

# M8/M12 Sensor Connector Selection Guide

**M12 TypeXS2**



**M8 TypeXS3**



**e-CON Type XN2**



**M12 Smartclick Type XS5**



**1. Fast Connection**

Shortest locking rotation of 1/8th of a turn greatly reduces time and effort when wiring

**2. Click Feeling**

An audible "click" and tactile response tells you that the Connector is securely locked.

**3. Backward Compatibility**

Possible to connect with standard screw-type M12 connector

**4. Same degree of protection**

Meeting IP67 requirement

## M12 Cable type

### Plug (Male) Straight



3 pole



- 1 Brown
- 3 Blue
- 4 Black

4 pole



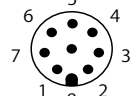
- 1 Brown
- 2 White
- 3 Blue
- 4 Black

5 pole



- 1 Brown
- 2 White
- 3 Blue
- 4 Black
- 5 Grey

8 pole



- 1 White
- 2 Brown
- 3 Green
- 4 Yellow
- 5 Grey
- 6 Pink
- 7 Blue
- 8 Shield

#### Cable Length (m)

|     |     |                 |                 |                 |                 |
|-----|-----|-----------------|-----------------|-----------------|-----------------|
| PVC | 0.3 | XS2H-D421-AC0-A | XS2H-D421-A80-A | XS2H-D521-AG0-A | XS2H-D821-AH0-C |
|     | 1.0 | XS2H-D421-CC0-A | XS2H-D421-C80-A | XS2H-D521-CG0-A | XS2H-D821-CH0-C |

#### Technical data

|                             |               |  |  |              |
|-----------------------------|---------------|--|--|--------------|
| Rated voltage               | 125VDC,250VAC |  |  | 36VDC        |
| Rated current               | 4A            |  |  | 1.5A         |
| Protection class (IEC60529) | IP67          |  |  | IP67         |
| Temperature range           | -25C to +70C  |  |  | -25C to +70C |

#### PVC Cable

|                |                   |                   |                                |                                  |
|----------------|-------------------|-------------------|--------------------------------|----------------------------------|
| Color          | Light Grey        | Light Grey        | Light Grey                     | Light Grey                       |
| Outer diameter | Ø6mm              | Ø6mm              | Ø6mm                           | Ø6mm                             |
| Conductor size | AWG20 (49 x 0.12) | AWG20 (49 x 0.12) | 0.3mm <sup>2</sup> (30 x 0.12) | 0.25mm <sup>2</sup> (20 x 0.127) |
| Approvals      | UL Approved       | UL Approved       | -                              | -                                |

## M12 Smartclick Cable type

### Socket (Female) Straight



4 pole



- 1 Brown
- 2 White
- 3 Blue
- 4 Black

### Plug (Male) Straight



4 pole



- 1 Brown
- 2 White
- 3 Blue
- 4 Black

#### Cable Length (m)

|     |      |                 |
|-----|------|-----------------|
| PVC | 2.0  | XS5F-D421-D80-A |
|     | 5.0  | XS5F-D421-G80-A |
|     | 10.0 | XS5F-D421-J80-A |

#### Cable Length (m)

|     |     |                 |
|-----|-----|-----------------|
| PVC | 0.3 | XS5H-D421-A80-A |
|     | 1.0 | XS5H-D421-C80-A |

### Angled



#### Cable Length (m)

|     |      |                 |
|-----|------|-----------------|
| PVC | 2.0  | XS5F-D422-D80-A |
|     | 5.0  | XS5F-D422-G80-A |
|     | 10.0 | XS5F-D422-J80-A |

### Angled



#### Cable Length (m)

|     |     |                 |
|-----|-----|-----------------|
| PVC | 0.3 | XS5H-D422-A80-A |
|     | 1.0 | XS5H-D422-C80-A |
|     | 2.0 | XS5H-D422-D80-A |

