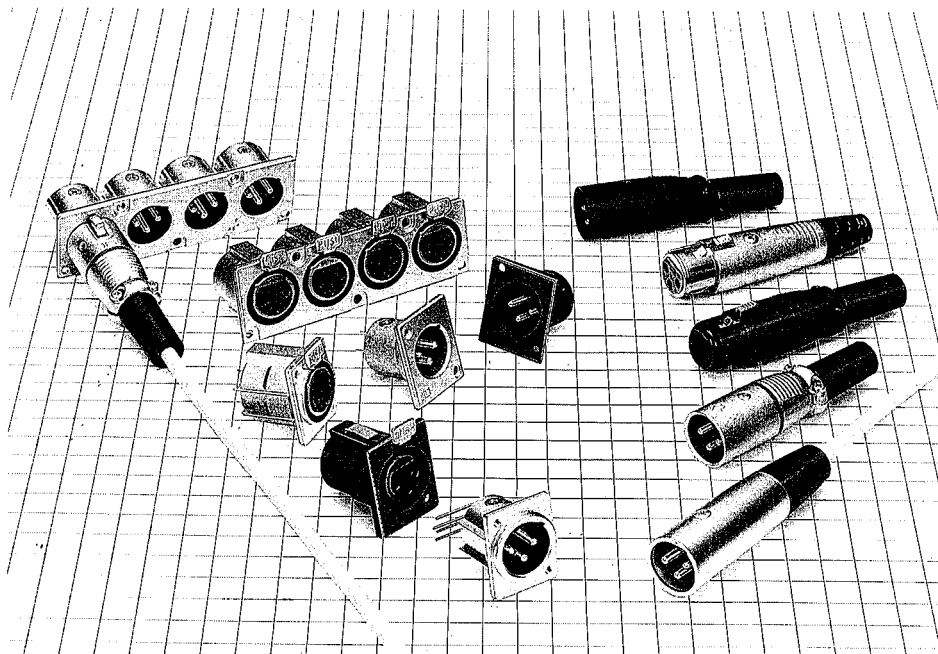


# HA SERIES AUDIO CONNECTORS—MODELS HA16•HA216•HA316 CONNECTORS

## Introduction

The HA16 series are acoustic circular latch-lock connectors designed for use mainly with microphones, microphone mixers, and other broadcasting equipment.

Having a ground function, the HA16 series not only prevent external noise but also give a feeling of integration with your equipment due to their simple, refined design.



## Features

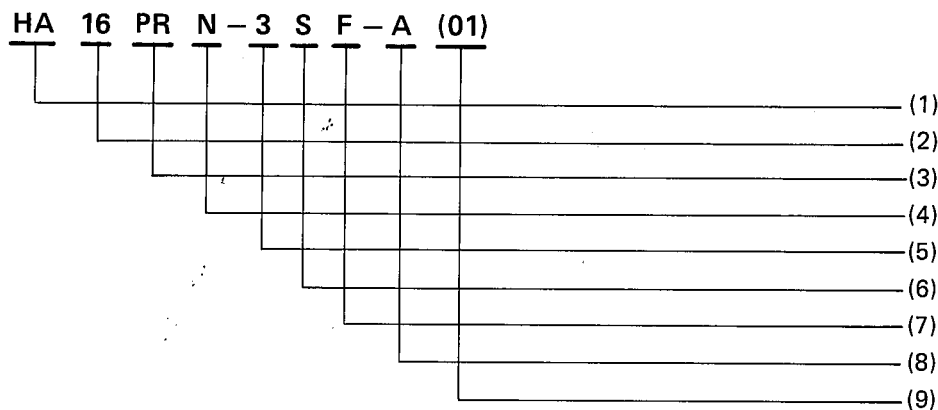
- (1) For your choice according to your equipment, two types of plug-side connectors are available; the HA16 streamlined with a simple, refined design and inside cable-clamping mechanism, and the HA216 and HA316 designed to be two screws with an exposed cable-clamping mechanism.
- (2) To meet the needs of miniature equipment, the receptacle-side connectors are available in four sizes to fit your equipment. Three-pin models are available in four strip terminals to give you a wide choice.
- (3) The lock release levers in the plug receptacle come in two types: the push-pull type and the easier-to-operate lever pushdown type. This allows you to select the type that meets your application needs.
- (4) The receptacle side connectors are available in soldered and board dip types. The board dip type can be mounted from inside, enabling further labor-saving in terminating work.
- (5) An ultra-high-fidelity version is available, using terminals made from 6N high-purity oxygen-free copper.
- (6) The ultra-high-fidelity plugs and jacks are marked in red or white for easy identification of the right and left leads.

## Specifications

| Part            | Material                                        | Finish                               |
|-----------------|-------------------------------------------------|--------------------------------------|
| Shell           | Aluminium- or zinc-alloy                        | Satin-finished nickel or black chrom |
| Insulation      | Polyamide resin, PBT resin, or synthetic rubber | Grey or black                        |
| Male terminal   | Copper alloy                                    | Silver or gold-plated                |
| Female terminal | Copper alloy                                    | Silver or gold-plated                |

Remark: Synthetic rubber is used to HA316 only.

## Ordering Information



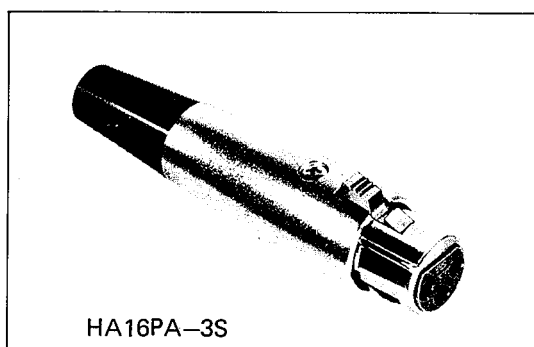
- (1) HA: Denotes the model of the connector.  
Available in three models: HA, HA2, and HA3 (rubber insert type)
- (2) 16: Plug mating part outside diameter in mm.
- (3) PR: Denotes the type of connectors according to the following code:  

|                     |               |
|---------------------|---------------|
| P: Plug             | R: Receptacle |
| PR: Plug receptacle | J: Jack       |
| P(PM): Pin mold     |               |
- (4) N: Indicates the variety of the shell. A type with two or more varieties is identified by A, B, D, E, .....
- (5) 3: Indicates the number of contacts.
- (6) P: Indicates the type of terminal according to the following:  

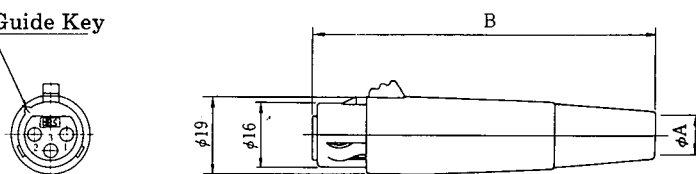
|         |           |
|---------|-----------|
| P: Male | S: Female |
|---------|-----------|
- (7) F: Classifies the terminal connection system or the type of terminal by alphabetic characters.  

|                                                                                             |
|---------------------------------------------------------------------------------------------|
| H: A high sound quality version with terminals made from 6N high-purity oxygen-free copper. |
|---------------------------------------------------------------------------------------------|
- (8) A: Represents a combination of connector blocks on a strip terminal.
- (9) Other: Any change to these specification will be indicated two-digit numeric suffix (01), (02), .....

