
Standard cable	Straight/straight	4	1	XS5W-D421-C81-A	10
			2	XS5W-D421-D81-A	
			3	XS5W-D421-E81-A	
			5	XS5W-D421-G81-A	
			10	XS5W-D421-J81-A	
Vibration-proof robot cable			1	XS5W-D421-C81-F	10
			2	XS5W-D421-D81-F	
			3	XS5W-D421-E81-F	
			5	XS5W-D421-G81-F	
			10	XS5W-D421-J81-F	
Oil-resistant polyurethane cable	2	XS5W-D421-D81-P	10		
	5	XS5W-D421-G81-P	5		
	10	XS5W-D421-J81-P			

Note: Ask your OMRON representative about other specifications.



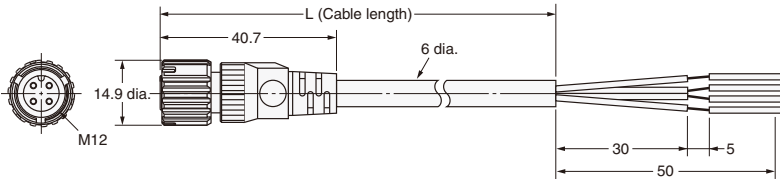
XS5F Connector Connected to Cable, Socket on One Cable End

- Standard Cable
- Vibration-proof Robot Cable
- Oil-resistant Polyurethane Cable

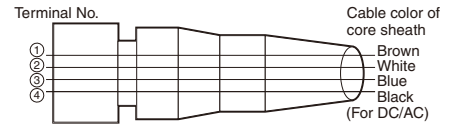
XS5F-D421-□80-A
 XS5F-D421-□80-F
 XS5F-D421-□80-P

Dimensions

(Unit: mm)



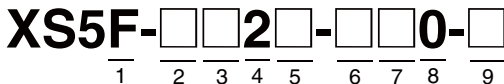
Wiring Diagram for 4 Cores



Note: The cover of the Standard Cable (XS5F-D421-□81-A) and the Oil-resistant Polyurethane Cable (XS5F-D421-□81-P) is black, and the cover of the Vibration-proof Robot Cable (XS5F-D421-□81-F) is warm gray.

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*.



1. Type

F: Connector connected to cable, socket on one cable end

2. AC/DC (Mating Section Form)

D: DC

3. Connector Poles

4: 4 poles

4. Contact Plating

2: 0.4-μm gold plating

5. Cable Connection Direction

1: Straight

6. Cable Length

A: 0.3 m E: 3 m J: 10 m
 B: 0.5 m F: 4 m K: 15 m
 C: 1 m G: 5 m L: 20 m
 D: 2 m H: 7 m

7. Connections

8: ① Brown, ② White, ③ Blue, ④ Black (Numbers inside circles are terminal numbers.)

8. Connectors on One End/Both Ends

0: One end

9. Cable Specification

A: Standard cable
 F: Vibration-proof robot cable
 P: Oil-resistant polyurethane cable

Ordering Information

Cable type	Cable connection direction	No. of cable cores	Cable length (m)	Model	Minimum order
Standard cable	Straight	4	1	XS5F-D421-C80-A	10
			2	XS5F-D421-D80-A	
			3	XS5F-D421-E80-A	
			5	XS5F-D421-G80-A	
			10	XS5F-D421-J80-A	
Vibration-proof robot cable			1	XS5F-D421-C80-F	10
			2	XS5F-D421-D80-F	
			3	XS5F-D421-E80-F	
			5	XS5F-D421-G80-F	
			10	XS5F-D421-J80-F	
Oil-resistant polyurethane cable	2	XS5F-D421-D80-P	10		
	5	XS5F-D421-G80-P			
	10	XS5F-D421-J80-P			

Note: Ask your OMRON representative about other specifications.

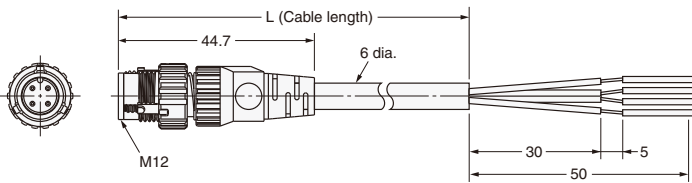
XS5H Connector Connected to Cable, Plug on One Cable End

- Standard Cable
- Vibration-proof Robot Cable
- Oil-resistant Polyurethane Cable

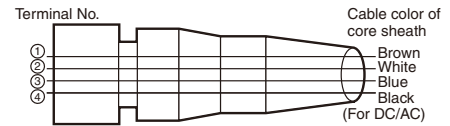
XS5H-D421-□80-A
 XS5H-D421-□80-F
 XS5H-D421-□80-P

Dimensions

(Unit: mm)



Wiring Diagram for 4 Cores



Note: The cover of the Standard Cable (XS5H-D421-□81-A) and the Oil-resistant Polyurethane Cable (XS5H-D421-□81-P) is black, and the cover of the Vibration-proof Robot Cable (XS5H-D421-□81-F) is warm gray.

