

## TYPE RP13A PUSH-PULL LOCK CONNECTOR

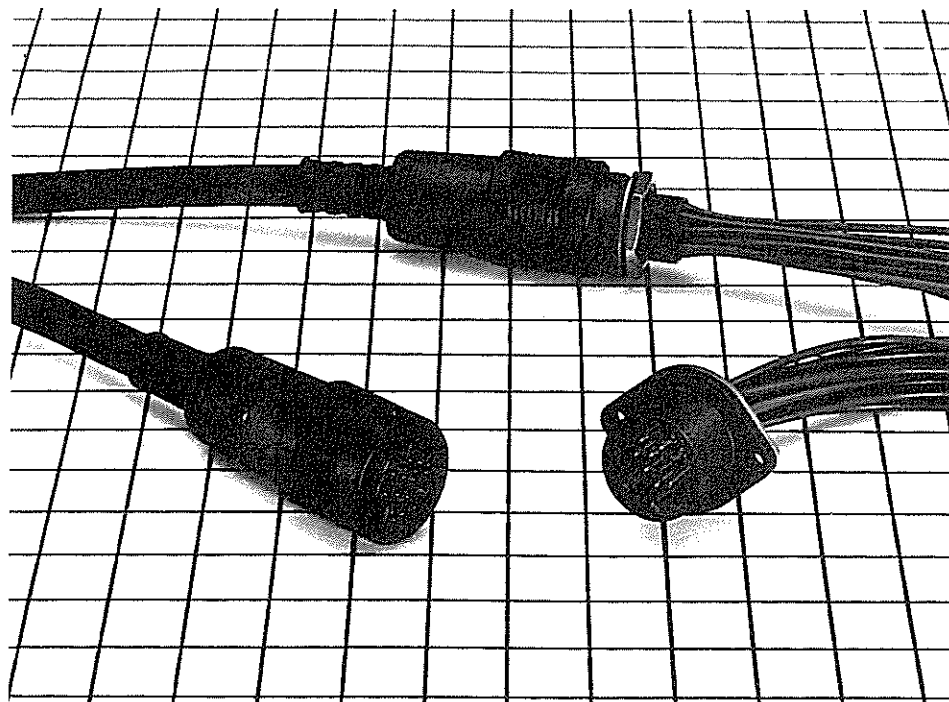
### Scope

RP13A Connector is compact, lightweight, rigid, highly reliable circular connector developed in response to the increasing needs for more compact VTR equipment OA equipment.

The push-pull locking system used for RP13A connector,

was designed with thorough consideration for easy handling and offers easy and quick installation/removal operation.

The compact yet smart design is suitable for any type of electronic equipment, particularly small-sized electronic equipment.



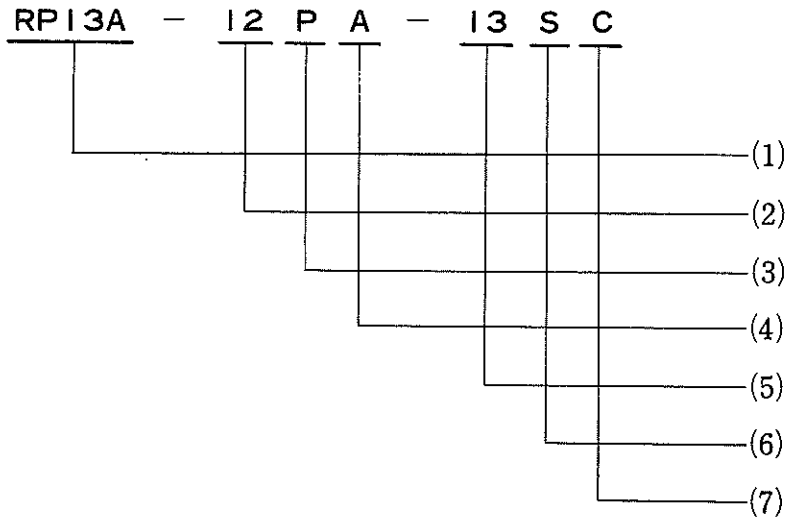
### Features

- (1) Compact shape will always fit your equipment.
- (2) Single motion push-pull locking mechanism provides improved quick inserting/extracting capability. High density packaging is also available.
- (3) Multi-slot key mating guide prevents mis-insertion.
- (4) Outer shell, made of strong glass fiber polycarbonate resin, is lightweight yet rigid.
- (5) As the cable connection method, crimping is used for plug, and crimping and PCB dip for receptacle.

## Material and Finish

| Part Name                  | Material                              | Finish         |
|----------------------------|---------------------------------------|----------------|
| Molding and connector body | UL94V-0<br>Glass-filled polycarbonate | (Black)        |
| Pin contact                | Phosphor bronze                       | Silver plating |
| Socket contact             | Phosphor bronze                       | Silver plating |

## Ordering Information

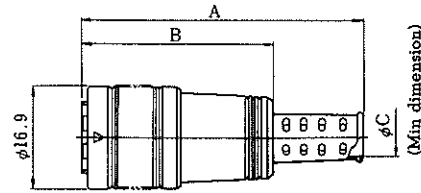


- (1) RP13A : Name of series.
- (2) 12 : Indicates shell size, or outer dia. of plug mating section.
- (3) P : Indicates shape of connector as follows.  
 P : Plug  
 R : Receptacle  
 J : Jack
- (4) A : A, B, C..... are used to distinguish many model types of same shape connectors.
- (5) 13 : Indicates number of terminals.
- (6) S : Indicates shape terminal as follows.  
 P : Male terminal  
 S : Female terminal
- (7) C : Type of connection method.

