# **Round Water-resistant Connectors (M12)**

### Water-resistant Smartclick Connectors That Reduce Installation Work

- A newly developed lock structure that maintains compatibility with conventional, screw-type 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 conventional, screw-type M12 connectors.
- · Connector with cable are UL approved



Rated current	4 A
Rated voltage	250 VDC
Contact resistance (connector)	$40~\text{m}\Omega$ max. (20 mV max., 100 mA max.)
Insulation resistance	1,000 M $\Omega$ 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	Pulling: 100 N/15 s, Twisting: 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°C to 70°C

# ■ Recommended Cables

Cable or	ıtar diamatar	Core sizes		
Cable outer diameter (mm)		Crimping models	Soldering models	Screw-on models
8 mm	7 to 8 mm			
7 mm	6 to 8 mm			
6 mm	5 to 6 mm	Two types of		0.18 to 0.75mm <sup>2</sup>
4 mm	4 to 5 mm	connectors are available. 0.5 mm² max.		
3 mm	3 to 4 mm	0.18 to 0.3mm <sup>2</sup> 0.5 to 0.75mm <sup>2</sup>		

# **S**martclick<sup>™</sup>

# ■ Materials and Finish

Item	Model	XS5F/H/W/R	XS5M/P	XS5C/G	
Contacts	Materials	Phosphor bronze		Brass	
	Finish	Nickel base, 0.4-μm gold-plating			
Fixtures		Nickel-plated zinc alloy			
Pin Block		PBT resin (UL94V-0	)		
O-ring		Rubber			
Overmold	ing/Cover	Polyester elastomer	— PBT resin (UL94V-0)		
	Standard cable	UL AWM2464, 6-mm dia. 4 cores × AWG20 (0.12/49)			
Cable	Vibration- proof robot cable	UL CL3, 6-mm dia. 4 cores × AWG20 (0.08/110)			
	Oil-resistant polyurethane cable	6 dia. 4 cores × 0.5 mm <sup>2</sup> (0.12/45)			
Seal Resir	1	— Epoxy Resin (UL94V-0)			
Power sup	pply wires	UL 1007 AWG20			

Note: 1. See "XS5/XS2 - Assembly Tooling and Accessories" datasheet for information regarding assembly, tooling and accessories that are common to the XS5 and XS2 connectors

2. See "XS2" datasheet for specifics regarding those connectors

# **■** Connection Combinations

OMRON model No.		Smartclick Plug Connectors	M12 Plug Connectors
		XS5H, XS5G, XS5M XS5W (plug side) XS5R (plug side)	XS2H, XS2G, XS2M XS2W (plug side) XS2R (plug side)
Smartclick Socket Connectors	XS5F, XS5C, XS5P XS5W (socket side) XS5R, (socket side)	©	0
M12 Socket Connectors	XS2F, XS2C, XS2P XS2W (socket side) XS2R (socket side)	0	0

**Note:**  $\P$  martclick  $^{TM}$  is a registered trademark of the OMRON Corporation.

⊚: Connected by Smartclick<sup>™</sup> twisting. O: Connected by screwing.

# 4-Pin Connectors with Cable Attached

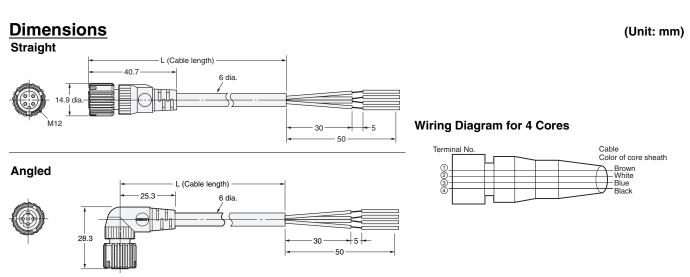
### ■ XS5F - Socket on One Cable End

XS5F-D42□-□80-A Standard Cable

XS5F-D42□-□80-F Vibration-proof Robot Cable

XS5F-D42□-□80-P Oil-resistant Polyurethane Cable





Note: The overmolding on the Standard Cable (XS5F-D42 -- 80-A) and the Oil-resistant Polyurethane Cable (XS5F-D42 -- 80-P) is black, and the overmolding on the Vibration-proof Robot Cable (XS5F-D42□-□80-F) is gray.

