# IP67 waterproof protected heavy duty metal shell connectors

JR-W Series

## ■General Description

JR-W connector is suitable for outdoor applications such as Base stations and wireless equipments with IP67 waterproof protection.

## ■Features

**1. IP67 waterproof protection**
under water to 1.8m depth for 48 hours

**2.Anti corrosion resistance**
reliable black Chrome plating

**3.Five polarizing keys for ease of blind mating**

**4.Wide varieties of pin numbers**

## ■Products abstract

**Receptacle**
**with male (female) contacts**

**Flange type**

**Bulk head type**

**Plug**
**with female(male) contacts**

**Cable Clamp**

## ■Material & Finish

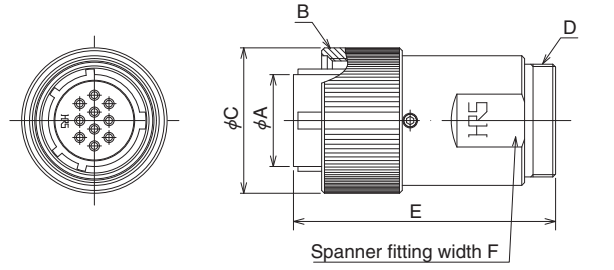
| Item | Materials | Finish |
|---|---|---|
| Shell | Aluminium alloy, Zinc alloy, Brass | Black chrome plating |
| Insulator | Synthetic resin | —— |
| Contacts | Copper alloy | Silver or Gold plating |

# Solder contact type

## ■Plug

With male contacts

With female contacts




(This shape is one example)

| With Male contacts | | No. of pins | ϕA | B | ϕC | D | E | F | Description |
|---|---|---|---|---|---|---|---|---|---|
| Silver plating contacts | | | | | | | | | |
| HRS No. | Product No. | | | | | | | | |
| 114-2001-5-71 | JR13WP-3P(71) | 3 | 12.7 | M18×1 | 21.8 | M16×0.75 | 44.7 | 17 | – |
| 114-2002-8-71 | JR13WP-5P(71) | 5 | 12.7 | M18×1 | 21.8 | M16×0.75 | 44.7 | 17 | – |
| 114-2003-0-71 | JR16WP-7P(71) | 7 | 16.3 | M22×1 | 25.8 | M20×0.75 | 46.5 | 21 | – |
| 114-2004-3-71 | JR16WP-10P(71) | 10 | 16.3 | M22×1 | 25.8 | M20×0.75 | 46.5 | 21 | – |
| 114-2005-6-71 | JR21WP-10P(71) | 10 | 20.5 | M26×1 | 29.8 | M24×0.75 | 51 | 25.4 | – |
| 114-2006-9-71 | JR21WP-16P(71) | 16 | 20.5 | M26×1 | 29.8 | M24×0.75 | 51 | 25.4 | – |
| 114-2007-1-71 | JR25WP-4P(71) | 4 | 24.7 | M30×1 | 33.8 | M28×0.75 | 56 | 29 | – |
| 114-2008-4-71 | JR25WP-5P(71) | 5 | 24.7 | M30×1 | 33.8 | M28×0.75 | 56 | 29 | – |
| 114-2009-7-71 | JR25WP-8P(71) | 8 | 24.7 | M30×1 | 33.8 | M28×0.75 | 56 | 29 | – |
| 114-2010-6-71 | JR25WP-16P(71) | 16 | 24.7 | M30×1 | 33.8 | M28×0.75 | 56 | 29 | – |
| 114-2011-9-71 | JR25WP-24P(71) | 24 | 24.7 | M30×1 | 33.8 | M28×0.75 | 56 | 29 | – |

