Industrial Ethernet Cables
XS5/XS6

Cables and Connectors for EtherCAT® and Other Industrial Ethernet Networks

CAT6a Ethernet patch cables

- **For in-cabinet use**
- **LSZH with standard RJ45 plugs**

CAT5e Ethernet patch cables

- **For out-of-cabinet use**
- **PUR with standard RJ45 plugs**
- **PVC with rugged RJ45 plugs**
- **PVC with M12 SmartClick plugs**
- **In addition to cables with sockets and robot cables, shield strengthening cables joined.**

Smartclick

■ Features

Cables with Standard RJ45 Connectors
For details, refer to page 4.

- The Standard RJ45 Connectors reduce cable routing space. LSZH* cables are AWG26 with an outer diameter of 6.3 mm. PUR Cables are AWG26 with an outer diameter of 6.0 mm.
- Cable colors include blue, yellow, or green.
- LSZH cables are available in 12 lengths from 0.2 to 20 m and PUR cables are available in 10 lengths from 0.5 to 20 m.

Note. PUR cables are double-shielded cables with overall braiding and individual aluminum tape on each wire pair.
LSZH cable is a single shielded aluminum tape which satisfies the standard values of the communication and noise characteristics.

* Low-smoke zero-halogen cables.

Shape of RJ45 Connector

Cables with Rugged RJ45 Connectors
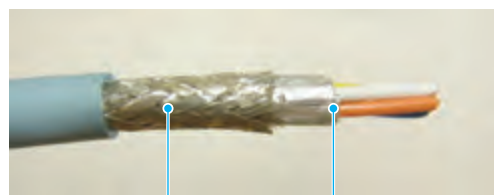For details, refer to page 7.

- RJ45 connectors with robust latches and cable holding strength.
- Quad AWG22 cable with PVC cover of 6.5 mm outer diameter.
- Double-shielded cables with overall braiding and individual foil shield to reduce EMC interference in industrial environments.

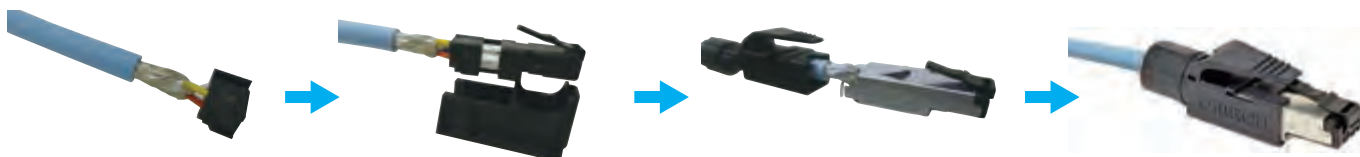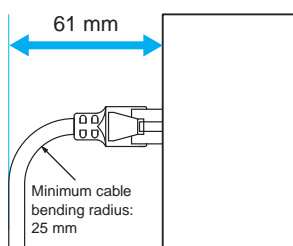| Shape of RJ45 Connector	PVC Cable with Double Shield
Tough latch	Overall braiding and individual foil shield

Assembly Connectors

You can easily assemble Ethernet cables onsite without crimping tools or other special tools.

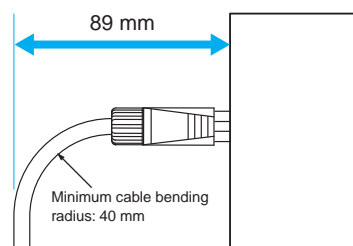Refer to page 14 for the assembly procedure.

● **Cable Extension Length**

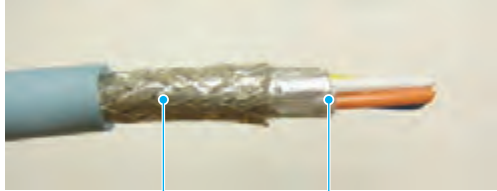**Standard Connectors (RJ45 Connectors)**

61 mm

Minimum cable bending radius: 25 mm

Rugged Connectors (RJ45 Connectors)

89 mm

Minimum cable bending radius: 40 mm

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Cables with M12 Connectors (Waterproof)   For details, refer to page 7.

- Resistance to harsh environments with IP67 protection.
- SmartClick Connectors that provide one-step (1/8th turn) connection are used (compatible with standard M12 screw connectors).
- A wide range of variations, such as cables with right-angle connectors and PCB connectors.
- Cables with sockets and robot cables were added to the series.

Shape of M12 Connector	PVC Cable with Double Shield
Shield structure	Overall braiding and individual foil shield

**Cables with M12 Connectors
Shield Strengthening Cables specification**   For details, refer to page 7.

- Cable specification with strengthened shield for higher noise resistance. Recommended for EtherCAT communications.
- In addition to a double shield structure, copper foil tape is added to the M12 connector to improve communication characteristics (see below).

**Shield Strengthening Cable
(Double shield structure + copper foil tape wrapping)**

<Internal structure>

Noise resistance is strengthened by wrapping copper foil tape around the part where the cable in the M12 connector joins the shield plate.

Shield Effectiveness Data for Rugged RJ45 Connectors and M12 Connectors (Waterproof)

The following data is the results of OMRON testing. Shield effectiveness may vary for your environment and application conditions.

● **Comparison of Shield Effectiveness with Product without a Double Shield**

The following table shows the differences with a structure without a double shield. Higher numeric values show greater shield effectiveness.

Shield structure	Frequency (MHz)				
	0.5	1	5	10	30
Product with single shield	53 dB	49 dB	35 dB	25 dB	17 dB
Product with a double shield (XS5□-T, Category 5E)	61 dB	58 dB	43 dB	31 dB	27 dB

- SmartClick is a registered trademark of OMRON Corporation.
- EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.
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Cables with Standard RJ45 Connectors

■ Model Number Legend

Use this legend when determining the product specifications from the model number. Choose from the model numbers listed in *Ordering Information* when ordering.

XS6W-☐ ☐☐☐☐ 8 SS ☐☐☐☐CM-☐
　　 ①　 ②　　 ③ ④ 　 ⑤　　　 ⑥

①Transmission Characteristics
5: Category 5
6: Category 6A

②Sheath Material
LSZH: LSZH
PUR: PUR

③Number of Pins
8: 8 pins

④Cable Attachment Direction
SS: Straight/Straight

⑤Cable Length*
20: 0.2 m
30: 0.3 m
50: 0.5 m
100: 1 m
150: 1.5 m
200: 2 m
300: 3 m
500: 5 m
750: 7.5 m
1000: 10 m
1500: 15 m
2000: 20 m

⑥Sheath Color
B: Blue
Y: Yellow
G: Green

* PUR cables are not available for 0.2-m and 0.3-m cables.