# Plug

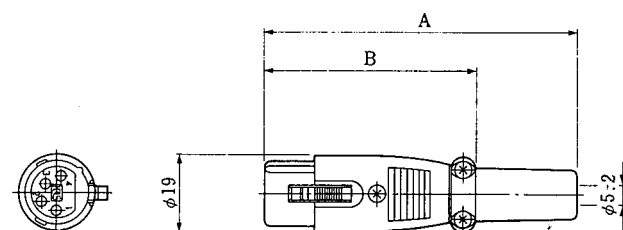
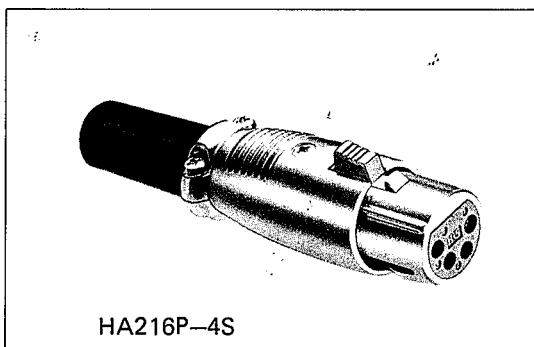


Guide Key



(An example in shape)

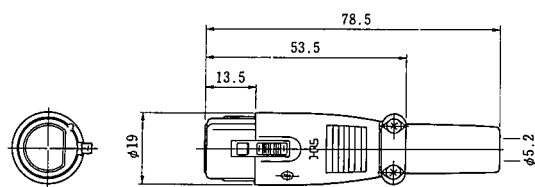
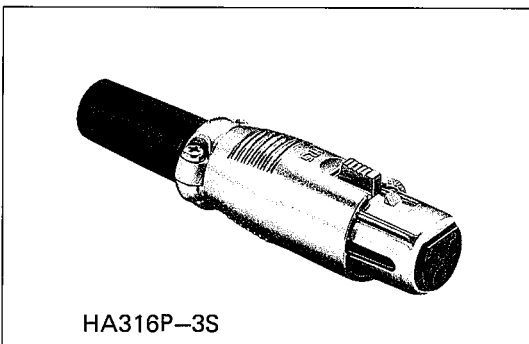
| HRS No.    | Part No.  | No. of pins | φA  | B  | Weight | Remarks |
|------------|-----------|-------------|-----|----|--------|---------|
| 104-0359-0 | HA16PA-3S | 3           | 4.5 | 86 | 50gr   |         |
| 104-0363-8 | HA16PD-3S | 3           | 6   | 86 | 50gr   |         |
| 104-0388-9 | HA16PK-3S | 3           | 6   | 79 | 50gr   |         |
| 104-0426-6 | HA16PK-4S | 4           | 6   | 78 | 50gr   |         |
| 104-0351-9 | HA16PA-5S | 5           | 4.5 | 86 | 50gr   |         |
| 104-0366-6 | HA16PD-5S | 5           | 6   | 86 | 50gr   |         |



(An example in shape)

| HRS No.    | Part No.  | No. of pins | A    | B    | Weight | Remarks |
|------------|-----------|-------------|------|------|--------|---------|
| 104-0701-9 | HA216P-3S | 3           | 78.5 | 53.5 | 40gr   |         |
| 104-0702-1 | HA216P-4S | 4           | 77.7 | 52.7 | 40gr   |         |
| 104-0703-4 | HA216P-5S | 5           | 78.5 | 53.5 | 40gr   |         |

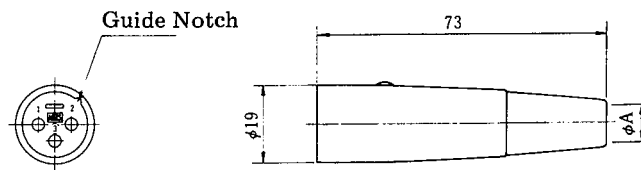
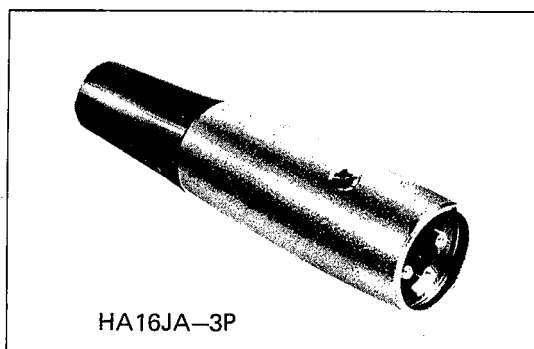
(Rubber Insert Type)



(An example in shape)

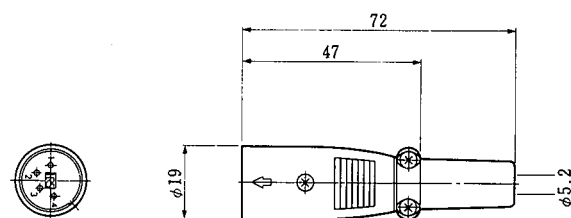
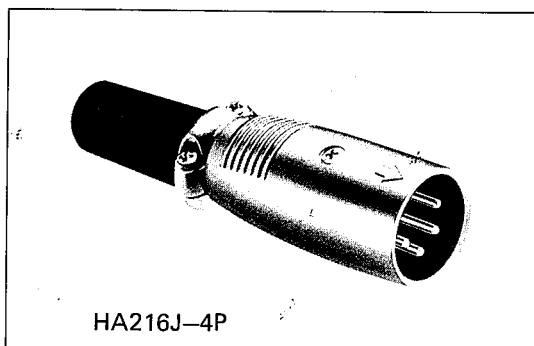
| HRS No.    | Part No.   | No. of pins | Weight | Remarks            |
|------------|------------|-------------|--------|--------------------|
| 104-1101-7 | HA316P-3S  | 3           | 45gr   |                    |
| 104-1113-6 | HA316PB-3S | 3           | 45gr   | Gold-plated, Black |
| 104-1102-0 | HA316P-4S  | 4           | 45gr   |                    |
| 104-1103-2 | HA316P-5S  | 5           | 45gr   |                    |
| 104-1104-5 | HA316P-7S  | 7           | 45gr   |                    |

## Jack



(An example in shape)

| HRS No.    | Part No.  | No. of pin | φA  | Weight |
|------------|-----------|------------|-----|--------|
| 104-0358-8 | HA16JA-3P | 3          | 4.5 | 40gr   |
| 104-0364-0 | HA16JD-3P | 3          | 6   | 40gr   |
| 104-0367-9 | HA16JA-5P | 5          | 4.5 | 40gr   |
| 104-0368-1 | HA16JD-5P | 5          | 6   | 40gr   |

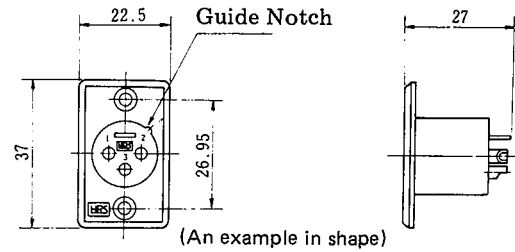
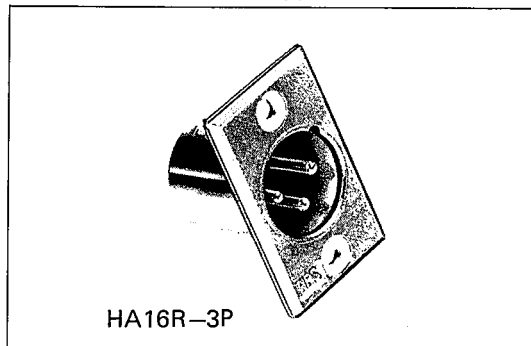


(An example in shape)

| HRS No.       | Part No.      | No. of pins | Weight | Remarks            |
|---------------|---------------|-------------|--------|--------------------|
| 104-0704-7    | HA216J-3P     | 3           | 40gr   |                    |
| 104-0708-8    | HA216JB-3P    | 3           | 40gr   | Gold plated, Black |
| 104-0705-0    | HA216J-4P     | 4           | 40gr   |                    |
| 104-0706-2    | HA216J-5P     | 5           | 40gr   |                    |
| 104-0707-5-01 | HA216J-7P(01) | 7           | 40gr   |                    |

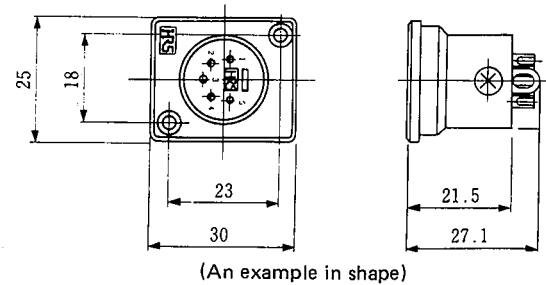
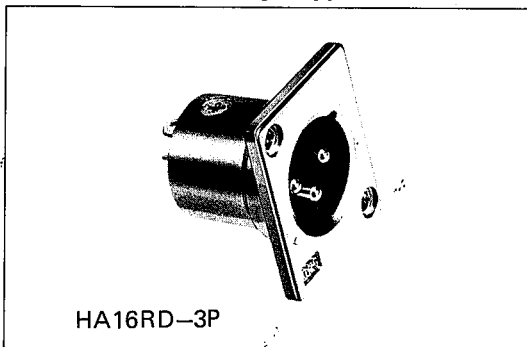
# Receptacle (Solder Type)