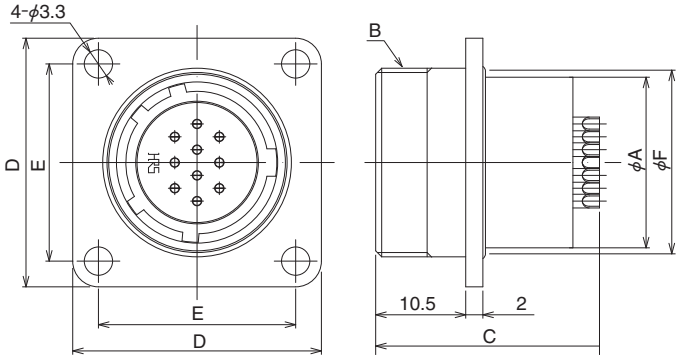
| With Female contacts | | No. of pins | ϕA | B | ϕC | D | E | F | Description |
|---|---|---|---|---|---|---|---|---|---|
| Silver plating contacts | | | | | | | | | |
| HRS No. | Product No. | | | | | | | | |
| 114-2012-1-71 | JR13WP-3S(71) | 3 | 12.7 | M18×1 | 21.8 | M16×0.75 | 44.7 | 17 | – |
| 114-2013-4-71 | JR13WP-5S(71) | 5 | 12.7 | M18×1 | 21.8 | M16×0.75 | 44.7 | 17 | – |
| 114-2013-4-72 | JR13WP-5S(72) | 5 | 12.7 | M18×1 | 21.8 | M16×0.75 | 44.7 | 17 | Gasket:Silicon |
| 114-2014-7-71 | JR16WP-7S(71) | 7 | 16.3 | M22×1 | 25.8 | M20×0.75 | 46.5 | 21 | – |
| 114-2014-7-72 | JR16WP-7S(72) | 7 | 16.3 | M22×1 | 25.8 | M20×0.75 | 46.5 | 21 | Gasket:Silicon |
| 114-2015-0-71 | JR16WP-10S(71) | 10 | 16.3 | M22×1 | 25.8 | M20×0.75 | 46.5 | 21 | – |
| 114-2015-0-75 | JR16WP-10S(75) | 10 | 16.3 | M22×1 | 25.8 | M20×0.75 | 46.5 | 21 | Gasket:Silicon |
| 114-2016-2-71 | JR21WP-10S(71) | 10 | 20.5 | M26×1 | 29.8 | M24×0.75 | 51 | 25.4 | – |
| 114-2017-5-71 | JR21WP-16S(71) | 16 | 20.5 | M26×1 | 29.8 | M24×0.75 | 51 | 25.4 | – |
| 114-2018-8-71 | JR25WP-4S(71) | 4 | 24.7 | M30×1 | 33.8 | M28×0.75 | 56 | 29 | – |
| 114-2019-0-71 | JR25WP-5S(71) | 5 | 24.7 | M30×1 | 33.8 | M28×0.75 | 56 | 29 | – |
| 114-2020-0-71 | JR25WP-8S(71) | 8 | 24.7 | M30×1 | 33.8 | M28×0.75 | 56 | 29 | – |
| 114-2021-2-71 | JR25WP-16S(71) | 16 | 24.7 | M30×1 | 33.8 | M28×0.75 | 56 | 29 | – |
| 114-2022-5-71 | JR25WP-24S(71) | 24 | 24.7 | M30×1 | 33.8 | M28×0.75 | 56 | 29 | – |
| 114-2159-0-71 | JR25WP-3S(71) | 3 | 24.7 | M30×1 | 33.8 | M28×0.75 | 56 | 29 | – |

# ■Receptacle

## ●Flange type

With male contacts

With female contacts




Note 1. This shape is one example.

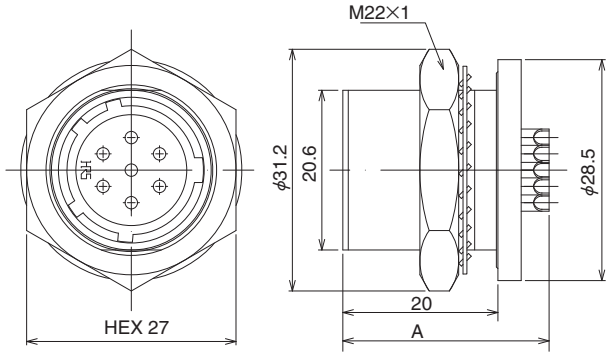
2. ϕF is a hole size of panel cutout.

