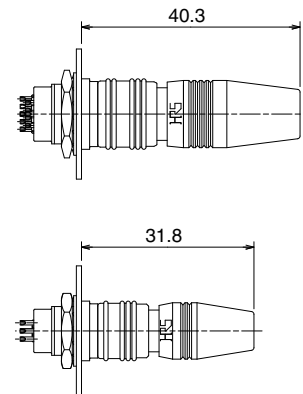


# Miniature Push-Pull Circular Connectors

## HR25A Series



### Mated dimensions



### ■ Features

#### 1. Small size – high density

Outer diameters – plugs (max): 11 mm : 4, 6 and 8 positions  
13 mm : 12, 16 and 20 positions

#### 2. Simple push-in/ pull-out mating / un-mating

Polarized for correct insertion by a straight push-in movement.  
Built-in lock release mechanism securely locks mated connectors while allowing quick disconnection by simply pulling on the plug release collar.

#### 3. Several mounting number of positions, styles and terminations

Number of positions : 4, 6, 8, 12, 16 and 20  
Connector : Plug, jack, receptacle  
Termination : Solder, crimp or PCB mounting type only for receptacle  
Choice of socket or pin contacts for plugs and receptacles.

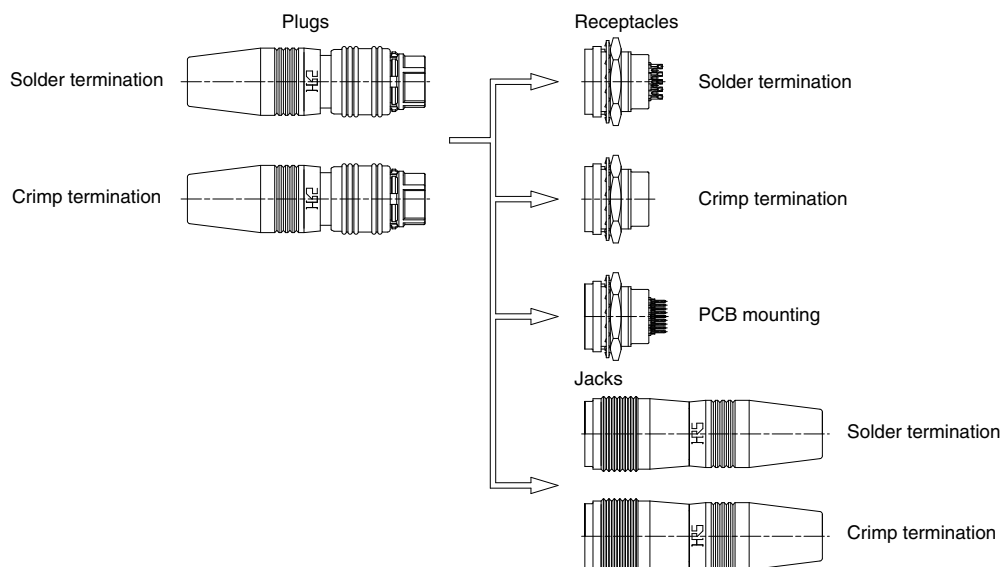
#### 4. Metal shells

Secure lock between the metal shells provides excellent ground connection for the applications requiring EMI protection.

#### 5. RoHS compliant

All materials used in are complaint with RoHS regulations.