(Large Flange Type)



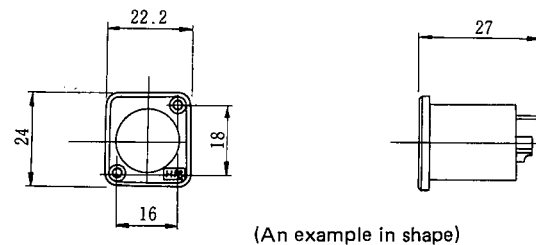
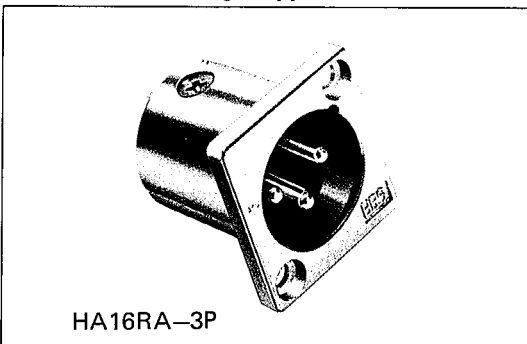
| HRS No.    | Part No. | No. of pin | Weight |
|------------|----------|------------|--------|
| 104-0349-7 | HA16R-3P | 3          | 13gr   |
| 104-0434-4 | HA16R-4P | 4          | 13gr   |
| 104-0369-4 | HA16R-5P | 5          | 13gr   |

(Medium Flange Type)



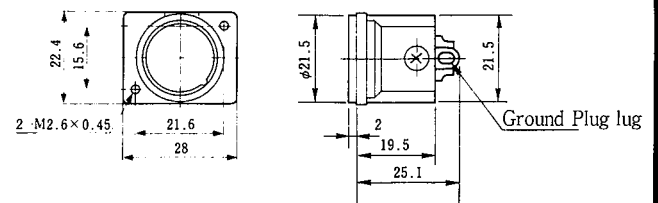
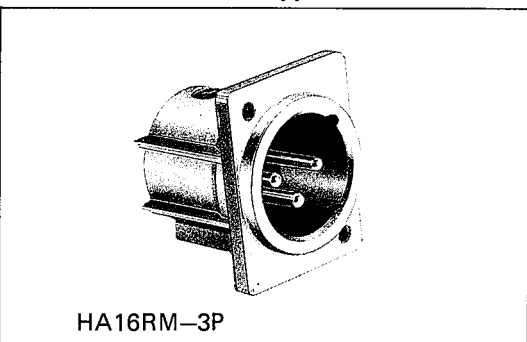
| HRS No.       | Part No.      | No. of pins | Weight | Remarks            |
|---------------|---------------|-------------|--------|--------------------|
| 104-0393-9    | HA16RD-3P     | 3           | 14gr   |                    |
| 104-0393-9-10 | HA16RD-3P(10) | 3           | 14gr   | Gold-plated, Black |
| 104-0402-8    | HA16RD-4P     | 4           | 14gr   |                    |

(Small Flange Type)



| HRS No.    | Part No.  | No. of pin | Weight |
|------------|-----------|------------|--------|
| 104-0382-2 | HA16RA-3P | 3          | 11gr   |
| 104-0408-4 | HA16RA-4P | 4          | 11gr   |
| 104-0383-5 | HA16RA-5P | 5          | 11gr   |

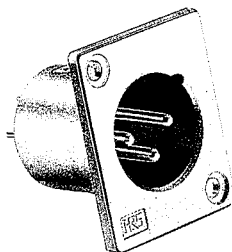
(Inside Mount Type)



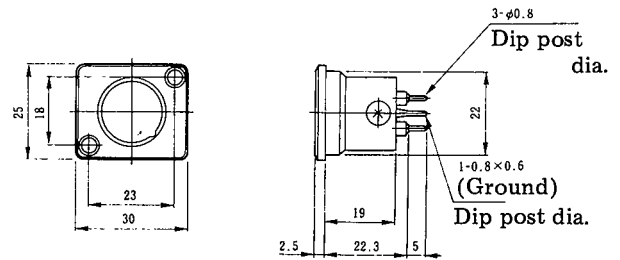
| HRS No.    | Part No.  | No. of pin | Weight |
|------------|-----------|------------|--------|
| 104-0431-6 | HA16RM-3P | 3          | 14gr   |

## Receptacle (PCB Dip Type)

(Medium Flange Type, Straight Dip)



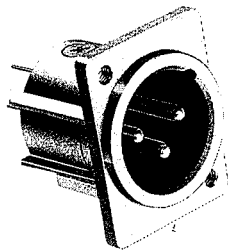
HA16RQ-3PE



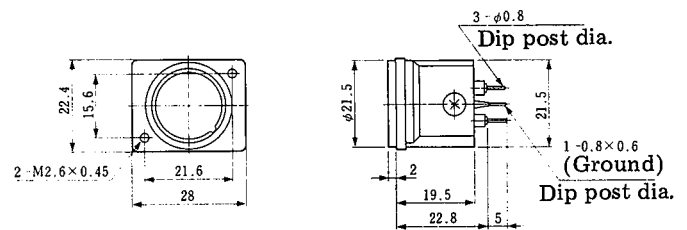
(An example in shape)

| HRS No.    | Part No.   | No. of pin | Weight | Remarks |
|------------|------------|------------|--------|---------|
| 104-0435-7 | HA16RQ-3PE | 3          | 14gr   |         |

(Inside Mount Type, Straight Dip)



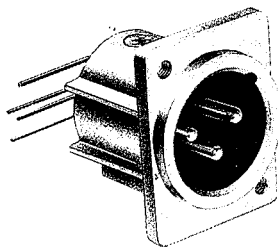
HA16RM-3PE



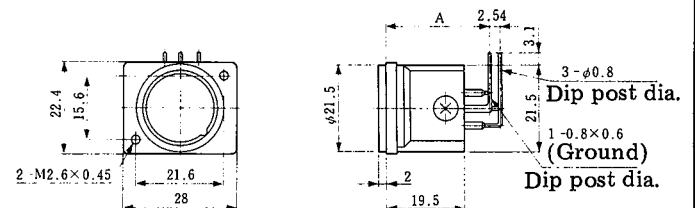
(An example in shape)

| HRS No.    | Part No.   | No. of pin | A    | B         | C    | D       | Weight | Remarks |
|------------|------------|------------|------|-----------|------|---------|--------|---------|
| 104-0420-0 | HA16RM-3PE | 3          | 15.6 | M2.6X0.45 | 19.5 | 0.8X0.6 | 14gr   |         |
| 104-0464-5 | HA16RY-3PE | 3          | 17.4 | M3X0.5    | —    | 0.7X0.4 | 30gr   |         |

(Inside Mount Type, Right Angle Dip)



HA16RM-3PD

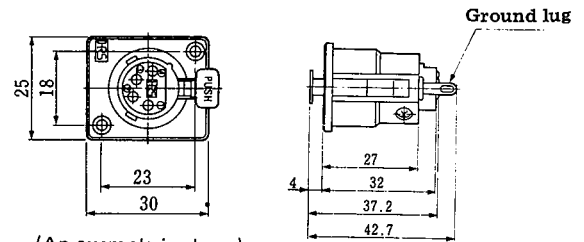
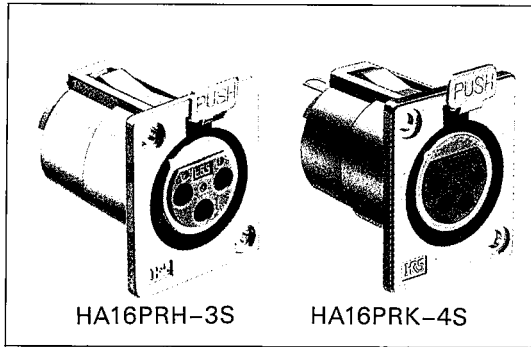


(The above shapes are examples. The left bend type is shown in this figure.)

| HRS No.    | Part No.   | No. of pin | A    | Weight | Remarks             |
|------------|------------|------------|------|--------|---------------------|
| 104-0414-7 | HA16RM-3PA | 3          | 25.8 | 14gr   | Dip post right turn |
| 104-0416-2 | HA16RM-3PB | 3          | 23.2 | 14gr   | Dip post down turn  |
| 104-0418-8 | HA16RM-3PD | 3          | 25.8 | 14gr   | Dip post left turn  |

