

HRS General-purpose Multi-Contact Circular Waterproof Connectors

RM-W Series



Overview

High performance waterproof circular connectors and cable assemblies used in variety of applications requiring high reliability, ease of assembly and small size.

Features

1. Variety of types

Plugs : Available in 3 types - straight / long back shell, straight / short back shell, right angle back shell. Straight and right angle (overmolded) cable assemblies of various lengths can be ordered.

Receptacles : Waterproof types with front, back or flange panel mounting.

All types with 2, 3, 4, 8, 10, 12, 15, 20, 31, 40, 55 contacts. Contacts in 2 plating types: gold or silver.

2. Dust and water protection

When fully mated, the connector meet requirements of IP67 (48 hours at depth of 1.8 m)
(Single-body waterproof receptacles also meet requirements of IP67.)

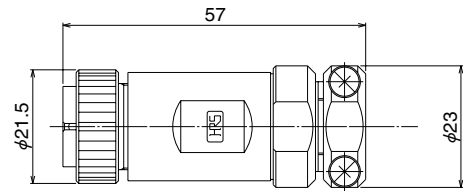
3. Cable exit in 360° directions

The right-angle plugs permit exiting of the cable over a 360-degree range in any direction.

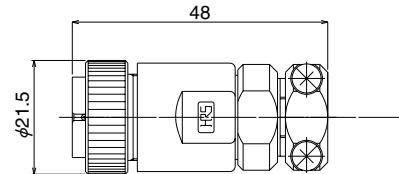
Applications

Base stations, factory automation equipment, robotic equipment, exploration and construction equipment, research instrumentation, variety of industrial and measuring instruments. Any other applications requiring high reliability waterproof circular connectors.

Plug – straight

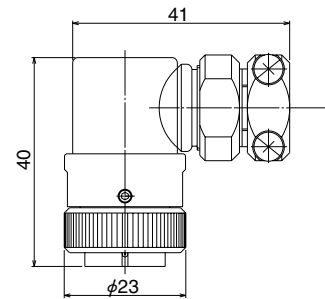


Long backshell

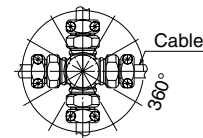


Short backshell

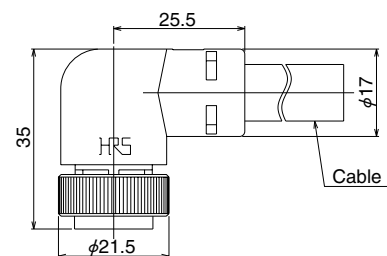
Plug – Right angle



360° Cable exit



Plug – Right angle overmolded cable assembly



■Product Specifications (RM15WT size products)

Rating	Voltage rating	600V AC, 840V DC (2 pos.) 500V AC, 700V DC (3, 4, 8 pos.) 350V AC, 490V DC (10 pos.) 100V AC, 140V DC (12 pos.)
	Current rating	10A (2, 3, 4 pos.) 5A (8, 10, 12 pos.)
	Operating temperature range (Note 1)	-25°C to +85°C
	Storage temperature range (Note 2)	-25°C to +85°C

Characteristic	Specification	Conditions
1. Contact resistance	2 m Ω max.(2, 3, 4 pos.) 4 m Ω max.(8, 10, 12 pos.)	1A DC
2. Insulation resistance	1000 M Ω min	500V DC
3. Withstanding voltage	No flashover or insulation breakdown.	1800V AC/one minute (2 pos.) 2000V AC/one minute (3 pos.) 1500V AC/one minute (4, 8 pos.) 1000V AC/one minute (10, 12 pos.)
4. Vibration	No electrical discontinuity for 10μs max.	Frequency: 10 to 55Hz, single amplitude of 0.75mm,for 3 hours in 3 axis.
5. Shock	No electrical discontinuity for 10μs max.	Acceleration of 490m/s ² , 11ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis.
6. Durability (insertion/withdrawal)	4 m Ω max.(2, 3, 4 pos.) 8 m Ω max.(8, 10, 12 pos.)	2000 cycles
7. Temperature cycle	Insulation resistance: 100 M Ω min.	Temperature : -55°C → Room temperature → +85°C → Room temperature Time : 30 → 10 to 15 → 30 → 10 to 15 (Minutes) 5 cycles
8. Humidity	Insulation resistance: 100 M Ω min. (Dry state)	96 hours at temperature of 40°C and humidity of 90% to 95%.
9. Water / dust protection	0When mated with corresponding connector.	Complete dust protection. No water penetration when submerged for 48 hours at the depth of 1.8 meter.

Note 1: Includes temperature rise caused by the current flow.

Note 2: The term "storage" refers to products stored for long period of time prior to mounting and use. Operating temperature range and humidity range covers non-conducting condition of installed connectors in storage, shipment or during transportation.

■Materials

Item	Material	Finish	Remarks
Body	Zinc alloy, brass, pliable PVC	Chrome plated or nickel plated	
Insulator	Diallyl phthalate, PBT	Color: Black	UL94V-0
Contacts	Brass, phosphor bronze, or copper alloy	Silver plated or gold plated	—————
Gasket	SIR (black or red), or NBR (gray)	Color: black or red (SIR), color: gray (NBR)	—————

Note: Do not mix different contact plating.

■Ordering Information

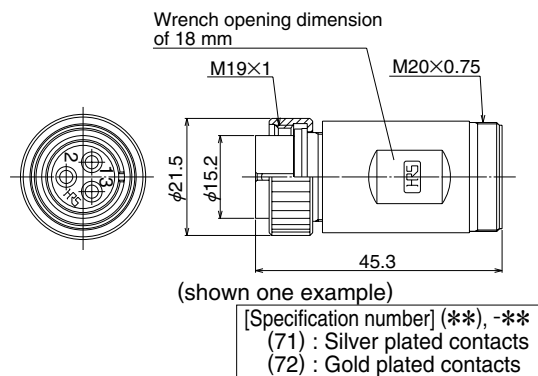
RM 15 W T P - 2 P (**)**

① ② ① ③ ④ ⑤ ⑥ ⑦

① Series name : RM-W	⑤ Number of Contacts
② Shell size	⑥ Contact type P : Male contact S : Female contact
③ Lock type T : Screw Lock	
④ Connector type P : Plug R : Receptacle	⑦ Plating (71) : Silver plated (72) : Gold plated

■Plugs - straight, long back shell

RM15WTPZA-10S(71)



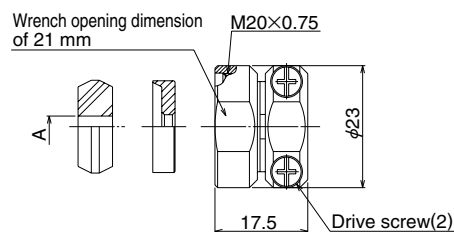
Part Number	CL No.	Number of Contacts	Weight	RoHS
RM15WTPZA-2P(**)	109-1734-5-**-	2	43g	YES
RM15WTPZA-3P(72)	109-1602-4- 72	3	45g	
RM15WTPZA-4P(**)	109-1735-8-**-	4	44g	
RM15WTPZA-8P(**)	109-1736-0-**-	8	43g	
RM15WTPZA-10P(**)	109-1737-3-**-	10	44g	
RM15WTPZA-12P(**)	109-1738-6-**-	12	44g	