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*.

XS5H-□□21-□□0-□
 1 2 3 4 5 6 7 8 9

1. Type

H: Connector connected to cable, plug on one cable end

2. AC/DC (Mating Section Form)

D: DC

3. Connector Poles

4: 4 poles

4. Contact Plating

2: 0.4-μm gold plating

5. Cable Connection Direction

1: Straight

6. Cable Length

A: 0.3 m E: 3 m J: 10 m
 B: 0.5 m F: 4 m K: 15 m
 C: 1 m G: 5 m L: 20 m
 D: 2 m H: 7 m

7. Connections

8: ① Brown, ② White, ③ Blue, ④ Black (Numbers inside circles are terminal numbers)

8. Connectors on One End/Both Ends

0: One end

9. Cable Specifications

A: Standard cable
 F: Vibration-proof robot cable
 P: Oil-resistant polyurethane cable

Ordering Information

Cable type	Cable connection direction	No. of cable cores	Cable length (m)	Model	Minimum order
Standard cable	Straight	4	0.3	XS5H-D421-A80-A	10
			1	XS5H-D421-C80-A	
			2	XS5H-D421-D80-A	
			5	XS5H-D421-G80-A	5
Vibration-proof robot cable			0.3	XS5H-D421-A80-F	10
			1	XS5H-D421-C80-F	
			2	XS5H-D421-D80-F	
Oil-resistant polyurethane cable			5	XS5H-D421-G80-F	5
	0.3	XS5H-D421-A80-P	10		
	2	XS5H-D421-D80-P			
5	XS5H-D421-G80-P	5			

Note: Ask your OMRON representative about other specifications.

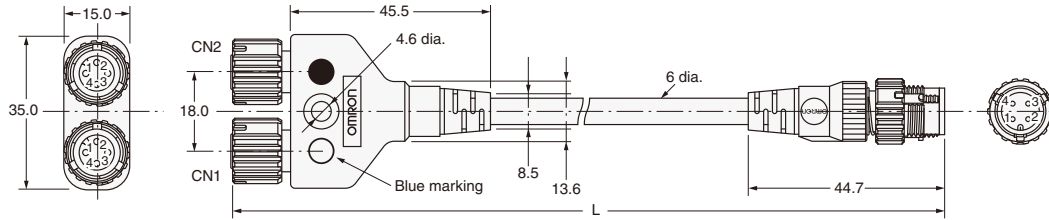
XS5R Y-Joint Plug/Socket Connectors

Dimensions

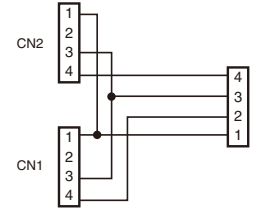
(Unit: mm)

XS5R-D426-□11-F

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

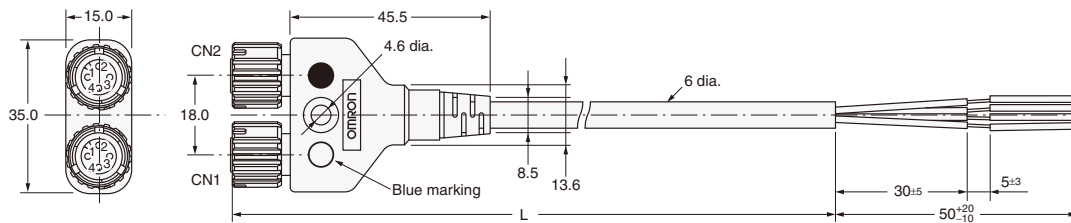


Wiring Diagram

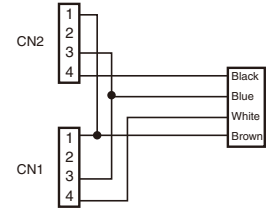


XS5R-D426-□10-F

Connectors on One Cable End (Y-Joint Socket)

