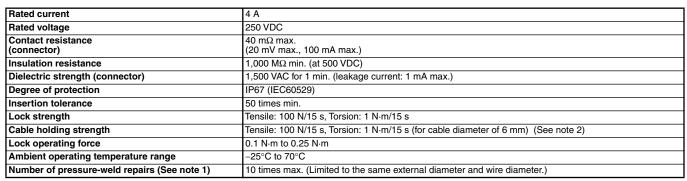
NEW

# Round Water-resistant Connectors (M12)

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

- New IDC Field-wiring versions of the XS5G and XS5C.
- A newly developed lock structure that maintains compatibility with 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

# ■ Specifications



S martclick<sup>™</sup>

Note: 1. Only XS5C/G (IDC models)

2. Refer to product specifications for details.

# Recommended Cables

Cable	outer diame-		Core sizes					
	r (mm)	Crimping models	Soldering models	Screw-on models	IDC Models			
8 mm	7 to 8 mm				0.14 to 0.75 mm <sup>2</sup>			
7 mm	6 to 8 mm	_	_					
6 mm	5 to 6 mm	Two types of connectors		0.18 to 0.75mm <sup>2</sup>	<ul> <li>Minimum Wire Diameter: 0.08mm</li> <li>Outer diameter of wire covering: 0.7 to 2.6 mm</li> </ul>			
4 mm	4 to 5 mm	are available: 0.18 to 0.3mm <sup>2</sup>	0.5 mm <sup>2</sup> max.		Sheath material: PVC, PE, PUR			
3 mm	3 to 4 mm	0.5 to 0.75mm <sup>2</sup>			Material of wire covering: PVC, PE			

# ■ Connection Combinations

OMRON I	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	O
M12 Socket Connectors	XS2F, XS2C, XS2P XS2W (socket side) XS2R (socket side)	0	0
			@: Connected by Smartclick™ twisting

Note: Semartclick<sup>™</sup> is a registered trademark of the OMRON Corporation.

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

c **A** us

Smartclick<sup>™</sup>

(Unit: mm)

# Materials and Finish

Item	Model	XS5F/H/W	XS5R	XS5M/P	XS5C/G (Crimping, Soldering)	XS5C/G (Screw-on)	XS5C/G (IDC models)
Contacts	Materials	Phosphor bronze	Phosphorbronze or Brass	Phosphor bronze	Brass	Phosphor bronze or Brass	Phosphor bronze
	Finish	Nickel base, 0.4-µ	Nickel base, 0.4-μm gold-plating				
Fixtures				Nicke	el-plated zinc alloy		
Fixtures (Lock) (See note 3) SUS							
Pin Block		PBT resin (UL94V-0)					
O-ring Rubber							
Overmoldi	ng/Cover	Soft PBT res	in (UL94V-0)	—	– PBT resin(UL94V-0)		
Cable	Fire-retardant, robot cable		CL3, 6-mm dia., G20 (0.08/110)			_	
Oil-resistant polyurethane cable		6 dia.4 cores × 0.5 mm <sup>2</sup> (0.12/45)		_			
Seal Resin — Epoxy Resin (UL94V-0) —							
Power sup	ply 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

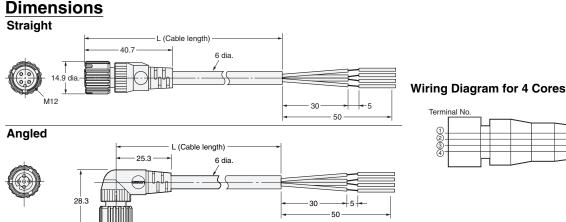
- 2. See "XS2" datasheet for specifics regarding those connectors
- 3. Only plug

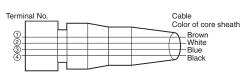
# 4-Pin Connectors with Cable Attached

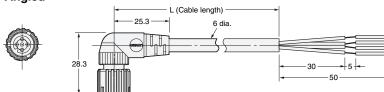
# XS5F - Socket on One Cable End

XS5F-D42 - 80-F Fire-retardant, Robot Cable 

#### **Dimensions**







Note: The overmolding on the Oil-resistant Polyurethane Cable (XS5F-D42--80-P)is black, and the overmolding on the Fire-retardant, Robot Cable (XS5F-D42 ---- 80-F) is warm gray.