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XS5/XS6

■ Ordering Information

Appearance	Type	Category	Cable sheath material	Cable color	Cable length (m)	Model
				Blue	0.2	XS6W-6LSZH8SS20CM-B
					0.3	XS6W-6LSZH8SS30CM-B
					0.5	XS6W-6LSZH8SS50CM-B
					1	XS6W-6LSZH8SS100CM-B
					1.5	XS6W-6LSZH8SS150CM-B
					2	XS6W-6LSZH8SS200CM-B
					3	XS6W-6LSZH8SS300CM-B
					5	XS6W-6LSZH8SS500CM-B
					7.5	XS6W-6LSZH8SS750CM-B
					10	XS6W-6LSZH8SS1000CM-B
					15	XS6W-6LSZH8SS1500CM-B
					20	XS6W-6LSZH8SS2000CM-B
	Cable with Connectors on Both Ends (RJ45/RJ45)	Cat.6a	LSZH	Yellow	0.2	XS6W-6LSZH8SS20CM-Y
					0.3	XS6W-6LSZH8SS30CM-Y
					0.5	XS6W-6LSZH8SS50CM-Y
					1	XS6W-6LSZH8SS100CM-Y
					1.5	XS6W-6LSZH8SS150CM-Y
					2	XS6W-6LSZH8SS200CM-Y
					3	XS6W-6LSZH8SS300CM-Y
					5	XS6W-6LSZH8SS500CM-Y
					7.5	XS6W-6LSZH8SS750CM-Y
					10	XS6W-6LSZH8SS1000CM-Y
					15	XS6W-6LSZH8SS1500CM-Y
					20	XS6W-6LSZH8SS2000CM-Y
				Green	0.2	XS6W-6LSZH8SS20CM-G
					0.3	XS6W-6LSZH8SS30CM-G
					0.5	XS6W-6LSZH8SS50CM-G
					1	XS6W-6LSZH8SS100CM-G
					1.5	XS6W-6LSZH8SS150CM-G
					2	XS6W-6LSZH8SS200CM-G
					3	XS6W-6LSZH8SS300CM-G
					5	XS6W-6LSZH8SS500CM-G
					7.5	XS6W-6LSZH8SS750CM-G
					10	XS6W-6LSZH8SS1000CM-G
					15	XS6W-6LSZH8SS1500CM-G
					20	XS6W-6LSZH8SS2000CM-G
		Cat.5	PUR	Green	0.5	XS6W-5PUR8SS50CM-G
					1	XS6W-5PUR8SS100CM-G
					1.5	XS6W-5PUR8SS150CM-G
					2	XS6W-5PUR8SS200CM-G
					3	XS6W-5PUR8SS300CM-G
					5	XS6W-5PUR8SS500CM-G
					7.5	XS6W-5PUR8SS750CM-G
					10	XS6W-5PUR8SS1000CM-G
					15	XS6W-5PUR8SS1500CM-G
					20	XS6W-5PUR8SS2000CM-G

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■ Specifications

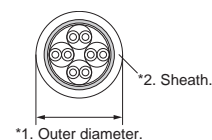|	Type	Cable with Connectors on Both Ends (RJ45/RJ45)/LSZH	Cable with Connectors on Both Ends (RJ45/RJ45)/PUR
Item	Model	XS6W-6LSZH8SS□□□□CM-□	XS6W-5PUR8SS□□□□CM-G
Rated current		1 A (at 50°C)	
Withstand voltage		1,000 VDC for 60 s (leakage current: 1 mA max.)	
Ambient operating temperature		−20 to 75°C	−40 to 80°C
Ambient storage temperature		−20 to 75°C	−40 to 80°C
Ambient installation temperature		0 to 50°C	−10 to 60°C
Protective structure		IP20	

■ Materials and Finish

● Connectors

	Type	Cable with Connectors on Both Ends (RJ45/RJ45)/LSZH	Cable with Connectors on Both Ends (RJ45/RJ45)/PUR
Item	Model	XS6W-6LSZH8SS□□□□CM-□	XS6W-5PUR8SS□□□□CM-G
Connector housing		PC resin (UL94V-0)/transparent	
Contacts		Copper alloy/nickel base, gold plated	
Shield		Brass/nickel plated	
Cover (structured to prevent the tab from breaking)		PA/Black	
Marking tube		PVC resin (UL94V-0)/transparent	

● Cables

	Type	Cable with Connectors on Both Ends (RJ45/RJ45)/LSZH	Cable with Connectors on Both Ends (RJ45/RJ45)/PUR
Item	Model	XS6W-6LSZH8SS□□□□CM-□	XS6W-5PUR8SS□□□□CM-G
Compliant standard		IEC 60332-1 /UL444	IEC 60332-1
Number of cores		AWG26	
Outer diameter *1		6.3 mm	6.0 mm
Sheath color *2		Blue, yellow, or green	Green
Sheath material		LSZH	PUR
Shield structure		Single shield	Double shield

*2. Sheath.

*1. Outer diameter.

■ Dimensions

(Unit: mm)

● Cable with Connectors on Both Ends (RJ45/RJ45)
XS6W-6LSZH8SS□□□□CM-□
XS6W-5PUR8SS□□□□CM-G

Wiring

RJ45 — RJ45
1 — 1
2 — 2
3 — 3
4 — 4
5 — 5
6 — 6
7 — 7
8 — 8
Shield — Shield

L (Cable length)

(16) 10.5

38.0 (18)

13.8

Marking tube
6.3 dia.
Label
Marking tube

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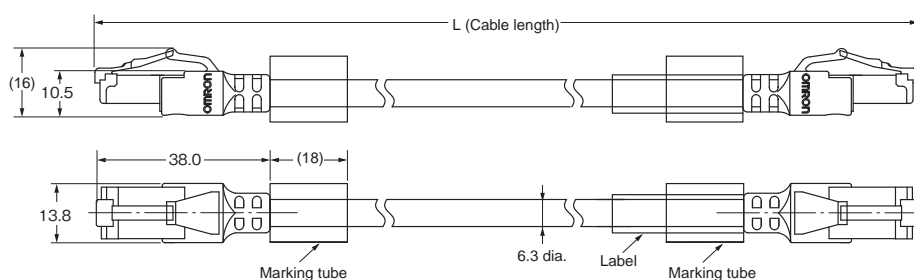
Cables with Rugged RJ45 Connectors and Cables with M12 Connectors

■ Model Number Legend

Use this legend when determining the product specifications from the model number. Choose from the model numbers listed in *Ordering Information* when ordering.