| With Male contacts / Silver plating contacts | | No. of pins | ϕA | B | ϕC | D | E | ϕF | Description |
|---|---|---|---|---|---|---|---|---|---|
| HRS No. | Product No. | | | | | | | | |
| 114-2023-8-71 | JR13WR-3P(71) | 3 | 15.9 | M18×1 | 26.6 | 26 | 20 | 16.3 | – |
| 114-2024-0-71 | JR13WR-5P(71) | 5 | 15.9 | M18×1 | 26.1 | 26 | 20 | 16.3 | – |
| 114-2024-0-72 | JR13WR-5P(72) | 5 | 15.9 | M18×1 | 26.1 | 26 | 20 | 16.3 | Gasket:Silicon |
| 114-2025-3-71 | JR16WR-7P(71) | 7 | 19.9 | M22×1 | 26.6 | 29 | 23 | 20.3 | – |
| 114-2025-3-72 | JR16WR-7P(72) | 7 | 19.9 | M22×1 | 26.6 | 29 | 23 | 20.3 | Gasket:Silicon |
| 114-2026-6-71 | JR16WR-10P(71) | 10 | 19.9 | M22×1 | 26.1 | 29 | 23 | 20.3 | – |
| 114-2026-6-75 | JR16WR-10P(75) | 10 | 19.9 | M22×1 | 26.1 | 29 | 23 | 20.3 | Gasket:Silicon |
| 114-2027-9-71 | JR21WR-10P(71) | 10 | 23.9 | M26×1 | 26.6 | 32 | 26 | 24.3 | – |
| 114-2028-1-71 | JR21WR-16P(71) | 16 | 23.9 | M26×1 | 26.1 | 32 | 26 | 24.3 | – |
| 114-2029-4-71 | JR25WR-4P(71) | 4 | 27.9 | M30×1 | 28 | 35 | 29 | 28.3 | – |
| 114-2029-4-72 | JR25WR-4P(72) | 4 | 27.9 | M30×1 | 28 | 35 | 29 | 28.3 | Gasket:Silicon |
| 114-2030-3-71 | JR25WR-5P(71) | 5 | 27.9 | M30×1 | 26.6 | 35 | 29 | 28.3 | – |
| 114-2031-6-71 | JR25WR-8P(71) | 8 | 27.9 | M30×1 | 26.6 | 35 | 29 | 28.3 | – |
| 114-2032-9-71 | JR25WR-16P(71) | 16 | 27.9 | M30×1 | 26.6 | 35 | 29 | 28.3 | – |
| 114-2033-1-71 | JR25WR-24P(71) | 24 | 27.9 | M30×1 | 26.1 | 35 | 29 | 28.3 | – |
| 114-2158-7-71 | JR25WR-3P(71) | 3 | 27.9 | M30×1 | 29.1 | 35 | 29 | 28.3 | – |

| With Female contacts / Silver plating contacts | | No. of pins | ϕA | B | ϕC | D | E | ϕF | Description |
|---|---|---|---|---|---|---|---|---|---|
| HRS No. | Product No. | | | | | | | | |
| 114-2034-4-71 | JR13WR-3S(71) | 3 | 15.9 | M18×1 | 28 | 26 | 20 | 16.3 | – |
| 114-2035-7-71 | JR13WR-5S(71) | 5 | 15.9 | M18×1 | 27 | 26 | 20 | 16.3 | – |
| 114-2036-0-71 | JR16WR-7S(71) | 7 | 19.9 | M22×1 | 28 | 29 | 23 | 20.3 | – |
| 114-2037-2-71 | JR16WR-10S(71) | 10 | 19.9 | M22×1 | 27 | 29 | 23 | 20.3 | – |
| 114-2038-5-71 | JR21WR-10S(71) | 10 | 23.9 | M26×1 | 28 | 32 | 26 | 24.3 | – |
| 114-2039-8-71 | JR21WR-16S(71) | 16 | 23.9 | M26×1 | 27 | 32 | 26 | 24.3 | – |
| 114-2040-7-71 | JR25WR-4S(71) | 4 | 27.9 | M30×1 | 28 | 35 | 29 | 28.3 | – |
| 114-2041-0-71 | JR25WR-5S(71) | 5 | 27.9 | M30×1 | 27.8 | 35 | 29 | 28.3 | – |
| 114-2042-2-71 | JR25WR-8S(71) | 8 | 27.9 | M30×1 | 27.8 | 35 | 29 | 28.3 | – |
| 114-2043-5-71 | JR25WR-16S(71) | 16 | 27.9 | M30×1 | 28 | 35 | 29 | 28.3 | – |
| 114-2044-8-71 | JR25WR-24S(71) | 24 | 27.9 | M30×1 | 27 | 35 | 29 | 28.3 | – |