#### **Ordering Information**

Cable turne	Cable length L	Mod	Standard pack		
Cable type	(m)	(m) Straight		quantity	
	1	XS5F-D421-C80-F	XS5F-D422-C80-F	10	
Fine netendent	2	XS5F-D421-D80-F	XS5F-D422-D80-F		
Fire-retardant, robot cable	3	XS5F-D421-E80-F	XS5F-D422-E80-F	5	
TODOL CADIE	5	XS5F-D421-G80-F	XS5F-D422-G80-F		
	10	XS5F-D421-J80-F	XS5F-D422-J80-F	1	
Ollarssistent	2	XS5F-D421-D80-P	XS5F-D422-D80-P	5	
Oil-resistant polyurethane cable	5	XS5F-D421-G80-P	XS5F-D422-G80-P	5	
	10	XS5F-D421-J80-P	XS5F-D422-J80-P	1	

Note: 1. Ask your OMRON representative about other specifications.

2. XS5F-D42 models with -F are cRUus approved.

#### **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.

## XS5F - D42□ - □80 - □

- 1 2345 9 678
- 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
  - 2:
  - Angled

#### 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 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

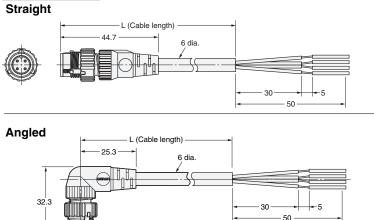
- F: Fire-retardant, robot cable
- P: Oil-resistant polyurethane cable

#### XS5H-D42 - 80-F Fire-retardant, Robot Cable XS5H-D42 - 80-P Oil-resistant Polyurethane Cable

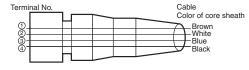


#### Dimensions

(Unit: mm)



Wiring Diagram for 4 Cores



#### **Ordering Information**

M12

Cable type	Cable length L (m)	Мс	Standard pack	
Cable type		Straight	Angled	quantity
	0.3	XS5H-D421-A80-F	XS5H-D422-A80-F	10
Fire-retardant,	1	XS5H-D421-C80-F	XS5H-D422-C80-F	10
robot cable	2	XS5H-D421-D80-F	XS5H-D422-D80-F	- 5
	5	XS5H-D421-G80-F	XS5H-D422-G80-F	5
O'll an ai starst	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	5

Note: 1. Ask your OMRON representative about other specifications.

**2.** XS5H-D42 $\square$  models with -F are c*RU*us approved.

#### 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 - <u>D42</u> - <u>B80</u> - <u></u>

- 1 2345 678 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
  - 2: Angled

#### 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 8: 1) Brow
  - 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

- F: Fire-retardant, robot cable
- P: Oil-resistant polyurethane cable

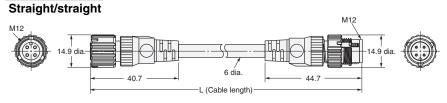
# ■ XS5W - Socket and Plug on Cable Ends