● **Cable with Connectors**

$$\text{X S 5}\square\text{-T 4 2}\square\text{-}\square\text{M}\square\text{-}\square\square$$
$$\quad①\quad②③④⑤\quad⑥\quad⑦\quad⑧$$

①**Connector Shape**
H: Cable with plug on one end
W: Cable with connectors on both ends

②**Type**
T: Ethernet (mating part: M12 D coding)

③**Number of Pins**
4: 4 pins

④**Contact Plating Specification**
2: Gold plating, 0.4 μm

⑤**Cable Attachment Direction (M12 Connectors)**
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
G: 5 m
J: 10 m
K: 15 m

⑦**Connector Shape**
0: M12 plug on one end
1: Connectors on both ends: M12 socket/M12 plug
2: Connectors on both ends: M12 plug/M12 plug
C: Connectors on both ends: M12 plug/RJ45 plug
D: Connectors on both ends: RJ45 plug/RJ45 plug
E: Connectors on both ends: M12 socket/RJ45 plug

⑧**Cable Specification**
K: Standard cable (Cable color: Light blue)
Y: Standard cable (Cable color: Yellow)
KR: Robot cable (Cable color: Light blue)
YR: Robot cable (Cable color: Yellow)
SS: Shield Strengthening cable (Cable color: Black)

● **RJ45 Assembly Connectors**

$$\text{X S 6 G-T 4 2 1-1}$$
$$\quad①②③④⑤$$

①**Type**
T: Ethernet

②**Number of Pins**
4: 4 pins

③**Contact Plating Specification**
2: Gold plating, 0.4 μm

④**Cable Attachment Direction**
1: Straight

⑤**Degree of Protection**
1: IP20

● **M12 Connectors for Panel Mounting**

$$\text{X S 5 P-T 4 2}\square\text{-}\square$$
$$\quad①②③④⑤$$

①**Type**
T: Ethernet (mating part: M12 D coding)

②**Number of Pins**
4: 4 pins

③**Plating Specification**
2: Gold plating, 0.4 μm

④**Mounting Method**
6: Rear lockingt
7: Front locking
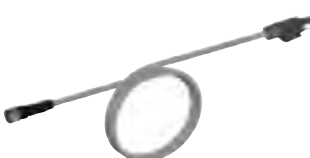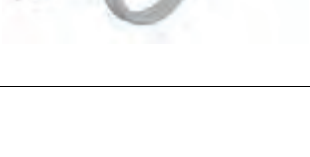
⑤**Terminal Shape**
1: DIP terminalst
5: Cable with loose wires (0.5 m)

■ Ordering Information

Appearance	Cable type	Type	Cable color	Cable length (m)	Model
		Cable with Plug on One End (M12 Straight)	Light blue	0.5	**XS5H-T421-BM0-K**
				1	**XS5H-T421-CM0-K**
				2	**XS5H-T421-DM0-K**
				3	**XS5H-T421-EM0-K**
				5	**XS5H-T421-GM0-K**
				10	**XS5H-T421-JM0-K**
				15	**XS5H-T421-KM0-K**
		Cable with Plugs on Both Ends (M12 Straight/M12 Straight)	Light blue	0.5	**XS5W-T421-BM2-K**
				1	**XS5W-T421-CM2-K**
				2	**XS5W-T421-DM2-K**
				3	**XS5W-T421-EM2-K**
				5	**XS5W-T421-GM2-K**
				10	**XS5W-T421-JM2-K**
				15	**XS5W-T421-KM2-K**
			Yellow	0.3	**XS5W-T421-AM2-Y**
				0.5	**XS5W-T421-BM2-Y**
				1	**XS5W-T421-CM2-Y**
				2	**XS5W-T421-DM2-Y**
				3	**XS5W-T421-EM2-Y**
				5	**XS5W-T421-GM2-Y**
	Standard Cables	Cable with Plugs on Both Ends (M12 Straight/RJ45)	Light blue	0.3	**XS5W-T421-AMC-K**
				0.5	**XS5W-T421-BMC-K**
				1	**XS5W-T421-CMC-K**
				2	**XS5W-T421-DMC-K**
				3	**XS5W-T421-EMC-K**
				5	**XS5W-T421-GMC-K**
				10	**XS5W-T421-JMC-K**
				15	**XS5W-T421-KMC-K**
			Yellow	0.3	**XS5W-T421-AMC-Y**
				0.5	**XS5W-T421-BMC-Y**
				1	**XS5W-T421-CMC-Y**
				2	**XS5W-T421-DMC-Y**
				3	**XS5W-T421-EMC-Y**
				5	**XS5W-T421-GMC-Y**
		Cable with Plug on One End (M12 Right-angle)	Light blue	0.5	**XS5H-T422-BM0-K**
				1	**XS5H-T422-CM0-K**
				2	**XS5H-T422-DM0-K**
				3	**XS5H-T422-EM0-K**
				5	**XS5H-T422-GM0-K**
				10	**XS5H-T422-JM0-K**
				15	**XS5H-T422-KM0-K**
		Cable with Plugs on Both Ends (M12 Right-angle/M12 Right-angle)	Light blue	0.5	**XS5W-T422-BM2-K**
				1	**XS5W-T422-CM2-K**
				2	**XS5W-T422-DM2-K**
				3	**XS5W-T422-EM2-K**
				5	**XS5W-T422-GM2-K**
				10	**XS5W-T422-JM2-K**
				15	**XS5W-T422-KM2-K**
		Cable with Plugs on Both Ends (M12 Right-angle/RJ45)	Light blue	0.3	**XS5W-T422-AMC-K**
				0.5	**XS5W-T422-BMC-K**
				1	**XS5W-T422-CMC-K**
				2	**XS5W-T422-DMC-K**
				3	**XS5W-T422-EMC-K**
				5	**XS5W-T422-GMC-K**
				10	**XS5W-T422-JMC-K**
				15	**XS5W-T422-KMC-K**
		Cable with Plugs on Both Ends (RJ45/RJ45)	Light blue	0.3	**XS5W-T421-AMD-K**
				0.5	**XS5W-T421-BMD-K**
				1	**XS5W-T421-CMD-K**
				2	**XS5W-T421-DMD-K**
				3	**XS5W-T421-EMD-K**
				5	**XS5W-T421-GMD-K**
				10	**XS5W-T421-JMD-K**
				15	**XS5W-T421-KMD-K**