# Plug-Receptacle (Solder Type)

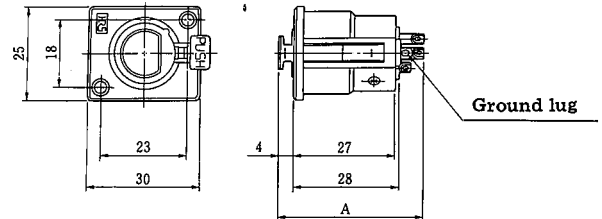
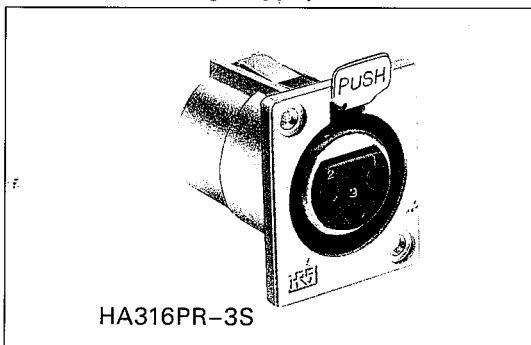
## (Small Flange Type)



(An example in shape)

| HRS No.    | Part No.   | No. of pin | Weight | Remarks            |
|------------|------------|------------|--------|--------------------|
| 104-0395-4 | HA16PRH-3S | 3          | 26gr   | Without ground lug |
| 104-0403-0 | HA16PRH-4S | 4          | 26gr   | Without ground lug |
| 104-0404-3 | HA16PRH-5S | 5          | 26gr   | Without ground lug |
| 104-0411-9 | HA16PRK-3S | 3          | 26gr   | With ground lug    |
| 104-0427-9 | HA16PRK-4S | 4          | 26gr   | With ground lug    |

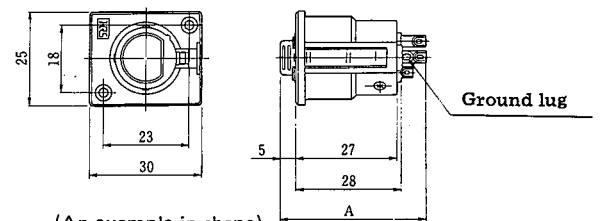
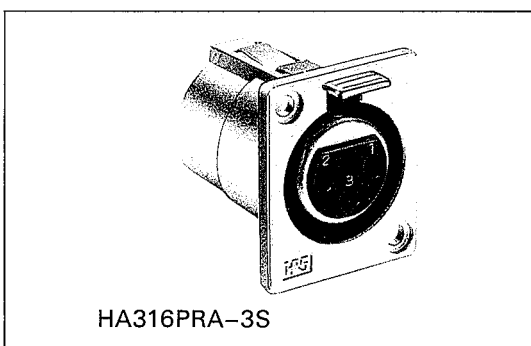
## (Small Flange Type, Rubber Insert)



(An example in shape)

| HRS No.       | Part No.       | No. of pins | A    | Weight | Remarks            |
|---------------|----------------|-------------|------|--------|--------------------|
| 104-1105-8    | HA316PR-3S     | 3           | 37.5 | 28gr   |                    |
| 104-1105-8-10 | HA316PR-3S(10) | 3           | 37.5 | 28gr   | Gold-plated, Black |
| 104-1106-0    | HA316PR-4S     | 4           | 37.4 | 28gr   |                    |
| 104-1107-3    | HA316PR-5S     | 5           | 37.4 | 28gr   |                    |
| 104-1108-6    | HA316PR-7S     | 7           | 36.3 | 28gr   |                    |

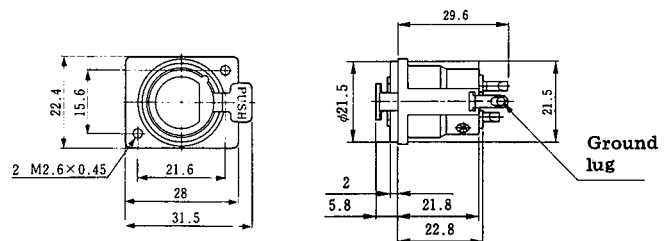
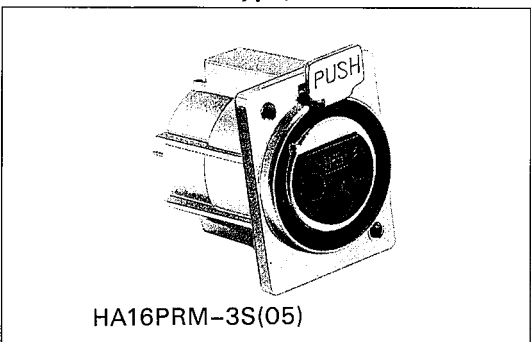
## (Small Flange Type, Rubber Insert)



(An example in shape)

| HRS No.    | Part No.    | No. of pins | A    | Weight | Remarks |
|------------|-------------|-------------|------|--------|---------|
| 104-1110-8 | HA316PRA-4S | 4           | 38.4 | 28gr   |         |
| 104-1111-0 | HA316PRA-5S | 5           | 38.4 | 28gr   |         |
| 104-1112-3 | HA316PRA-7S | 7           | 37.3 | 28gr   |         |

## (Inside Mount Type)

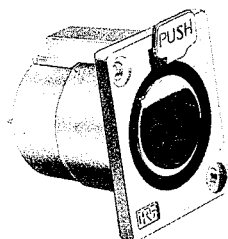


(An example in shape)

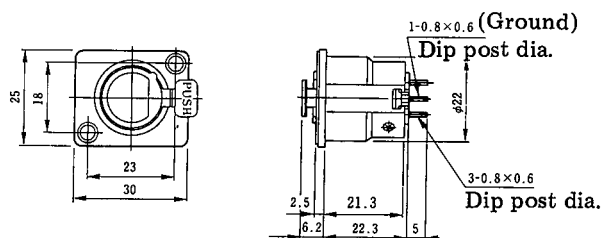
| HRS No.       | Part No.       | No. of pin | Weight | Remarks |
|---------------|----------------|------------|--------|---------|
| 104-0432-9-05 | HA16PRM-3S(05) | 3          | 18gr   |         |

# Plug-Receptacle (PCB Dip Type)

## (Small Flange Type, Straight Dip)



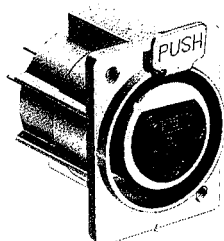
HA16PRQ-3SE(05)



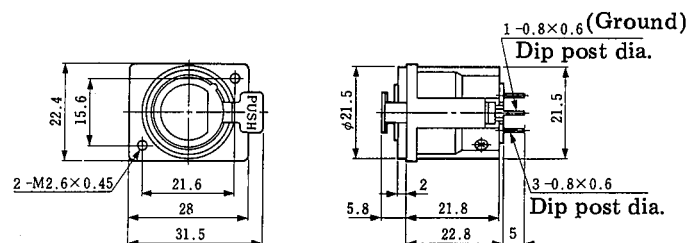
(An example in shape)

| HRS No.       | Part No.        | No. of pin | Weight | Remarks |
|---------------|-----------------|------------|--------|---------|
| 104-0436-0-05 | HA16PRQ-3SE(05) | 3          | 26gr   |         |

## (Inside Mount Type, Straight Dip)



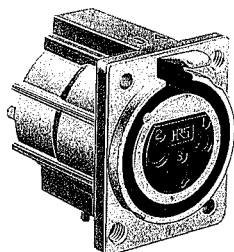
HA16PRM-3SE(05)



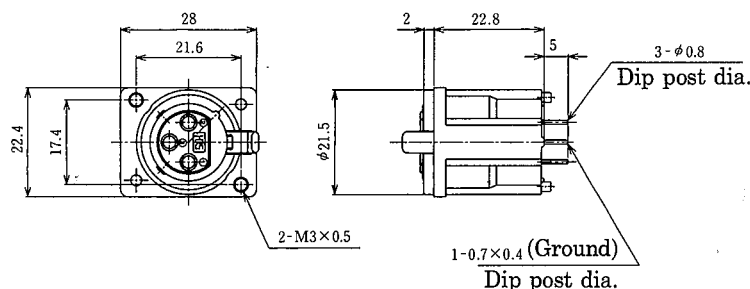
(An example in shape)

| HRS No.       | Part No.        | No. of pin | Weight | Remarks |
|---------------|-----------------|------------|--------|---------|
| 104-0421-2-05 | HA16PRM-3SE(05) | 3          | 18gr   |         |

