

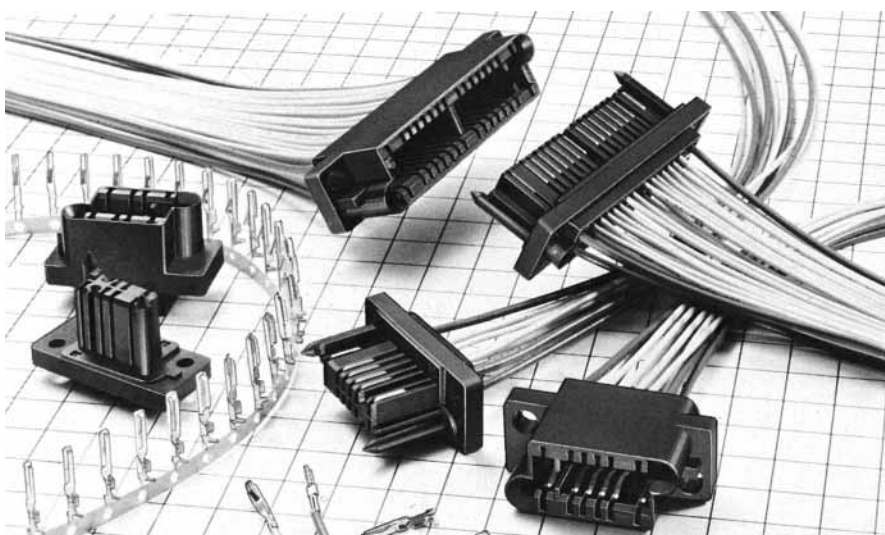
# QR/P4 SERIES

## Small Rectangular Multi-electrode Solderless Connectors for Racks and Panels

### General

QR/P4 Series is a series of small connectors for rack and panel application. This is a smaller-size version of the QR/P and QR/P1 Series, whose rectangular multi-electrode plug in connectors for racks and panels have been well received in the market.

Six models with different numbers of contacts are available: 8, 12, 16, 24, 32 and 40. Wires are connected to the connectors without solder for easier connection and higher reliability.



### Features

- (1) The pins can be smoothly inserted into the receptacle, and give stable contact pressure because of their point contact with the receptacle blades. Furthermore, they have a larger allowance for the variation of connection length - a characteristic of plug-in connections.
- (2) The connector size has been made smaller by separating the terminals for signals from those for voltage supply.
- (3) The pitch of the signal terminals inside the housing is 2.54mm. Two pairs of diametrically opposed electrodes (four electrodes in total) on the two sides are arranged with a pitch of 5.08mm so that they can withstand high voltage, and can be used for power supply. In addition, a nonflammable material (UL94V-0) is used as the insulating housing of the connectors.
- (4) Guide pins and the housing body are molded as one piece to achieve a smaller connector size.
- (5) Since the connectors are mounted on racks or panels with stepped screws, connection and disconnection can be done easily.
- (6) The contact for female terminals in the housing is deeper than the fitting surface of the housing which conforms to the finger test (UL Standard 1950).
- (7) The connectors of this series have passed UL, CSA and TÜV standard.

### Application

PPC, Transmission and reception equipment, Data Communication, Vending Machine, Measuring Instruments, Automatic Equipment, Switchboards, etc.

## Specification

| Item                                | Specifications        |                   |
|-------------------------------------|-----------------------|-------------------|
| Contact Resistance                  | Power                 | Max. 15mΩ at DC1A |
|                                     | Signal                | Max. 15mΩ at DC1A |
| Insulation Resistance               | Min. 5000MΩ at DC500V |                   |
| Withstand Voltage<br>(for 1 minute) | Power                 | AC 2000V          |
|                                     | Signal                | AC 500V           |
| Rated Current                       | Power                 | 3A                |
|                                     | Signal                | 1A                |
| Rated Voltage                       | Power                 | AC 300V           |
|                                     | Signal                | AC 250V           |