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Appearance	Cable type	Type	Cable color	Cable length (m)	Model
	Standard Cables	Cable with Plug on One End and Socket on Other End (M12 Straight/M12 Straight)	Light blue	0.5	**XS5W-T421-BM1-K**
				1	**XS5W-T421-CM1-K**
				2	**XS5W-T421-DM1-K**
				3	**XS5W-T421-EM1-K**
				5	**XS5W-T421-GM1-K**
				10	**XS5W-T421-JM1-K**
				15	**XS5W-T421-KM1-K**
		Cable with Plug on One End and Socket on Other End (M12 Straight/RJ45)	Light blue	0.5	**XS5W-T421-BME-K**
				1	**XS5W-T421-CME-K**
				2	**XS5W-T421-DME-K**
				3	**XS5W-T421-EME-K**
				5	**XS5W-T421-GME-K**
				10	**XS5W-T421-JME-K**
				15	**XS5W-T421-KME-K**
	Robot Cables	Cable with Plug on One End and Socket on Other End (M12 Straight/M12 Straight)	Light blue	0.5	**XS5W-T421-BM1-KR**
				1	**XS5W-T421-CM1-KR**
				2	**XS5W-T421-DM1-KR**
				3	**XS5W-T421-EM1-KR**
				5	**XS5W-T421-GM1-KR**
				10	**XS5W-T421-JM1-KR**
				15	**XS5W-T421-KM1-KR**
		Cable with Plugs on Both Ends (M12 Straight/M12 Straight)	Light blue	0.5	**XS5W-T421-BM2-KR**
				1	**XS5W-T421-CM2-KR**
				2	**XS5W-T421-DM2-KR**
				3	**XS5W-T421-EM2-KR**
				5	**XS5W-T421-GM2-KR**
				10	**XS5W-T421-JM2-KR**
				15	**XS5W-T421-KM2-KR**
			Yellow	2	**XS5W-T421-DM2-YR**
		Cable with Plugs on Both Ends (M12 Straight/RJ45)	Light blue	0.5	**XS5W-T421-BMC-KR**
				1	**XS5W-T421-CMC-KR**
				2	**XS5W-T421-DMC-KR**
				3	**XS5W-T421-EMC-KR**
				5	**XS5W-T421-GMC-KR**
				10	**XS5W-T421-JMC-KR**
				15	**XS5W-T421-KMC-KR**
			Yellow	3	**XS5W-T421-EMC-YR**
				5	**XS5W-T421-GMC-YR**
		Cable with Plugs on Both Ends (RJ45/RJ45)	Light blue	0.5	**XS5W-T421-BMD-KR**
				1	**XS5W-T421-CMD-KR**
				2	**XS5W-T421-DMD-KR**
				3	**XS5W-T421-EMD-KR**
				5	**XS5W-T421-GMD-KR**
				10	**XS5W-T421-JMD-KR**
				15	**XS5W-T421-KMD-KR**
			Yellow	0.5	**XS5W-T421-BMD-YR**
				1	**XS5W-T421-CMD-YR**
				2	**XS5W-T421-DMD-YR**
				3	**XS5W-T421-EMD-YR**
				5	**XS5W-T421-GMD-YR**
	Shield Strengthening Cables	Cable with Plugs on Both Ends (M12 Straight/M12 Straight)	Black	0.5	**XS5W-T421-BM2-SS**
				1	**XS5W-T421-CM2-SS**
				2	**XS5W-T421-DM2-SS**
				3	**XS5W-T421-EM2-SS**
				5	**XS5W-T421-GM2-SS**
				10	**XS5W-T421-JM2-SS**
		Cable with Plugs on Both Ends (M12 Straight/RJ45)	Black	0.5	**XS5W-T421-BMC-SS**
				1	**XS5W-T421-CMC-SS**
				2	**XS5W-T421-DMC-SS**
				3	**XS5W-T421-EMC-SS**
				5	**XS5W-T421-GMC-SS**
				10	**XS5W-T421-JMC-SS**

Appearance	Cable type	Type		Cable color	Cable length (m)	Model
	Standard Cables	RJ45 Assembly Connector		---	---	**XS6G-T421-1**
		M12 Connector for Panel Mounting	Rear locking	---	0.5	**XS5P-T426-5**
			Front locking	---	0.5	**XS5P-T427-5**
		M12 Panel-mounting PCB Straight Terminals		---	---	**XS5P-T426-1**

●**Cable Bending Data for Robot Cables (XS5W-T421-□M□-KR)**

The following data is the results of OMRON testing for cable bending test conditions. The number of bends may vary for your environment and application conditions.

Cableveyor Test
Number of bends: 20 million min.

Travel speed: Approx. 120 m/min
Travel distance: 1 m
Cableveyor radius: 75 mm

Travel distance

Cable secured to end

Cableveyor

Cable secured to end
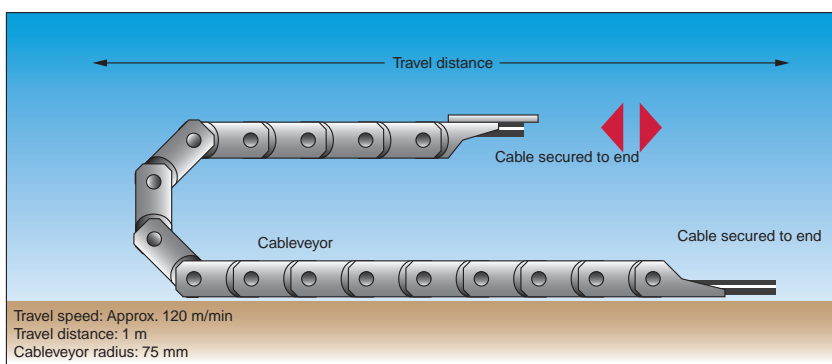
90° Bending Test
Number of bends: 6 million min.