### ■ Diagrams of Connectors in Combination



Specifications

|                          |                                                                                                                                                |                  |                                                                                                                    |              |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------|--------------|
| Ratings                  | Current rating                                                                                                                                 | 1 A              | Operating temperature range                                                                                        | -25℃ to +85℃ |
|                          | Voltage rating                                                                                                                                 | 30 V AC, 42 V DC | Storage temperature range                                                                                          | -10℃ to +60℃ |
| Item                     | Specification                                                                                                                                  |                  | Conditions                                                                                                         |              |
| 1. Insulation resistance | 1,000 MΩ min.                                                                                                                                  |                  | 100 V DC                                                                                                           |              |
| 2. Withstanding voltage  | No flashover or insulation breakdown                                                                                                           |                  | 100 V AC / one minute (test voltage)                                                                               |              |
| 3. Contact resistance    | 30 mΩ max.                                                                                                                                     |                  | 1 A DC                                                                                                             |              |
| 4. Durability            | Contact resistance: 50 mΩ max.                                                                                                                 |                  | No damage, cracks or parts dislocation 1,000 cycles                                                                |              |
| 5. Vibration             | No electrical discontinuity of 10 μs or longer<br>No damage, cracks or parts dislocation.                                                      |                  | Frequency: 10 to 55 Hz, single amplitude of 0.75 mm<br>5 minute cycle, 10 cycles in each of the 3 axis             |              |
| 6. Humidity              | Insulation resistance: 5 MΩ min. (at high humidity)<br>Insulation resistance: 50 MΩ min. (when dry)<br>No damage, cracks or parts dislocation. |                  | 96 hours at 40℃, and humidity of 90 to 95%                                                                         |              |
| 7. Temperature cycle     | Insulation resistance: 1,000 MΩ min.                                                                                                           |                  | Temperature: -55℃ → room temp. → +85℃ → room temp.<br>Time : 30min. → 2to 3 min. → 30min. → 2to 3 min.<br>5 cycles |              |

Material

| Item         |               | Material                                         | Finish        | Remarks |
|--------------|---------------|--------------------------------------------------|---------------|---------|
| Plug<br>Jack | Outer shell   | Zinc alloy                                       | Nickel plated | ——      |
|              | Insulator     | PPS                                              |               | UL94V-0 |
|              | Gasket, boots | Ethylene propylene rubber,<br>Chloroprene rubber |               | ——      |
|              | Contacts      | Phosphor bronze                                  | Gold plated   | ——      |
| Receptacle   | Outer shell   | Zinc alloy                                       | Nickel plated | ——      |
|              | Insulator     | PPS                                              |               | UL94V-0 |
|              | Contacts      | Phosphor bronze                                  | Gold plated   | ——      |

Ordering information

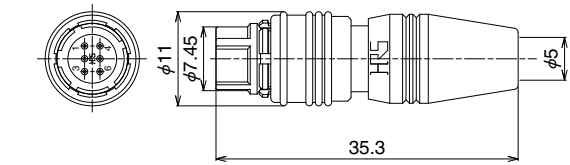
HR25A – 7 P – 6 S C (\*\*)   
 ① ② ③ ④ ⑤ ⑥ ⑦

|                                                                                    |                                                                                                   |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| ① Model name : HR25A Series                                                        | ⑤ Contact type: S: Female contacts<br>P: Male contacts                                            |
| ② Shell size : The shell size is the outer diameter of the mating end of the plug. | ⑥ Termination type: Blank: Solder<br>C: Crimp<br>A: DIP                                           |
| ③ Connector type: P : Plug<br>R : Receptacle<br>J : Jack                           | ⑦ Other specifications A two-digit character is added to indicate other specifications as needed. |
| ④ Number of contacts : 4, 6, 8, 12, 16, 20                                         |                                                                                                   |

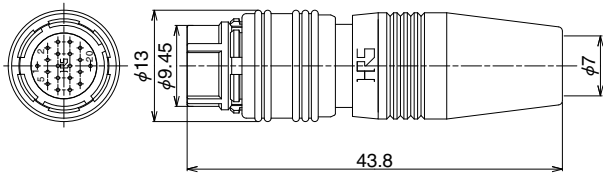
■ Plug

● Solder termination (contacts inserted)

Shell size: 7



Shell size: 9



All dimensions: mm

| Shell size | No. of contacts | Male contact type |            | Female contact type |            |
|------------|-----------------|-------------------|------------|---------------------|------------|
|            |                 | Part No.          | HRS No.    | Part No.            | HRS No.    |
| 7          | 4               | HR25A-7P-4P       | 125-0612-1 | HR25A-7P-4S         | 125-0613-4 |
|            | 6               | HR25A-7P-6P       | 125-0602-8 | HR25A-7P-6S         | 125-0611-9 |
|            | 8               | HR25A-7P-8P       | 125-0609-7 | HR25A-7P-8S         | 125-0610-6 |
| 9          | 12              | HR25A-9P-12P      | 125-0607-1 | HR25A-9P-12S        | 125-0608-4 |
|            | 16              | HR25A-9P-16P      | 125-0605-6 | HR25A-9P-16S        | 125-0606-9 |
|            | 20              | HR25A-9P-20P      | 125-0600-2 | HR25A-9P-20S        | 125-0604-3 |