#### Technical data

|                             |               |  |  |
|-----------------------------|---------------|--|--|
| Rated voltage               | 125VDC,250VAC |  |  |
| Rated current               | 4A            |  |  |
| Protection class (IEC60529) | IP67          |  |  |
| Temperature range           | -25C to +70C  |  |  |

#### PVC Cable

|                |                   |
|----------------|-------------------|
| Color          | Light Grey        |
| Outer diameter | Ø6mm              |
| Conductor size | AWG20 (49 x 0.12) |
| Approvals      | UL Approved       |

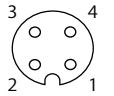
# M12 / M12 Smartclick Panel Mount Type

## Socket (Female)



Front Lock Model  
Solder Cup or With cable

4 pole



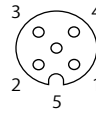
XS5P-D427-5

4 pole



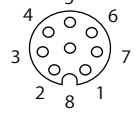
XS2P-D422-2

5 pole

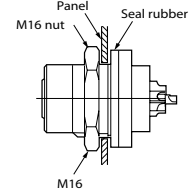
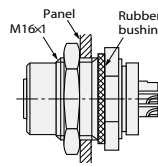
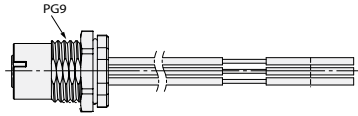


XS2P-D522-2

8 pole

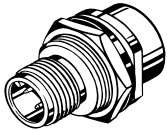


XS2P-D822-2



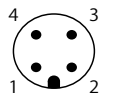
1 Brown 2 White 3 Blue 4 Black  
Cable Length : 50cm

## Plug (Male)



Front Lock Model  
Solder Cup or With cable

4 pole



XS5M-D427-5

4 pole



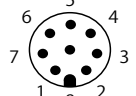
XS2M-D424-2

5 pole

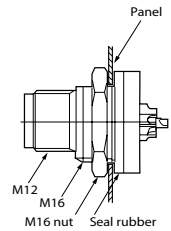
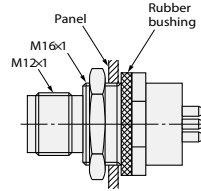
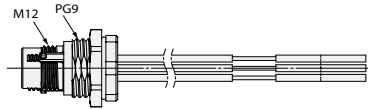


XS2M-D524-2

8 pole

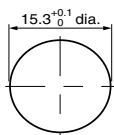


XS2M-D824-4

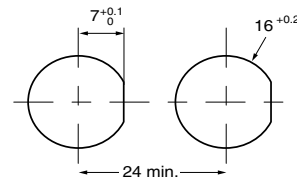


1 Brown 2 White 3 Blue 4 Black  
Cable Length : 50cm

### Panel Cutout



### Panel Cutout



Note: The panel thickness is 1 to 4 mm.

### Technical data

|                             |                |              |
|-----------------------------|----------------|--------------|
| Rated voltage               | 125VDC, 250VAC | 36VDC        |
| Rated current               | 4A             | 1.5A         |
| Protection class (IEC60529) | IP67           | IP67         |
| Temperature range           | -25C to +70C   | -25C to +70C |

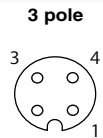
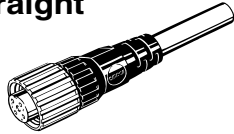
### Material

|                   |  |  |
|-------------------|--|--|
| Contact / Surface | Copper Alloy / Nickel base, Au0.4µm                      |  |
| Connector housing | 4,8 Pole:PBT resin (UL94V-0) / 5 Poles:PA resin(UL94V-0) |  |
| Nut /Surface      | Copper Alloy / Nickel plated                             |  |