#### 

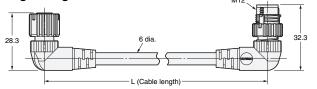


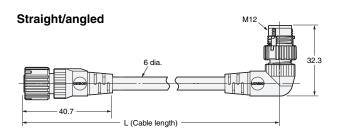
#### **Dimensions**



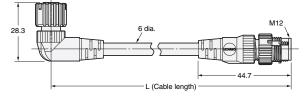


#### Angled/angled

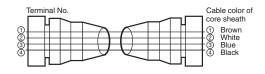




#### Angled/straight



Wiring Diagram for 4 Cores



#### **Ordering Information**

Cable type	Cable length L	Ma	Standard pack	
Cable type	(m)	Straight/straight	Angled/angled	quantity
	1	XS5W-D421-C81-F	—	10
<b>F</b> ire wetendent	2	XS5W-D421-D81-F	XS5W-D422-D81-F	
Fire-retardant, robot cable	3	XS5W-D421-E81-F	—	5
TODOL CADIC	5	XS5W-D421-G81-F	XS5W-D422-G81-F	
	10	XS5W-D421-J81-F	—	1
O'll an a late at	2	XS5W-D421-D81-P	—	- 5
Oil-resistant polyurethane cable	5	XS5W-D421-G81-P	—	_ 5
polyuletilalle cable	10	XS5W-D421-J81-P	_	1

Cable type	Cable length L	Мо	Standard pack	
Cable type	(m)	Straight/angled	Angled/straight	quantity
Fire-retardant	2	XS5W-D423-D81-F	XS5W-D424-D81-F	5
robot cable	5	XS5W-D423-G81-F	XS5W-D424-G81-F	1 5

Note: 1. Ask your OMRON representative about other specifications.

2. XS5W-D42 models with -F are cRUus approved.

#### 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 - D42 - 81 -9

2345 1 678

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
  - Straight/straight 1:
  - 2: Angled/angled
  - 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

8:

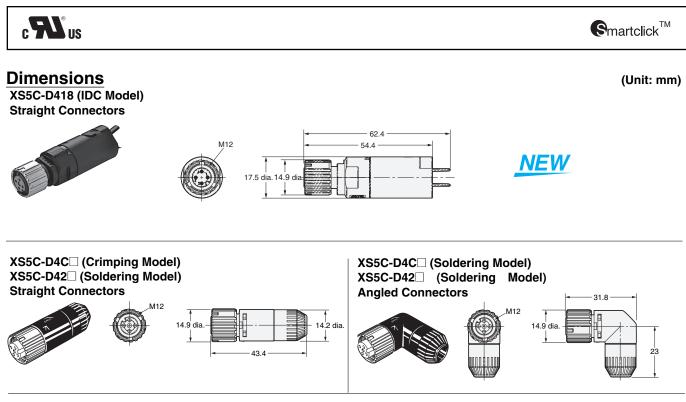
1) Brown, 2) White, 3) Blue, 4) Black (Numbers inside circles are terminal numbers.)

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

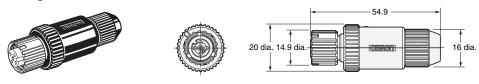
- 1: Both ends
- 9. Cable Specifications
  - F: Fire-retardant, robot cable
  - P: Oil-resistant polyurethane cable

# 4-Pin and 5-Pin Assembly Connector

# ■ XS5C Sockets



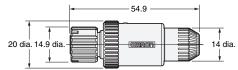
XS5C-DOS (Screw-on Connectors, Applicable Cable Outer Diameter: 7 or 8mm) Straight Connectors



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



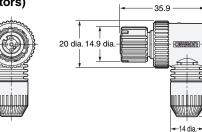




39.6

XS5C-DOS (Screw-on Connectors) Angled Connectors





#### **Ordering Information**

No. of Poles	Connection	Suitable cable dia.	Мо	Standard pack	
NO. OF POIES	Method	(mm)	Straight	Angled	quantity
-	IDC	3 to 8 mm	XS5C-D418	_	
		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	
4	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	1
		3 mm (3 to 4)	XS5C-D4S5	XS5C-D4S6	
		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		

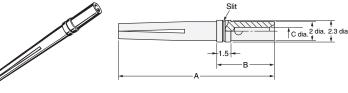
Note: 4 pole XS5C models are cRUus approved. IDC version (XS5C-D418) is pending approval.