Part Number	CL No.	Number of Contacts	Weight	RoHS
RM15WTPZA-2S(**)	109-1729-5-**-	2	45g	YES
RM15WTPZA-3S(**)	109-1601-1-**-	3	47g	
RM15WTPZA-4S(**)	109-1730-4-**-	4	45g	
RM15WTPZA-8S(**)	109-1731-7-**-	8	45g	
RM15WTPZA-10S(**)	109-1732-0-**-	10	45g	
RM15WTPZA-12S(**)	109-1733-2-**-	12	45g	

■Applicable Strain reliefs

● External cable clamp + internal, self-tightening

JR16WCC-10(72)



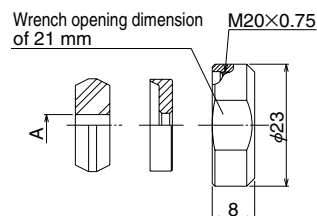
(shown one example)

Part Number	CL No.	A	Weight	RoHS
JR16WCC-4(72)	114-2052-6-72	4	17.5g	YES
JR16WCC-6(72)	114-2053-9-72	6	17.5g	
JR16WCC-8(72)	114-2054-1-72	8	17.5g	

Part Number	CL No.	A	Weight	RoHS
JR16WCC-10(72)	114-2055-4-72	10	17.5g	YES
JR16WCC-11(72)	114-2154-6-72	11	17.5g	
JR16WCC-12(72)	114-2056-7-72	12	17.5g	

● Internal, self tightening

JR16WCCA-10(72)



(shown one example)

Part Number	CL No.	A	Weight	RoHS
JR16WCCA-4(72)	114-2076-4-72	4	16g	YES
JR16WCCA-6(72)	114-2077-7-72	6	16g	
JR16WCCA-8(72)	114-2078-0-72	8	16g	

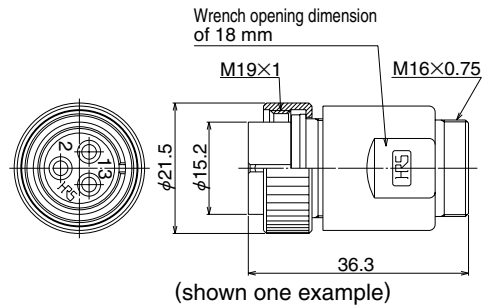
Part Number	CL No.	A	Weight	RoHS
JR16WCCA-10(72)	114-2079-2-72	10	16g	YES
JR16WCCA-11(72)	114-2155-9-72	11	16g	
JR16WCCA-12(72)	114-2080-1-72	12	16g	

Notes : 1. Cable jacket diameter: Use $A \pm 0.2\text{mm}$

2. When using the self-tightening strain relief verify the cable pull force requirements.

■Plugs - Straight, short back shell

RM15WTPZ-10S



[Specification number] (**), -**
(71) : Silver plated contacts
(72) : Gold plated contacts

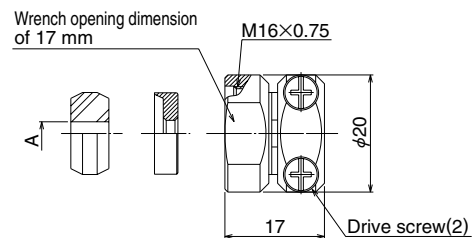
Part Number	CL No.	Number of Contacts	Weight	RoHS
RM15WTPZ-2P(**)	109-1616-9-**-	2	32g	YES
RM15WTPZ-3P(**)	109-1622-1-**-	3	34g	
RM15WTPZ-4P(**)	109-1617-1-**-	4	33g	
RM15WTPZ-8P(**)	109-1618-4-**-	8	32g	
RM15WTPZ-10P(**)	109-1619-7-**-	10	33g	
RM15WTPZ-12P(**)	109-1620-6-**-	12	33g	

Part Number	CL No.	Number of Contacts	Weight	RoHS
RM15WTPZ-2S(**)	109-1611-5-**-	2	34g	YES
RM15WTPZ-3S(**)	109-1621-9-**-	3	36g	
RM15WTPZ-4S(**)	109-1612-8-**-	4	34g	
RM15WTPZ-8S(**)	109-1613-0-**-	8	34g	
RM15WTPZ-10S(**)	109-1614-3-**-	10	34g	
RM15WTPZ-12S(**)	109-1615-6-**-	12	34g	

■Applicable Strain reliefs

● External cable clamp + internal, self-tightening

JR13WCC-10(72)



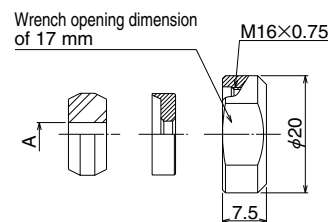
(shown one example)

Part Number	CL No.	A	Weight	RoHS
JR13WCC-4(72)	114-2045-0-72	4	17g	YES
JR13WCC-5(72)	114-2046-3-72	5	17g	
JR13WCC-6(72)	114-2047-6-72	6	17g	

Part Number	CL No.	A	Weight	RoHS
JR13WCC-7(72)	114-2048-9-72	7	17g	YES
JR13WCC-8(72)	114-2049-1-72	8	17g	
JR13WCC-9(72)	114-2050-0-72	9	17g	
JR13WCC-10(72)	114-2051-3-72	10	17g	

● Internal, self tightening

JR16WCCA-10(72)



(shown one example)

Part Number	CL No.	A	Weight	RoHS
JR13WCCA-4(72)	114-2069-9-72	4	12g	YES
JR13WCCA-5(72)	114-2070-8-72	5	12g	
JR13WCCA-6(72)	114-2071-0-72	6	12g	

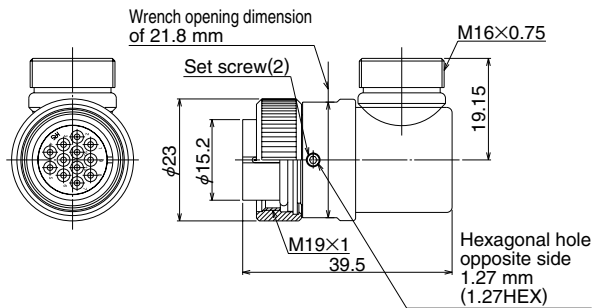
Part Number	CL No.	A	Weight	RoHS
JR13WCCA-7(72)	114-2072-3-72	7	12g	YES
JR13WCCA-8(72)	114-2073-6-72	8	12g	
JR13WCCA-9(72)	114-2074-9-72	9	12g	
JR13WCCA-10(72)	114-2075-1-72	10	12g	

Notes : 1. Cable jacket diameter: Use $A \pm 0.2\text{mm}$

2. When using the self-tightening strain relief verify the cable pull force requirements.

■Plugs - right angle

RM15WTLP-10S



(shown one example)

Part Number	CL No.	Number of Contacts	Weight	RoHS
RM15WTLP-12P(71)	109-0997-9-71	12	62.3g	YES