# **Ordering Information**

Cable type	Cable length L	Мо	odel	Standard pack
Cable type	(m)	Straight	Angled	quantity
	1	XS5F-D421-C80-A	XS5F-D422-C80-A	
	2	XS5F-D421-D80-A	XS5F-D422-D80-A	10
Standard cable	3	XS5F-D421-E80-A	XS5F-D422-E80-A	10
	5	XS5F-D421-G80-A	XS5F-D422-G80-A	
	10	XS5F-D421-J80-A	XS5F-D422-J80-A	5
	1	XS5F-D421-C80-F	XS5F-D422-C80-F	
Villaga Para anno a f	2	XS5F-D421-D80-F	XS5F-D422-D80-F	10
Vibration-proof robot cable	3	XS5F-D421-E80-F	XS5F-D422-E80-F	10
TODOT CADIC	5	XS5F-D421-G80-F	XS5F-D422-G80-F	
	10	XS5F-D421-J80-F	XS5F-D422-J80-F	
O'l maniatana	2	XS5F-D421-D80-P	XS5F-D422-D80-P	5
Oil-resistant polyurethane cable	5	XS5F-D421-G80-P	XS5F-D422-G80-P	
polyarounane cable	10	XS5F-D421-J80-P	XS5F-D422-J80-P	1

Note: Ask your OMRON representative about other specifications.



# **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
  - Connector connected to cable, socket on one cable end
- 2. AC/DC (Mating Section Form)
  - D: DC
- 3. Connector Poles
  - 4 poles
- 4. Contact Plating
  - 0.4-µm gold plating
- 5. Cable Connection Direction
  - 1: Straight
  - 2: Angled

- 6. Cable Length
  - A: 0.3 m G: 5 m B: H: 0.5 m 7 m C: 1 m J: 10 m D: 2 m K: 15 m E: 3 m L: 20 m
  - F: 4 m
- 7. Connections
  - 1) Brown, 2) White, 3) Blue, 4) Black 8: (Numbers inside circles are terminal numbers.)
- 8. Connectors on One End/Both Ends
  - One end
- 9. Cable Specification
  - A: Standard cable
  - F: Vibration-proof robot cable
  - P: Oil-resistant polyurethane cable

# ■ XS5H - Plug on One Cable End

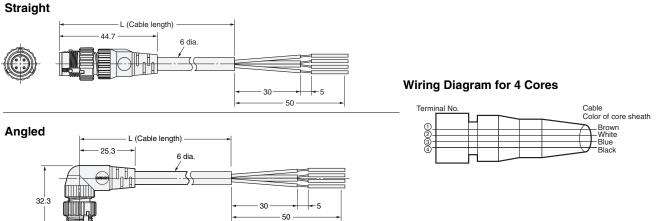
XS5H-D42□-□80-A Standard Cable

XS5H-D42□-□80-F Vibration-proof Robot Cable

XS5H-D42□-□80-P Oil-resistant Polyurethane Cable



**Dimensions** (Unit: mm)



Note: The overmolding on the Standard Cable (XS5H-D42 -- 80-A) and the Oil-resistant Polyurethane Cable (XS5H-D42 -- 80-P) is black, and the overmolding of the Vibration-proof Robot Cable (XS5H-D42□-□81-F) is gray

# **Ordering Information**

Cable type	Cable length L (m)	Mo	del	Standard pack
Cable type	Cable leligili L (III)	Straight	Angled	quantity
	0.3	XS5H-D421-A80-A	XS5H-D422-A80-A	
Standard cable	1	XS5H-D421-C80-A	XS5H-D422-C80-A	
Stariuaru Cable	2	XS5H-D421-D80-A	XS5H-D422-D80-A	
	5	XS5H-D421-G80-A	XS5H-D422-G80-A	5
Vibration-proof	0.3	XS5H-D421-A80-F	XS5H-D422-A80-F	7 3
	1	XS5H-D421-C80-F	XS5H-D422-C80-F	
robot cable	2	XS5H-D421-D80-F	XS5H-D422-D80-F	
	5	XS5H-D421-G80-F	XS5H-D422-G80-F	
Oil wasistant	0.3	XS5H-D421-A80-P	XS5H-D422-A80-P	10
Oil-resistant polyurethane cable	2	XS5H-D421-D80-P	XS5H-D422-D80-P	- 5
	5	XS5H-D421-G80-P	XS5H-D422-G80-P	7 3