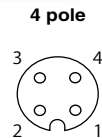
# M12 Cable type

## Socket (Female)

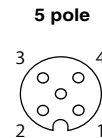
### Straight



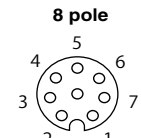
- 1 Brown
- 3 Blue
- 4 Black



- 1 Brown
- 2 White
- 3 Blue
- 4 Black



- 1 Brown
- 2 White
- 3 Blue
- 4 Black
- 5 Yellow/Green



- 1 White
- 2 Brown
- 3 Green
- 4 Yellow
- 5 Grey
- 6 Pink
- 7 Blue
- 8 Shield

### Cable Length (m)

|     |      |                  |                  |                 |                 |
|-----|------|------------------|------------------|-----------------|-----------------|
| PVC | 2.0  | XS2F-M12PVC3S2M  | XS2F-M12PVC4S2M  | XS2F-M12PVC5S2M | XS2F-D821-DH0-C |
|     | 5.0  | XS2F-M12PVC3S5M  | XS2F-M12PVC4S5M  | XS2F-M12PVC5S5M | XS2F-D821-GH0-C |
|     | 10.0 | XS2F-M12PVC3S10M | XS2F-M12PVC4S10M | -               | -               |
| PUR | 2.0  | XS2F-M12PUR3S2M  | XS2F-M12PUR4S2M  | XS2F-M12PUR5S2M | -               |
|     | 5.0  | XS2F-M12PUR3S5M  | XS2F-M12PUR4S5M  | XS2F-M12PUR5S5M | -               |
|     | 10.0 | XS2F-M12PUR3S10M | XS2F-M12PUR4S10M | -               | -               |

### Angled



### Cable Length (m)

|     |      |                  |                  |                 |   |
|-----|------|------------------|------------------|-----------------|---|
| PVC | 2.0  | XS2F-M12PVC3A2M  | XS2F-M12PVC4A2M  | XS2F-M12PVC5A2M | - |
|     | 5.0  | XS2F-M12PVC3A5M  | XS2F-M12PVC4A5M  | XS2F-M12PVC5A5M | - |
|     | 10.0 | XS2F-M12PVC3A10M | XS2F-M12PVC4A10M | -               | - |
| PUR | 2.0  | XS2F-M12PUR3A2M  | XS2F-M12PUR4A2M  | XS2F-M12PUR5A2M | - |
|     | 5.0  | XS2F-M12PUR3A5M  | XS2F-M12PUR4A5M  | XS2F-M12PUR5A5M | - |
|     | 10.0 | XS2F-M12PUR3A10M | XS2F-M12PUR4A10M | -               | - |

### Technical data

|                             |                |       |
|-----------------------------|----------------|-------|
| Rated voltage               | 125VDC, 250VAC | 36VDC |
| Rated current               | 4A             | 1.5A  |
| Protection class (IEC60529) | IP67           | IP67  |

### Material

|                   |  |
|-------------------|--|
| Contact / Surface | Copper Alloy / Nickel base, Au0.4µm                        |
| Connector housing | 3,4,8 Pole:PBT resin (UL94V-0) / 5 Poles:PA resin(UL94V-0) |
| Cover             | 3,4,8 Pole:Polyester elastomer / 5 Poles:PVC               |
| Nut /Surface      | Copper Alloy / Nickel plated                               |

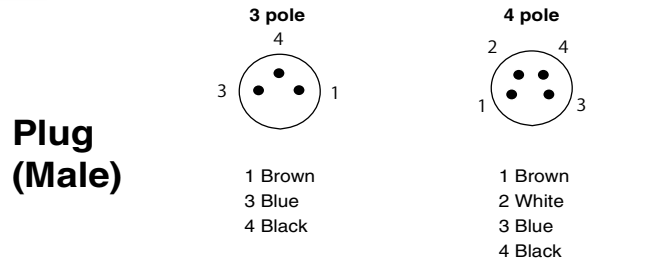
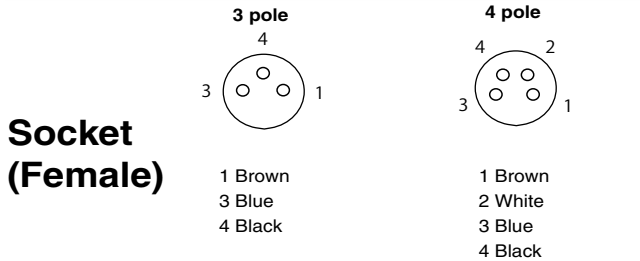
### PVC Cable