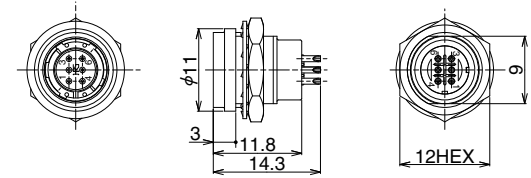
● Crimp termination (separate contacts required)

| Shell size | No. of contacts | Male contact type |            | Female contact type |            |
|------------|-----------------|-------------------|------------|---------------------|------------|
|            |                 | Part No.          | HRS No.    | Part No.            | HRS No.    |
| 9          | 12              | HR25A-9P-12PC     | 125-0652-6 | HR25A-9P-12SC       | 125-0653-9 |
|            | 16              | HR25A-9P-16PC     | 125-0650-0 | HR25A-9P-16SC       | 125-0651-3 |
|            | 20              | HR25A-9P-20PC     | 125-0648-9 | HR25A-9P-20SC       | 125-0649-1 |

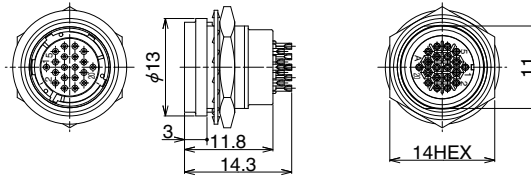
■ Receptacle

● Solder termination (contacts inserted)

Shell size: 7



Shell size: 9

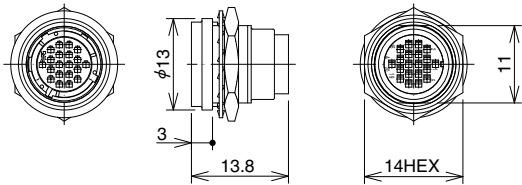


All dimensions: mm

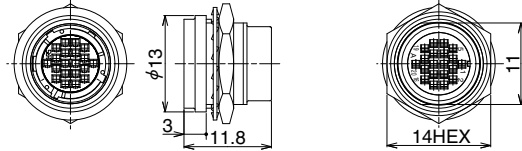
| Shell size | No. of contacts | Male contact type |            | Female contact type |            |
|------------|-----------------|-------------------|------------|---------------------|------------|
|            |                 | Part No.          | HRS No.    | Part No.            | HRS No.    |
| 7          | 4               | HR25A-7R-4P       | 125-0623-8 | HR25A-7R-4S         | 125-0622-5 |
|            | 6               | HR25A-7R-6P       | 125-0621-2 | HR25A-7R-6S         | 125-0603-0 |
|            | 8               | HR25A-7R-8P       | 125-0620-0 | HR25A-7R-8S         | 125-0619-0 |
| 9          | 12              | HR25A-9R-12P      | 125-0618-8 | HR25A-9R-12S        | 125-0617-5 |
|            | 16              | HR25A-9R-16P      | 125-0616-2 | HR25A-9R-16S        | 125-0615-0 |
|            | 20              | HR25A-9R-20P      | 125-0614-7 | HR25A-9R-20S        | 125-0601-5 |

● Crimp termination (separate contacts required)

Male contact type  
HR25A-9R-20PC



Female contact type  
HR25A-9R-20SC



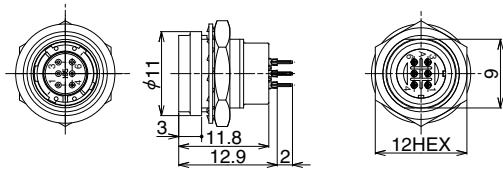
All dimensions: mm

| Shell size | No. of contacts | Male contact type |            | Female contact type |            |
|------------|-----------------|-------------------|------------|---------------------|------------|
|            |                 | Part No.          | HRS No.    | Part No.            | HRS No.    |
| 9          | 12              | HR25A-9R-12PC     | 125-0659-5 | HR25A-9R-12SC       | 125-0658-2 |
|            | 16              | HR25A-9R-16PC     | 125-0657-0 | HR25A-9R-16SC       | 125-0656-7 |
|            | 20              | HR25A-9R-20PC     | 125-0654-1 | HR25A-9R-20SC       | 125-0655-4 |