## Plug



RP13A-12PA-13SC (71)

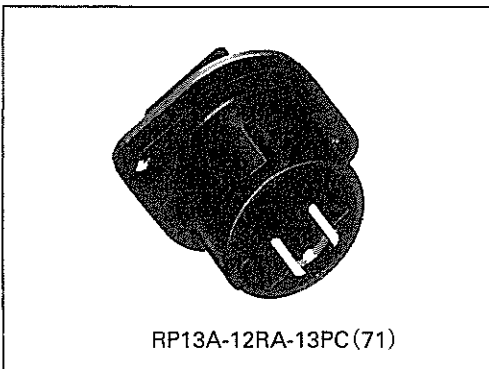


(An example in shape)

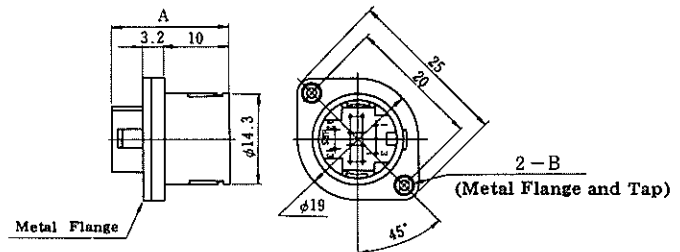
| HRS No.       | Part No.             | No. of pin | A    | B  | φC  | Weight | RoHS |
|---------------|----------------------|------------|------|----|-----|--------|------|
| 113-0182-4-71 | RP13A-12PA-13SC (71) | 13         | 47.2 | 32 | 6.1 | 6.0g   | ○    |
| 113-0184-0-71 | RP13A-12PB-13SC (71) | 13         | 47.2 | 32 | 5.7 | 6.0g   |      |
| 113-0186-5-71 | RP13A-12PD-13SC (71) | 13         | 52.2 | 37 | 6.1 | 6.0g   |      |
| 113-0201-7-71 | RP13A-12PE-13SC (71) | 13         | 47.2 | 32 | 6.4 | 6.0g   |      |
| 113-1006-7-71 | RP13A-12PK-13SC (71) | 13         | 52.2 | 37 | 7.1 | 6.0g   |      |
| 113-1026-4-71 | RP13A-12PS-13SC (71) | 13         | 52.2 | 37 | 8.1 | 6.0g   |      |
| 113-0206-0-71 | RP13A-12PD-15SC (71) | 15         | 52.2 | 37 | 6.1 | 6.0g   |      |
| 113-0219-2-71 | RP13A-12PK-15SC (71) | 15         | 52.2 | 37 | 7.1 | 6.0g   |      |
| 113-1010-4-71 | RP13A-12PP-15SC (71) | 15         | 52.2 | 37 | 7.5 | 6.0g   |      |
| 113-0214-9-71 | RP13A-12PD-20SC (71) | 20         | 52.2 | 37 | 6.1 | 6.0g   |      |
| 113-0210-8-71 | RP13A-12PG-20SC (71) | 20         | 52.2 | 37 | 7.5 | 6.0g   |      |
| 113-0217-7-71 | RP13A-12PH-20SC (71) | 20         | 47.2 | 32 | 6.4 | 6.0g   |      |
| 113-1012-0-71 | RP13A-12PK-20SC (71) | 20         | 52.2 | 37 | 7.1 | 6.0g   |      |
| 113-1007-0-71 | RP13A-12PO-20SC (71) | 20         | 47.2 | 32 | 4.7 | 6.0g   |      |
| 113-1022-3-71 | RP13A-12PS-20SC (71) | 20         | 52.2 | 37 | 8.1 | 6.0g   |      |

## Receptacle (Flange Type)

### (Crimp Type)



RP13A-12RA-13PC (71)

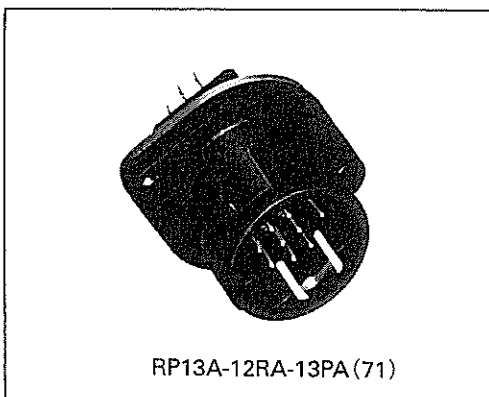


(An example in shape)

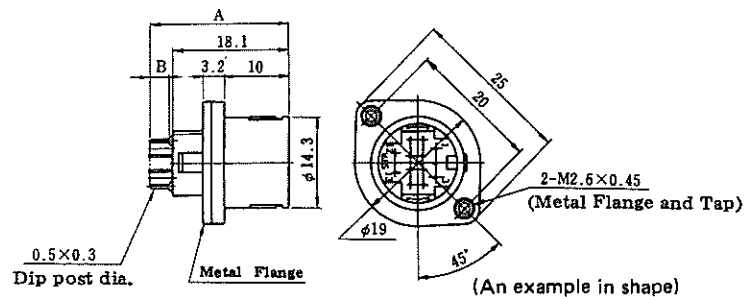
| HRS No.       | Part No.             | No. of pin | A    | B         | Weight | RoHS |
|---------------|----------------------|------------|------|-----------|--------|------|
| 113-0183-7-71 | RP13A-12RA-13PC (71) | 13         | 18.1 | M2.6×0.45 | 4.0g   | ○    |
| 113-0207-3-71 | RP13A-12RA-15PC (71) | 15         | 18.1 | M2.6×0.45 | 4.0g   |      |
| 113-0215-1-71 | RP13A-12RA-20PC (71) | 20         | 16   | M2.6×0.45 | 4.0g   |      |

Remark: For mounting hole size, refer to page 128.