## ●Bulk head type(Rear mount)

With male contacts

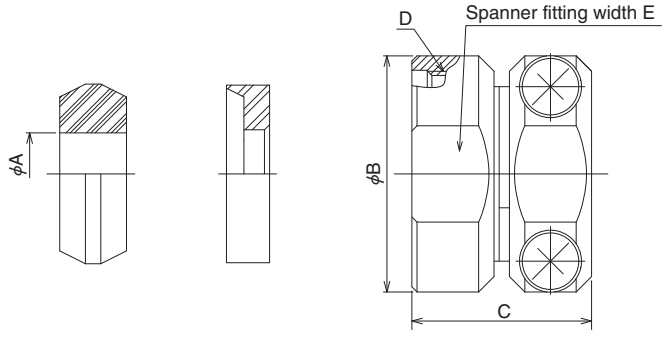



(This shape is one example)

| With Male contacts | | No. of pins | A |
|---|---|---|---|
| Silver plating contacts | | | |
| HRS No. | Product No. | | |
| 114-2143-0-71 | JR16WRA-7P(71) | 7 | 26.6 |
| 114-2096-1-71 | JR16WRA-10P(71) | 10 | 26.1 |

| With Female contacts | | No. of pins | A |
|---|---|---|---|
| Silver plating contacts | | | |
| HRS No. | Product No. | | |
| 114-2145-5-71 | JR16WRA-10S(71) | 10 | 27 |

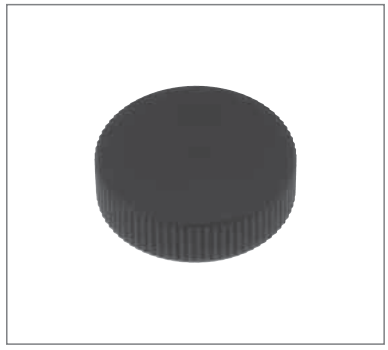
# Cable clamp




(This shape is one example)

