

Oil-resistant Connectors XS5□R

Preliminary Version

Smartclick Oil-resistance Connectors with Improved Oil Resistance

- Fluororesin Cable That Withstands Cutting Oil
- Structured to provide greater oil resistance.
- A newly developed lock mechanism that is compatible with round M12 connectors.
- Insert the connector and turn approx. 1/8 turn to complete the connection and block the infiltration of oil.
- A positive click indicates locking.
- IP67G degree of protection (JIS C0920 Annex 1) *

* The IP67G is the degree of protection which is defined according to the JIS (Japanese Industrial Standards). The IP67 indicates the same level of protection as defined by the IEC, and the G indicates that a device has resistance to oil.



Smartclick

Refer to *Safety Precautions* on page 5.

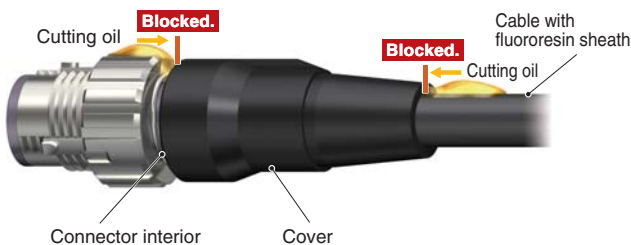
Features

Fluororesin Cable and Structure to Increase Oil Resistance

Fluororesin, which is not deteriorated by either water-insoluble or water-soluble cutting oils, is used for the cable sheath. Infiltration from the joined surfaces is prevented by unique OMRON technology that combines forming and sealing methods with surface bonding techniques. Infiltration between Connectors is prevented by the unique Smartclick mechanism.

Forming and Sealing Method + Surface Bonding Technique

Forming/
Sealing +
Surface
Bonding

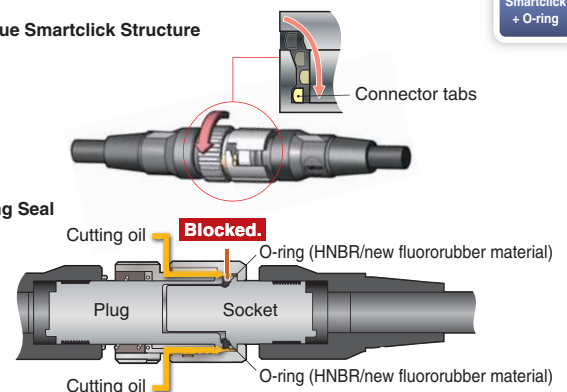


Smartclick Structure + O-ring

Smartclick
+ O-ring

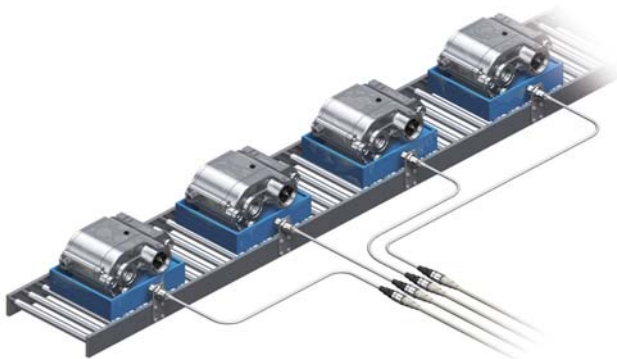
Unique Smartclick Structure

O-ring Seal



Application

Replacement of Sensors and Wiring

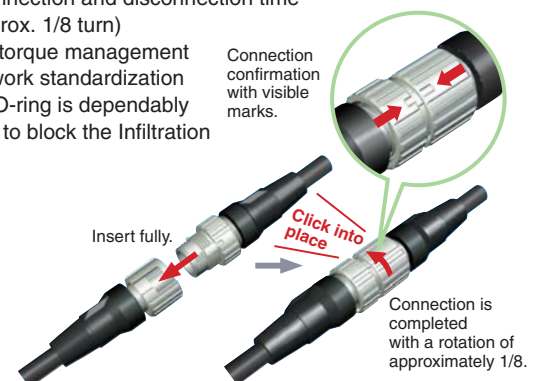


Benefits of Using Connectors:

- Less wiring work in comparison with connecting discrete wires to terminal blocks
- No wiring mistakes

Additional Benefits of Using Smartclick Connectors:

- Reduced connection and disconnection time (1 click, approx. 1/8 turn)
- No need for torque management to facilitate work standardization
- The built-in O-ring is dependably compressed to block the Infiltration of cutting oil.