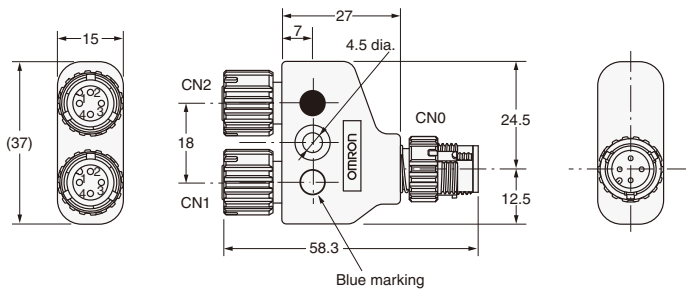


Wiring Diagram



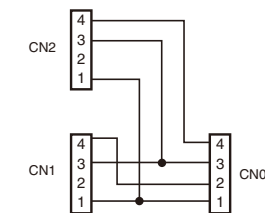
XS5R-D426-□

Y-Joint Plug/Socket without Cable

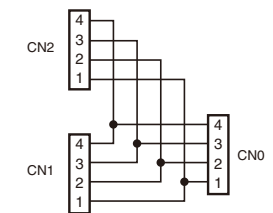


Wiring Diagram

XS5R-D426-1



XS5R-D426-5



Ordering Information

Cable	Connector	Cable length (m)	Model	Minimum order
With cable	Connectors on both cable ends	0.5	XS5R-D426-B11-F	5
		1	XS5R-D426-C11-F	
		2	XS5R-D426-D11-F	
		3	XS5R-D426-E11-F	
	Connector on one cable end	2	XS5R-D426-D10-F	
		5	XS5R-D426-G10-F	
With no cable	Y-Joint Plug/Socket	---	XS5R-D426-1	10
			XS5R-D426-5 To Be Released Soon	

Note 1. Ask your OMRON representative about other specifications.

2. XS2G Assembled Connectors with screw connections cannot be connected to both CN1 and CN2 at the same time.

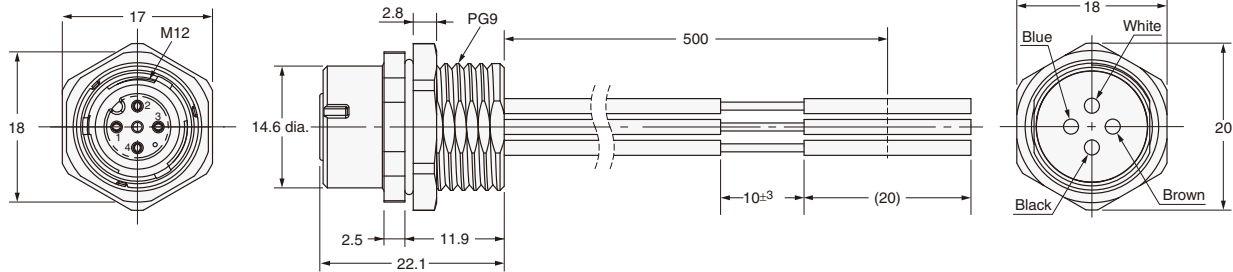
XS5P Panel-mounting Sockets

Dimensions

(Unit: mm)

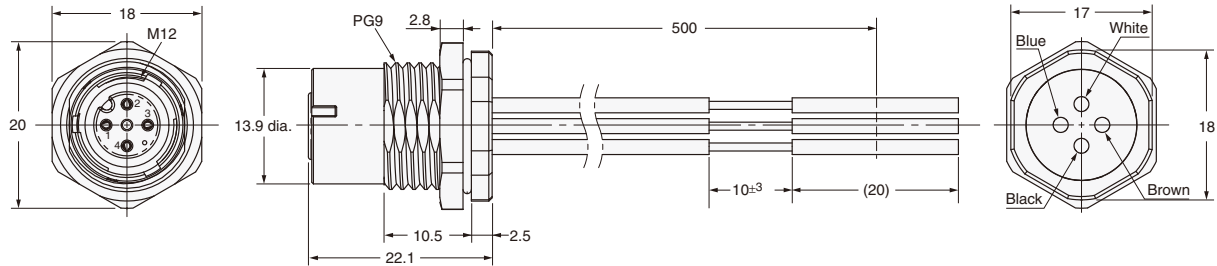
XS5P-D426-5

Panel-mounting Sockets with Rear Locks

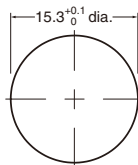


XS5P-D427-5

Panel-mounting Sockets with Front Locks



Panel Cutout



Panel Cutout Dimension
Panel thickness = 1 to 4 mm

- Note 1. The panel cutout dimension is the same for Front-locking and Rear-locking Sockets.
2. Rotational positioning is not possible for connector rotation.