Roller

Cable

Bending angle: ±90°
Speed: Approx. 30 bends/min
Roller radius: 60 mm
Weight: 500 g

500 g

Weight

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OMRON
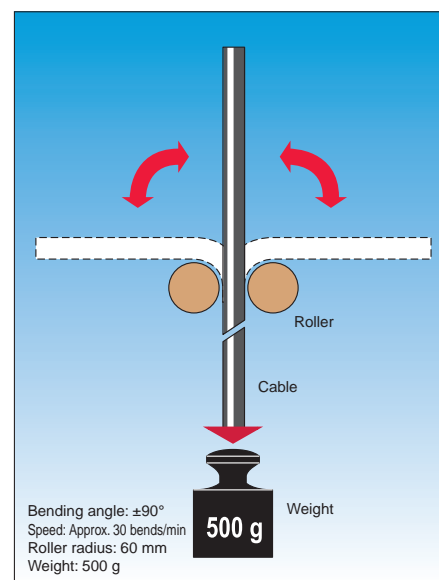
■ Specifications

Type\Item Model	Cable with Plug on One End (M12) XS5H -T42□-□M0-K	Cable with Plugs on Both Ends (M12/M12) XS5W -T42□-□M2-K, -KR	Cable with Plug on One End and Socket on Other End (M12/M12) XS5W -T42□-□M1-K, -KR	Cable with Plugs on Both Ends (M12/RJ45) XS5W -T42□-□MC-K, -KR	Cable with Plug on One End and Socket on Other End (M12/RJ45) XS5W -T421-□ME-K	Cable with Plugs on Both Ends (RJ45/RJ45) XS5W -T421-□MD-K, -KR	RJ45 Assembly Connector XS6G -T421-1	M12 Connector for Panel Mounting XS5P-T42□-5	M12 Panel-mounting PCB Straight Terminals XS5P -T426-1
Rated current	3 A			2.5 A					4 A
Rated voltage	30 V								125 VDC
Contact resistance	40 mΩ max.								
Insulation resistance	1,000 MΩ min.			500 MΩ min.					1,000 MΩ min.
Withstand voltage	1,000 VAC for 60 s (leakage current: 1 mA max.)								1,500 VAC for 60 s (leakage current: 1 mA max.)
Ambient operating temperature	−25 to 70°C*								
Ambient storage temperature	−25 to 70°C								
Protective structure	M12: IEC IP67, RJ45: IEC IP20								

* 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

● Connectors

Model\Item	M12			RJ45
	XS5H and XS5W	XS5P-T42□-5	XS5P-T426-1	XS5W and XS6G
Contact blocks	PBT resin (UL94V-0)/light gray		PA resin (UL94V-0)/black	PA resin (UL94V-0)/black
Contacts	Phosphor bronze/nickel base, gold plated (0.4 μm)		Brass/nickel base, gold plated (0.4 μm)	Phosphor bronze/nickel base, gold plated (1.4 μm)
Anchors	Zinc diecast/nickel plating			---
Anchors (tabs)	SUS	---		
Cover	TPE (Thermo Plastic Elastomer) /black	---		
Sealing resin	---	Epoxy resin	---	
O-rings	Rubber			---
Grounding fixture	---		Phosphor bronze/nickel base, tin plated (2.0 μm)	---
Anchor cover	---		SUS	---
Nuts	---	Brass/nickel plated		---

● Cables

Model\Item	Standard Cables	Robot Cables	Shield Strengthening Cables
Compliant standard	UL CM		
Category	Category 5e		
Core/color	AWG22 (7/0.26): Yellow · Orange · White · Blue	AWG22 (7/24/0.05): Yellow · Orange · White · Blue	AWG22 (7/0.26): Yellow · Orange · White · Blue
Outer diameter*1	6.5 dia.		
Sheath color*2	Light blue, Yellow		Black
Sheath material	PVC		
Shield structure	Double shield SF/UTP		

*2. Sheath.

*1. Outer diameter.

Note. For the XS5H and XS5W, cables are available only with connectors attached.
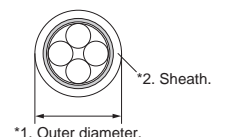
■ Dimensions

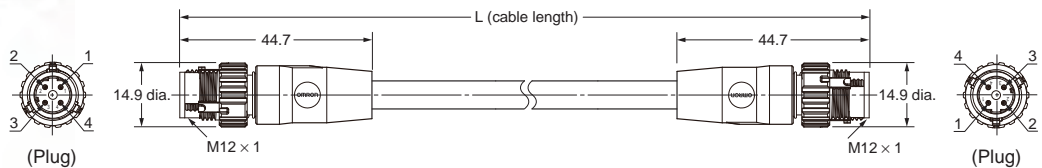**(Unit: mm)**

● Cable with Plug on One End (M12 Straight)
XS5H-T421-□M0-K

Wiring

Terminal No.	Color
1	Yellow
2	White
3	Orange
4	Blue

44.7

L (cable length)

14.9 dia.

M12 × 1
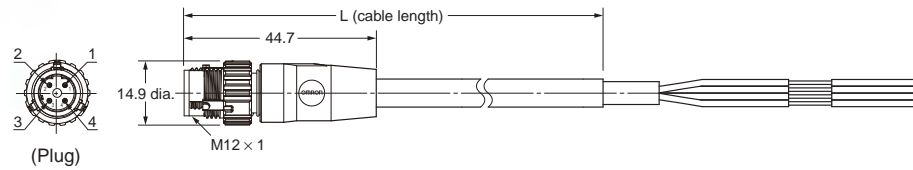
(Plug)

● Cable with Plugs on Both End (M12 Straight/M12 Straight)
XS5W-T421-□M2-K
XS5W-T421-□M2-KR
XS5W-T421-□M2-Y
XS5W-T421-□M2-YR

Wiring
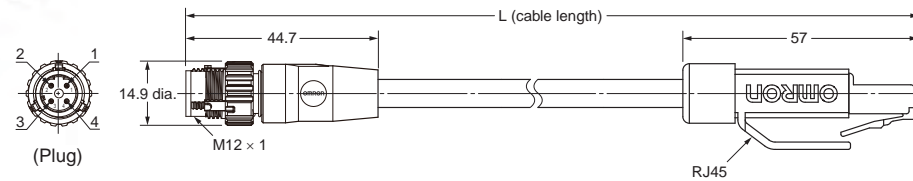
M12 straight		M12 straight
1	—	1
2	—	2
3	—	3
4	—	4
Shield	—	Shield

L (cable length)

44.7   44.7

14.9 dia.   14.9 dia.

M12 × 1   M12 × 1

(Plug)   (Plug)

● Cable with Plugs on Both Ends (M12 Straight/RJ45)
XS5W-T421-□MC-K
XS5W-T421-□MC-KR
XS5W-T421-□MC-Y
XS5W-T421-□MC-YR

Wiring

M12 straight		RJ45
1	—	1
2	—	3
3	—	2
4	—	6
Shield	—	Shield

44.7

L (cable length)

57

14.9 dia.