| HRS No. | Product No. | φA | φB | C | D | E | Description |
|---|---|---|---|---|---|---|---|
| 114-2045-0-71 | JR13WCC-4(71) | 4 | 20 | 17 | M16×0.75 | 17 | – |
| 114-2046-3-71 | JR13WCC-5(71) | 5 | 20 | 17 | M16×0.75 | 17 | – |
| 114-2047-6-71 | JR13WCC-6(71) | 6 | 20 | 17 | M16×0.75 | 17 | – |
| 114-2048-9-71 | JR13WCC-7(71) | 7 | 20 | 17 | M16×0.75 | 17 | – |
| 114-2049-1-71 | JR13WCC-8(71) | 8 | 20 | 17 | M16×0.75 | 17 | – |
| 114-2050-0-71 | JR13WCC-9(71) | 9 | 20 | 17 | M16×0.75 | 17 | – |
| 114-2051-3-71 | JR13WCC-10(71) | 10 | 20 | 17 | M16×0.75 | 17 | – |
| 114-2052-6-71 | JR16WCC-4(71) | 4 | 23 | 17.5 | M20×0.75 | 21 | – |
| 114-2053-9-71 | JR16WCC-6(71) | 6 | 23 | 17.5 | M20×0.75 | 21 | – |
| 114-2054-1-71 | JR16WCC-8(71) | 8 | 23 | 17.5 | M20×0.75 | 21 | – |
| 114-2055-4-71 | JR16WCC-10(71) | 10 | 23 | 17.5 | M20×0.75 | 21 | – |
| 114-2056-7-71 | JR16WCC-12(71) | 12 | 23 | 17.5 | M20×0.75 | 21 | – |
| 114-2057-0-71 | JR21WCC-6(71) | 6 | 27 | 17.5 | M24×0.75 | 25.4 | – |
| 114-2058-2-71 | JR21WCC-8(71) | 8 | 27 | 17.5 | M24×0.75 | 25.4 | – |
| 114-2059-5-71 | JR21WCC-10(71) | 10 | 27 | 17.5 | M24×0.75 | 25.4 | – |
| 114-2060-4-71 | JR21WCC-12(71) | 12 | 27 | 17.5 | M24×0.75 | 25.4 | – |
| 114-2061-7-71 | JR21WCC-14(71) | 14 | 27 | 17.5 | M24×0.75 | 25.4 | – |
| 114-2062-0-71 | JR21WCC-16(71) | 16 | 27 | 17.5 | M24×0.75 | 25.4 | – |
| 114-2063-2-71 | JR25WCC-8(71) | 8 | 31 | 18 | M28×0.75 | 29 | – |
| 114-2063-2-72 | JR25WCC-8(72) | 8 | 31 | 18 | M28×0.75 | 29 | Gasket:Silicon |
| 114-2064-5-71 | JR25WCC-10(71) | 10 | 31 | 18 | M28×0.75 | 29 | – |
| 114-2064-5-72 | JR25WCC-10(72) | 10 | 31 | 18 | M28×0.75 | 29 | Gasket:Silicon |
| 114-2065-8-71 | JR25WCC-12(71) | 12 | 31 | 18 | M28×0.75 | 29 | – |
| 114-2065-8-72 | JR25WCC-12(72) | 12 | 31 | 18 | M28×0.75 | 29 | Gasket:Silicon |
| 114-2066-0-71 | JR25WCC-14(71) | 14 | 31 | 18 | M28×0.75 | 29 | – |
| 114-2066-0-72 | JR25WCC-14(72) | 14 | 31 | 18 | M28×0.75 | 29 | Gasket:Silicon |
| 114-2067-3-71 | JR25WCC-16(71) | 16 | 31 | 18 | M28×0.75 | 29 | – |
| 114-2067-3-72 | JR25WCC-16(72) | 16 | 31 | 18 | M28×0.75 | 29 | Gasket:Silicon |
| 114-2068-6-71 | JR25WCC-18(71) | 18 | 31 | 18 | M28×0.75 | 29 | – |
| 114-2068-6-72 | JR25WCC-18(72) | 18 | 31 | 18 | M28×0.75 | 29 | Gasket:Silicon |
| 114-2157-4-71 | JR25WCC-15(71) | 15 | 31 | 18 | M28×0.75 | 29 | – |

# Cap



| Without a chain | | ϕA | B | Description |
|---|---|---|---|---|
| HRS No. | Product No. | | | |
| 114-2162-4-71 | JR16WRC(71) | 25 | 7 | – |
| 114-2162-4-75 | JR16WRC(75) | 25 | 7 | Gasket:Silicon |
| 114-2163-7-71 | JR25WRC(71) | 33 | 7 | – |
| 114-2163-7-75 | JR25WRC(75) | 33 | 7 | Gasket:Silicon |

| With a chain | | ϕA | B | Description |
|---|---|---|---|---|
| HRS No. | Product No. | | | |
| 114-2170-2-00 | JR13WRC3 | 21 | 11.5 | – |
| 114-2171-5-00 | JR16WRC3 | 25 | 11.5 | – |
| 114-2172-8-00 | JR25WRC3 | 33 | 11.5 | – |