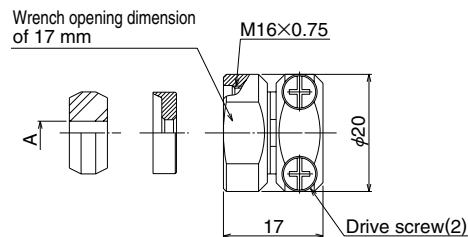
Part Number	CL No.	Number of Contacts	Weight	RoHS
RM15WTLP-10S(71)	109-0999-4-71	10	63.1g	YES

Notes : 1 Gasket material: NBR, body plating: nickel
2 Recommended set screw tightening torque: 0.2 to 0.3 N·m.
HRS recommended tool: PB205/1.27(CL 150-0066-3)

■Applicable Strain reliefs

● External cable clamp + internal, self-tightening

JR13WCC-10(72)



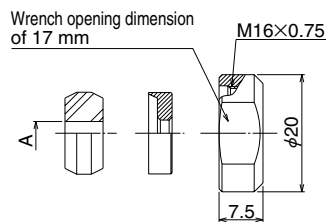
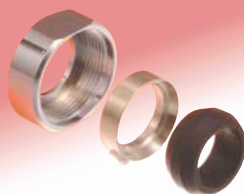
(shown one example)

Part Number	CL No.	A	Weight	RoHS
JR13WCC-4(72)	114-2045-0-72	4	17g	YES
JR13WCC-5(72)	114-2046-3-72	5	17g	
JR13WCC-6(72)	114-2047-6-72	6	17g	

Part Number	CL No.	A	Weight	RoHS
JR13WCC-7(72)	114-2048-9-72	7	17g	YES
JR13WCC-8(72)	114-2049-1-72	8	17g	
JR13WCC-9(72)	114-2050-0-72	9	17g	
JR13WCC-10(72)	114-2051-3-72	10	17g	

● Internal, self tightening

JR13WCCA-10(72)



(shown one example)

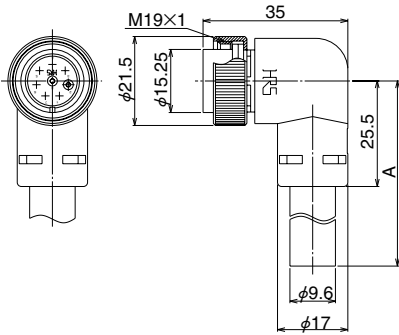
Part Number	CL No.	A	Weight	RoHS
JR13WCCA-4(72)	114-2069-9-72	4	12g	YES
JR13WCCA-5(72)	114-2070-8-72	5	12g	
JR13WCCA-6(72)	114-2071-0-72	6	12g	

Part Number	CL No.	A	Weight	RoHS
JR13WCCA-7(72)	114-2072-3-72	7	12g	YES
JR13WCCA-8(72)	114-2073-6-72	8	12g	
JR13WCCA-9(72)	114-2074-9-72	9	12g	
JR13WCCA-10(72)	114-2075-1-72	10	12g	

Notes : 1 Cable jacket diameter: Use $A \pm 0.2\text{mm}$
2 When using the self-tightening strain relief verify the cable pull force requirements.

Overmolded Cable assembly - Plugs

● Right angle



(shown one example)

Part Number	CL No.	Number of Contacts	A	RoHS
RM15WTPQ-8PA260(71)	109-1264-3-71	8	260	YES

Part Number	CL No.	Number of Contacts	A	RoHS
RM15WTPQ-12SA706(71)	109-1274-7-71	12	706	YES

Notes : 1. Available only with gold plated contacts.
2. Contact Hirose sales representative for dimension A.

Cable Specifications

Construction		8-Conductor Combination Cable		12-Conductor Combination Shielded Cable	
Conductor	Material	Soft copper		Soft copper	
	Construction	Stranded, 34 /0.18 mm dia.	Stranded, 17 /0.16 mm dia.	Stranded, 21 /0.18 mm dia.	Stranded, 7 /0.16 mm dia.
	Diameter	1.2 mm	0.78 mm	0.95 mm	0.48 mm
	Size	AWG #18	AWG #22	AWG #20	AWG #26
Insulator	Material	PVC		PVC	
	Color	Red, brown	Black, white, gray, blue, yellow	Blue, peach, green, dark brown	Blue (red dots), peach (red dots), green (red dots), dark brown (red dots), blue (black dots), peach (black dots), green (black dots), dark brown (black dots)
(Lead wires)	Diameter	2.1 mm	1.7 mm	1.7 mm	0.98 mm
	Material	PVC		PVC	
Shield	Drain wire	PVC		PVC	
	Color	Black		Black	
Jacket	Diameter	9.6 mm		9.6 mm	

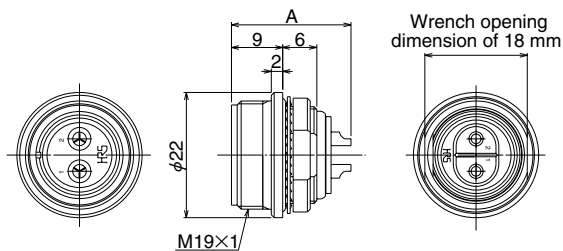
Wiring Specifications

Contact Number	Color	
	8 Conductors	12 Conductors
1	Red	Blue
2	Brown	Peach
3	Black	Blue (red dots)
4	White	Blue (black dots)
5	Gray	Dark brown (red dots)
6	Blue	Dark brown (black dots)
7	Yellow	Peach (red dots)
8	Orange	Green (red dots)
9		Green (black dots)
10		Peach (black dots)
11		Green
12		Dark brown

■ Receptacles

● Front panel mount

RM15WTRZ-10S(71)



(shown one example)

[Specification number] (**), -**
(71) : Silver plated contacts
(72) : Gold plated contacts

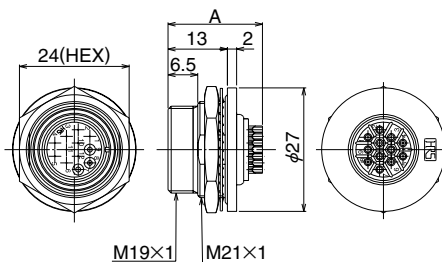
Part Number	CL No.	Number of Contacts	A	Weight	RoHS
RM15WTRZ-2P(**)	109-1631-2-**-	2	21	13g	YES
RM15WTRZ-3P(**)	109-1632-5-**-	3	22.1	15g	
RM15WTRZ-4P(**)	109-1633-8-**-	4	21	14g	
RM15WTRZ-8P(**)	109-1634-0-**-	8	20.65	13g	
RM15WTRZ-10P(**)	109-1635-3-**-	10	20.65	14g	
RM15WTRZ-12P(**)	109-1636-6-**-	12	20.65	14g	

Notes : Recommended nut tightening torque: 3N·m

Part Number	CL No.	Number of Contacts	A	Weight	RoHS
RM15WTRZ-2S(**)	109-1637-9-**-	2	21.75	15g	YES
RM15WTRZ-3S(**)	109-1638-1-**-	3	22.1	17g	
RM15WTRZ-4S(**)	109-1639-4-**-	4	21.75	15g	
RM15WTRZ-8S(**)	109-1640-3-**-	8	21.6	15g	
RM15WTRZ-10S(**)	109-1641-6-**-	10	21.6	15g	
RM15WTRZ-12S(**)	109-1642-9-**-	12	21.6	15g	