M12 × 1

(Plug)

RJ45

● Cable with Plug on One End and Socket on Other End (M12 Straight/M12 Straight)
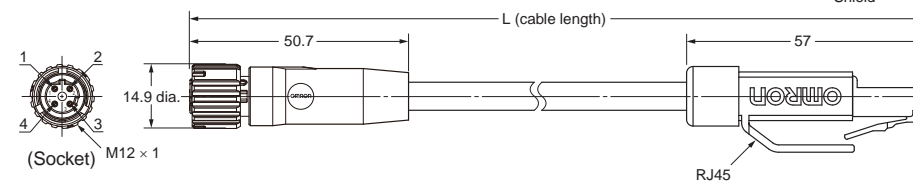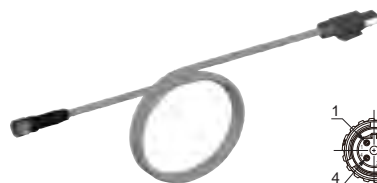### XS5W-T421-□M1-K
XS5W-T421-□M1-KR

Wiring

M12 straight		M12 straight
1	—	1
2	—	2
3	—	3
4	—	4
Shield	—	Shield

44.7

L (cable length)

50.7

14.9 dia.   14.9 dia.

M12 × 1   M12×1

(Plug)   (Socket)

● Cable with Plug on One End and Socket on Other End (M12 Straight/RJ45)
XS5W-T421-□ME-K

Wiring

M12 straight		RJ45
1	—	1
2	—	3
3	—	2
4	—	6
Shield	—	Shield

50.7

L (cable length)

57

14.9 dia.

(Socket) M12 × 1

RJ45

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omron

● **Cable with Plug One End (M12 Right-angle)**
XS5H-T422-□M0-K

Wiring

Terminal No.	Color
1	Yellow
2	White
3	Orange
4	Blue

22.5

L (cable length)

32.3

14.9 dia.

M12 × 1

1 4
2 3
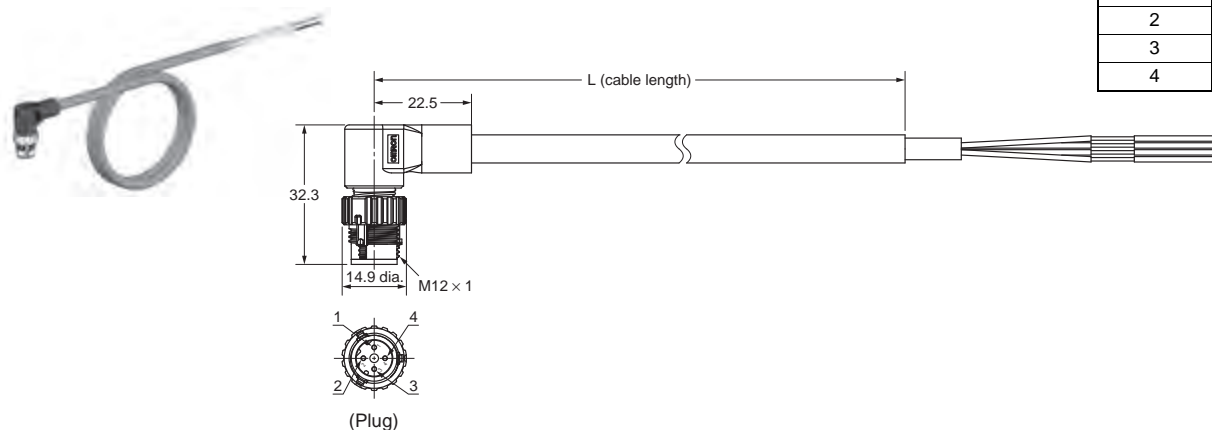
(Plug)

● **Cable with Plugs on Both Ends (M12 Right-angle/M12 Right-angle)**
XS5W-T422-□M2-K

Wiring

M12 right angle		M12 right angle
1		1
2		2
3		3
4		4
Shield		Shield

22.5

L (cable length)

22.5

32.3

32.3

14.9 dia.

M12 × 1

M12 × 1

14.9 dia.

1 4
2 3

3 2
4 1
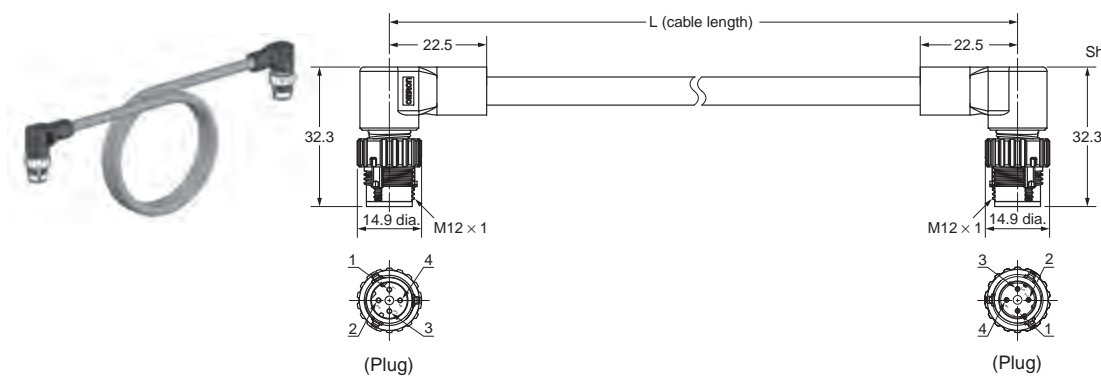
(Plug)

(Plug)

● **Cable with Plugs on Both Ends (M12 Right-angle/RJ45)**
XS5W-T422-□MC-K

22.5

L (cable length)

57

32.3

14.9 dia.