## (Inside Mount Type, Straight Dip)

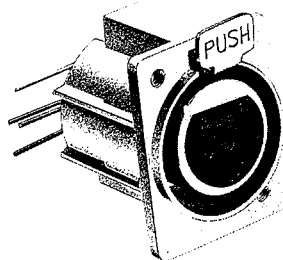


HA16PRY-3SE

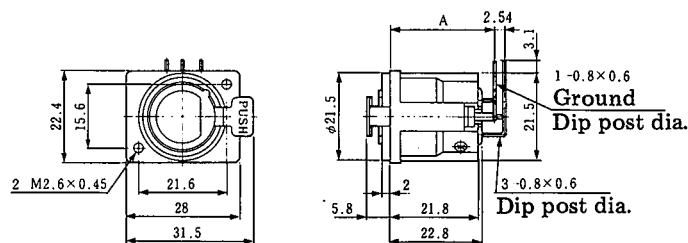


| HRS No.    | Part No.    | No. of pin | Weight | Remarks |
|------------|-------------|------------|--------|---------|
| 104-0465-8 | HA16PRY-3SE | 3          | 32gr   |         |

## (Inside Mount Type, Right Angle Dip)



HA16PRM-3SD(05)

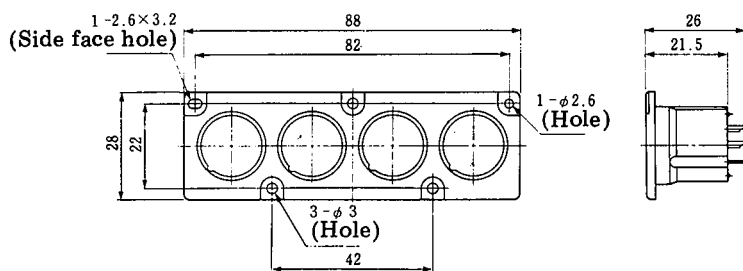
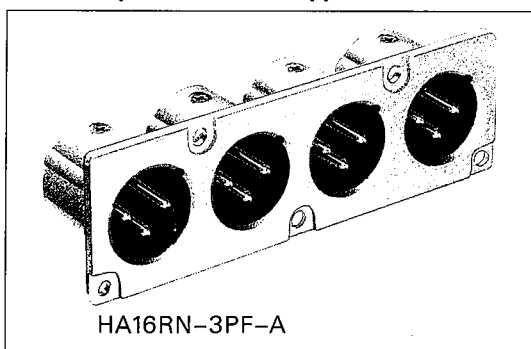


(An example in shape)

| HRS No.       | Part No.        | No. of pin | Weight | A    | Remarks             |
|---------------|-----------------|------------|--------|------|---------------------|
| 104-0415-0-05 | HA16PRM-3SA(05) | 3          | 18gr   | 25.8 | Dip post right turn |
| 104-0417-5-05 | HA16PRM-3SB(05) | 3          | 18gr   | 23.2 | Dip post down turn  |
| 104-0419-0-05 | HA16PRM-3SD(05) | 3          | 18gr   | 25.8 | Dip post left turn  |

# Gang Type

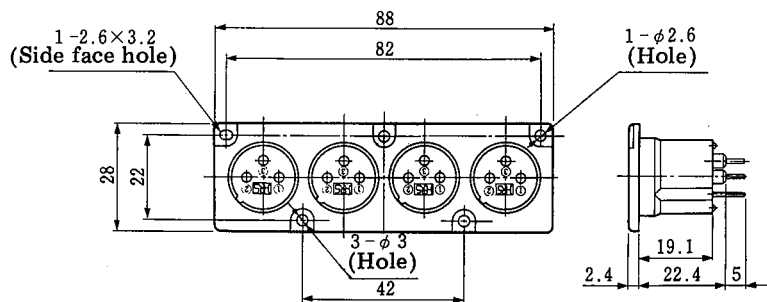
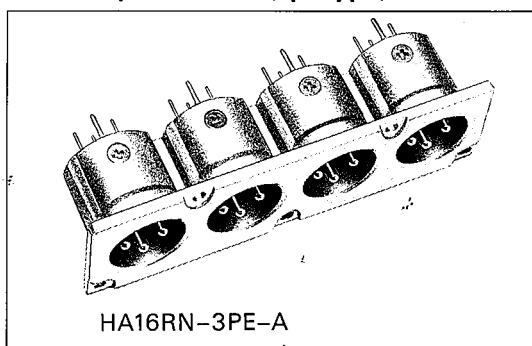
## (Receptacle Solder Type)



(An example in shape)

| HRS No.    | Part No.     | No. of pin | Weight | Remarks      |
|------------|--------------|------------|--------|--------------|
| 104-0422-5 | HA16RN-3PF-A | 3          | 48gr   | 4 chain type |

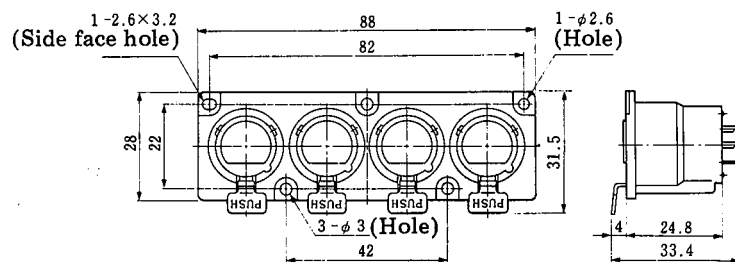
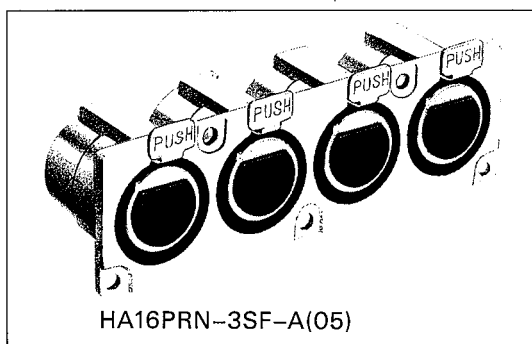
## (Receptacle PCB Dip Type)



(An example in shape)

| HRS No.    | Part No.     | No. of pin | Weight | Remarks      |
|------------|--------------|------------|--------|--------------|
| 104-0442-2 | HA16RN-3PE-A | 3          | 50gr   | 4 chain type |

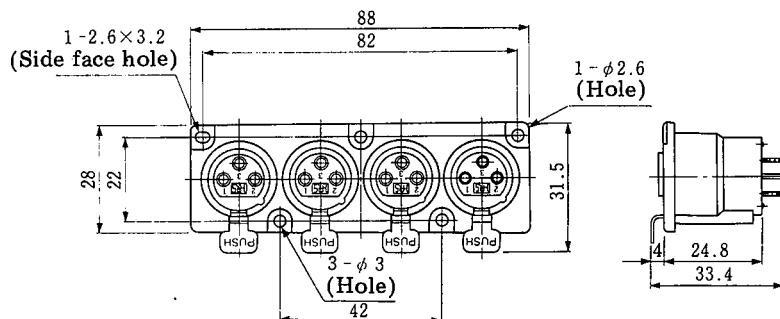
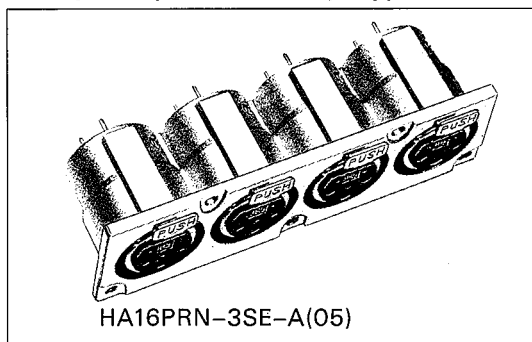
## (Plug-Receptacle Solder Type)



(An example in shape)

| HRS No.       | Part No.          | No. of pin | Weight | Remarks      |
|---------------|-------------------|------------|--------|--------------|
| 104-0423-8-05 | HA16PRN-3SF-A(05) | 3          | 80gr   | 4 chain type |