### (Dip Type)



RP13A-12RA-13PA (71)



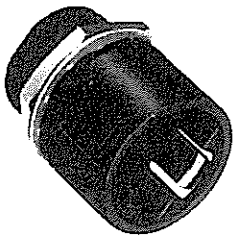
(An example in shape)

| HRS No.       | Part No.             | No. of pin | A    | B | Weight | RoHS |
|---------------|----------------------|------------|------|---|--------|------|
| 113-0202-0-71 | RP13A-12RA-13PA (71) | 13         | 21.5 | 3 | 5.0g   | ○    |
| 113-1002-6-71 | RP13A-12RA-15PA (71) | 15         | 21.5 | 3 | 5.0g   |      |

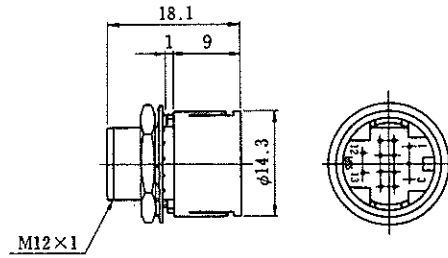
Remark: Refer to page 128 for mounting hole size, and page 131 for dip post layout size.

## Receptacle(Jam nut fastening type)

(Crimp Type)



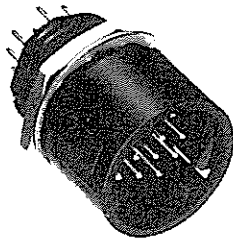
RP13A-12RB-13PC (71)



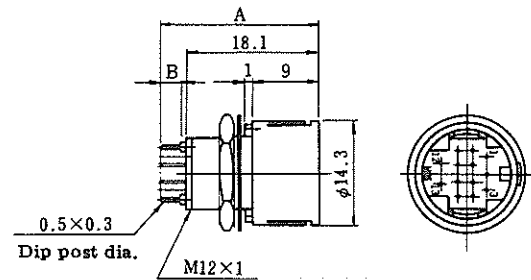
| HRS No.       | Part No.             | No. of pin | Weight | RoHS |
|---------------|----------------------|------------|--------|------|
| 113-0185-2-71 | RP13A-12RB-13PC (71) | 13         | 2.5g   | ○    |

Remark: For mounting hole size, refer to page 128.

(Dip Type)



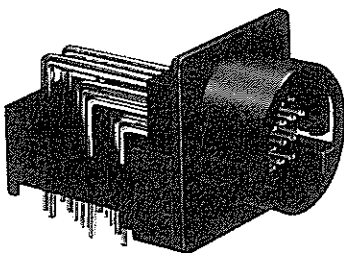
RP13A-12RB-13PA (71)



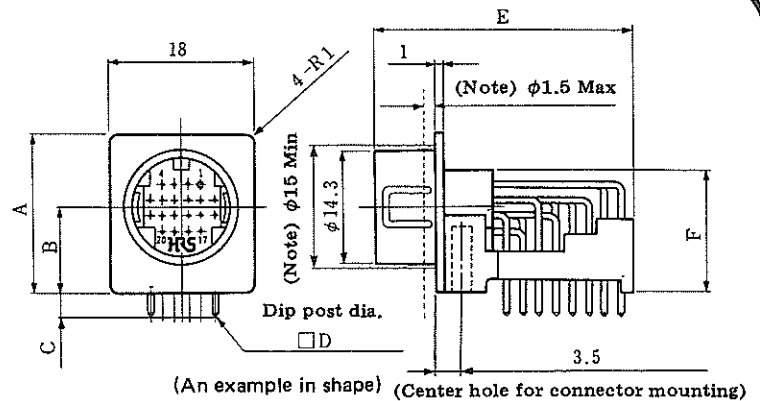
| HRS No.       | Part No.             | A    | B | No. of pin | Weight | RoHS |
|---------------|----------------------|------|---|------------|--------|------|
| 113-0203-2-71 | RP13A-12RB-13PA (71) | 21.5 | 3 | 13         | 3.5g   | ○    |

Remark: Refer to page 128 for mounting hole size and page 131 for dip post layout size.

## Right Angle Dip



RP13A-12RC-20PB



Note: Set up the mounting panel thickness less than 1.5mm, mounting whole more than  $\phi 15$ mm.