# Tools

### ●Hexagon wrench driver(1.27 opposite side)

| HRS No. | Product No. |
|---|---|
| 150-0066-3 | PB205/1.27 |

## ■Plug assemblies procedure

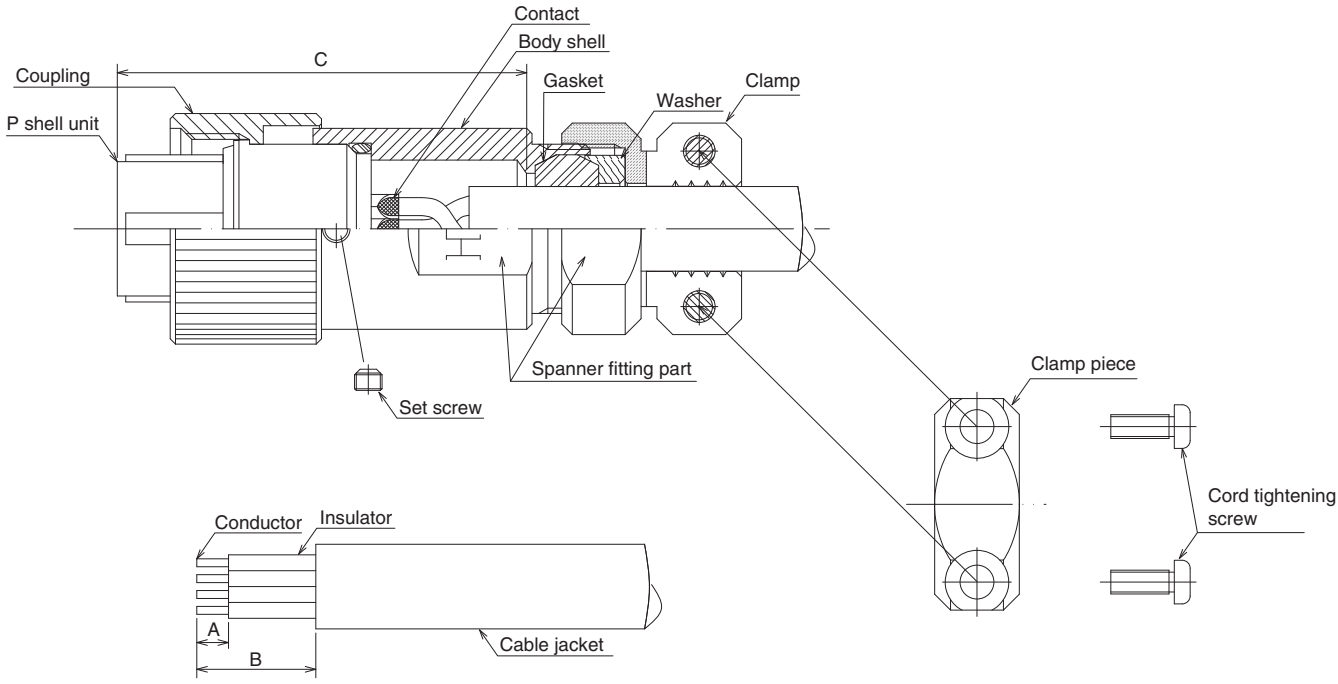



Table 1(Solder type) [Unit:mm]

| Shell size | A | B | C |
|---|---|---|---|
| 13 | (3) | (12) | 37 or below |
| 16 | (3) | (14) | 39 or below |
| 21 | (3) | (17) | 42 or below |
| 25 | (3) | (20) | 37 or below |

Table 2 Tightning torque[Unit:N·m]

| Shell size | C |
|---|---|
| 13 | 2 to 2.5 |
| 16 | 3 to 3.5 |
| 21 | 4 to 4.5 |
| 25 | 5 to 5.5 |

## ■Work procedure

**1.Disassembly of connector**

(1)To remove the plug, remove the set screw, fit a receptacle adaptive to the P shell unit to fix, and remove he cord tube.
(2)To remove the cord clamp, remove the cord tightening screws.

**2.Connection**

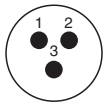
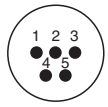
2.1 Soldering type
(1)Use the cable so that the conductor can be soldered properly into the solder cup with the cable sheath diameter adaptive to each cord clamp.
(2)After the terminal treatment of the cable with a size given in Table 1, thread on the ccable the clamp, washer, gasket, cord tube and coupling in this order and direction as shown above.
(3) Solder to connect the conductors to the terminals of the P shell unit. Shrinkable tube is recommended to be used at the connecting part because insulating performance might deteriorate due to solder whiskers or dewing. After connecting, adjust to meet the C size. (Note2)

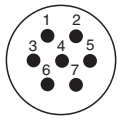
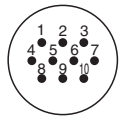
**3.Assembly of connector**