| Item      | Material            | Finish                                |
|-----------|---------------------|---------------------------------------|
| Insulator | PBT resin *:UL94V-0 | Black                                 |
| Contact   | Phosphor Bronze     | Selective Gold plating<br>over Nickel |

| Ratings authorized by QR/P4 safety standards |              |              |                |
|----------------------------------------------|--------------|--------------|----------------|
| Safety standard                              |              | UL, CSA, TÜV |                |
| Operating temperature                        |              | − 10 ~ + 60℃ |                |
| Rated Voltage                                | Power supply | AC 30V       | AC380V, DC450V |
|                                              | Signal unit  | AC 250V      | AC120V, DC150V |
| Rated current                                | AWG#20       | 3A           | 2.5A           |
|                                              | AWG#22       |              | 1A             |
|                                              | AWG#24       | 2A           |                |
|                                              | AWG#26       | 1A           |                |
|                                              | AWG#28       |              |                |

## Ordering Information

### ▲ Connector Unit

QR / P4 — 12 P — C — (01)  
 (1) (2)(3) (4) (10)

### ▲ Contact

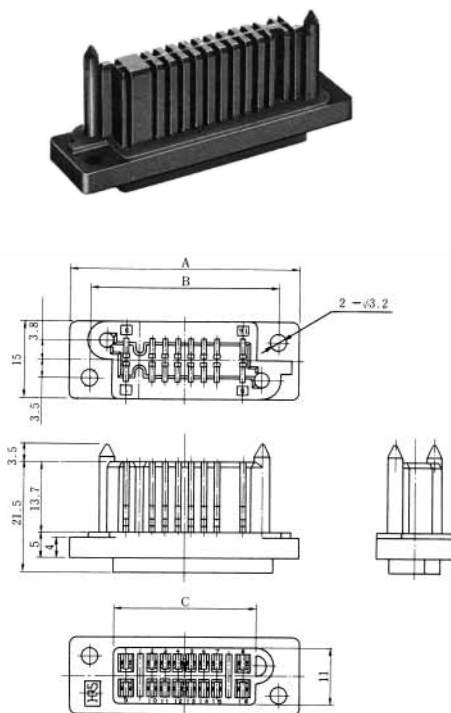
QR / P1 — PC 2 A — 1 1 1  
 (1) (5) (6) (7)(8)(9)

- (1) Series name
- (2) No.of contacts (8, 12, 16, 24, 32, 40)
- (3) Type of Housing  
P: Plug Housing  
S: Socket Housing
- (4) Type of termination  
C: Crimping
- (5) Type of Contact  
PC: Pin Contact  
SC: Socket Contact

- (6) Size of Barrel  
2A: Thin Wire (UL1007 Type)  
2B: Thin Wire (UL1007 Type) . . . For 4 contact holes at both ends
- (7) Contact Type  
1: Loose Contact  
2: Chain Contact
- (8) Applicable wire  
1: Thin Wire AWG #24 - #28  
2: Thick Wire AWG #20 - #24
- (9) Finish  
1: Selective Gold plated over Nickel
- (10) UL, CSA, TÜV  
Approved Spec