|                   |                  |                  |                  |                                  |
|-------------------|------------------|------------------|------------------|----------------------------------|
| Color             | Black            | Black            | Black            | Light Grey                       |
| Outer diameter    | Ø5mm             | Ø5.4mm           | Ø5.8mm           | Ø6mm                             |
| Conductor size    | AWG22 (43 x 0.1) | AWG22 (43 x 0.1) | AWG22 (43 x 0.1) | 0.25mm <sup>2</sup> (20 x 0.127) |
| Approvals         | UL/cUL approved  | UL/cUL approved  | UL/cUL approved  | -                                |
| Features          | Flame retardant  | Flame retardant  | Flame retardant  | -                                |
| Temperature range | -25C to +70C     |                  |                  |                                  |

### PUR Cable

|                   |   |   |   |
|-------------------|---|---|---|
| Color             | Black   | Black   | Black   |
| Outer diameter    | Ø4.3mm  | Ø4.7mm  | Ø5mm  |
| Conductor size    | AWG22 (43 x 0.1)  | AWG22 (43 x 0.1)                                  | AWG22 (43 x 0.1)                                  |
| Approvals         | UL/cUL approved   | UL/cUL approved                                   | UL/cUL approved                                   |
| Features          | Flame retardant<br>Halogen free<br>Oil resistance       | Flame retardant<br>Halogen free<br>Oil resistance | Flame retardant<br>Halogen free<br>Oil resistance |
| Temperature range | Cable fixed : -50C to +80C / Cable moved : -25C to +80C |   |   |

# M8 Cable type



## Straight



| Cable Length (m) |      |                 |                 |
|------------------|------|-----------------|-----------------|
| PVC              | 2.0  | XS3F-M8PVC3S2M  | XS3F-M8PVC4S2M  |
|                  | 5.0  | XS3F-M8PVC3S5M  | XS3F-M8PVC4S5M  |
|                  | 10.0 | XS3F-M8PVC3S10M | XS3F-M8PVC4S10M |
| PUR              | 2.0  | XS3F-M8PUR3S2M  | XS3F-M8PUR4S2M  |
|                  | 5.0  | XS3F-M8PUR3S5M  | XS3F-M8PUR4S5M  |
|                  | 10.0 | XS3F-M8PUR3S10M | XS3F-M8PUR4S10M |

| Cable Length (m) |     |                 |                 |
|------------------|-----|-----------------|-----------------|
| PVC              | 0.3 | XS3H-M8PVC3S03M | XS3H-M8PVC4S03M |
|                  | 1.0 | XS3H-M8PVC3S1M  | XS3H-M8PVC4S1M  |
| PUR              | 0.3 | XS3H-M8PUR3S03M | XS3H-M8PUR4S03M |
|                  | 1.0 | XS3H-M8PUR3S1M  | XS3H-M8PUR4S1M  |

## Angled



| Cable Length (m) |      |                 |                 |
|------------------|------|-----------------|-----------------|
| PVC              | 2.0  | XS3F-M8PVC3A2M  | XS3F-M8PVC4A2M  |
|                  | 5.0  | XS3F-M8PVC3A5M  | XS3F-M8PVC4A5M  |
|                  | 10.0 | XS3F-M8PVC3A10M | XS3F-M8PVC4A10M |
| PUR              | 2.0  | XS3F-M8PUR3A2M  | XS3F-M8PUR4A2M  |
|                  | 5.0  | XS3F-M8PUR3A5M  | XS3F-M8PUR4A5M  |
|                  | 10.0 | XS3F-M8PUR3A10M | XS3F-M8PUR4A10M |

| Cable Length (m) |     |                 |                 |
|------------------|-----|-----------------|-----------------|
| PVC              | 0.3 | XS3H-M8PVC3A03M | XS3H-M8PVC4A03M |
|                  | 1.0 | XS3H-M8PVC3A1M  | XS3H-M8PVC4A1M  |
| PUR              | 0.3 | XS3H-M8PUR3A03M | XS3H-M8PUR4A03M |
|                  | 1.0 | XS3H-M8PUR3A1M  | XS3H-M8PUR4A1M  |