## (Plug-Receptacle PCB Dip Type)

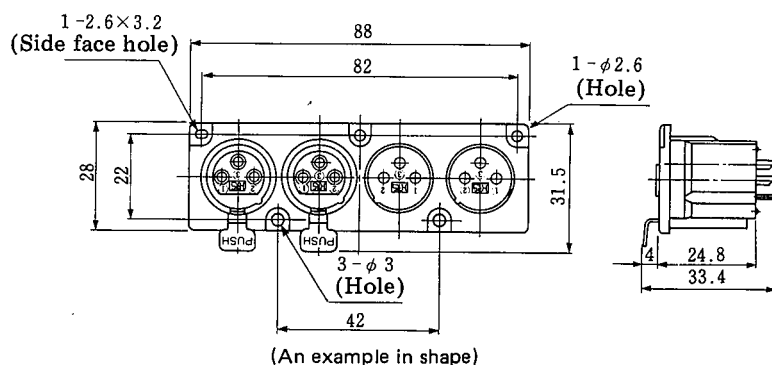
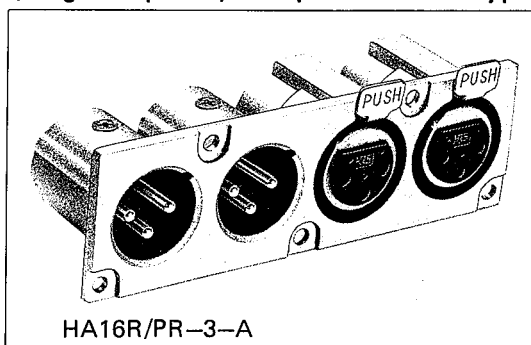


(An example in shape)

| HRS No.       | Part No.          | No. of pin | Weight | Remarks      |
|---------------|-------------------|------------|--------|--------------|
| 104-0441-0-05 | HA16PRN-3SE-A(05) | 3          | 68gr   | 4 chain type |

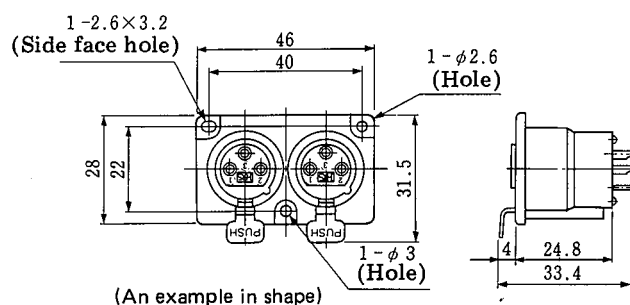
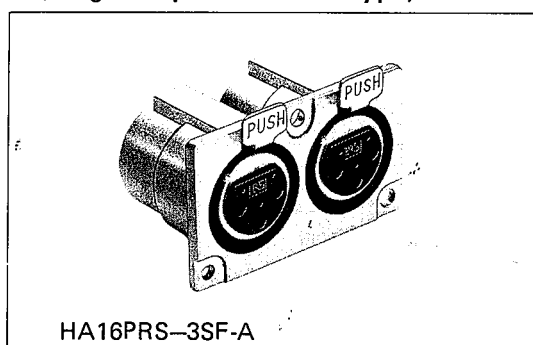
## Gang Type

### (Plug-Receptacle, Receptacle Solder Type)



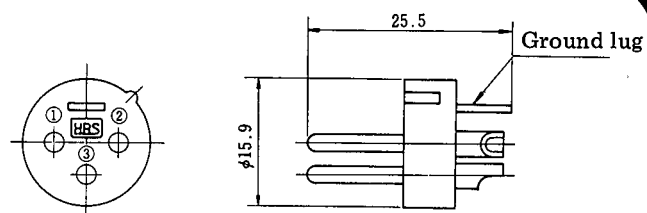
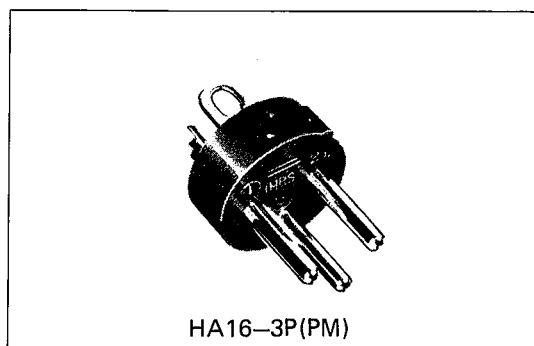
| HRS No.    | Part No.     | No. of pin | Weight | Remarks      |
|------------|--------------|------------|--------|--------------|
| 104-0446-3 | HA16R/PR-3-A | 3          | 66gr   | 4 chain type |

### (Plug-Receptacle Solder Type)



| HRS No.    | Part No.      | No. of pin | Weight | Remarks      |
|------------|---------------|------------|--------|--------------|
| 104-0452-6 | HA16PRS-3SF-A | 3          | 38gr   | 2 chain type |

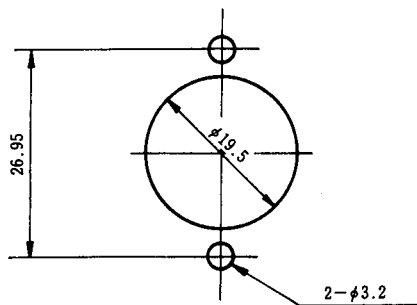
## Pin Mold



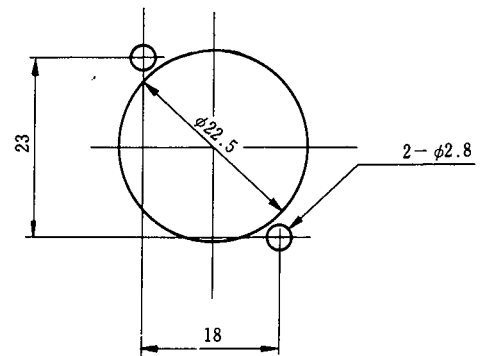
| HRS No.    | Part No.    | No. of pin | Weight | Remarks                              |
|------------|-------------|------------|--------|--------------------------------------|
| 104-0355-0 | HA16-3P(PM) | 3          | 5gr    | With ground lug<br>M2.6 x 0.45 screw |

# Panel Cutout

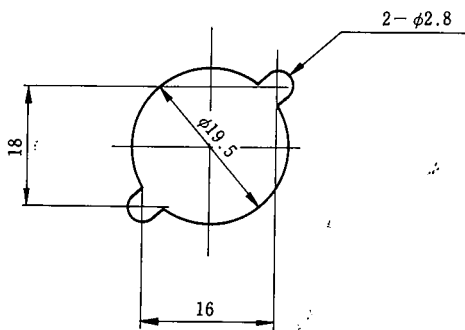
- Receptacle (Large Flange Type)



(Middle Flange Type)

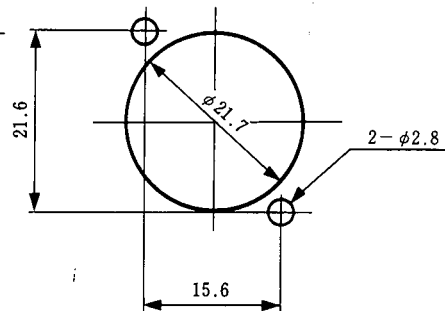


(Small Flange Type)

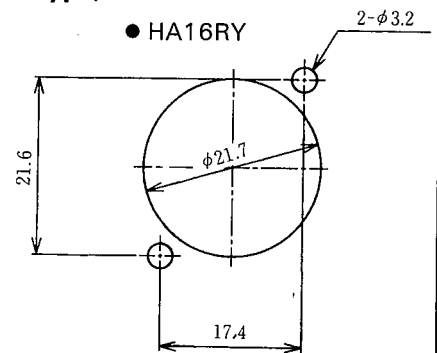


(Inside Mount Type)