## Housing

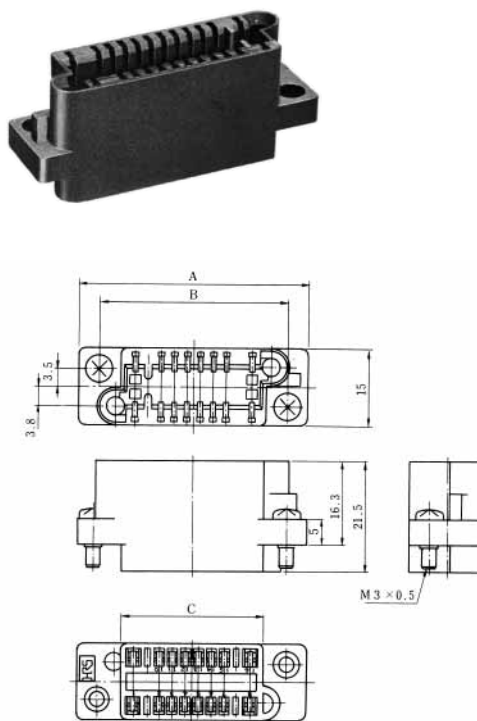
Male Housing



Unit: mm

| HRS No.         | No. of Pin | Part No.         | A     | B     | C     | RoHS |
|-----------------|------------|------------------|-------|-------|-------|------|
| CL221-0159-5-01 | 8          | QR/P4-8P-C (01)  | 34.68 | 26.68 | 17.68 | ○    |
| CL221-0139-8-01 | 12         | QR/P4-12P-C (01) | 39.8  | 31.8  | 22.8  |      |
| CL221-0155-4-01 | 16         | QR/P4-16P-C (01) | 44.84 | 36.84 | 27.84 |      |
| CL221-0141-0-01 | 24         | QR/P4-24P-C (01) | 55    | 47    | 38    |      |
| CL221-0153-9-01 | 32         | QR/P4-32P-C (01) | 67.7  | 59.7  | 50.7  |      |
| CL221-0211-3-01 | 40         | QR/P4-40P-C (01) | 77.86 | 69.86 | 60.86 |      |

Female Housing



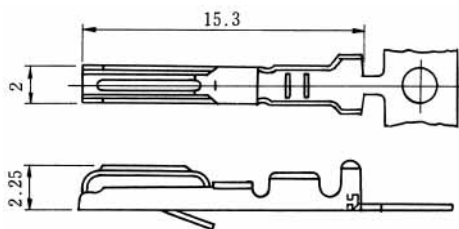
Unit: mm

| HRS No.         | No. of Pin | Part No.         | A     | B     | C     | RoHS |
|-----------------|------------|------------------|-------|-------|-------|------|
| CL221-0160-4-01 | 8          | QR/P4-8S-C (01)  | 34.68 | 26.68 | 17.68 | ○    |
| CL221-0140-7-01 | 12         | QR/P4-12S-C (01) | 39.8  | 31.8  | 22.8  |      |
| CL221-0156-7-01 | 16         | QR/P4-16S-C (01) | 44.84 | 36.84 | 27.84 |      |
| CL221-0142-2-01 | 24         | QR/P4-24S-C (01) | 55    | 47    | 38    |      |
| CL221-0154-1-01 | 32         | QR/P4-32S-C (01) | 67.7  | 59.7  | 50.7  |      |
| CL221-0212-6-01 | 40         | QR/P4-40S-C (01) | 77.86 | 69.86 | 60.86 |      |

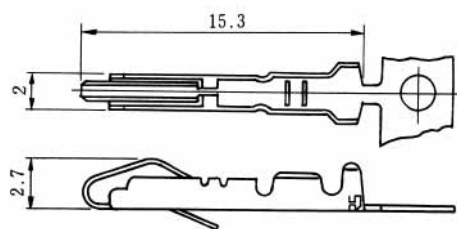
Note: Determine the combinations with the panel so that the mating clearance between the P side and S side is 1.5mm or less.