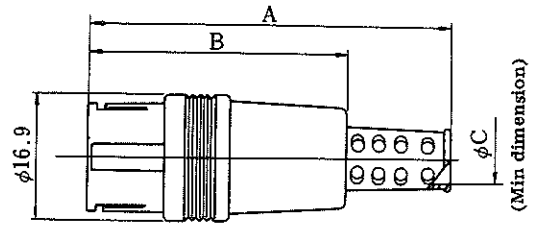
| HRS No.    | Part No.        | No. of pin | A    | B    | C   | D    | E    | F  | Weight | RoHS |
|------------|-----------------|------------|------|------|-----|------|------|----|--------|------|
| 113-1020-8 | RP13A-12RC-13PB | 13         | 17.5 | 8.5  | 3.5 | 0.64 | 23.5 | 13 | 4.0g   | ○    |
| 113-0211-0 | RP13A-12RC-20PB | 20         | 19.5 | 10.5 | 3   | 0.6  | 31.5 | 15 | 5.0g   | ○    |

Remark: For dip post layout size, refer to page 131

## Jack



RP13A-12J-13PC(71)

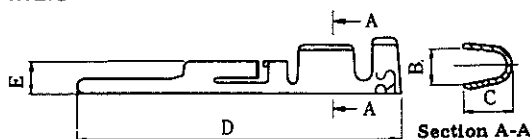


(An example in shape)

| HRS No.       | Part No.            | No. of pin | A    | B    | $\phi C$ | Weight | RoHS |
|---------------|---------------------|------------|------|------|----------|--------|------|
| 113-0166-8-71 | RP13A-12J-13PC(71)  | 13         | 49.1 | 34.6 | 6.1      | 4.5g   | ○    |
| 113-1005-4-71 | RP13A-12JD-15PC(71) | 15         | 54.1 | 39.6 | 6.1      | 4.5g   |      |
| 113-0218-0-71 | RP13A-12JK-15PC(71) | 15         | 54.1 | 39.6 | 7.1      | 4.5g   |      |
| 113-1004-1-71 | RP13A-12JG-20PC(71) | 20         | 52.6 | 37.4 | 7.4      | 4.5g   |      |

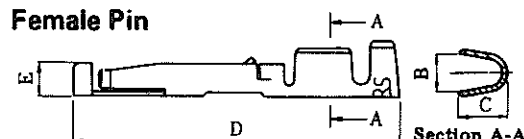
## Contact

### Male Pin



(An example in shape)

### Female Pin



(An example in shape)

For 13 and 15 contacts

| Type          | HRS No.    | Part No.    | Plating   | B   | C    | D    | E   | Applicable wire | RoHS |
|---------------|------------|-------------|-----------|-----|------|------|-----|-----------------|------|
| Loose piece   | 113-0179-0 | RP13-PC-122 | Silver    | 1.2 | 1.35 | 13.9 | 1.4 | AWG#24~#28      | ○    |
| Chain contact | 113-0360-0 | RP13-PC-221 | Part gold | 1.2 | 1.35 | 13.9 | 1.4 | AWG#24~#28      |      |
|               | 113-0141-7 | RP13-PC-222 | Silver    | 1.2 | 1.35 | 13.9 | 1.4 | AWG#24~#28      |      |

| Type          | HRS No.    | Part No.     | Plating   | B   | C    | D    | E   | Applicable wire | RoHS |
|---------------|------------|--------------|-----------|-----|------|------|-----|-----------------|------|
| Loose piece   | 113-0363-9 | RP13A-SC-121 | Part gold | 1.2 | 1.35 | 13.9 | 1.4 | AWG#24~#28      | ○    |
|               | 113-0181-1 | RP13A-SC-122 | Silver    | 1.2 | 1.35 | 13.9 | 1.4 | AWG#24~#28      |      |
| Chain contact | 113-0362-6 | RP13A-SC-221 | Part gold | 1.2 | 1.35 | 13.9 | 1.4 | AWG#24~#28      |      |
|               | 113-0151-0 | RP13A-SC-222 | Silver    | 1.2 | 1.35 | 13.9 | 1.4 | AWG#24~#28      |      |

13 for superthick wires(can be used for terminal nos.12 and 13 only)

| Type          | HRS No.    | Part No.    | Plating | B   | C   | D    | E   | Applicable wire | RoHS |
|---------------|------------|-------------|---------|-----|-----|------|-----|-----------------|------|
| Loose piece   | 113-0178-7 | RP13-PC-112 | Silver  | 1.6 | 2.1 | 13.9 | 1.4 | AWG#18~#22      | ○    |
| Chain contact | 113-0140-4 | RP13-PC-212 | Silver  | 1.6 | 2.1 | 13.9 | 1.4 | AWG#18~#22      |      |

| Type          | HRS No.    | Part No.     | Plating | B   | C   | D    | E   | Applicable wire | RoHS |
|---------------|------------|--------------|---------|-----|-----|------|-----|-----------------|------|
| Loose piece   | 113-0180-9 | RP13A-SC-112 | Silver  | 1.6 | 2.1 | 13.9 | 1.4 | AWG#18~#22      | ○    |
| Chain contact | 113-0150-8 | RP13A-SC-212 | Silver  | 1.6 | 2.1 | 13.9 | 1.4 | AWG#18~#22      |      |

For 20 contacts

| Type          | HRS No.    | Part No.    | Plating | B   | C    | D  | E    | Applicable wire | RoHS |
|---------------|------------|-------------|---------|-----|------|----|------|-----------------|------|
| Loose piece   | 113-0268-8 | RP19-PC-122 | Silver  | 1.2 | 1.35 | 12 | 1.18 | AWG#24~#30      | ○    |
| Chain contact | 113-0264-7 | RP19-PC-222 | Silver  | 1.2 | 1.35 | 12 | 1.18 | AWG#24~#30      |      |