### Technical data

|                             |        |
|-----------------------------|--------|
| Rated voltage               | 125VDC |
| Rated current               | 3A     |
| Protection class (IEC60529) | IP67   |

### Material

|                   |                                     |
|-------------------|-------------------------------------|
| Contact / Surface | Copper Alloy / Nickel base, Au0.4μm |
| Connector housing | PBT resin (UL94V-0)                 |
| Cover             | Polyester elastomer (UL94V-0)       |
| Nut /Surface      | Copper Alloy / Nickel plated        |

### PVC Cable

|                   | Black            | Black                          |
|-------------------|------------------|--------------------------------|
| Color             | Black            | Black                          |
| Outer diameter    | Ø5mm             | Ø4.8mm                         |
| Conductor size    | AWG22 (43 x 0.1) | 0.25mm <sup>2</sup> (32 x 0.1) |
| Approvals         | UL approved      | UL approved                    |
| Features          | Flame retardant  | Flame retardant                |
| Temperature range | -25C to +70C     |                                |

### PVC Cable

|                   | Black            | Black                          |
|-------------------|------------------|--------------------------------|
| Color             | Black            | Black                          |
| Outer diameter    | Ø5mm             | Ø4.8mm                         |
| Conductor size    | AWG22 (43 x 0.1) | 0.25mm <sup>2</sup> (32 x 0.1) |
| Approvals         | UL approved      | UL approved                    |
| Features          | Flame retardant  | Flame retardant                |
| Temperature range | -25C to +70C     |                                |

### PUR Cable

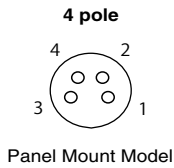
|                   | Black   | Black   |
|-------------------|---|---|
| Color             | Black   | Black   |
| Outer diameter    | Ø4.3mm  | Ø 4.7mm   |
| Conductor size    | AWG22 (43 x 0.1)  | AWG22 (43 x 0.1)                                  |
| Approvals         | UL approved   | UL approved                                       |
| Features          | Flame retardant<br>Halogen free<br>Oil resistance       | Flame retardant<br>Halogen free<br>Oil resistance |
| Temperature range | Cable fixed : -50C to +80C / Cable moved : -25C to +80C |   |

### PUR Cable

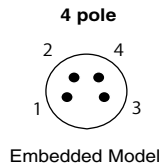
|                   | Black   | Black   |
|-------------------|---|---|
| Color             | Black   | Black   |
| Outer diameter    | Ø4.3mm  | Ø4.7mm  |
| Conductor size    | AWG22 (43 x 0.1)  | AWG22 (43 x 0.1)                                  |
| Approvals         | UL approved   | UL approved                                       |
| Features          | Flame retardant<br>Halogen free<br>Oil resistance       | Flame retardant<br>Halogen free<br>Oil resistance |
| Temperature range | Cable fixed : -50C to +80C / Cable moved : -25C to +80C |   |

## M8 Panel Mount /Embedded/Y-Joint Type

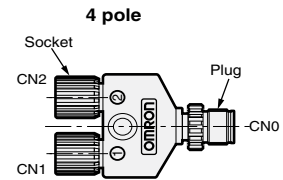
### Socket (Female)