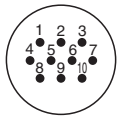
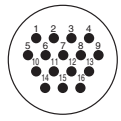
(1)Fit the connected P shell unit to the receptacle fixed with a vice or the like. Torque the cord tube to the level as given in Table3.
(2)Fit the gasket, washer and clamp. Torque the clamp to the level as given in Table3 while preventing the cable from being ratated. And, Loctite Japan Co Ltd. is recommended to be applied as locking.(Note3)
(3)Torque the set screw to 0.2 to 0.25 N·m.
(4)Torque the cord tightening screw(two positions) to 0.65 to 0.7 N·m.(Note 4)

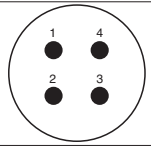
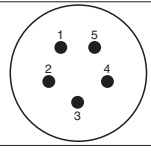
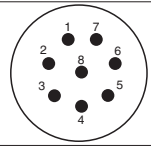
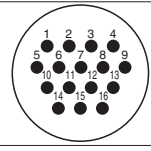
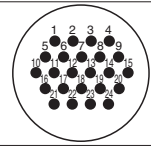
Note2. keep the size until assembling is completed
Note3. After tightening, check water proof performance before using.
Note4. Check the clamp strenrth before using.

## ■Contacts arrangement and specifications

| shell size | | |
|---|---|---|
| 13 |  |  |
| No.of pins | 3 | 5 |
| Voltage resistance | 1,000V AC for 1 minute | 1,000V AC for 1 minute |
| Current capacity | 10A | 5A |
| Insulation resistance | 1000M ohm or above | 1000M ohm or above |
| Contact resisitance | 5m ohm or below | 5m ohm or below |
| Solder pot inner diameter | $\phi$1.7 | $\phi$1.1 |

| shell size | | |
|---|---|---|
| 16 |  |  |
| No.of pins | 7 | 10 |
| Voltage resistance | 1000V AC for 1 minute | 1000V AC for 1 minute |
| Current capacity | 10A | 5A |
| Insulation resistance | 1000M ohm or above | 1000M ohm or above |
| Contact resisitance | 5m ohm or below | 5m ohm or below |
| Solder pot inner diameter | $\phi$1.7 | $\phi$1.1 |

| shell size | | |
|---|---|---|
| 21 |  |  |
| No.of pins | 10 | 16 |
| Voltage resistance | 1000V AC for 1 minute | 1000V AC for 1 minute |
| Current capacity | 10A | 5A |
| Insulation resistance | 1000M ohm or above | 1000M ohm or above |
| Contact resisitance | 5m ohm or below | 5m ohm or below |
| Solder pot inner diameter | $\phi$1.7 | $\phi$1.1 |

| shell size | | | | | |
|---|---|---|---|---|---|
| 25 |  |  |  |  |  |
| No.of pins | 4 | 5 | 8 | 16 | 24 |
| Voltage resistance | 3000V AC for 1 minute | 3000V AC for 1 minute | 3000V AC for 1 minute | 3000V AC for 1 minute | 1000V AC for 1 minute |
| Current capacity | 30A | 10A | 10A | 10A | 5A |
| Insulation resistance | 10,000M ohm or above | 10,000M ohm or above | 10,000M ohm or above | 1000M ohm or above | 1000M ohm or above |
| Contact resisitance | 5m ohm or below | 5m ohm or below | 5m ohm or below | 5m ohm or below | 5m ohm or below |
| Solder pot inner diameter | $\phi$3.4 | $\phi$1.7 | $\phi$1.7 | $\phi$1.7 | $\phi$1.1 |

Remarls: 1.Illustrations show the fitting faces of connectors having male terminals.
2.The voltage resistance is indicated at a test voltage value. The regular voltage value. The regular voltage is one tenth or below of the test voltage value.

## ■Notes in Use

1.Be sure to turn off the power to the circuit before connecting or disconnecting the connector.
2.Be sure to use the connector having famale terminals on the power side to the circuit.
3.Be sure to use the connector with the screw lock activated(thoroughly tightened).
4.Use the connector as the combination of water-proof types.