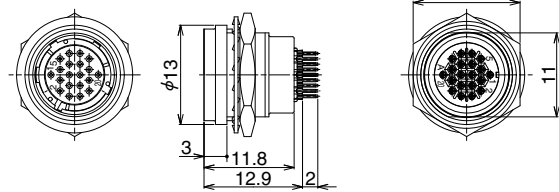
■ **Receptacle**

● **Through hole (for PC board mounting)**

**Shell size: 7**  
HR25A-7R-6SA



**Shell size: 9**  
HR25A-9R-20SA



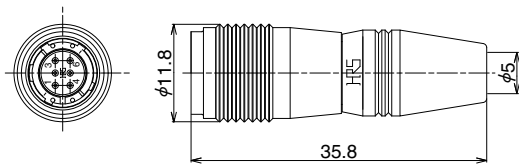
All dimensions: mm

| Shell size | No. of contacts | Male contact type |            | Female contact type |            |
|------------|-----------------|-------------------|------------|---------------------|------------|
|            |                 | Part No.          | HRS No.    | Part No.            | HRS No.    |
| 7          | 4               | HR25A-7R-4PA      | 125-0647-6 | HR25A-7R-4SA        | 125-0646-3 |
|            | 6               | HR25A-7R-6PA      | 125-0645-0 | HR25A-7R-6SA        | 125-0644-8 |
|            | 8               | HR25A-7R-8PA      | 125-0643-5 | HR25A-7R-8SA        | 125-0642-2 |
| 9          | 12              | HR25A-9R-12PA     | 125-0641-0 | HR25A-9R-12SA       | 125-0640-7 |
|            | 16              | HR25A-9R-16PA     | 125-0639-8 | HR25A-9R-16SA       | 125-0638-5 |
|            | 20              | HR25A-9R-20PA     | 125-0637-2 | HR25A-9R-20SA       | 125-0636-0 |

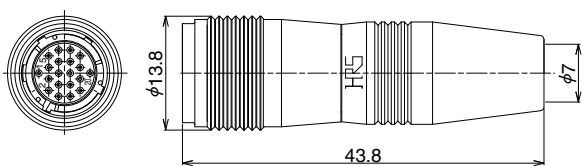
■ **Jack**

● **Solder termination (contact inserted)**

**Shell size: 7**  
HR25A-7J-6S



**Shell size: 9**  
HR25A-9J-20S



All dimensions: mm

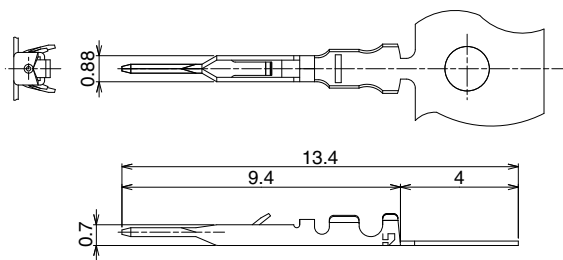
| Shell size | No. of contacts | Male contact type |            | Female contact type |            |
|------------|-----------------|-------------------|------------|---------------------|------------|
|            |                 | Part No.          | HRS No.    | Part No.            | HRS No.    |
| 7          | 4               | HR25A-7J-4P       | 125-0635-7 | HR25A-7J-4S         | 125-0634-4 |
|            | 6               | HR25A-7J-6P       | 125-0633-1 | HR25A-7J-6S         | 125-0632-9 |
|            | 8               | HR25A-7J-8P       | 125-0631-6 | HR25A-7J-8S         | 125-0630-3 |
| 9          | 12              | HR25A-9J-12P      | 125-0629-4 | HR25A-9J-12S        | 125-0628-1 |
|            | 16              | HR25A-9J-16P      | 125-0627-9 | HR25A-9J-16S        | 125-0626-6 |
|            | 20              | HR25A-9J-20P      | 125-0625-3 | HR25A-9J-20S        | 125-0624-0 |