### Plug (Male)



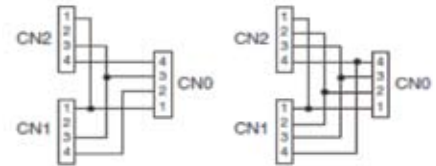
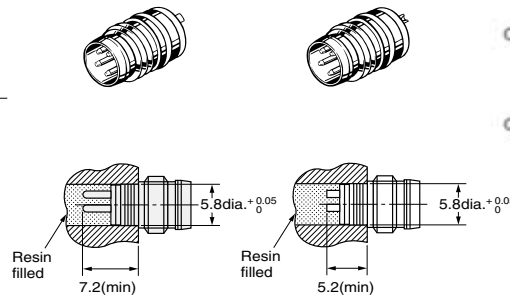
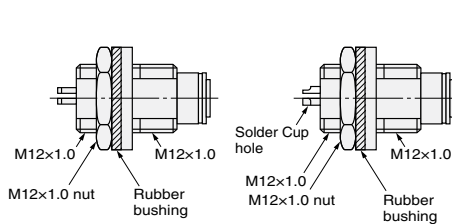
### Y-Joint (Plug/Socket)



|              |             |
|--------------|-------------|
| PCB Terminal | Solder Cup  |
| XS3P-M421-1  | XS3P-M421-2 |

|              |             |
|--------------|-------------|
| PCB Terminal | Solder Cup  |
| XS3M-K421-1  | XS3M-K421-2 |

|             |             |
|-------------|-------------|
| XS3R-M426-1 | XS3R-M426-5 |
|-------------|-------------|

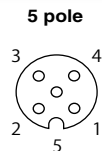
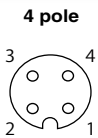


#### Technical data

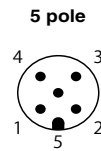
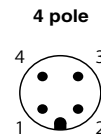
|                             |              |
|-----------------------------|--------------|
| Rated voltage               | 125VDC       |
| Rated current               | 1A           |
| Protection class (IEC60529) | IP67         |
| Temperature range           | -25C to +70C |

## M12 Smartclick Assembled Type

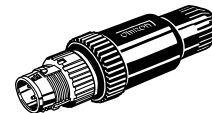
### Socket (Female)



### Plug (Male)



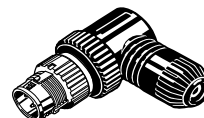
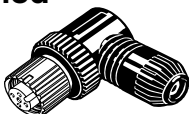
#### Straight



| Cable Diameter | XS5C-D4S5 | XS5C-D5S5 |
|----------------|-----------|-----------|
| 3-4mm          | XS5C-D4S3 | XS5C-D5S3 |
| 4-5mm          | XS5C-D4S1 | XS5C-D5S1 |
| 6-7mm          | XS5C-D4S9 | XS5C-D5S9 |
| 7-8mm          | XS5C-D4S7 | XS5C-D5S7 |

| Cable Diameter | XS5G-D4S5 | XS5G-D5S5 |
|----------------|-----------|-----------|
| 3-4mm          | XS5G-D4S3 | XS5G-D5S3 |
| 4-5mm          | XS5G-D4S1 | XS5G-D5S1 |
| 6-7mm          | XS5G-D4S9 | XS5G-D5S9 |
| 7-8mm          | XS5G-D4S7 | XS5G-D5S7 |

#### Angled



| Cable Diameter | XS5C-D4S6 | - |
|----------------|-----------|---|
| 3-4mm          | XS5C-D4S4 | - |
| 4-5mm          | XS5C-D4S2 | - |

| Cable Diameter | XS5G-D4S6 | - |
|----------------|-----------|---|
| 3-4mm          | XS5G-D4S4 | - |
| 4-5mm          | XS5G-D4S2 | - |

Contact terminations are screws

#### Technical data

|                             |                |
|-----------------------------|----------------|
| Rated voltage               | 125VDC, 250VAC |
| Rated current               | 4A             |
| Protection class (IEC60529) | IP67           |
| Temperature range           | -25C to +70C   |