## Contact

Power Male Contact



Power Female Contact



Selective gold plated with nickel under plating

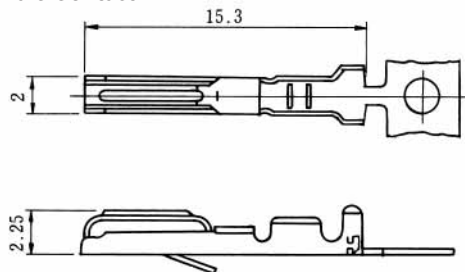
| Applicable Wire | HRS No.         | Part No.            | Type          | Packing  | RoHS |
|-----------------|-----------------|---------------------|---------------|----------|------|
| AWG#20~24       | CL221-0115-0-12 | QR/P1-PC2B-121 (12) | Loose contact | 100pin   | ○    |
|                 | CL221-0119-0-12 | QR/P1-PC2B-221 (12) | Chain contact | 5,000pin |      |

Selective gold plated with nickel under plating

| Applicable Wire | HRS No.         | Part No.            | Type          | Packing  | RoHS |
|-----------------|-----------------|---------------------|---------------|----------|------|
| AWG#20~24       | CL221-0117-2-12 | QR/P1-SC2B-121 (12) | Loose contact | 100pin   | ○    |
|                 | CL221-0121-2-12 | QR/P1-SC2B-221 (12) | Chain contact | 5,000pin |      |

## Contact

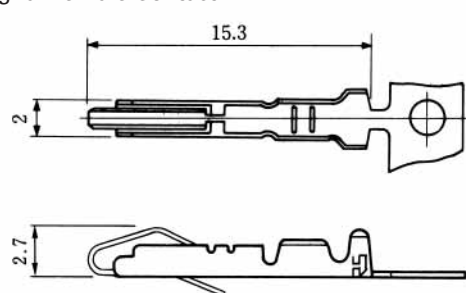
Signal Male Contact



Partly gold plated over nickel plating

| Applicable Wire | HRS No.         | Part No.            | Type          | Packing  | RoHS |
|-----------------|-----------------|---------------------|---------------|----------|------|
| AWG#20~24       | CL221-0103-0-12 | QR/P1-PC2A-111 (12) | Loose contact | 100pin   | ○    |
|                 | CL221-0107-1-12 | QR/P1-PC2A-211 (12) | Chain contact | 5,000pin |      |

Signal Female Contact

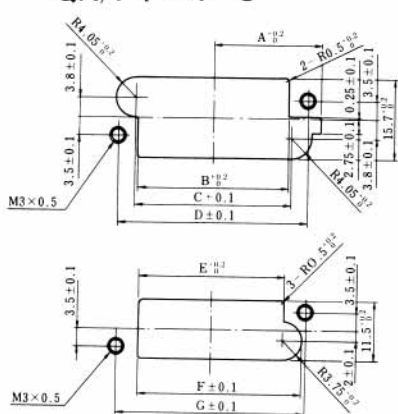


Partly gold plated over nickel plating

| Applicable Wire | HRS No.         | Part No.            | Type          | Packing  | RoHS |
|-----------------|-----------------|---------------------|---------------|----------|------|
| AWG#24~28       | CL221-0105-6-12 | QR/P1-SC2A-111 (12) | Loose contact | 100pin   | ○    |
|                 | CL221-0109-7-12 | QR/P1-SC2A-211 (12) | Chain contact | 5,000pin |      |