Note: Ask your OMRON representative about other specifications.



# **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
  - H: Connector connected to cable, plug on one cable end
- 2. AC/DC (Mating Section Form)
- 3. Connector Poles
  - 4: 4 poles
- 4. Contact Plating
  - 0.4-μm gold plating 2:
- 5. Cable Connection Direction
  - 1: Straight
  - 2: Angled

- 6. Cable Length
  - A: 0.3 m G: 5 m B: H: 0.5 m 7 m C: 1 m J: 10 m
  - D: 2 m K: 15 m E: 3 m L: 20 m
  - F: 4 m
- 7. Connections
  - 1) Brown, 2) White, 3) Blue, 4) Black 8: (Numbers inside circles are terminal numbers)
- 8. Connectors on One End/Both Ends
  - One end
- 9. Cable Specifications
  - A: Standard cable
  - F: Vibration-proof robot cable
  - P: Oil-resistant polyurethane cable

# ■ XS5W - Socket and Plug on Cable Ends

XS5W-D42 - 81-A Standard Cable

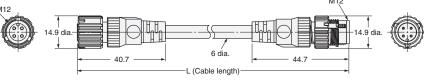
XS5W-D42□-□81-F Vibration-proof Robot Cable

XS5W-D42□-□81-P Oil-resistant Polyurethane Cable

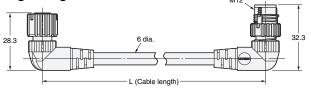


**Dimensions** (Unit: mm)

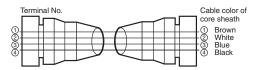




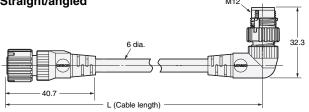
# Angled/angled



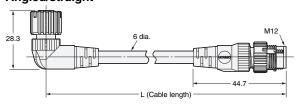
### Wiring Diagram for 4 Cores



### Straight/angled



### Angled/straight



 $\textbf{Note:} \ \ \text{The overmolding on the Standard Cable (XS5W-D42\square-\square81-A) and the Oil-resistant Polyerethane Cable (XS5W-D42\square-\square81-P) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane Cable (XS5W-D42\subseteq \cdot \text{81-P}) is black, and the Oil-resistant Polyerethane$ the overmolding of the Vibration-proof Robot Cable (XS5W-D42□-□81-F) is gray.

# **Ordering Information**

Cable ture	Cable length L	Мо	odel	Standard pack
Cable type	(m)	Straight/straight	Angled/angled	quantity
	1	XS5W-D421-C81-A	_	
	2	XS5W-D421-D81-A	XS5W-D422-D81-A	10
Standard cable	3	XS5W-D421-E81-A	_	
	5	XS5W-D421-G81-A	XS5W-D422-G81-A	
	10 XS5W-D421-J81-A		_	5
	1	XS5W-D421-C81-F	_	
\tag{\text{\text{\$\tinx{\$\text{\$\tin\}\$\$}}}}}}} \end{bit}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}	2	XS5W-D421-D81-F	_	10
Vibration-proof robot cable	3	XS5W-D421-E81-F	_	
Tobot Cable	5	XS5W-D421-G81-F	_	
	10	XS5W-D421-J81-F	_	5
0	2	XS5W-D421-D81-P	_	5
Oil-resistant polyurethane cable	5	XS5W-D421-G81-P	_	7 °
polyurethane cable	10	XS5W-D421-J81-P	_	1

Cable type	Cable length L	Model		Standard pack
Cable type	(m)	Straight/angled Angled/straight		quantity
Standard cable	2	XS5W-D423-D81-A	XS5W-D424-D81-A	5
Startuard Cable	5	XS5W-D423-G81-A	XS5W-D424-G81-A	5

Note: Ask your OMRON representative about other specifications.