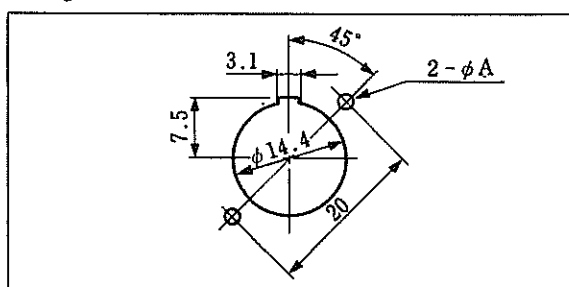
| Type          | HRS No.    | Part No.    | Plating | B   | C    | D  | E    | Applicable wire | RoHS |
|---------------|------------|-------------|---------|-----|------|----|------|-----------------|------|
| Loose piece   | 113-0270-0 | RP19-SC-122 | Silver  | 1.2 | 1.35 | 11 | 1.18 | AWG#24~#30      | ○    |
| Chain contact | 113-0266-2 | RP19-SC-222 | Silver  | 1.2 | 1.35 | 11 | 1.18 | AWG#24~#30      |      |

Notes

- 1: Use connectors with gold-plated terminals if the connectors will be subjected to constant vibration.
- 2: Loose terminals are available in packs of 100 pieces. Chain terminals are available in reels of 10,000 pieces.

## Mounting Cutout

### Flange Type



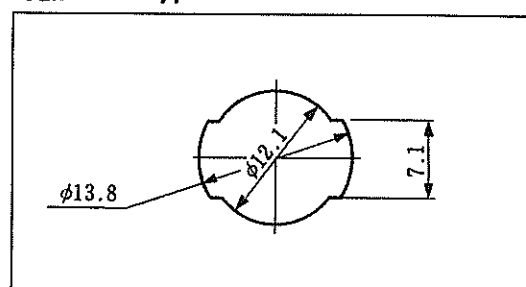
#### • Applicable Connector

| HRS No.       | Part No.            | Mounting hole dimension φA | RoHS |
|---------------|---------------------|----------------------------|------|
| 113-0183-7-71 | RP13A-12RA-13PC(71) | 3                          | ○    |
| 113-0202-0-71 | RP13A-12RA-13PA(71) | 3                          |      |
| 113-0207-3-71 | RP13A-12RA-15PC(71) | 3                          |      |
| 113-1002-6-71 | RP13A-12RA-15PA(71) | 3                          |      |
| 113-0215-1-71 | RP13A-12RA-20PC(71) | 3                          |      |

Note

1. Above appearance shows the panel surface and the mating key is located on top position.
2. The applicable panel thickness for a flange type receptacle is

### Jam Nut Type



#### • Applicable Connector

| HRS No.       | Part No.            | RoHS |
|---------------|---------------------|------|
| 113-0185-2-71 | RP13A-12RB-13PC(71) | ○    |
| 113-0203-2-71 | RP13A-12RB-13PA(71) |      |

- maximum 2.7 mm because this type is mounted on the back surface of panel.
3. The applicable panel thickness for a hexagon nut fastening type is maximum 5 mm and minimum 1 mm.

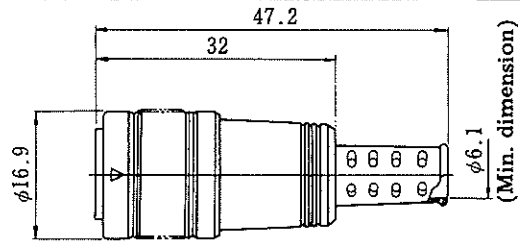
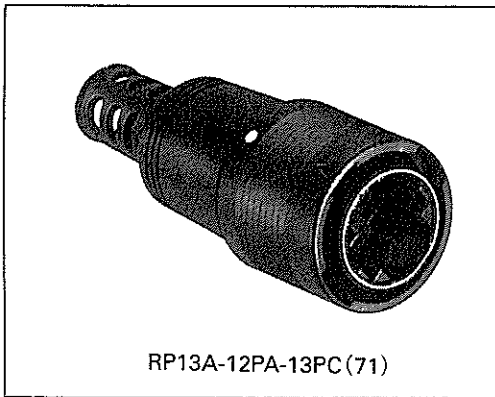
## RP13A ELECTROSTATIC PROTECTION TYPE

RP13A Electrostatic Protection Type Connector uses male contacts for plug and female connects for receptacle. Please note that there is **NO INTERCHANGEABILITY** with standard type RP13A connectors previously introduced. (Crimping terminals also differ from those of the

standard connector.)

While using the electrostatic protection type and the standard type in parallel, any error shall be occurred due to different terminal connectors, so assorted usage with standard type are widely extended.

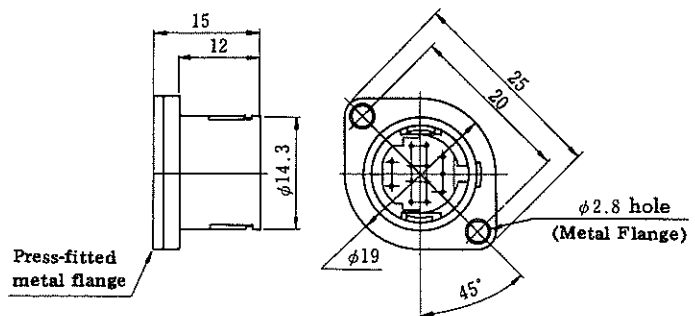
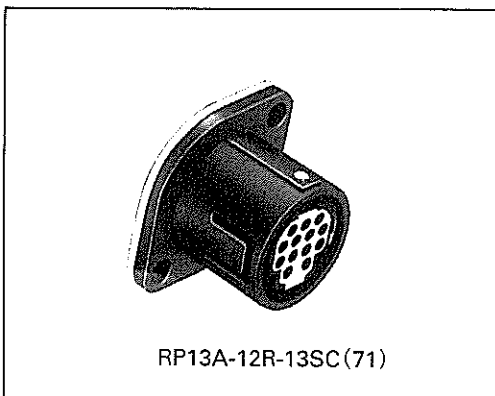
### Plug