● Rear panel mount

RM15WTRZA-10S(71)



(shown one example)

[Specification number] (**), -**
(71) : Silver plated contacts
(72) : Gold plated contacts

Part Number	CL No.	Number of Contacts	A	Weight	RoHS
RM15WTRZA-2P(**)	109-1651-0-**-	2	21	22g	YES
RM15WTRZA-3P(**)	109-1652-2-**-	3	22.1	24g	
RM15WTRZA-4P(**)	109-1653-5-**-	4	21	23g	
RM15WTRZA-8P(**)	109-1654-8-**-	8	20.65	22g	
RM15WTRZA-10P(**)	109-1655-0-**-	10	20.65	23g	
RM15WTRZA-12P(**)	109-1656-3-**-	12	20.65	23g	

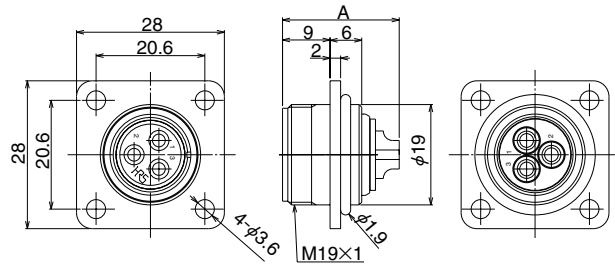
Notes : Recommended nut tightening torque: 3N·m

Part Number	CL No.	Number of Contacts	A	Weight	RoHS
RM15WTRZA-2S(**)	109-1657-6-**-	2	21.75	24g	YES
RM15WTRZA-3S(**)	109-1658-9-**-	3	22.1	26g	
RM15WTRZA-4S(**)	109-1659-1-**-	4	21.75	24g	
RM15WTRZA-8S(**)	109-1660-0-**-	8	21.6	24g	
RM15WTRZA-10S(**)	109-1661-3-**-	10	21.6	24g	
RM15WTRZA-12S(**)	109-1662-6-**-	12	21.6	24g	

■ Receptacles (Square flange)

● Waterproof (When mated with corresponding plug)

RM15WTRZB-10S(71)



(shown one example)

[Specification number] (**), -**
(71) : Silver plated contacts
(72) : Gold plated contacts

Part Number	CL No.	Number of Contacts	A	Weight	RoHS
RM15WTRZB-2P(**)	109-1671-7-**-	2	21	19g	YES
RM15WTRZB-3P(**)	109-1672-0-**-	3	22.1	21g	
RM15WTRZB-4P(**)	109-1673-2-**-	4	21	20g	
RM15WTRZB-8P(**)	109-1674-5-**-	8	20.65	19g	
RM15WTRZB-10P(**)	109-1675-8-**-	10	20.65	20g	
RM15WTRZB-12P(**)	109-1676-0-**-	12	20.65	20g	

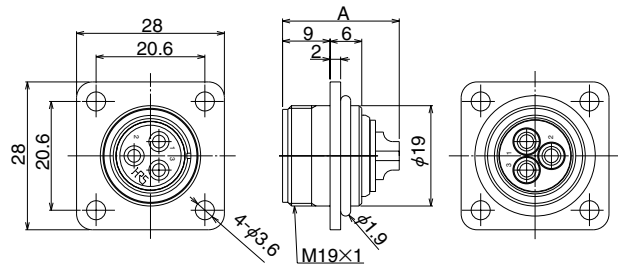
Notes : 1. Screw size: M3

2. Recommended nut tightening torque : 0.3 to 0.35N·m

Part Number	CL No.	Number of Contacts	A	Weight	RoHS
RM15WTRZB-2S(**)	109-1677-3-**-	2	21.75	21g	YES
RM15WTRZB-3S(**)	109-1678-6-**-	3	22.1	23g	
RM15WTRZB-4S(**)	109-1679-9-**-	4	21.75	21g	
RM15WTRZB-8S(**)	109-1680-8-**-	8	21.6	21g	
RM15WTRZB-10S(**)	109-1681-0-**-	10	21.6	21g	
RM15WTRZB-12S(**)	109-1682-3-**-	12	21.6	21g	

● Waterproof (single body)

JR15WTRZB-10PA(71)



(shown one example)

[Specification number] (**), -**
(71) : Silver plated contacts
(72) : Gold plated contacts

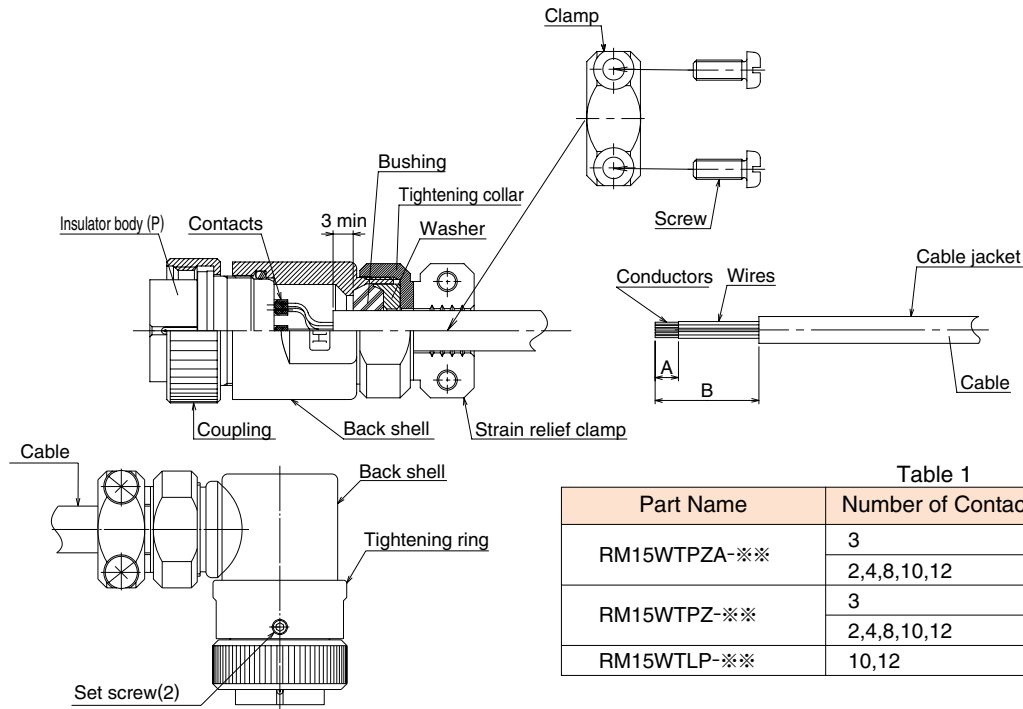
Part Number	CL No.	Number of Contacts	A	Weight	RoHS
RM15WTRZB-3PA(**)	109-1692-7	3	22.1	20g	YES
RM15WTRZB-4PA(**)	109-1693-0	4	21	21g	

Notes : 1. Screw size: M3

2. Recommended nut tightening torque : 0.3 to 0.35N·m

Part Number	CL No.	Number of Contacts	A	Weight	RoHS
RM15WTRZB-8PA(**)	109-1694-2	8	20.65	22g	YES
RM15WTRZB-10PA(**)	109-1695-5	10	20.6	24g	