## **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

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

0.4-µm gold plating

5. Cable Connection Directions

Straight/straight 1:

Angled/angled 2:

3: Straight (XS5F)/angled (XS5H)

Angled (XS5F)/straight (XS5H) 4:

### 6. Cable Length

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

### 7. Connections

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

### 8. Connectors on One End/Both Ends

Both ends 1:

### 9. Cable Specifications

A: Standard cable

F: Vibration-proof robot cable

P: Oil-resistant polyurethane cable

# 4-Pin and 5-Pin Assembly Connector

### **■ XS5C Sockets**





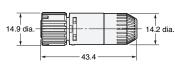
**Dimensions** (Unit: mm)

**XS5C-D4C** (Crimping Model) XS5C-D42□ (Soldering Model)

**Straight Connectors** 



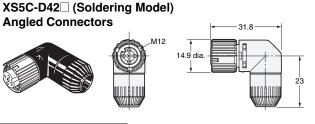








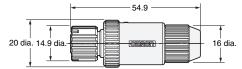
**XS5C-D4C** (Soldering Model)



XS5C-D□S□ (Screw-on Connectors, Applicable Cable Outer Diameter: 7 or 8mm) **Straight Connectors** 



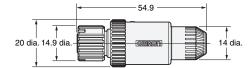




**XS5C-D**□**S**□ (Screw-on Connectors, Applicable Cable Outer Diameter: 3, 4, or 6mm) **Straight Connectors** 



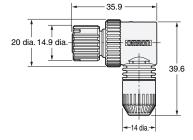




XS5C-D□S□ (Screw-on Connectors) **Angled Connectors** 







# **Ordering Information**

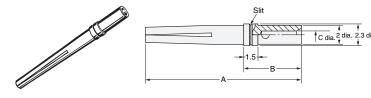
No. of Doloo	Connection	Suitable cable dia.	Mo	del	Standard pack
No. of Poles Method		(mm)	Straight	Angled	quantity
		6 mm (5 to 6)	XS5C-D4C1	XS5C-D4C2	
	Crimping	4 mm (4 to 5)	XS5C-D4C3	XS5C-D4C4	
		3 mm (3 to 4)	XS5C-D4C5	XS5C-D4C6	
		6 mm (5 to 6)	XS5C-D421	XS5C-D422	
	Soldering	4 mm (4 to 5)	XS5C-D423	XS5C-D424	
4		3 mm (3 to 4)	XS5C-D425	XS5C-D426	
	Screw-on	6 mm (5 to 6)	XS5C-D4S1	XS5C-D4S2	
		4 mm (4 to 5)	XS5C-D4S3	XS5C-D4S4	10
		3 mm (3 to 4)	XS5C-D4S5	XS5C-D4S6	10
		8 mm (7 to 8)	XS5C-D4S7	_	
		7 mm (6 to 7)	XS5C-D4S9	_	
		6 mm (5 to 6)	XS5C-D5S1	_	
		4 mm (4 to 5)	XS5C-D5S3	_	
5	Screw-on	3 mm (3 to 4)	XS5C-D5S5	_	
		8 mm (7 to 8)	XS5C-D5S7	_	
		7 mm (6 to 7)	XS5C-D5S9	_	

# **■**XS5U

(Crimping pin for XS5C)

**Dimensions** (Unit: mm)

XS5U-222 Socket Pin



### **Dimensions**

Suitable co		Dim	nm)	No. of	
Model	size (mm²)	Α	В	С	slits
XS5U-2221	0.18 to 0.3 (22 to 24 AWG)	16.7	6.1	0.8	1
XS5U-2222	0.5 to 0.7 (18 to 20 AWG)	16.8	6.2	1.3	0

Note: 1. A special tool must be used for crimping. For details, refer to the "XS5/XS2 - Assembly Tooling and Accessories" datasheet. 2. AWG size is based on UL1007 wire.