● **Crimp termination (separate contacts required)**

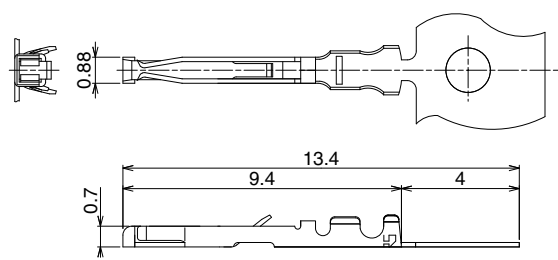
| Shell size | No. of contacts | Male contact type |            | Female contact type |            |
|------------|-----------------|-------------------|------------|---------------------|------------|
|            |                 | Part No.          | HRS No.    | Part No.            | HRS No.    |
| 9          | 12              | HR25A-9J-12PC     | 125-0665-8 | HR25A-9J-12SC       | 125-0664-5 |
|            | 16              | HR25A-9J-16PC     | 125-0663-2 | HR25A-9J-16SC       | 125-0662-0 |
|            | 20              | HR25A-9J-20PC     | 125-0661-7 | HR25A-9J-20SC       | 125-0660-4 |

## ◆Crimp contact

Male contact



Female contact



All dimensions: mm

| Type          | Part No.    | HRS No.    | Conductor size / construction |
|---------------|-------------|------------|-------------------------------|
| Loose contact | HR25-PC-111 | 125-0419-1 | AWG#30                        |
| Reel contact  | HR25-PC-211 | 125-0420-0 |                               |

| Type          | Part No.    | HRS No.    | Conductor size / construction |
|---------------|-------------|------------|-------------------------------|
| Loose contact | HR25-SC-111 | 125-0421-3 | AWG#30                        |
| Reel contact  | HR25-SC-211 | 125-0422-6 |                               |

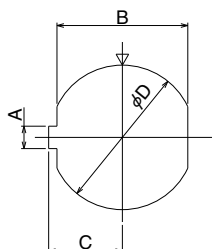
Note 1 : Wire jacket outer diameter 0.71 mm max.

Note 2 : Loose piece contacts are packaged 100 pcs/pack. Reel contacts are packaged 10,000 pcs/reel.

## ◆Applicable tools

| Type                          | Part No.      | HRS No.    | Used on                    |
|-------------------------------|---------------|------------|----------------------------|
| Manual contact crimping tool  | HR25-TA3032HC | 150-0207-3 | HR25-PC-111 or HR25-SC-111 |
| Automatic crimping machine    | CM-105        | 901-0005-4 | —                          |
| Applicator                    | AP105-HR25-1  | 901-2040-6 | HR25-PC-211 or HR25-SC-211 |
| Cable clamp crimp tool        | HR10A-TC-02   | 150-0041-2 | —                          |
| Solder termination fixture    | HR25A-7P-T02  | 150-0243-7 | HR25A-7P For tightening    |
|                               | HR25-7P-T01   | 150-0085-8 | HR25A-7P For wiring        |
| Plug shell tightening fixture | HR25A-9P-T02  | 150-0242-4 | HR25A-9P For tightening    |
|                               | HR25-9P-T01   | 150-0086-0 | HR25A-9P For wiring        |
| Contact extraction tool       | HR25-TP       | 150-0091-0 | —                          |