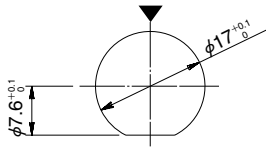
◆ Plug – Disassembly / Assembly



1.	Disassembly - Fix the plug in the assembly fixture (RM15TP-T01 (CL150-0098-0)), then remove the insulator body (P) and the back shell. Right-angle plugs have set screws in the tightening ring at 2 locations. Loosen the set screws before removing the back shell. - Remove the 2 screws of the strain relief clamp, and then remove the clamp from the tightening collar.
2.	Wiring - Assure that the cable outer diameter will fit the strain relief clamp, and is prepared as recommended in Table 1. It is recommended that the exposed conductors be pre-soldered, to assure easier insertion in the soldering cup. - Pass the parts over the cable in the order of: tightening collar, washer, bushing, back shell, and coupling. Refer to the drawings (above) for assembly orientation of all components. - Solder the wires to the contacts of the insulator body (P). Use of heat-shrink tubing or another insulating media between the soldered contacts is suggested.
3.	Connector Assembly Straight Plugs - Place the completely wired insulator body (P) in the assembly fixture secured in a vise. Insert in the coupling, then back shell. The back shell should be tightened to a torque of 3 N·m. Right-angle Plugs - Place the completely wired insulator body (P) in an assembly fixture secured by a vise. Insert in the coupling, then back shell (with tightening ring). When attaching the back shell, orient the cable in the desired direction and fasten the tightening ring to the insulator body (P) with a torque of 3 N·m. After this, tighten and fix the 2 sets crews with a torque of 0.2 to 0.3 N·m. Additional assembly recommendations: In applications where continuous extremely high vibrations may be encountered it is recommended that a thread locking compound be applied to male threads prior to assembly (Loctite 271 , manufactured by Henkel Japan K.K. or equivalent)
4.	Waterproof verification - plug assembly Apply air pressure of 17.6 kPa for 30 seconds from the mating side of the plug assembly. There shall not be any air leakage from inside the connector when submerged in the water tank.
5.	Precautions - Follow the correct assembly sequence, cable preparation and tightening torques. - Assure that the applicable cable outer surfaces are free of scratches, oil, grease or any other contamination. - Do not use excessive forces or improper tools when assembling or mounting the connectors.

◆ Receptacle - recommended panel cut-outs

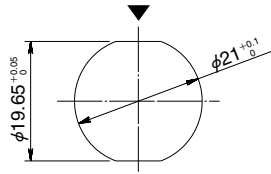
Front mounting, rear nut



Panel thickness: 0.5 to 2 mm

For RM15WTRZ receptacles

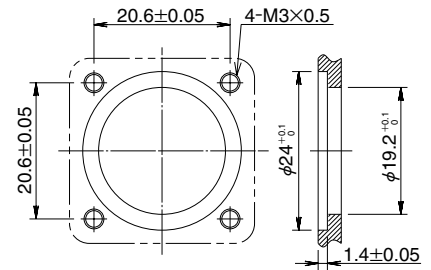
Rear mounting, front nut



Panel thickness: 0.5 to 2.5 mm

For RM15WTRZA receptacles

Square flange, screw mounting

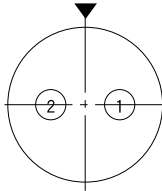
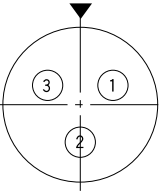
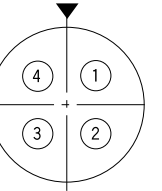
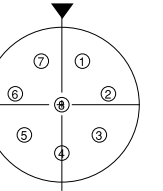
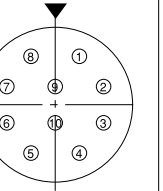
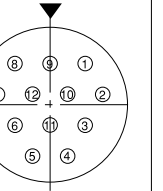


Panel thickness: 2.5 to 4 mm

For RM15WTRZB receptacles

- Notes :
1. When attaching the receptacle to the panel, be certain to check that the gasket is in place in the groove. Do not pinch the gasket.
 2. The view of the above diagrams is from the receptacle mating side.
 3. The ▼ symbol in the above diagrams indicates the coupling guide position of the receptacles.

◆ Contact Position Arrangement and Specifications

Contact configuration	Shell size : 15					
						
Number of contacts	2	3	4	8	10	12
Withstanding voltage	1800V AC / 1 minute	2000V AC / 1 minute	1500V AC / 1 minute	1500V AC / 1 minute	1000V AC / 1 minute	1000V AC / 1 minute
Current rating	10A	10A	10A	5A	5A	5A
Insulation resistance	1000MΩ min.	1000MΩ min.	1000MΩ min.	1000MΩ min.	1000MΩ min.	1000MΩ min.
Contact resistance	2mΩ max.	2mΩ max.	2mΩ max.	4mΩ max.	4mΩ max.	4mΩ max.
Solder pot inner diameter	1.7mm	2.8mm	1.7mm	1.1mm	1.1mm	1.1mm

- Notes :
1. The contact configuration as viewed from the wiring side.
 2. The ▼ symbol in the above diagrams indicates the coupling guide position of the receptacles.
 3. Withstanding voltages indicate test voltage values.

◆ Precautions

1. Switch off the power of the circuit before disconnecting or plugging- in the connectors.
2. Use a connectors with socket contacts at the power side of the circuit.
3. Make sure that the coupling is in completely cocked position.
4. Use correct plug / receptacle to assure dust and water protection.

■Product Specifications (RM21WT to RM31WT size products)

Rating	Voltage rating	600V AC, 840V DC (40 pos.) 500V AC, 700V DC (15, 31, 55 pos.) 350V AC, 490V DC (20 pos.)
	Current rating	5A
	Operating temperature range (Note 1)	-25°C to +85°C
	Storage temperature range (Note 2)	-25°C to +85°C

Characteristic	Specification	Conditions
1. Contact resistance	4 m Ω max.	1A DC
2. Insulation resistance	1000 M Ω min	500V DC
3. Withstanding voltage	No flashover or insulation breakdown.	1800V AC/one minute (4 pos.) 1500V AC/one minute (15, 31, 55 pos.) 1000V AC/one minute (20 pos.)
4. Vibration	No electrical discontinuity for 10μs max.	Frequency: 10 to 55Hz, single amplitude of 0.75mm, for 3 hours in 3 axis.
5. Shock	No electrical discontinuity for 10μs max.	Acceleration of 490m/s², 11ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis.
6. Durability (insertion/withdrawal)	8 m Ω max.	2000 cycles
7. Temperature cycle	Insulation resistance: 100 M Ω min.	Temperature : -55°C → Room temperature → +85°C → Room temperature Time : 30 → 10 to 15 → 30 → 10 to 15 (Minutes) 5 cycles
8. Humidity	Insulation resistance: 100 M Ω min. (Dry state)	96 hours at temperature Of 40°C and humidity Of 90% to 95%.
9. Water / dust protection	0When mated with corresponding connector.	Complete dust protection. No water penetration when submerged for 48 hours at the depth of 1.8 meter.

Note 1: Includes temperature rise caused by the current flow.