(An example in shape)

| HRS No.       | Part No.            | No. of pin | Weight | RoHS |
|---------------|---------------------|------------|--------|------|
| 113-4003-5-71 | RP13A-12PA-13PC(71) | 13         | 6.0g   | ○    |

### Receptacle Flange Type (Crimp Type)



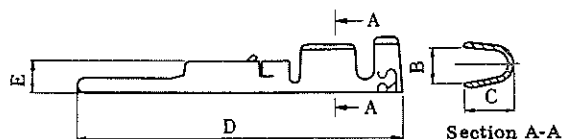
(An example in shape)

| HRS No.       | Part No.           | No. of pin | Weight | RoHS |
|---------------|--------------------|------------|--------|------|
| 113-4002-2-71 | RP13A-12R-13SC(71) | 13         | 4.0g   | ○    |

Remark: For the mounting holes, see page 130.

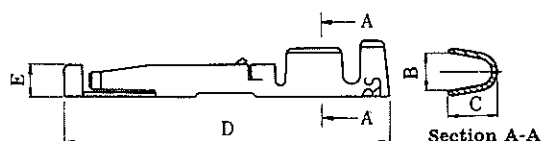
## Contact

### (Male Pin)



| Type          | HRS No.    | Part No.    | B   | C    | D  | E    | Applicable wire | RoHS |
|---------------|------------|-------------|-----|------|----|------|-----------------|------|
| Loose piece   | 113-0268-8 | RP19-PC-122 | 1.2 | 1.35 | 12 | 1.18 | AWG # 24~30     | ○    |
| Chain contact | 113-0263-4 | RP19-PC-212 | 1.6 | 2.1  | 12 | 1.18 | AWG # 18~22     |      |
|               | 113-0264-7 | RP19-PC-222 | 1.2 | 1.35 | 12 | 1.18 | AWG # 24~30     |      |

### (Female Pin)



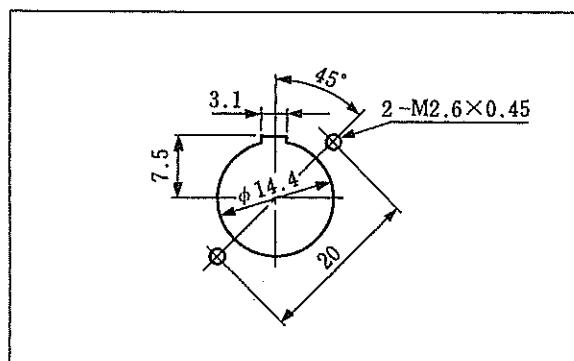
| Type          | HRS No.    | Part No.    | B   | C    | D  | E    | Applicable wire | RoHS |
|---------------|------------|-------------|-----|------|----|------|-----------------|------|
| Loose piece   | 113-0270-0 | RP19-SC-122 | 1.2 | 1.35 | 11 | 1.18 | AWG # 24~30     | ○    |
| Chain contact | 113-0265-0 | RP19-SC-212 | 1.6 | 2.1  | 11 | 1.18 | AWG # 18~22     |      |
|               | 113-0266-2 | RP19-SC-222 | 1.2 | 1.35 | 11 | 1.18 | AWG # 24~30     |      |

(Note 1) Loose piece terminals are offered in a package containing 100 pieces, and strip terminal by reel containing 10,000 pieces. Contacts of applicable cables AWG#18 to #22 can be used only for terminals 12 and 13. Cannot be used for other terminal numbers.

(Note 2) Use applicable cables AWG#18 to #22 having outer dia. of insulator  $\phi 1.79$  and under, and AWG#24 to #30 cables  $\phi 1.15$  and under.

## Receptacle Mounting Hole Dimensions

### (Electrostatic Protection Type)



(Flange Type)

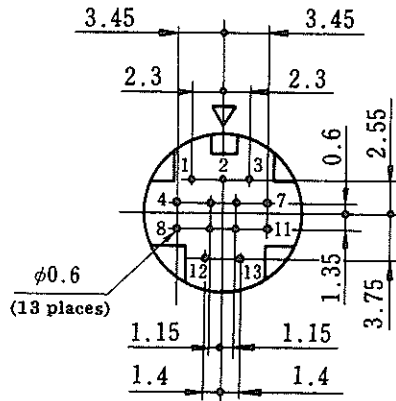
(Note 1) Above figure shows arrangement viewed from panel face. Mating guide of flanged type is positioned above.

(Note 2) For receptacle of flanged type, connector is inserted from back side of panel. Up to 4.7mm thick panel can be used.