## ◆Panel cutouts

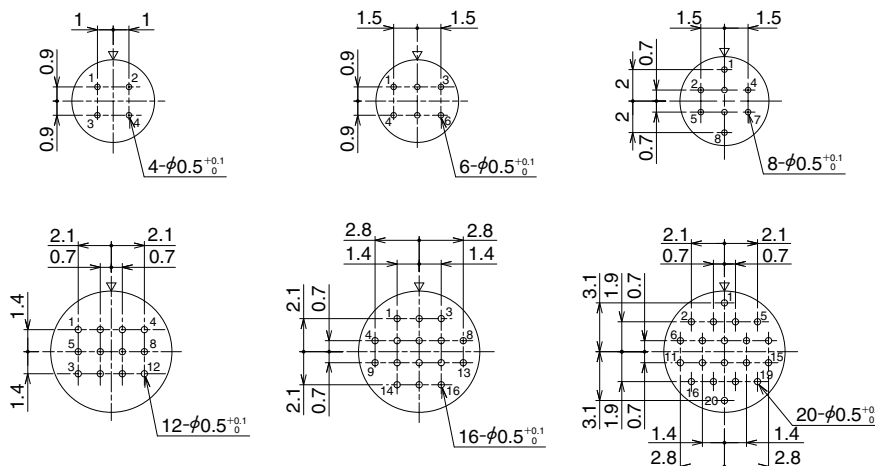


All dimensions: mm

| Dimensions                 | HR25A-7R                               | HR25A-9R                                |
|----------------------------|----------------------------------------|-----------------------------------------|
| A                          | 1.55 <sup>+0.05</sup> <sub>0</sub>     |                                         |
| B                          | 9.05 <sup>+0.03</sup> <sub>-0.02</sub> | 11.05 <sup>+0.03</sup> <sub>-0.02</sub> |
| C                          | 5.1 <sup>+0.1</sup> <sub>0</sub>       | 6.1 <sup>+0.1</sup> <sub>0</sub>        |
| D                          | 10 <sup>+0.05</sup> <sub>0</sub>       | 12 <sup>+0.05</sup> <sub>0</sub>        |
| Applicable panel thickness | 0.7 to 2                               |                                         |

Note 1: The receptacle panel cutout is a view from the mating side.

## ◆PCB mounting pattern (for through-hole PC board mounting)

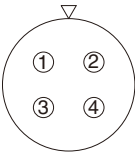
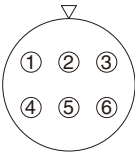
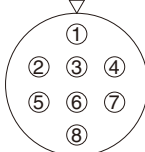


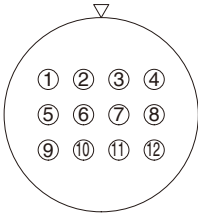
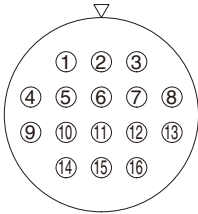
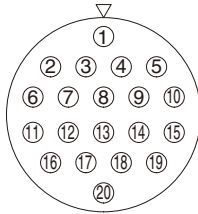
Note 1: The above diagrams are viewed from the engagement side of the socket insert (i.e., the wiring side of the pin insert).

Note 2: The ▽ mark of the above diagrams indicates the engagement guide key position.

Note 3: Plated through hole location and diameter tolerance: ±0.05.

◆Contact Position Arrangement

| Shell size               | Size 7                                                                            |                                                                                    |                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Contact configuration    |  |  |  |
| No. of contacts          | 4                                                                                 | 6                                                                                  | 8                                                                                   |
| Withstand voltage        | 100 V AC for 1 minute                                                             |                                                                                    |                                                                                     |
| Current capacity         | 1A                                                                                |                                                                                    |                                                                                     |
| Insulation resistance    | 1,000 MΩ or greater                                                               |                                                                                    |                                                                                     |
| Contact resistance       | 30 mΩ                                                                             |                                                                                    |                                                                                     |
| Solderpot inner diameter | 0.5mm dia.                                                                        |                                                                                    |                                                                                     |

| Shell size               | Size 9                                                                             |                                                                                     |                                                                                      |
|--------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Contact configuration    |  |  |  |
| No. of contacts          | 12                                                                                 | 16                                                                                  | 20                                                                                   |
| Withstand voltage        | 100 V AC for 1 minute                                                              |                                                                                     |                                                                                      |
| Current capacity         | 1A                                                                                 |                                                                                     |                                                                                      |
| Insulation resistance    | 1,000 MΩ or greater                                                                |                                                                                     |                                                                                      |
| Contact resistance       | 30 mΩ                                                                              |                                                                                     |                                                                                      |
| Solderpot inner diameter | 0.5mm dia.                                                                         |                                                                                     |                                                                                      |

Note 1: The above diagrams are viewed from the engagement side of the socket insert(i.e., the wiring side of the pin insert).

Note 2: The ▽ mark of the above diagrams indicates the engagement guide key position.

Note 3: The withstand voltage indicates the test voltage value. For regular use the voltage used should be less than 30 V AC or 42 V DC.

Note 4: The current capacity of the crimp terminals indicates the value when using wire of AWG #30.

Note 5: The insulation resistance indicates a value when measured at 100 V DC.

◆Precautions

1. Switch off the power of the circuit before disconnecting or plugging-in the connectors.
2. Use connectors with socket contacts at the power side of the circuit.
3. Make sure that the coupling is in completely cocked position.
4. Cable clamping, cable rotation, and other forces may vary with the cable construction.  
Please make sure that your cable is suitable for use with these connectors before usage and production.



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