Wiring and Wire Specifications

Wiring

Pin number	Color
1	Brown
2	White
3	Blue
4	Black

Wire Specifications

Item	Specification	
Specification	UL1007	
Nominal size	AWG20	
Configuration	Number of wires	21
	Wire diameter	0.18
	Standard outer diameter	1.8

Ordering Information

Type	Lock	Cable length (m)	Model	Minimum order
With cable	Rear lock	0.5	XS5P-D426-5	10
	Front lock		XS5P-D427-5 To Be Released Soon	

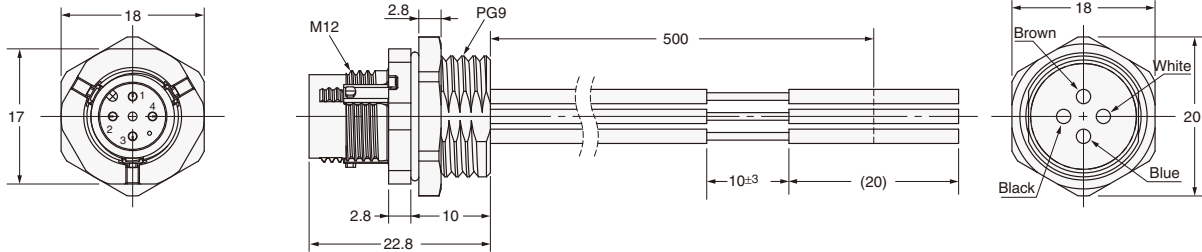
XS5M Panel-mounting Plugs

Dimensions

(Unit: mm)

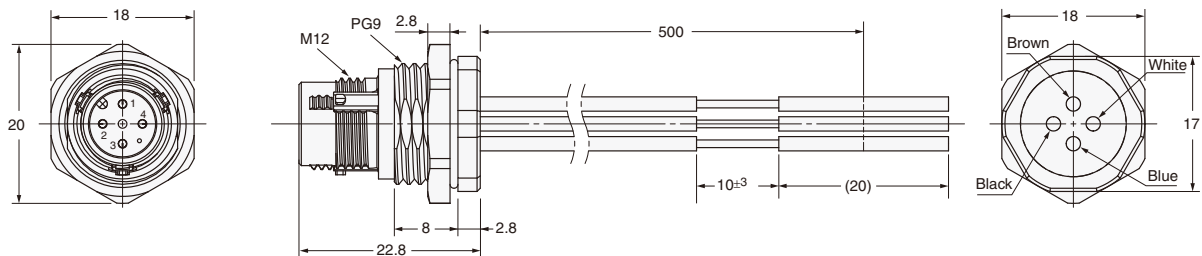
XS5M-D426-5

Panel-mounting Plugs with Rear Locks



XS5M-D427-5

Panel-mounting Plugs with Front Locks



Panel Cutout



Panel Cutout Dimension
Panel thickness = 1 to 4 mm

- Note 1. The panel cutout dimension is the same for Front-locking and Rear-locking Sockets.
2. Rotational positioning is not possible for connector rotation.

Wiring and Wire Specifications

Wiring

Pin number	Color
1	Brown
2	White
3	Blue
4	Black

Wire Specifications

Item	Specification	
Specification	UL1007	
Nominal size	AWG20	
Configuration	Number of wires	21
	Wire diameter	0.18
	Standard outer diameter	1.8

Ordering Information

Type	Lock	Cable length (m)	Model	Minimum order
With cable	Rear lock	0.5	XS5M-D426-5	10
	Front lock		XS5M-D427-5 To Be Released Soon	

Connecting the XS5

1. Connecting the XS5 Plug and Socket

- Align the projection on the plug cover with the polarity key on the socket, then insert the plug all the way in.



- Hold the knurled socket grip, then insert the projection on the plug into the groove of the socket.



- Turn the knurled grips of the socket clockwise approximately 45 degrees in respect to the plug. A click will indicate that the Connectors are locked. The locking condition can also be confirmed by the alignment marks on the plug and socket.



2. Connecting the XS5 and XS2

- Align the projection on the plug cover with the polarity key on the socket, then insert the plug all the way in.
- In the same way as when connecting two XS2 Connectors, screw the knurled grip in the clockwise direction.
- Use your fingers to tighten the Connectors sufficiently.

Safety Precautions

Precautions for Correct Use

Do not use the Connectors in an atmosphere or environment that exceeds the specifications.

Connector Connection and Disconnection

- When connecting or disconnecting Connectors, be sure to hold the Connectors by hand.
- Do not hold the cable when disconnecting Connectors.
- When joining Connectors, be sure to insert the plug all the way to the back of the socket before attempting to lock the Connectors.
- Do not use tools of any sort to join the Connectors. Always use your hands. Pliers or other tools may damage the Connectors.
- When joining the Connectors to XS2 or other M12 Connectors, tighten the lock by hand to a torque of 0.39 to 0.49 N·m.

Wiring

- Always confirm wiring diagrams before wiring sensors, limit switches, or other devices.
- Lay the cables so that external force is not applied to the Connectors. Otherwise, the degree of protection (IP67) may not be achieved.

Degree of Protection

- The degree of protection of Connectors (IP67) is not for a fully watertight structure. Do not use the Connectors underwater.
- Do not step on or place any objects on the Connectors. Doing so may damage the Connectors.

Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

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Application Considerations

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- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Disclaimers

CHANGE IN SPECIFICATIONS

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