# e-CON Connectors

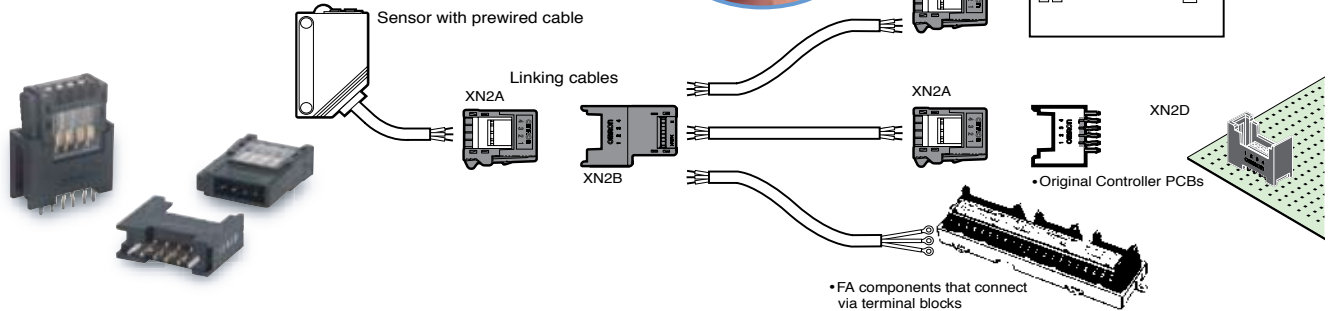
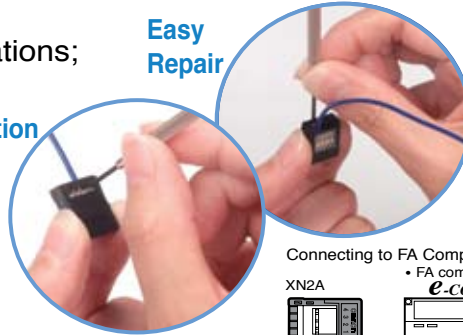
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Easy-wire Connectors with **e-CON** Specifications; Ideal for Connecting Sensors.

- Use industry-proven spring clamps for wiring.
- No special tools required.
- Easy to rewire and repair.
- Each Connector accepts any size wire from AWG28 (0.08mm<sup>2</sup>) to AWG20 (0.5mm<sup>2</sup>). (External sheath diameter: 1.5 mm max.)
- Available contacts: 3,4,5,6,8.

Easy Connection

Easy Repair



### Ordering Information

| Type       | Cable Plug Connector | Cable Socket Connector | Single-socket PCB Socket Connector | Four-socket PCB Socket Connector |
|------------|----------------------|------------------------|------------------------------------|----------------------------------|
| Appearance |                      |                        |                                    |                                  |
| Model      | XN2A-1*70            | XN2B-1430              | XN2D-1*71                          | XN2D-4471                        |

\*=No. of contacts: 3,4,5,6 or 8

### Ratings and Specifications

|                        |   |
|------------------------|---|
| Rated current          | 3 A/pole (Using 0.5 mm <sup>2</sup> wire) 2 A/pole (Using 0.3 mm <sup>2</sup> wire) 1 A/pole (Using 0.2 mm <sup>2</sup> wire) 0.5 A/pole (Using 0.1 mm <sup>2</sup> wire) |
| Rated voltage          | 32 VDC  |
| Contact resistance *1  | 30mΩ max. (20 mVDC max., 100 mA max.)   |
| Insulation resistance  | 1000MΩ min. (at 500 VDC)  |
| Dielectric strength    | 1,000 VAC for 60 s (leakage current: 1 mA max.)   |
| Insertion tolerance    | 50 times  |
| Ambient temperature *2 | Operating: -30°C to 75°C  |
| Applicable wires       | 0.08 mm <sup>2</sup> (AWG28) to 0.5mm <sup>2</sup> (AWG20),The external diameter of the cable sheath is 1.5 mm max.   |

\*1. This value is the contact resistance of the connector.

\*2. The temperature is limited, however, to the maximum operating temperature for the cables.

Cat. No. G017-E-02 **In the interest of product improvement, specifications are subject to change without notice.**

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