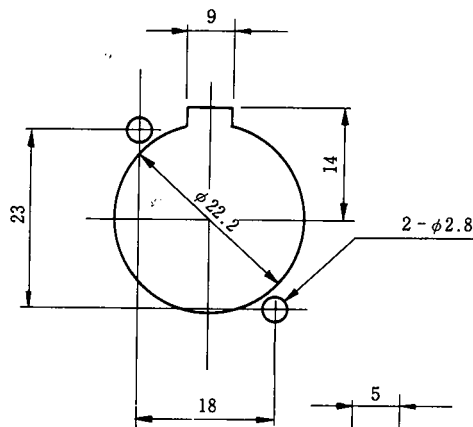
- HA16RM



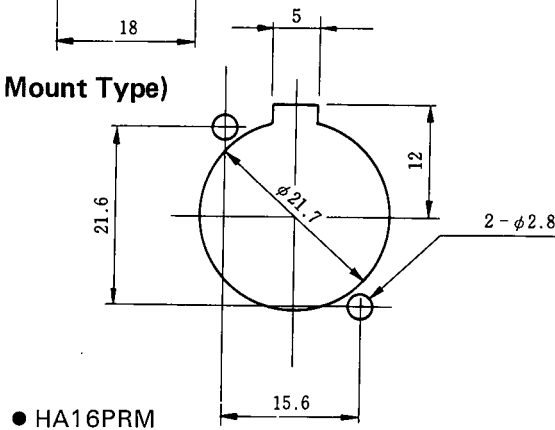
- HA16RY



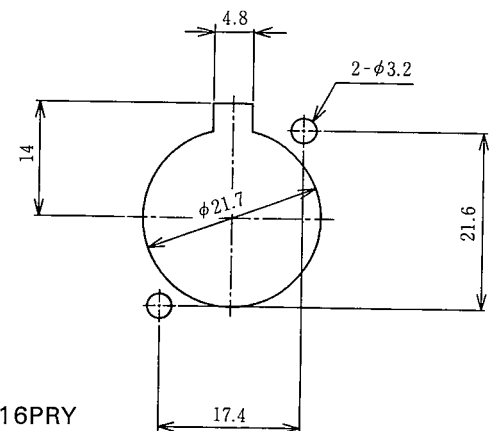
- Plug Receptacle (Small Flange Type)



(Inside Mount Type)



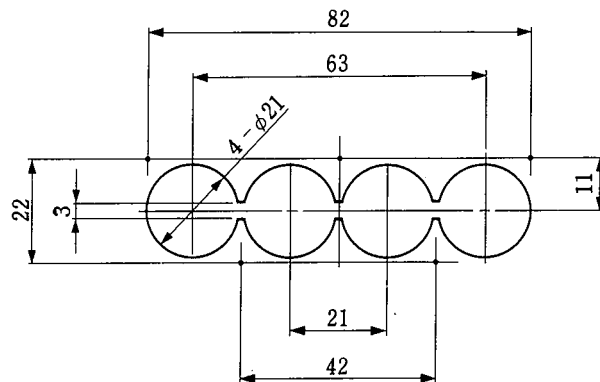
- HA16PRM



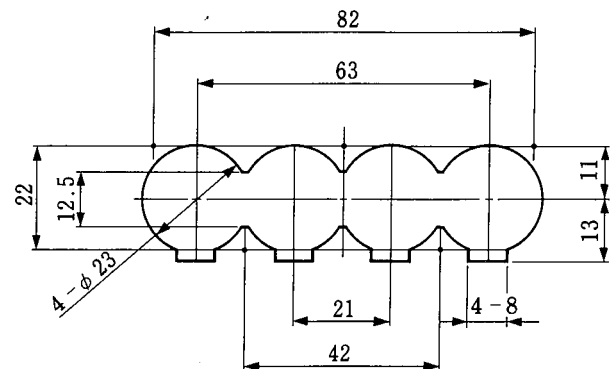
- HA16PRY

## Panel Cutout

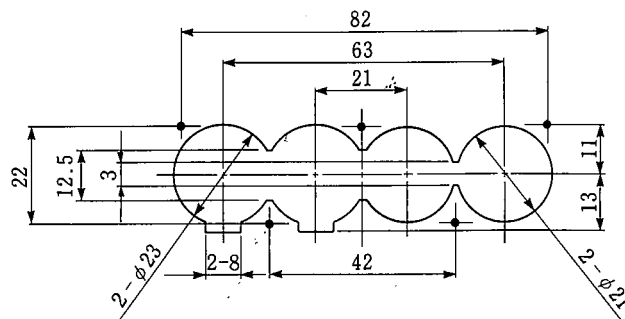
- **Gang Type (Receptacle)**



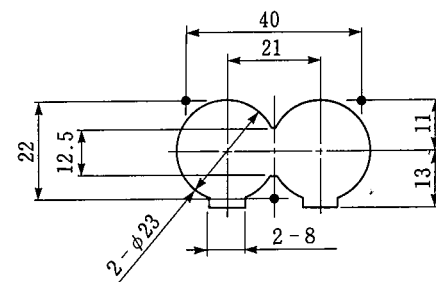
**(Plug-Receptacle)**



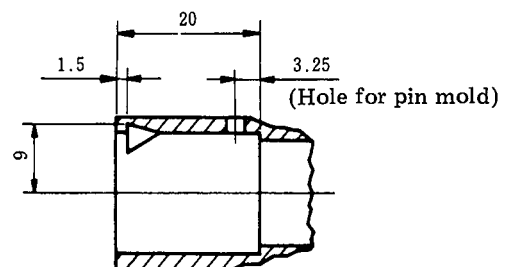
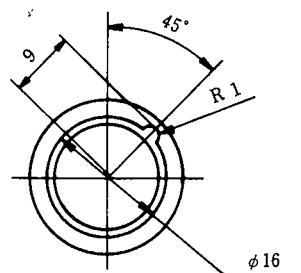
**(Plug-Receptacle, Receptacle)**



**(Plug-Receptacle)**



- **Pin Mold**

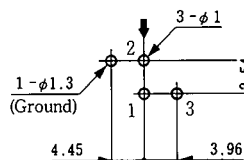


## Dip Post Layout

The figure below shows the board surface in which connector terminal dip posts are to be inserted.

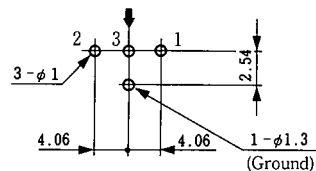
### ● Dip post right turn type

- HA16RM-3PA



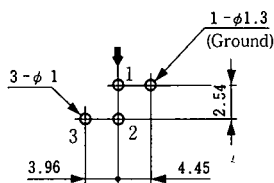
### ● Dip post down turn type

- HA16RM-3PB



### ● Dip post left turn type

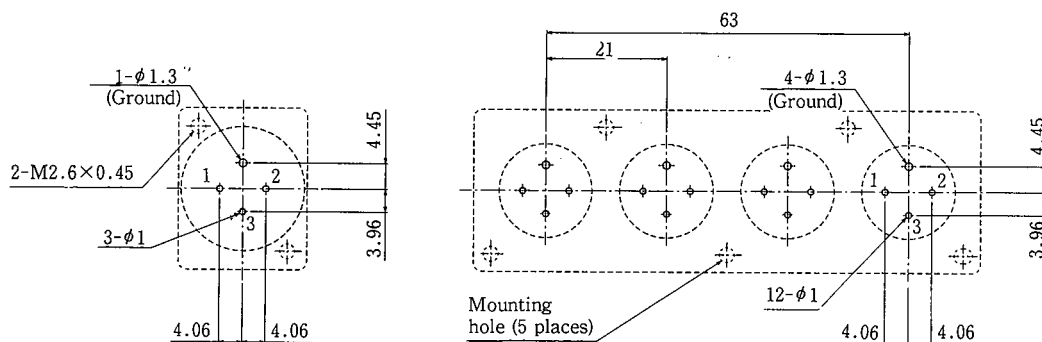
- HA16RM-3PD



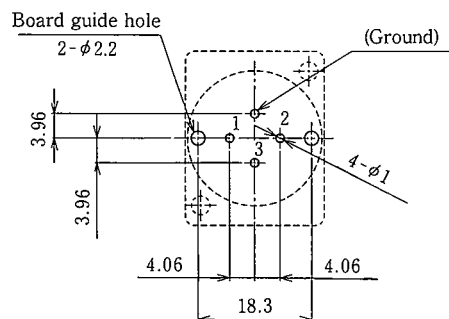
### ● Dip post straight type (As viewed from the mating surface)

- HA16RM-3PE

- HA16RN-3PE-A



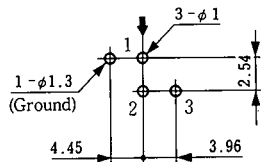
- HA16RY-3PE



## Dip Post Layout

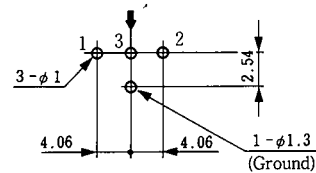
● **Dip post right turn type**

- HA16PRM-3SA(05)