Note 2: The term "storage" refers to products stored for long period of time prior to mounting and use. Operating temperature range and humidity range covers non-conducting condition of installed connectors in storage, shipment or during transportation.

■Materials

Item	Material	Finish	Remarks
Body	Brass	Chrome plated or nickel plated	
Insulator	Diallyl phthalate	Color: Black	UL94V-0
Contacts	Brass, copper alloy	Silver plated or gold plated	
Gasket	Chloroprene rubber or SIR	Color: black	

Note: Do not mix different contact plating.

■Ordering Information

RM 21 W T P - 2 P (**)**

① ② ③ ④ ⑤ ⑥ ⑦

① Series name : RM-W	⑤ Number of Contacts
② Shell size	⑥ Contact type
③ Lock type	P : Male contact
T : Screw Lock	S : Female contact
④ Connector type	⑦ Plating
P : Plug	(71) : Silver plated
R : Receptacle	(72) : Gold plated

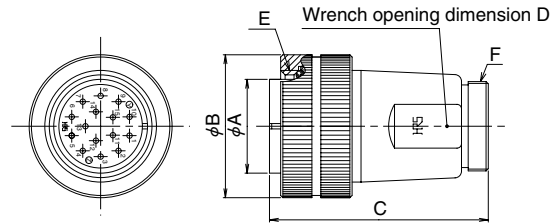
RM 21 W T P - CP (10) ()**

⑧ ⑨

⑧ CP: Strain relief	⑨ () with : External cable clamp () without : Internal cable clamp 4~18 : Cable size
---------------------	--

■Plugs - straight, long back shell

RM21WTPS-15S(71)



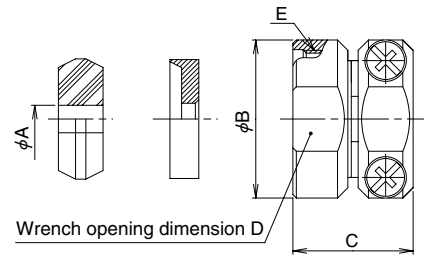
(shown one example)

Part Number	CL No.	Number of Contacts	ϕA	ϕB	C	D	E	F	Weight	Remarks	RoHS
RM21WTPS-15S(71)	109-1860-0-71	15	21	32	49	23	TM25×2	M20×0.75	104.5	Silver plated only	YES
RM24WTPB-31S(71)	109-1852-1-71	31	24.3	36	54	26	TM29×2	M24×0.75	144.6		
RM24WTPB-31P(71)	109-1855-0-71	31	24.3	36	54	26	TM29×2	M24×0.75	140.0		

■Applicable Strain reliefs

● External cable clamp + internal, self-tightening

RM24WTP-CP14(71)



(shown one example)

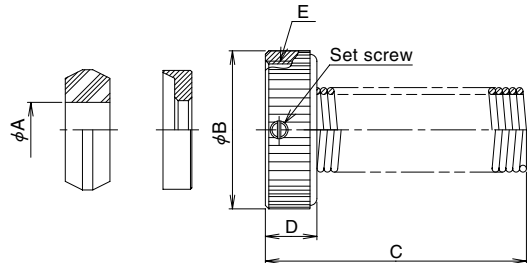
Part Number	CL No.	ϕA	ϕB	C	D	E	Weight	Remarks	RoHS
JR16WCC-4(72)	114-2052-6-72	4	23	17.5	21	M20×0.75	17.5g	For RM21WT	YES
JR16WCC-6(72)	114-2053-9-72	6	23	17.5	21	M20×0.75	17.5g		
JR16WCC-8(72)	114-2054-1-72	8	23	17.5	21	M20×0.75	17.5g		
JR16WCC-10(72)	114-2055-4-72	10	23	17.5	21	M20×0.75	17.5g		
JR16WCC-11(72)	114-2154-6-72	11	23	17.5	21	M20×0.75	17.5g		
JR16WCC-12(72)	114-2056-7-72	12	23	17.5	21	M20×0.75	17.5g		
RM24WTP-CP14(71)	109-1851-9-71	14	29	17.5	26	M24×0.75	17.5g	For RM24WT	

Notes : 1. Cable jacket diameter: Use $A \pm 0.2\text{mm}$. Notes : 2. Recommended set screw tightening torque : 0.3 to 0.4 N·m.

HRS recommended tool : PB205/1.27(CL 150-0066-3)

● Internal, self tightening

RM21WTP-CP(8)(71)



(shown one example)

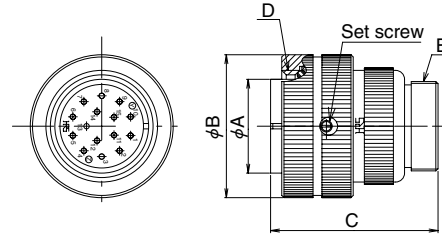
Part Number	CL No.	ϕA	ϕB	C	D	E	Weight	Remarks	RoHS
RM21WTP-CP(8)(71)	109-1405-3-71	8	23	38	7.5	M20×0.75	22.5	For RM21WT	YES
RM21WTP-CP(10)(71)	109-1406-6-71	10	23	38	7.5	M20×0.75	22.0		
RM21WTP-CP(12)(71)	109-1407-9-71	12	23	38	7.5	M20×0.75	21.5		
RM24WTP-CP(10)(71)	109-1493-0-71	10	27	38.5	8	M24×0.75	28.5	For RM24WT	
RM24WTP-CP(12)(71)	109-1494-3-71	12	27	38.5	8	M24×0.75	28.5		
RM24WTP-CP(14)(71)	109-1495-6-71	14	27	38.5	8	M24×0.75	28.0		
RM24WTP-CP(16)(71)	109-1496-9-71	16	27	38.5	8	M24×0.75	26.5		

Notes : 1. Cable jacket diameter: Use $A \pm 0.2\text{mm}$. Notes : 2. Recommended set screw tightening torque : 0.2 to 0.3 N·m.

Notes : 3. When using the self-tightening strain relief verify the cable pull force requirements.

■Plugs - Straight, short back shell

RM21WTP-15S(71)



(shown one example)

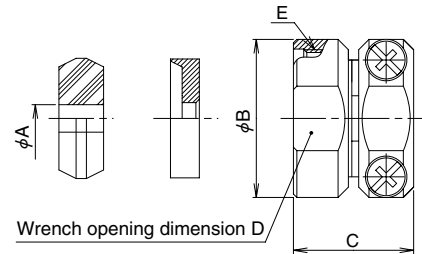
Part Number	CL No.	Number of Contacts	ϕA	ϕB	C	E	F	Weight	Remarks	RoHS
RM21WTP-15S(71)	109-1401-2-71	15	21	32	37.5	TM25×2	M20×0.75	88.5	Silver plated only	YES
RM21WTP-20S(71)	109-1402-5-71	20	21	32	37.5	TM25×2	M20×0.75	88.5		
RM21WTP-15P(71)	109-1403-8-71	15	21	32	37.5	TM25×2	M20×0.75	85		
RM21WTP-20P(71)	109-1404-0-71	20	21	32	37.5	TM25×2	M20×0.75	85		
RM24WTP-31S(71)	109-1491-5-71	31	24.3	36	44	TM29×2	M24×0.75	128		
RM24WTP-31P(71)	109-1492-8-71	31	24.3	36	44	TM29×2	M24×0.75	123		
RM31WTP-40S(71)	109-1571-2-71	40	30.8	42	52	TM35×2	M28×0.75	152		
RM31WTP-55S(71)	109-1572-5-71	55	30.8	42	52	TM35×2	M28×0.75	157		
RM31WTP-40P(71)	109-1573-8-71	40	30.8	42	52	TM35×2	M28×0.75	152		
RM31WTP-55P(71)	109-1574-0-71	55	30.8	42	52	TM35×2	M28×0.75	150		

Notes : Recommended set screw tightening torque : 0.2 to 0.3 N·m.