Suitable core size (mm2)	Model	Standard Pack Quantity
0.18 to 0.3	XS5U-2221	100
0.5 to 0.75	XS5U-2222	100

# ■ XS5G - Plugs

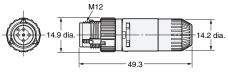




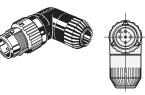
**Dimensions** (Unit: mm)

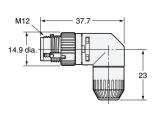
**XS5G-D4C**□ (Crimping Model) XS5G-D42□ (Soldering Model) **Straight Connectors** 







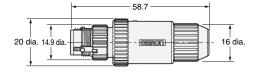




XS5G-D□S□ (Screw-on Connectors, Applicable Cable Outer Diameter: 7 or 8mm) **Straight Connectors** 



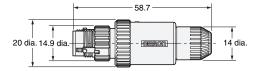




XS5G-D□S□ (Screw-on Connectors, Applicable Cable Outer Diameter: 3, 4, or 6mm) **Straight Connectors** 



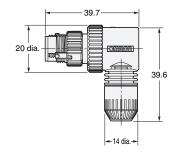




XS5G-D□S□ (Screw-on Connectors) **Angled Connectors** 







# **Ordering Information**

No. of Poles	Connection	Suitable cable dia.	Мо	Standard pack	
No. of Poles	Method	(mm)	Straight	Angled	quantity
		6 mm (5 to 6)	XS5G-D4C1	_	
	Crimping	4 mm (4 to 5)	XS5G-D4C3	_	
		3 mm (3 to 4)	XS5G-D4C5	_	
		6 mm (5 to 6)	XS5G-D421	XS5G-D422	
	Soldering	4 mm (4 to 5)	XS5G-D423	XS5G-D424	10
4		3 mm (3 to 4)	XS5G-D425	XS5G-D426	
	Screw-on	6 mm (5 to 6)	XS5G-D4S1	XS5G-D4S2	
		4 mm (4 to 5)	XS5G-D4S3	XS5G-D4S4	
		3 mm (3 to 4)	XS5G-D4S5	XS5G-D4S6	
		8 mm (7 to 8)	XS5G-D4S7	_	
		7 mm (6 to 7)	XS5G-D4S9	_	
		6 mm (5 to 6)	XS5G-D5S1	_	
	Screw-on	4 mm (4 to 5)	XS5G-D5S3	_	
5		3 mm (3 to 4)	XS5G-D5S5	_	
		8 mm (7 to 8)	XS5G-D5S7	_	
		7 mm (6 to 7)	XS5G-D5S9	_	

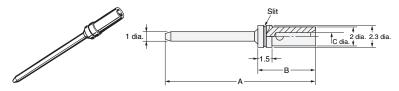
Note: XS5G Screw-on Plugs cannot be connected side-by-side to the CN1 and CN2 connectors of XS2R or XS5R Y-Joint Sockets / Plugs

# **■** XS5U

# (Crimping pin for XS5G)

**Dimensions** (Unit: mm)

XS5U-312□ **Plug Pin** 



### **Dimensions**

Madal	Suitable core	Dim	No. of		
Model	size (mm²)	Α	В	С	slits
XS5U-3121	0.18 to 0.3 (22 to 24 AWG)	22.6	6.1	0.8	1
XS5U-3122	0.5 to 0.7 (18 to 20 AWG)	22.7	6.2	1.3	0

Note: 1. A special tool must be used for crimping. For details, refer to the "XS5/XS2 - Assembly Tooling and Accessories" datasheet. 2. AWG size is based on UL1007 wire.