Ratings and Specifications

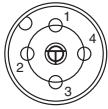

Rated current	1 A for 4-mm dia. (AWG24)
Rated voltage	30 VDC
Contact resistance (connector)	40 mΩ max. (20 mV max., 100 mA max.)
Insulation resistance	1,000 MΩ min. (at 500 VDC)
Dielectric strength (connector)	1,500 VAC for 1 min (leakage current: 1 mA max.)
Degree of protection	IP67 (IEC 60529) and IP67G (JIS C0920 Annex 1) *
Insertion tolerance	50 times min.
Lock strength	Tensile: 100 N/15 s, Torsion: 1 N-m/15 s
Cable holding strength	Tensile: 100 N/15 s
Lock operating force	0.1 to 0.25 N-m
Ambient operating temperature range	0 to 55°C
Ambient humidity range	20% to 85%

* The IP67G is the degree of protection which is defined according to the JIS (Japanese Industrial Standards). The IP67 indicates the same level of protection as defined by the IEC, and the G indicates that a device has resistance to oil.

Materials and Finishes

Contacts	Material	Phosphor bronze
	Finish	Nickel base, 0.4-μm gold plating
Fixtures		Nickel-plated zinc alloy
Fixtures (Lock)		Stainless
Pin block		PA resin (UL94HB)
O-ring		Rubber
Cover		PA resin (UL94HB)
Cable		Cable with fluororesin sheath 4-mm dia.: AWG24 (0.2 mm ²)

Connector Pinout Diagram (from Mating Side)

Item	No. of poles	4 poles
A-coding (For DC sensor)	Male (plug) contacts	
	Female (socket) contacts	

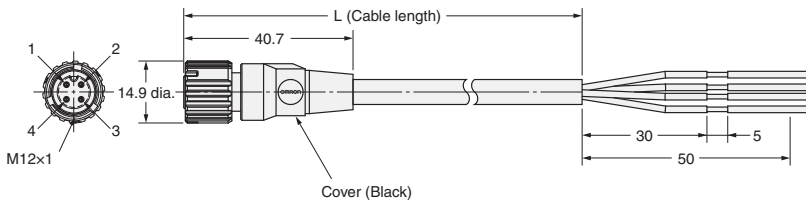
XS5FR Connector Connected to Cable, Socket on One Cable End

● Cable with fluororesin sheath XS5FR-D423-□80-RB1

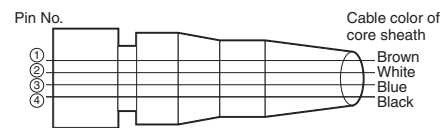
Dimensions

(Unit: mm)

Straight



Wiring Diagram for 4 Cores



Model Number Legend

XS5FR- D 4 2 3 - □ 8 0 - RB1

1
2
3
4
5
6
7
8

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. Mating Section Form

D: A-coding (For DC sensor)

3. Connector Poles

4: 4 poles

4. Contact Plating

2: 0.4-μm gold plating

5. Cable Connection Direction, Cable Outer Diameter

3: Straight, 4-mm dia.

6. Cable Length

D: 2 m G: 5 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

Ordering Information

Type	Cable outer diameter (mm)	No. of conductors	Cable length (m)	Model
Socket on One Cable End	4 dia.	4	2	XS5FR-D423-D80-RB1
			5	XS5FR-D423-G80-RB1

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XS5WR

Connectors Connected to Cable, Socket and Plug on Cable Ends

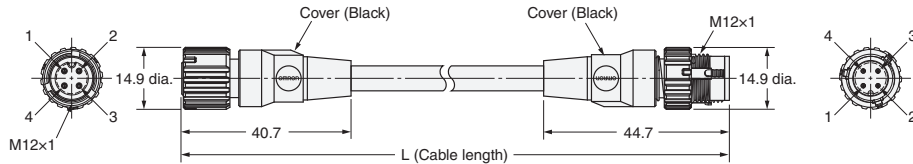
● Cable with fluororesin sheath

XS5WR-D423-□81-RB1

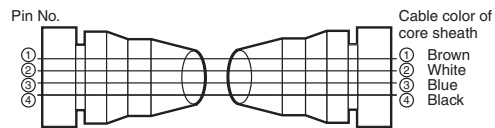
Dimensions

(Unit: mm)

Straight/straight



Wiring Diagram for 4 Cores



Model Number Legend

XS5WR- D 4 2 3 - □ 8 1 -RB1

1
2
3
4
5
6
7
8

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

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

2. Mating Section Form

D: A-coding (For DC sensor)

3. Connector Poles

4: 4 poles

4. Contact Plating

2: 0.4- μ m gold plating

5. Cable Connection Direction, Cable Outer Diameter

5: Straight/straight, 4-mm dia.

6. Cable Length

D: 2 m G: 5 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

Ordering Information

Type	Cable outer diameter (mm)	No. of conductors	Cable length (m)	Model
Socket and Plug on Cable Ends	4 dia.	4	2	XS5WR-D425-D81-RB1
			5	XS5WR-D425-G81-RB1

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