# ■ XS5U (Crimping pin for XS5C)

#### **Dimensions**

XS5U-222 Socket Pin





Dimensions

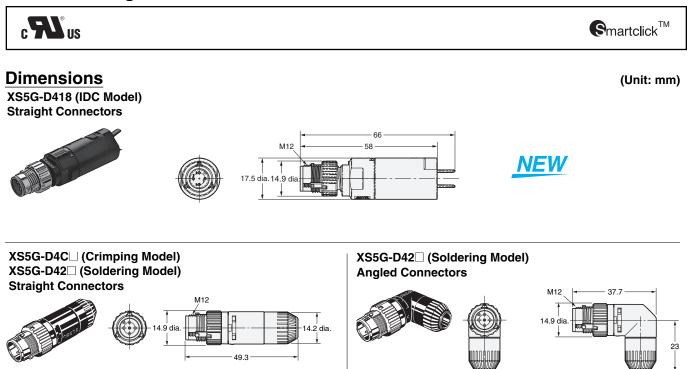
Madal	Suitable core	Dim	No. of		
Model	size (mm²)	Α	В	С	slits
XS5U-2221	0.18 to 0.3 (22 to 24 AWG)	16.7	6.1	0.8	1
XS5U-2222	0.5 to 0.7 (18 to 20 AWG)	16.8	6.2	1.3	0

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.

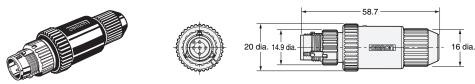
#### **Ordering Information**

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

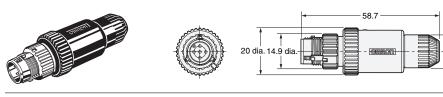
# ■XS5G - Plugs



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

14 dia

#### **Ordering Information**

No. of Poles	Connection	Suitable cable dia.	Мо	odel	Standard pack
NO. OF POIES	Method	(mm)	Straight	Angled	quantity
	IDC	3 to 8 mm	XS5G-D418	—	
		6 mm (5 to 6)	XS5G-D4C1	—	7
	Crimping	4 mm (4 to 5)	XS5G-D4C3	_	
		3 mm (3 to 4)	XS5G-D4C5	_	
		6 mm (5 to 6)	XS5G-D421	XS5G-D422	
4	Soldering	4 mm (4 to 5)	XS5G-D423	XS5G-D424	
4		3 mm (3 to 4)	XS5G-D425	XS5G-D426	
		6 mm (5 to 6)	XS5G-D4S1	XS5G-D4S2	
	Screw-on	4 mm (4 to 5)	XS5G-D4S3	XS5G-D4S4	1
		3 mm (3 to 4)	XS5G-D4S5	XS5G-D4S6	
		8 mm (7 to 8)	XS5G-D4S7	_	
		7 mm (6 to 7)	XS5G-D4S9	_	
5		6 mm (5 to 6)	XS5G-D5S1	_	
		4 mm (4 to 5)	XS5G-D5S3	_	1
	Screw-on	3 mm (3 to 4)	XS5G-D5S5	_	1
		8 mm (7 to 8)	XS5G-D5S7	_	1
		7 mm (6 to 7)	XS5G-D5S9	—	1

Note: 1. XS5G Screw-on Plugs cannot be connected side-by-side to the CN1 and CN2 connectors of XS2R or XS5R Y-Joint Sockets / Plugs 2. 4 pole XS5G models are cRUus approved. IDC version (XS5G-D418) is pending approval.

# ■XS5U (Crimping pin for XS5G)

#### **Dimensions**

XS5U-312 **Plug Pin** 

#### Dimensions Slit Dimension (mm) Suitable core size (mm<sup>2</sup>) C dia. dia. 2.3 dia Model Α 0.18 to 0.3 (22 to 24 AWG) XS5U-3121 22.6 ·B 0.5 to 0.7 (18 to 20 AWG) XS5U-3122 22.7

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.

#### **Ordering Information**

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

(Unit: mm)

в

6.1

6.2

С

0.8

1.3

No. of

slits

1

0

# 4-Pin Y-Joint Plug/Socket Connectors

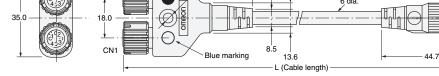
# ■XS5R

#### **Dimensions**

15.0

XS5R-D426-□11-F Connectors on Both Ends (Y-Joint Plug/Socket)

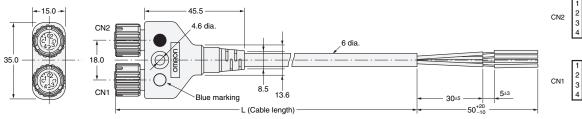
CN2



4.6 dia.