Suitable core size (mm2)	Model	Standard Pack Quantity
0.18 to 0.3	XS5U-3121	100
0.5 to 0.75	XS5U-3122	100

# **4-Pin Y-Joint Plug/Socket Connectors**

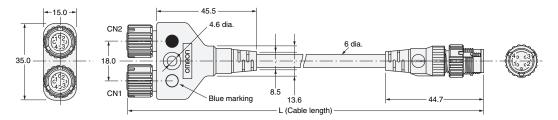
# ■XS5R

**S**martclick<sup>™</sup>

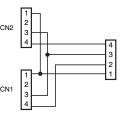
**Dimensions** (Unit: mm)

XS5R-D426-□11-F

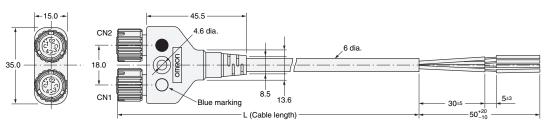
Connectors on Both Ends (Y-Joint Plug/Socket)



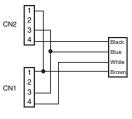




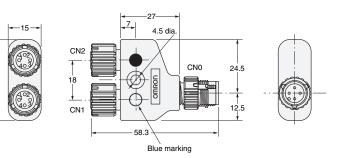
XS5R-D426-□10-F **Connectors on One Cable End (Y-Joint Socket)** 



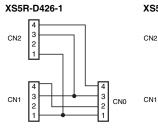
### **Wiring Diagram**

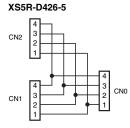


XS5R-D426-□ Y-Joint Plug/Socket without Cable



# **Wiring Diagram**





# **Ordering Information**

Cable	Connector	Cable length (m)	Model	Standard pack quantity
		0.5	XS5R-D426-B11-F	
	Connectors on both cable	1	XS5R-D426-C11-F	5
With cable	ends	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	V		XS5R-D426-1	
	Y-Joint Plug/Socket		XS5R-D426-5	10

Note: XS2G and XS5G Assembled Connectors with screw connections cannot be connected to both CN1 and CN2 at the same time.

(37)

# **4-Pin Panel-mount Connectors**

### ■ XS5P - Sockets

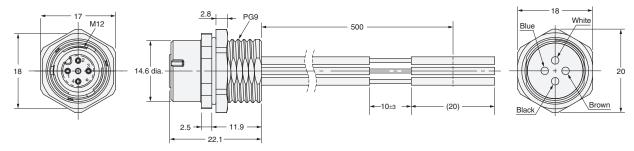




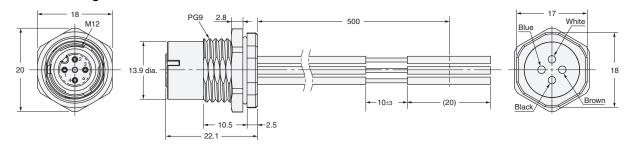
**Dimensions** (Unit: mm)

XS5P-D426-5

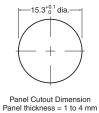
Front Panel-mounting Sockets for Rear Lock Nuts



### XS5P-D427-5 **Rear Panel-mounting Sockets for Front Lock Nuts**



# **Panel Cutout**



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	
	Number of wires	21	
Configuration	Wire diameter	0.18	
	Standard outer diameter	1.8	

Туре	Lock	Cable length (m)	Model	Standard pack, quantity
\A/:+h aalala	Rear lock	0.5	XS5P-D426-5	10
With cable	Front lock	0.5	XS5P-D427-5	10

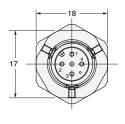


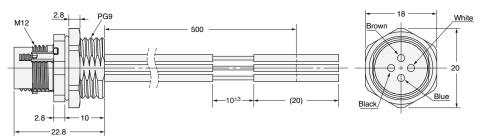


**Dimensions** (Unit: mm)

XS5M-D426-5

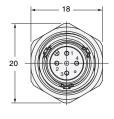
### Front Panel-mounting Plugs for Rear Lock Nuts

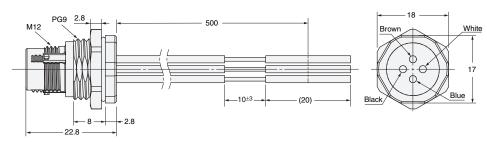




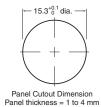
### XS5M-D427-5

### **Rear Panel-mounting Plugs for Front Lock Nuts**





# **Panel Cutout**



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	
	Number of wires	21	
Configuration	Wire diameter	0.18	
	Standard outer diameter	1.8	