M12 × 1

RJ45

1 4
2 3

(Plug)

Wiring

M12 right angle		RJ45
1		1
2		3
3		2
4		6
Shield		Shield
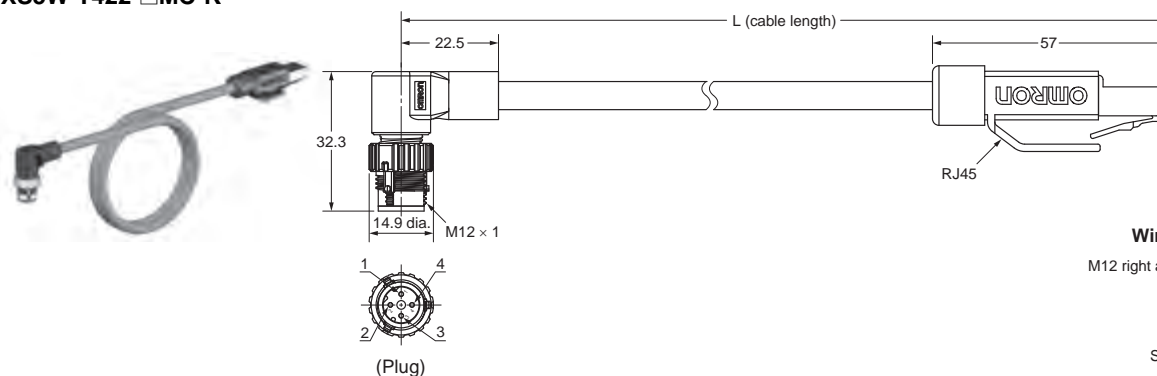
● **Cable with Plugs on Both Ends (RJ45/RJ45)**
XS5W-T421-☐MD-K
XS5W-T421-☐MD-KR
XS5W-T421-☐MD-YR
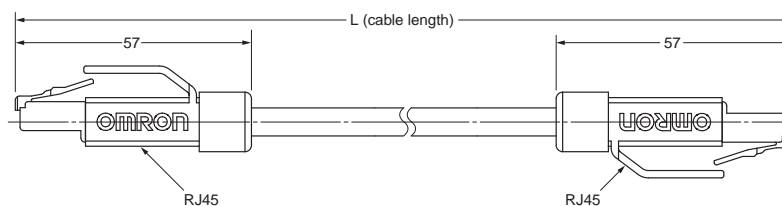
Wiring

RJ45		RJ45
1		1
2		2
3		3
6		6
Shield		Shield

57 — L (cable length) — 57

RJ45 — RJ45

● **Cable with Plugs on Both Ends (M12 Straight/M12 Straight)**
Shield Strengthening Cable
XS5W-T421-☐M2-SS

Wiring

M12 straight		M12 straight
1		1
2		2
3		3
4		4
Shield		Shield

44.7 — L (cable length) — 44.7
14.9 dia. — 14.9 dia.
M12 × 1 — M12 × 1

● **Cable with Plugs on Both Ends (M12 Straight/RJ45)**
Shield Strengthening Cable
XS5W-T421-☐MC-SS
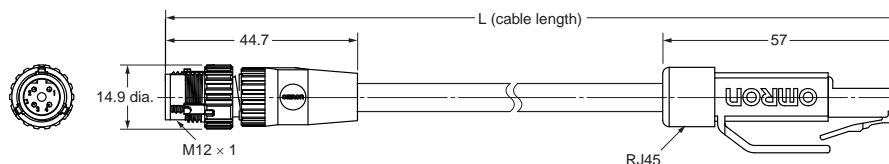
Wiring

M12 straight		RJ45
1		1
2		3
3		2
4		6
Shield		Shield

44.7 — L (cable length) — 57
14.9 dia.
M12 × 1 — RJ45

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XS5/XS6

● **RJ45 Assembly Connector**
XS6G-T421-1

59

8.2

10.5

13.97

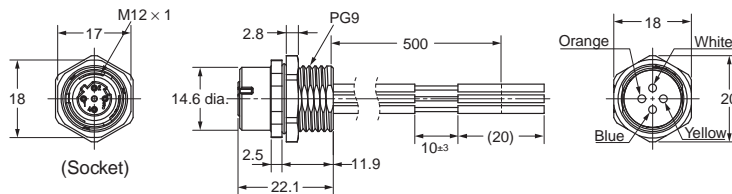Contact 2   Contact 3

Contact 1   Contact 6

11.22
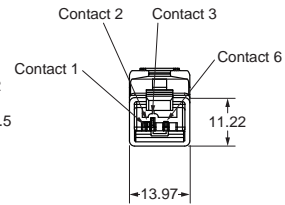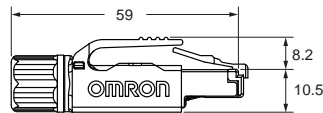
Applicable wires
Sheath outer diameter: 4.5 to 9.0 mm
Core size: AWG22 to AWG24 (stranded wires)
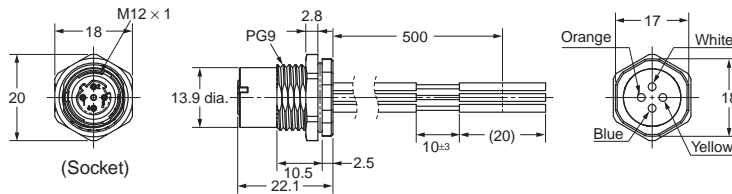AWG22 to AWG23 (solid wires)
Insulation outer diameter: 1.6 mm max.

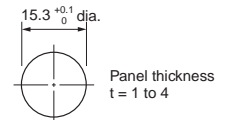● **M12 Connector for Panel Mounting**
XS5P-T42□-5

XS5P-T426-5 (Rear Locking)

M12×1   2.8   PG9   500

17

18

14.6 dia.

2.5   11.9

22.1

10±3   (20)

Orange   White   18

Blue   Yellow   20

(Socket)

XS5P-T427-5 (Front Locking)

M12×1   2.8   500

18

20

PG9   13.9 dia.

10.5   2.5

22.1

10±3   (20)

Orange   White   17

Blue   Yellow   18

(Socket)

Wiring

Terminal No.	Color
1	Yellow
2	White
3	Orange
4	Blue

Panel Cutout Dimension

15.3 $^{+0.1}_{0}$ dia.
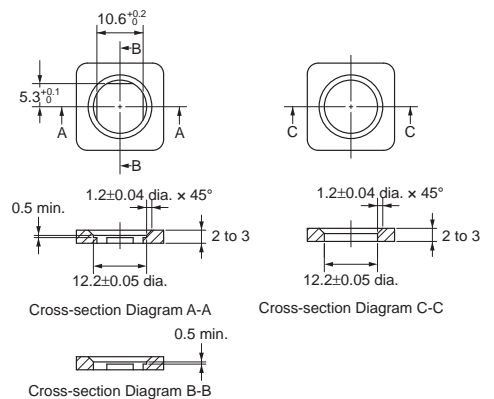
Panel thickness
t = 1 to 4

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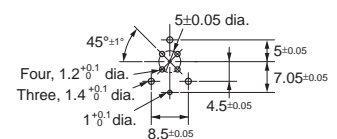Note 2: Rotational positioning is not possible for connector rotation.