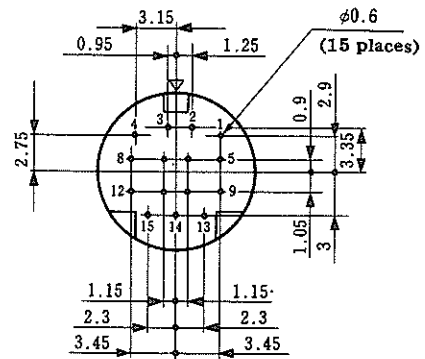


# Receptacle Dip Post Layout

### 13 Conductor

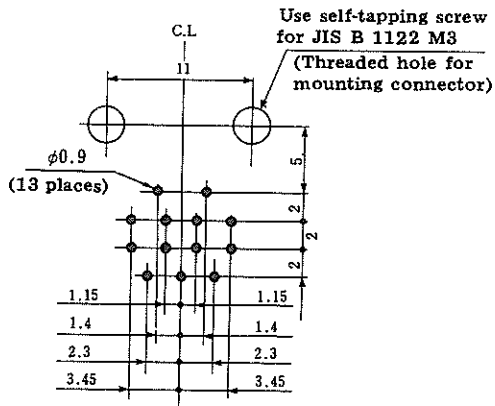


### 15 Conductor

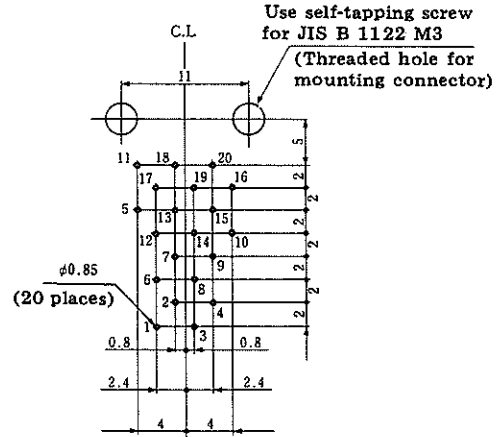


- Note: 1. Figures of 13 and 15-conductor connectors are viewing from the mating side of receptacle.  
 2. Applicable allowance of panel layout:  $\pm 0.05$  mm.

### 13 Conductor (Right-angle Type)



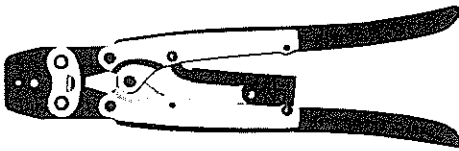
### 20 Conductor (Right-angle Type)



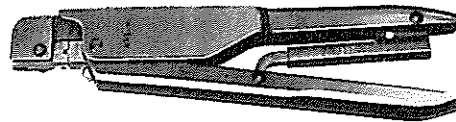
- Note: 1. Above figure shows PCB face viewing from the mating face of receptacle.  
 2. Applicable allowance of panel layout:  $\pm 0.05$  mm.

## Tools

| Type                | Item                    | HRS No.    | Part No.     | Applicable terminal                   | Applicable wire |
|---------------------|-------------------------|------------|--------------|---------------------------------------|-----------------|
| Manual              | Manual crimping tool    | 150-0024-3 | RP13-TC-11   | RP13-PC-112                           | AWG # 18~ # 22  |
|                     |                         | 150-0025-6 | RP13-TC-12   | RP13-PC-121<br>122                    | AWG # 24~ # 28  |
|                     |                         | 150-0026-9 | RP13A-TC-11  | RP13A-SC-112                          | AWG # 18~ # 22  |
|                     |                         | 150-0027-1 | RP13A-TC-12  | RP13A-SC-121<br>122                   | AWG # 24~ # 28  |
|                     |                         | 150-0048-1 | RP19-TC-11   | RP19-PC-122<br>RP19-SC-122            | AWG # 24~ # 28  |
|                     |                         | 150-0049-4 | RP-19-TC-12  | RP19-PC-122<br>RP19-SC-122            | AWG # 24~ # 28  |
| Automatic           | Automatic crimping body | 901-0005-4 | CM-105       | —                                     | —               |
|                     | Applicator              | 901-2024-0 | AP105-RP13-2 | RP13-PC-221, 222<br>RP13A-SC-221, 222 | AWG # 24~ # 28  |
|                     |                         | 901-2013-3 | AP105-RP19-1 | RP19-PC-212<br>RP19A-SC-212           | AWG # 18~ # 22  |
|                     |                         | 901-2014-6 | AP105-RP19-2 | RP19-PC-222<br>RP19-SC-222            | AWG # 24~ # 28  |
| Cable crimping tool |                         | 150-0070-0 | RP13A-TC-01  | —                                     | φ 7.3, φ 8.3    |
|                     |                         | 150-0071-3 | RP13A-TC-02  | —                                     | φ 7.5, φ 8.6    |
| Extractor           |                         | 150-0021-5 | RP13-PC-TP   | Male terminal                         | —               |
|                     |                         | 150-0022-8 | RP13A-SC-TP  | Female terminal                       | —               |
|                     |                         | 150-0039-0 | RP6-SC-TP    | Male/female terminal for RP19         | —               |