Туре	Lock	Cable length (m)	Model	Standard pack, quantity
\\/;th as lale	Rear lock	0.5	XS5M-D426-5	
With cable	Front lock	0.5	XS5M-D427-5	10

# **Precautions**

- Note: 1. See "XS5/XS2 Assembly Tooling and Accessories" datasheet for information and precautions regarding assembly, tooling and accessories that are common to the XS5 and XS2 connectors
  - 2. See "XS2" datasheet for specifics regarding those connectors

### ■ 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 mating 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 mate the Connectors. Always use your hands. Pliers or other tools may damage the Connectors.
- When mating 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 the Connectors underwater.
- Do not step on or place any objects on the Connectors. Doing so may damage the Connectors.

### ■ General Precautions

- Do not pull excessively on the Connectors or cables. Do not install the Connectors or cables in any way that would place a load directly on the mating section or cable connections. Doing so can damage the Connectors or break the wires inside the cables.
- Install the Connectors and cables where they will not be stepped on to prevent the wires inside the cables from being broken and to prevent the Connectors from being damaged. If the Connectors or cables must be installed where they might be stepped on, protect them with covers
- · Refer to the specifications for your cables before bending the cables and do not bend them past their minimum bending radius.
- If sensors or switches are not attached during installation, protect the mating surface of the Connector with a XS2Z-22 Waterproof Cover of XS2Z-14/15 Dust Cover.

# **■** 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.



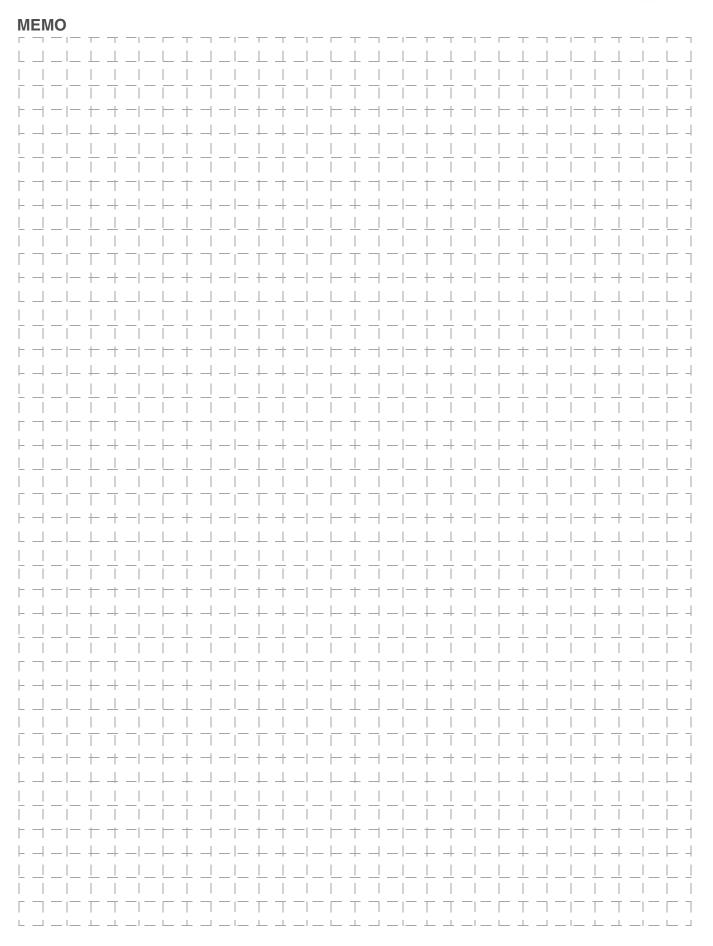
 Turn the knurled grips of the socket clockwise approximately 45 degrees in respect to the plug. A click will indicate that the Connectors are locked. The locking condition can also be confirmed by the alignment marks on the plug and socket.



### 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.





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