● **M12 Panel-mounting PCB Straight Terminals**
XS5P-T426-1

Pin No.   M12×1   19.9   10.4   2.5   14

15   2.5

(Socket)

16.5 dia. 14.6 dia.   3
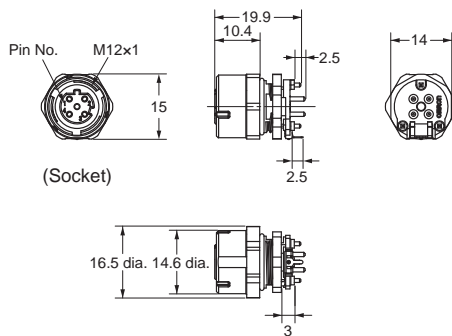
Mounting Hole Dimensions (D Cut Structure)

10.6 $^{+0.2}_{0}$ B

5.3 $^{+0.1}_{0}$ A   A   B

1.2±0.04 dia. × 45°
0.5 min.   2 to 3
12.2±0.05 dia.
Cross-section Diagram A-A

Mounting Hole Dimensions

C   C

1.2±0.04 dia. × 45°
2 to 3
12.2±0.05 dia.
Cross-section Diagram C-C

0.5 min.
Cross-section Diagram B-B

Panel Processing Dimensions

45°±1°   5±0.05 dia.
Four, 1.2 $^{+0.1}_{0}$ dia.   5±0.05
Three, 1.4 $^{+0.1}_{0}$ dia.   7.05±0.05
1 $^{+0.1}_{0}$ dia.   4.5±0.05
8.5±0.05

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OMRON   15

■ Assembly Procedure

● RJ45 Assembly Connectors
XS6G-T421-1

1. Pass the cable through the cable clamp and the connector housing

2. Strip the cable sheath and ground braiding to the correct lengths.

   24 mm
   13 mm

3. Follow the color codes and prepare to insert the wires into the splice piece.

4. Insert the wires into the splice piece for the length of the splice piece.

5. Place the splice piece into the RJ45 data module and engage it.

6. Place the data module and the splice piece on the IDC assembly housing.

7. Press the data module and the IDC assembly housing together and use pliers or a similar device to make the insulation displacement contact.

8. Remove the data module from the IDC assembly housing.

9. Place the upper screen plate on the data module and press it over the ground braiding of the cable.

10. Place the lower screen plate on the bottom of the data module, align it with the upper screen place, and latch it until you hear it click into place.

11. Slide the housing that you placed around the cable in step 1 up to the data module and latch it until you hear it click into place.

12. Tighten the cable clamp.

Pin Assignments
Pin Assignments for Fast Ethernet 10/100 Mbps

Function/Signal	Wire color			Pin No.
	Industrial Ethernet	EIA/TIA 568A	EIA/TIA 568B	
Transmission Data+/TD+	YE	WH/GN	WH/OG	1
Transmission Data-/TD–	OG	GN	OG	2
Receiver Data/RD+	WH	WH/OG	WH	3
Receiver Data/RD–	BU	OG	GN	6

Pin 2 (Orange)   Pin 6 (Blue)
Pin 1 (Yellow)   Pin 3 (White)

● M12 Panel-mounting PCB Straight Terminals
XS5P-T426-1
Confirming the Number of Parts
The following four parts are included in the package when it is delivered.

Panel-mounting Parts   **PCB-mounting Part**
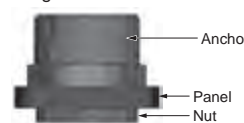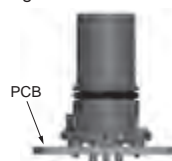1. Anchor   2. O-Ring   3. Nut   4. Connector

Assembly Procedure

1. Mount the connector to the PCB.
2. Attach the anchor to the panel with the nut.

   Mounting the Connector to the PCB   Mounting the Anchor to the Panel

   PCB   Anchor
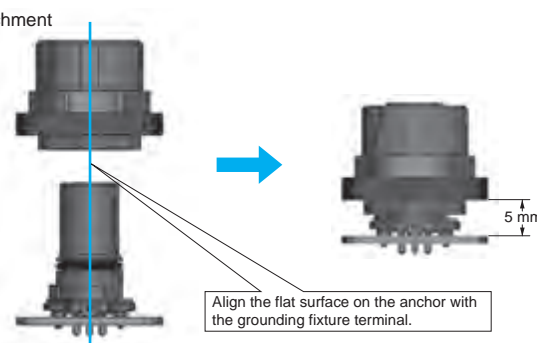   Panel
   Nut
   *Tightening torque: 1 N·m

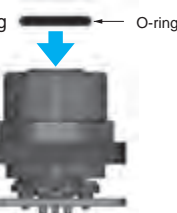3. Attach the connector that you mounted to the PCB to the panel.
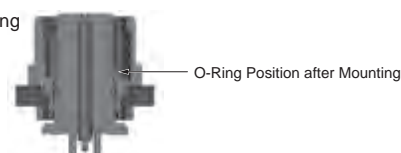   * Make sure that the connector and anchor are oriented correctly.
   Attachment

   5 mm

   Align the flat surface on the anchor with the grounding fixture terminal.

4. Temporarily mount the O-ring to the top of the connector at the mating surface.

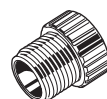   Temporary Mounting of the O-Ring   O-ring

5. Mate the Connector Waterproof Cover (XS2Z-22, sold separately) or the Partner Connector Plug (XS5H-T42□-□M0-K, sold separately) and press the O-ring to the O-ring position after mounting.

   Mounting the O-Ring

   O-Ring Position after Mounting

● Connector Waterproof Cover (Sold Separately)
XS2Z-22

* Tightening torque: 0.39 to 0.49 N·m

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■ 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.
- 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.

● Wiring
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 for M12/Smartclick Connectors
- 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.

● Handling Precautions
- Do not pull on the Connectors or cables with excessive force. Do not install the Connectors with a load placed directly on the joint or at the point where the wires connect to the Connector. The Connector may be damaged or the wires in the cable may be disconnected.
- Lay the cable where it will not be stepped on to prevent the wires in the cable from being disconnected and to protect the Connectors from being damaged. If the cable must be placed where it will be stepped on, install a protective cover.
- When bending cables, do not exceed the cable specifications.

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