RP13A-TC-02  
Cable Crimping Tool



RP13-TC-11  
Hand Crimping Tool



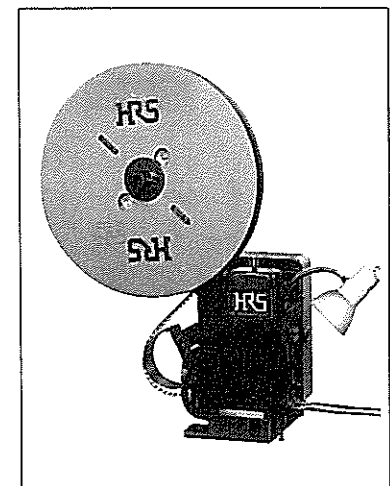
RP6-SC-TP



RP13-PC-TP

Extraction Tools

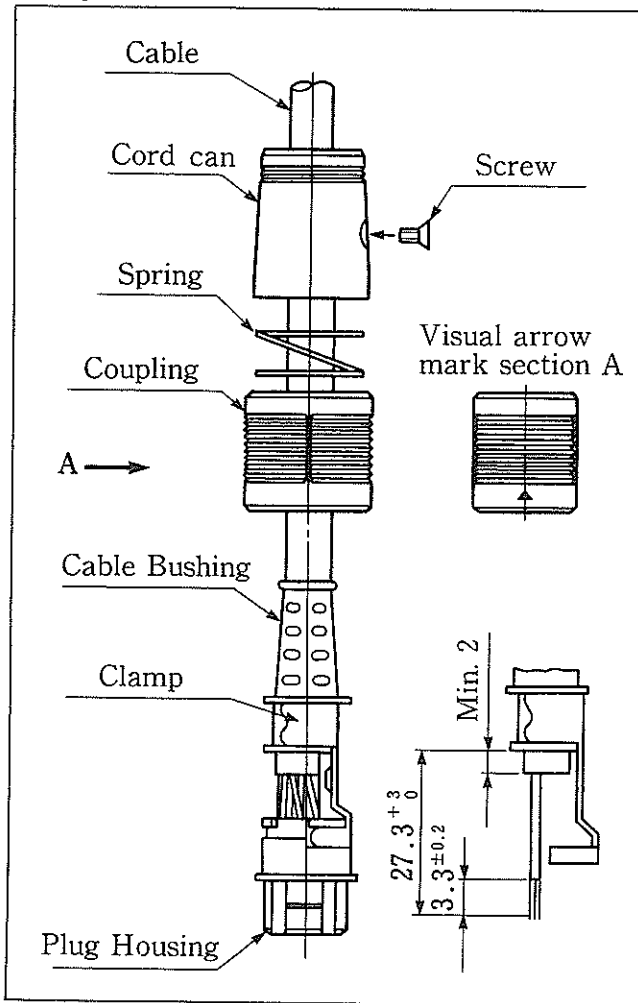
RP13A-SC-TP



Auto Crimp Tool  
CM-105

## Assembling Procedure

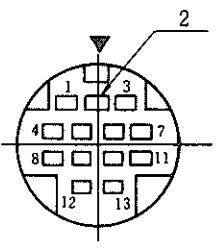
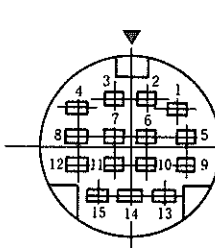
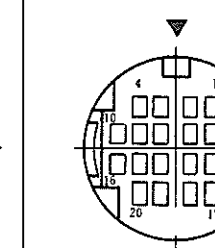
### Plug



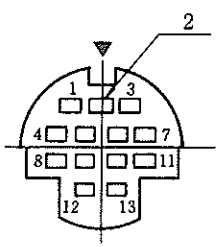
1. Fit the body, spring, coupling and bushing respectively in advance on wires having ends suitably treated, and then connect wires to terminals by crimp.
2. Then mount crimped contacts into the plug housing. After mounting, pull the wire slightly and make sure the contact is mounted.
3. Fix a cable clammer to the bushing, insert it into the plug housing, and then crimp cable clammer with Hand Clamping Tool.
4. Assemble coupling, spring and body respectively to plug housing, and mount it with the attached screw by means of torque wrench (2 kg-cm), and the work is completed.
5. Put the cable bushing over the clamp body to complete the job.

## Terminal Arrangement and Performance

### (Standard Type)

|                      |   |   |   |
|----------------------|---|---|---|
| Pinout               |    |  |  |
| No of pin            | 13  | 15  | 20  |
| Withstanding voltage | AC 300 a minute   | AC 300 a minute   | AC 300 a minute   |
| Current rating       | 2A (AWG #24)  | 2A (AWG #24)  | 2A (AWG #24)  |
| Insulation           | 1000 MΩ max (DC 250V)   | 1000 MΩ min (DC 250V)   | 1000 MΩ min (DC 250V)   |
| Contact              | 15 mΩ min (DC 1A)   | 15 mΩ max (DC 1A)   | 30 mΩ max (DC 1A)   |
| Applicable wire      | AWG #18 ~ #22<br>(insulation φ1.9)<br>Conformity terminal No.12, 13<br>AWG #24 ~ #28<br>(insulation φ 1.4)<br>Conformity terminal No.1~11 | AWG #24 ~ #28<br>(insulation φ 1.4)   | AWG #24 ~ #20<br>(insulation φ 1.15)  |

### (Electrostatic Protection Type)

|                      |  |
|----------------------|--|
| Pinout               |   |
| Positions            | 13   |
| Withstanding voltage | AC 300 a minute  |
| Current              | 2A (AWG #22)   |
| Insulation           | 1000 MΩ min (DC 250V)  |
| Contact              | 15 mΩ max (DC 1A)  |
| Wire                 | AWG #18 ~ #22 (insulation φ 1.79)<br>Conformity terminal No. 12, 13<br>AWG #24 ~ #30 (insulation φ 1.15)<br>Conformity terminal No. 1 ~ 11 |

- (Remarks)
- Above figure shows arrangement viewed from the mating face (cable connection side) of receptacle and jack.
  - Withstanding voltage is shown by testing voltage.