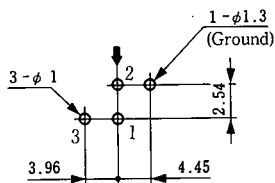
- Dip post down turn type

- HA16PRM-3SB(05)



● **Dip post left turn type**

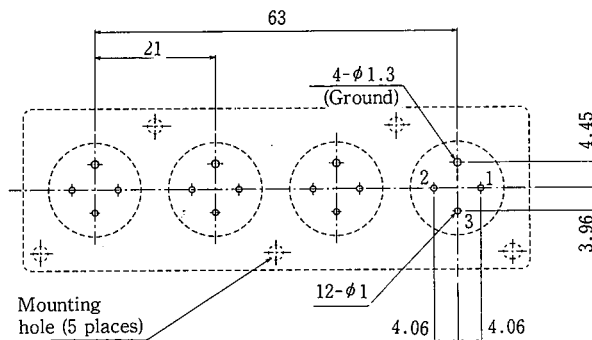
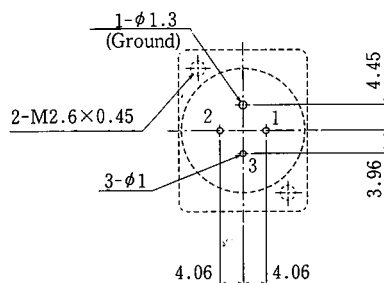
- HA16PRM-3SD(05)



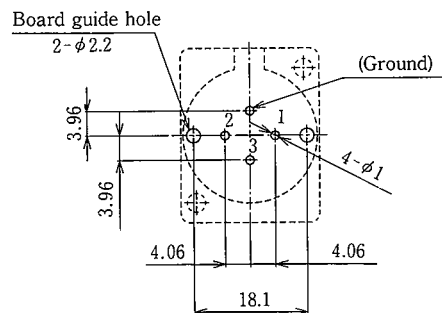
● **Dip post straight type** (As viewed from the mating surface)

- HA16PRM-3SE(05)

- HA16PRN-3SE-A



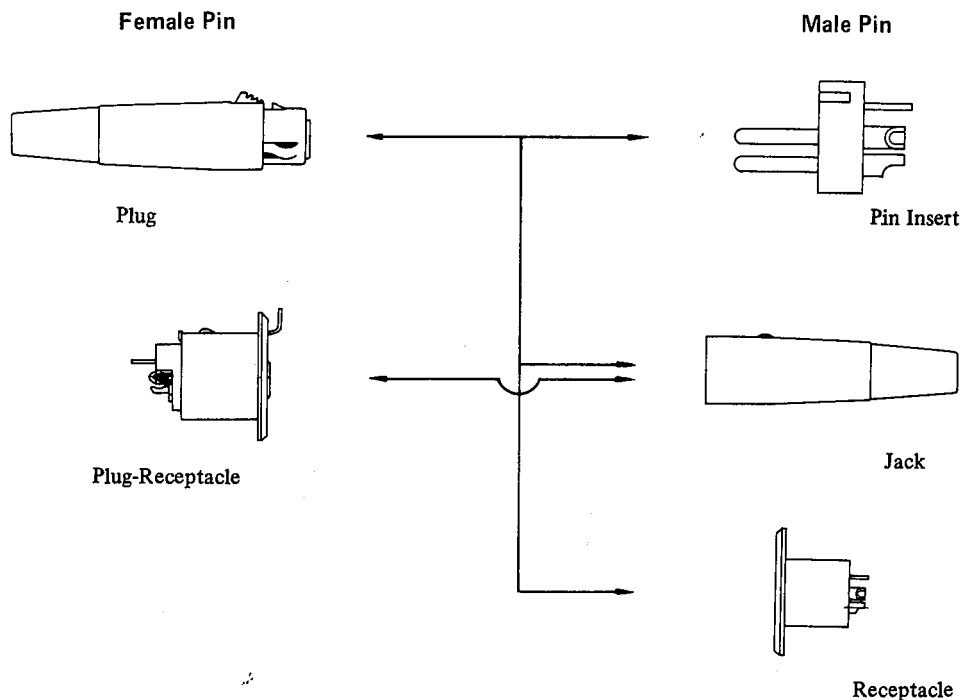
- HA16PRY-3SE



Note 1: The arrow sign ↓ shows the mating direction of the applicable connector. Note that it is different from the direction of the mating guide key on a circuit board.

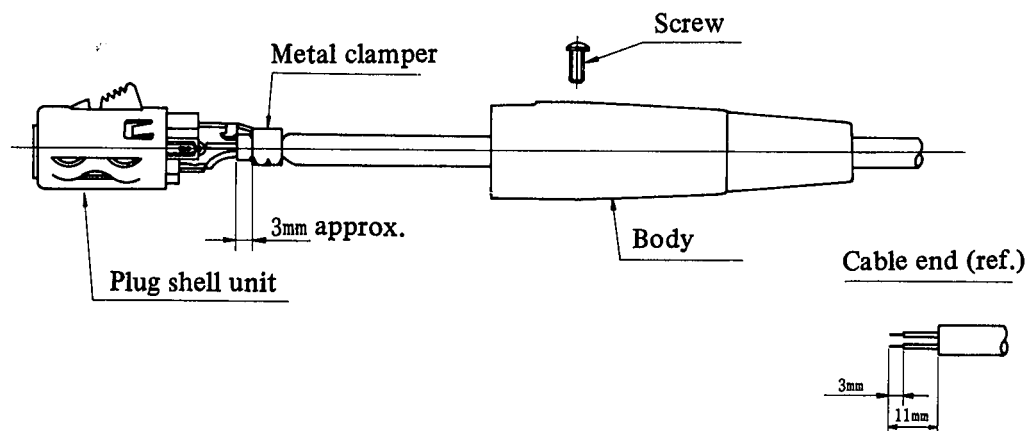
Note 2: Recommended tolerance for the dip post layout is  $\pm 0.05$ .

## Coupling Combination



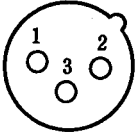
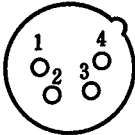
## Assembling Procedure (HA16 Type Plug)

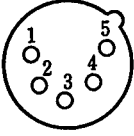
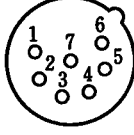
- Please follow same procedure in case of Jack.



1. Please choose a cable of which the outside diameter is 4-6mm.
  2. Strip insulation of the cable end in the size as shown above.
  3. Solder the cable to plug shell.
  4. Crimp cable clammer, which holds cable, with a tool.
  5. Fit the P shell unit to the cord tube, and tighten the locking screw with a Torque of 0.3-0.4N-m (3.5-4kg-cm) to complete the work.
- For details, contact our sales or engineering department before using the model HA16 plugs.

## Terminal arrangement and main performance

|                       |                                                                                   |                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Terminal arrangement  |  |  |
| No. of pins           | 3                                                                                 | 4                                                                                   |
| Withstanding voltage  | AC1400V a minute                                                                  |                                                                                     |
| Current rating        | 15A                                                                               | 3A (Board dip type)<br>10A                                                          |
| Insulation resistance | 1000MΩ MIN.                                                                       |                                                                                     |
| Contact resistance    | 5mΩ MAX.                                                                          | 10mΩ MAX.<br>5mΩ MAX.                                                               |

|                       |                                                                                    |                                                                                     |
|-----------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Terminal arrangement  |  |  |
| No. of pins           | 5                                                                                  | 7                                                                                   |
| Withstanding voltage  | AC1400 a minute                                                                    | AC1400V a minute                                                                    |
| Current rating        | 4A (7.5A)                                                                          | 5A                                                                                  |
| Insulation resistance | 1000MΩ MIN.                                                                        | 1000MΩ MIN.                                                                         |
| Contact resistance    | 10mΩ MAX.                                                                          | 10mΩ MAX.                                                                           |

- Note
1. The above figures show the receptacle pin inserts as viewed from the mating side.
  2. The withstand voltages show test voltages.
  3. The insulation resistances show the values at 500VDC.
  4. The contact resistance show the values at 1ADC.
  5. The current rating of 7.5A is for HA316 only.