■Applicable Strain reliefs

● External cable clamp + internal, self-tightening

RM24WTP-CP14(71)



(shown one example)

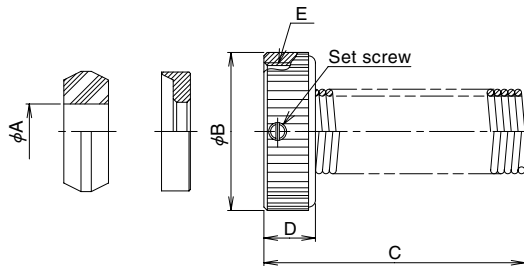
Part Number	CL No.	ϕA	ϕB	C	D	E	RoHS
RM21WTP-CP10(71)	109-1478-7-71	10	25	17	21	M20×0.75	YES
RM21WTP-CP12(71)	109-1477-4-71	12	25	17	21	M20×0.75	
RM21WTP-CP14(71)	109-1851-9-71	14	29	17.5	26	M24×0.75	

Notes : 1. Cable jacket diameter: Use $A \pm 0.2\text{mm}$. Notes : 2. Recommended set screw tightening torque : 0.3 to 0.4 N·m.

HRS recommended tool : PB205/1.27(CL 150-0066-3)

● Internal, self tightening

RM21WTP-CP(8)(71)



(shown one example)

Part Number	CL No.	ϕA	ϕB	C	D	E	Weight	RoHS
RM21WTP-CP(8)(71)	109-1405-3-71	8	23	38	7.5	M20×0.75	22.5	YES
RM21WTP-CP(10)(71)	109-1406-6-71	10	23	38	7.5	M20×0.75	22	
RM21WTP-CP(12)(71)	109-1407-9-71	12	23	38	7.5	M20×0.75	21.5	
RM24WTP-CP(10)(71)	109-1493-0-71	10	27	38.5	8	M24×0.75	28.5	
RM24WTP-CP(12)(71)	109-1494-3-71	12	27	38.5	8	M24×0.75	28.5	
RM24WTP-CP(14)(71)	109-1495-6-71	14	27	38.5	8	M24×0.75	28.5	
RM24WTP-CP(16)(71)	109-1496-9-71	16	27	38.5	8	M24×0.75	28.5	
RM31WTP-CP(10)(71)	109-1575-3-71	10	31	42	12	M28×0.75	46	
RM31WTP-CP(12)(71)	109-1576-6-71	12	31	42	12	M28×0.75	46	
RM31WTP-CP(14)(71)	109-1579-4-71	14	31	42	12	M28×0.75	45	
RM31WTP-CP(16)(71)	109-1577-9-71	16	31	42	12	M28×0.75	43.5	
RM31WTP-CP(18)(71)	109-1578-1-71	18	31	42	12	M28×0.75	42	

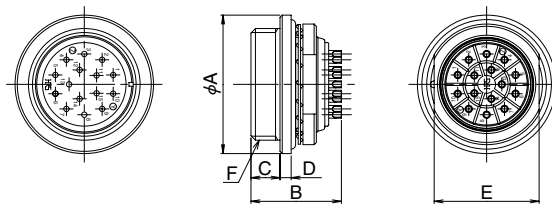
Notes : 1. Cable jacket diameter: Use $A \pm 0.2\text{mm}$. Notes : 2. Recommended set screw tightening torque : 0.2 to 0.3 N·m.

Notes : 3. When using the self-tightening strain relief verify the cable pull force requirements.

■ Receptacles

● Front panel mount

RM21WTR-15P(71)



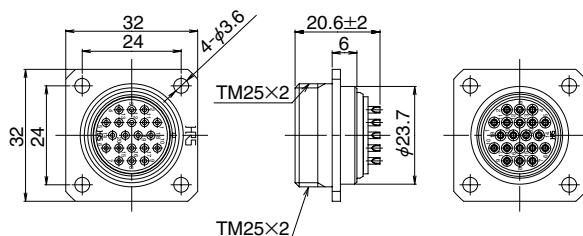
(shown one example)

Part Number	CL No.	Number of Contacts	φA	B	C	D	E	E	Weight	Remarks	RoHS
RM21WTR-15P(71)	109-1445-8-71	15	31	21	6.5	2	23.5	TM25×2	28	Silver plated only	YES
RM21WTR-15S(71)	109-1447-3-71	15	31	21	6.5	2	23.5	TM25×2	31.5		
RM21WTR-20P(71)	109-1446-0-71	20	31	21	6.5	2	23.5	TM25×2	31.5		
RM21WTR-20S(71)	109-1448-6-71	20	31	21	6.5	2	23.5	TM25×2	31.5		
RM24WTR-31P(71)	109-1483-7-71	31	35	21	6.5	2.5	23.5	TM29×2	41.5		
RM24WTR-31S(71)	109-1484-0-71	31	35	21	6.5	2.5	23.5	TM29×2	42		
RM31WTR-40P(71)	109-1525-5-71	40	41	21	6.5	2.5	23.5	TM35×2	50		
RM31WTR-40S(71)	109-1527-0-71	40	30.8	21	6.5	2.5	23.5	TM35×2	52		
RM31WTR-55P(71)	109-1526-8-71	55	30.8	21	6.5	2.5	23.5	TM35×2	53.5		
RM31WTR-55S(71)	109-1528-3-71	55	30.8	21	6.5	2.5	23.5	TM35×2	54		

Notes : Recommended nut tightening torque : 3 N·m

● Waterproof (single body)

RM21WTRK-20P(71)



(shown one example)

Part Number	CL No.	Number of Contacts	Remarks	RoHS
RM21WTRK-20P(71)	109-1466-8-71	20	Gold plated only	YES

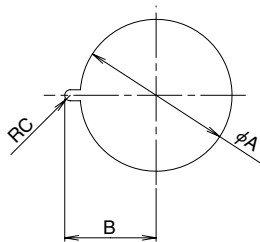
Notes : 1. Screw size : M3

2. Recommended nut tightening torque : 0.3 to 0.35 N·m

3. Use a 1.9 to 2.0 mm dia.thick O-ring for the waterproof gasket that is used in the connector mounting portion.

◆Receptacle - recommended panel cut-out

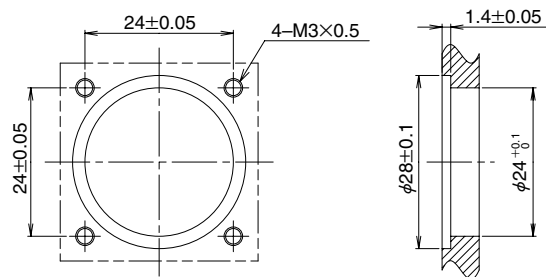
Front mounting, rear nut



Panel thickness: 0.5 to 2 mm

For RM**WTR receptacles

Square flange, screw mounting



Panel thickness: 2.5 to 4 mm

For RM21WTRK receptacles

Part Number	φA	B	RC
For RM21WTR	22.1	13.3	0.8
For RM24WTR	26.1	15.1	0.8
For RM33WTR	32.5	18.3	0.85

Notes : Tolarence is +0.1/0.