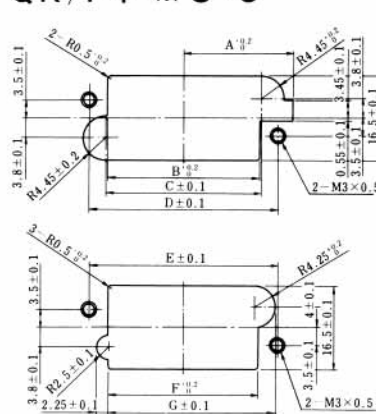
## Panel Cutout

QR/P4-※P-C



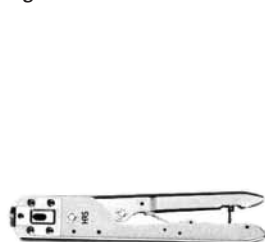
| No. of pin     | 8pin    | 12pin | 16pin | 24pin | 32pin | 40pin |
|----------------|---------|-------|-------|-------|-------|-------|
| Rear Mounting  | A 15.87 | 18.45 | 20.97 | 26.05 | 32.4  | 37.48 |
|                | B 19.18 | 24.3  | 29.34 | 39.5  | 52.2  | 62.36 |
|                | C 20.18 | 25.3  | 30.34 | 40.5  | 53.2  | 63.36 |
|                | D 26.68 | 31.8  | 36.84 | 47    | 59.7  | 69.86 |
| Front Mounting | E 18.18 | 23.3  | 28.34 | 38.5  | 51.2  | 61.36 |
|                | F 21.68 | 26.8  | 31.84 | 42    | 54.7  | 64.86 |
|                | G 26.68 | 31.8  | 36.84 | 47    | 59.7  | 69.86 |

QR/P4-※S-C



| No. of pin     | 8pin    | 12pin | 16pin | 24pin | 32pin | 40pin |
|----------------|---------|-------|-------|-------|-------|-------|
| Rear Mounting  | A 16.87 | 18.95 | 21.49 | 26.57 | 32.9  | 37.98 |
|                | B 19.68 | 24.8  | 29.84 | 40    | 52.7  | 62.86 |
|                | C 20.18 | 25.3  | 30.34 | 40.5  | 53.2  | 63.36 |
|                | D 26.68 | 31.8  | 36.84 | 47    | 59.7  | 69.86 |
| Front Mounting | E 26.68 | 31.8  | 36.84 | 47    | 59.7  | 69.86 |
|                | F 19.18 | 24.3  | 29.34 | 39.5  | 52.2  | 62.36 |
|                | G 22.68 | 27.8  | 32.84 | 43    | 55.7  | 65.68 |

## Tooling



Hand Crimp Tool



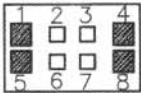
Auto Crimp Machine  
CM-105  
CL901-0005-4

| Kind                          | HRS No.      | Part No.         | Applicator Contact |
|-------------------------------|--------------|------------------|--------------------|
| Hand Crimp Tool               | CL250-0021-3 | TC-QR/P1-PC2B    | QR/P1-PC2B-121     |
|                               | CL250-0016-3 | TC-QR/P1-PC2A    | QR/P1-PC2A-111     |
|                               | CL250-0023-9 | TC-QR/P1-SC2B    | QR/P1-SC2B-121     |
|                               | CL250-0018-9 | TC-QR/P1-SC2A    | QR/P1-SC2A-111     |
| Auto Crimp Machine Applicator | CL901-2530-5 | AP105-QR/P1-2B-2 | QR/P1-PC2B-221     |
|                               |              |                  | QR/P1-SC2B-221     |
|                               | CL901-2528-3 | AP105-QR/P1-2A-1 | QR/P1-PC2A-211     |
|                               |              |                  | QR/P1-SC2A-211     |
| Extraction Tool               | CL250-0029-5 | TC-QR/P4-21      | QR/P1-SC2, PC2     |

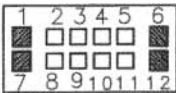
## Contacts for thick wire Contact Configuration

Male Housing (Viewed from Wiring Side)

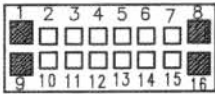
■: indicates a contact hole for thick wire



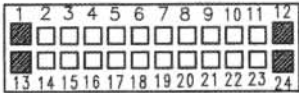
QR/P4-8P-C (01)



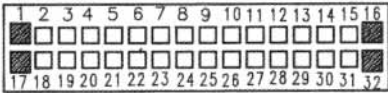
QR/P4-12P-C (01)



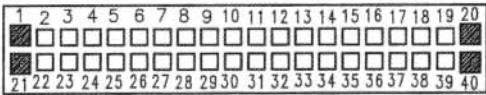
QR/P4-16P-C (01)



QR/P4-24P-C (01)



QR/P4-32P-C (01)



QR/P4-40P-C (01)