45.5

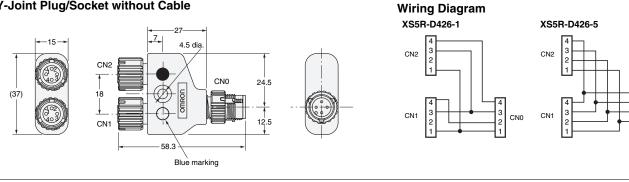
#### XS5R-D426-□10-F Connectors on One Cable End (Y-Joint Socket)



#### CN2 2 3 4 Biack Biue White Brown CN1 2 3 4

CNO

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



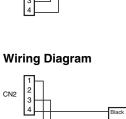
# Ordering Information

Cable	Connector	Cable length (m)	Model	Standard pack quantity
With cable		0.5	XS5R-D426-B11-F	10
	Connectors on both cable	1	XS5R-D426-C11-F	- 10
	ends	2	XS5R-D426-D11-F	- 5
		3	XS5R-D426-E11-F	
	Connector on one coble and	2	XS5R-D426-D10-F	
	Connector on one cable end	5	XS5R-D426-G10-F	
With no cable			XS5R-D426-1	40
	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.

S martclick<sup>™</sup>

(Unit: mm)



Wiring Diagram

CN2

CN1

**€**martclick<sup>™</sup>

(Unit: mm)

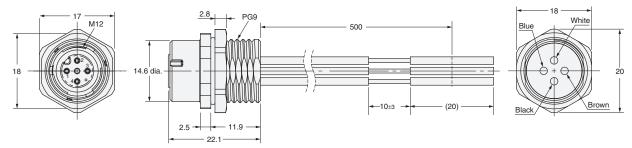
#### ■ XS5P - Sockets



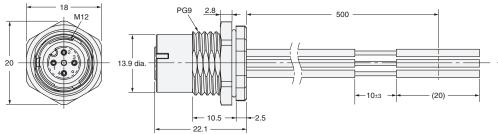
#### **Dimensions**

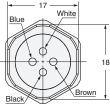
XS5P-D426-5

Front Panel-mounting Sockets for Rear Lock Nuts

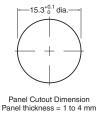


XS5P-D427-5 Rear Panel-mounting Sockets for Front Lock Nuts





## Panel Cutout



panel autout dimonsion is the same

- 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

## **Ordering Information**

Туре	Lock	Cable length (m)	Model	Standard pack, quantity
With cable	Rear lock	0.5	XS5P-D426-5	- 10
	Front lock		XS5P-D427-5	

Smartclick<sup>™</sup>

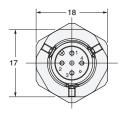
# ■XS5M - Plugs

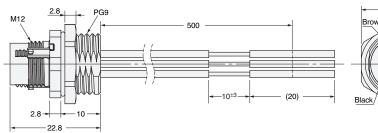


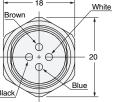
**Dimensions** 

XS5M-D426-5

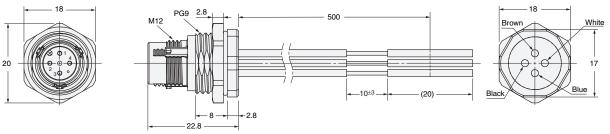
Front Panel-mounting Plugs for Rear Lock Nuts



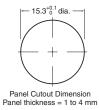




XS5M-D427-5 Rear Panel-mounting Plugs for Front Lock Nuts



#### 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

# **Ordering Information**

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

#### (Unit: mm)

# 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, along with assembly details for the NEW IDC Field-wiring versions of the XS5C and XS5G 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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ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.



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