- Notes : 1. When attaching the receptacle to the panel, be certain to check that the gasket is in place in the groove. Do not pinch the gasket.
 2. The view of the above diagrams is from the receptacle mating side.
 3. The ▼ symbol in the above diagrams indicates the coupling guide position of the receptacles.

◆Contact Position Arrangement and Specifications

Contact configuration	Shell size : 21		Shell size : 24	Shell size : 31	
Number of contacts	15	20	31	40	55
Withstanding voltage	1500V AC / 1 minute	1000V AC / 1 minute	1500V AC / 1 minute	1800V AC / 1 minute	1500V AC / 1 minute
Current rating	5A	5A	5A	5A	5A
Insulation resistance	1000MΩ min.	1000MΩ min.	1000MΩ min.	1000MΩ min.	1000MΩ min.
Contact resistance	4mΩ max.	4mΩ max.	4mΩ max.	4mΩ max.	4mΩ max.
Solder pot inner diameter	1.1mm	1.1mm	1.1mm	1.1mm	1.1mm

- Notes : 1. The contact configuration as viewed from the wiring side.
 2. The ▼ symbol in the above diagrams indicates the coupling guide position of the receptacles.
 3. Withstanding voltages indicate test voltage values.

◆Precautions

1. Switch off the power of the circuit before disconnecting or plugging- in the connectors.
2. Use a connectors with socket contacts at the power side of the circuit.
3. Make sure that the coupling is in completely cocked position.
4. Use correct plug / receptacle to assure dust and water protection.

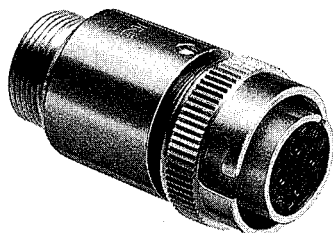
Waterproof RM Series

The Waterproof RM Series has been developed by redesigning the standard RM Series, but maintaining the same electrical specifications as the standard RM Series.

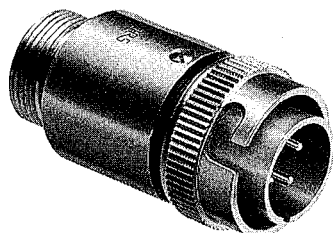
Model RM12WB Connectors

The RM12B is designed to be watertight for 48 hours at 0.5 M under water, and the RM15T or above is designed to be watertight for 48 hours at 1.0 M under water.

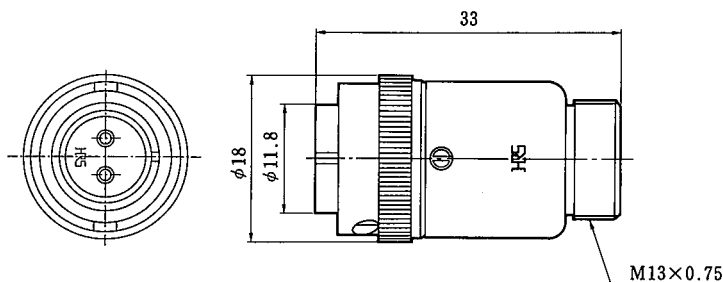
Plug



RM12WBP-4S



RM12WBP-4P



(An example in shape)

HRS No.	Part No.	No. of pins	HRS No.	Part No.	No. of pins
109-1141-3	RM12WBP-2S	2	109-1146-7	RM12WBP-2P	2
109-1142-6	RM12WBP-3S	3	109-1147-0	RM12WBP-3P	3
109-1143-9	RM12WBP-4S	4	109-1148-2	RM12WBP-4P	4
109-1144-1	RM12WBP-5S	5	109-1149-5	RM12WBP-5P	5
109-1145-4	RM12WBP-6S	6	109-1150-4	RM12WBP-6P	6

Note 1: Be sure to use plugs in combination with code clamps.

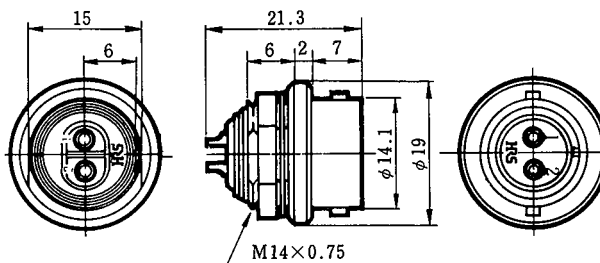
Receptacle



RM12WBR-4P



RM12WBR-4S

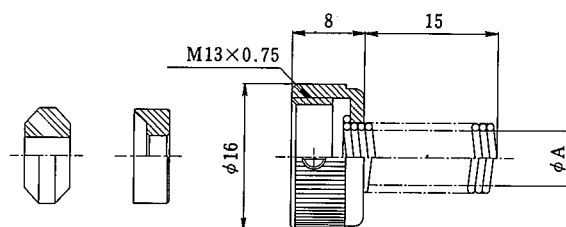
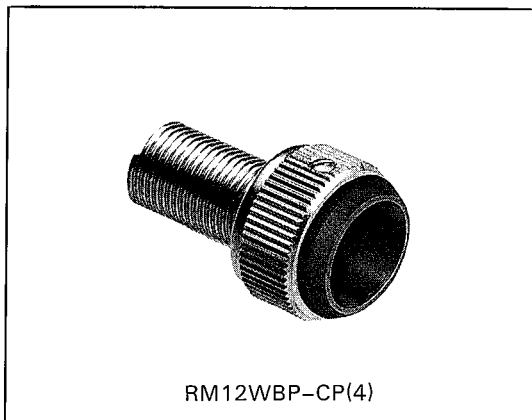


(An example in shape)

HRS No.	Part No.	No. of pins	HRS No.	Part No.	No. of pins
109-1021-1	RM12WBR-2P	2	109-1026-5	RM12WBR-2S	2
109-1022-4	RM12WBR-3P	3	109-1027-8	RM12WBR-3S	3
109-1023-7	RM12WBR-4P	4	109-1028-0	RM12WBR-4S	4
109-1024-0	RM12WBR-5P	5	109-1029-3	RM12WBR-5S	5
109-1025-2	RM12WBR-6P	6	109-1030-2	RM12WBR-6S	6

Remark: For mounting holes, see page 60.

Cord Clamp



(An example in shape)

HRS No.	Part No.	φA	Cable dia.
109-1151-7	RM12WBP-CP(4)	5.5	φ4
109-1152-0	RM12WBP-CP(5)	5.5	φ5
109-1153-2	RM12WBP-CP(6)	7.5	φ6
109-1154-5	RM12WBP-CP(7)	7.5	φ7

Note: Carefully choose the applicable cable because clamping force and waterproofness differ according to the type.