

QR/P1 SERIES CONNECTOR

Small Rectangular Multi-electrode Solderless Connectors for Racks and Panels

General

QR/P series connectors are small and compact high density versions of original OR/P series. Available in 8,

12, 16, 24 and 32 way. Crimps terminals assure positive and reliable termination with minimum labor.



Features

1. The coupling mechanism assures stable and reliable contact pressure through point and blade contact, in addition to smooth coupling that is sufficiently capable of dealing with variations in the coupling length specific to the plug-in connection.
2. Compact contacts due to separate power contacts from signal contacts.
3. One opposed pair (in 12 contacts), 2 pairs (in 8, 16, and 24 contacts), and 3 pairs (in 32 contacts) can be used as power supply contacts. They are spaced further apart than the others so as to have enough creeping distance to withstand a high voltage. Fire-retardant insulation materials (UL94-0) are used.
4. The Guide Pin is made of steel nickel plated to be strong enough against accidental coupling shock.
5. The mount of a receptacle housing is done through Floating Bushes. Thus, they may help to give more smooth coupling of connectors by self-adjusting function.

Application

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

The product information in this catalog is for reference only. Please request the Engineering Drawing for the most current and accurate design information.

All non-RoHS products have been discontinued, or will be discontinued soon. Please check the products status on the Hirose website RoHS search at www.hirose-connectors.com, or contact your Hirose sales representative.

How To Use Connectors

| General rating of QR/P1 | | |
|--------------------------------|---------------------------|-----------------------|
| Contact resistance | Power unit | 10m Ω or less at DC1A |
| | Signal unit | 10m Ω or less at DC1A |
| Insulation resistance | 5000M Ω higher at DV 500V | |
| Withstand voltage (for 1 min.) | Power terminal | AC 1000V |
| | Signal terminal | AC 500V |
| Rated current | Power unit | 13Amax (AWG #14 use) |
| | Signal unit | 3A |
| Rated voltage | Power terminal | AC 250V |
| | Signal terminal | AC 125V |

| Material | | |
|-----------|----------------------------|---|
| Insulator | Polyethylene terephthalate | Black |
| Terminal | Phosphor bronze | Selective gold plating with nickel underplating |

| Ratings authorized by QR/P1 safety standards | | | | | | | |
|--|--------------|---------------|--------|--------|--------|---------------|------|
| Safety standard | | UL | CSA | TÜV | | | |
| Operating temperature range | | - 10 ~ + 60°C | | | | | |
| Rated voltage | Power supply | AC120V | AC250V | AC125V | AC250V | AC250, DC300V | |
| | Signal unit | | | | | AC125, DC150V | |
| Rated current | AWG#14 | 10A | 3A | 10A | 3A | 10A | |
| | AWG#16 | | | 8A | | | |
| | AWG#18 | 3A | 1A | 3A | 1A | 5A | |
| | AWG#20 | | | | | 2.5A | |
| | AWG#22 | | | | | 1A | |
| | AWG #24 | Power supply | 2A | 1A | 2A | | 1A |
| | | Signal unit | 1A | 0.5A | 1A | | 0.5A |
| AWG#26 | 1A | 0.5A | 1A | 0.5A | — | | |
| AWG#28 | | | | | | | |

Ordering Information



- (1) Series name
- (2) No. of contacts (8, 12, 16, 24, 32)
- (3) Shape of insulator mating part
P: Insulator male case
S: Insulator female case
- (4) Type of termination
C: Crimp terminal
- (5) Male/Female
PC: Male crimp terminal
SC: Female crimp terminal
- (6) Type
1: Power terminal
2: Signal terminal

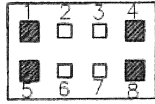
- (7) Crimp barrel size
A: For thin wires
B: For thick wires
- (8) Shape
1: Loose piece terminal
2: Strip terminal
- (9) Applicable wire
1: Power terminal AWG # 18 - # 24
Signal terminal AWG # 24 - # 28
2: Power terminal AWG # 14 - # 16
Signal terminal AWG # 20 - # 24
- (10) Surface terminal
1: Selective gold plating with nickel underplating
- (11) Specifications meeting UL, CSA TÜV requirements

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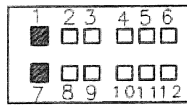
Contacts for thick wire Contact Configuration

Male Housing (Viewed from Wiring Side)

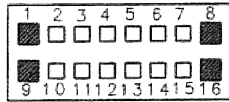
■: indicates a contact hole for thick wire



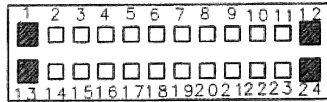
QR/P1-8P-C (51)



QR/P1-12P-C (51)



QR/P1-16P-C (51)



QR/P1-24P-C (51)

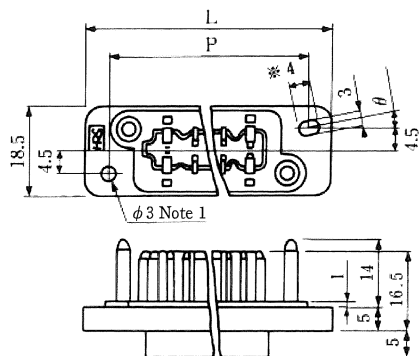
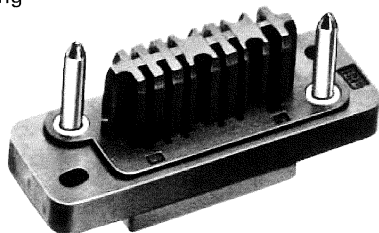


QR/P1-32P-C (51)

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Housing

Plug Housing



Unit: mm

| HRS No. | No. of Pin | Part No. | L | P | θ | RoHS |
|-----------------|------------|------------------|------|------|----------|------|
| CL221-0124-0-51 | 8 | QR/P1- 8P-C (51) | 46.4 | 36.9 | 13.7° | ○ |
| CL221-0100-2-51 | 12 | QR/P1-12P-C (51) | 51 | 42 | 12.1° | |
| CL221-0110-6-51 | 16 | QR/P1-16P-C (51) | 57.6 | 48.1 | 10.6° | |
| CL221-0112-1-51 | 24 | QR/P1-24P-C (51) | 68.8 | 59.3 | 8.6° | |
| CL221-0131-6-51 | 32 | QR/P1-32P-C (51) | 85.5 | 76.0 | 6° | |

Socket Housing



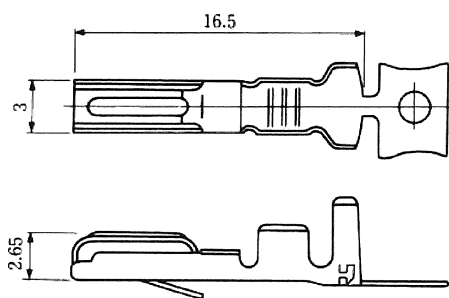
Unit: mm

| HRS No. | No. of Pin | Part No. | L | P | D | RoHS |
|-----------------|------------|------------------|------|------|-----|------|
| CL221-0125-3-51 | 8 | QR/P1- 8S-C (51) | 46.4 | 36.9 | 4.3 | ○ |
| CL221-0101-5-51 | 12 | QR/P1-12S-C (51) | 51 | 42 | 3.3 | |
| CL221-0111-9-51 | 16 | QR/P1-16S-C (51) | 57.6 | 48.1 | 4.3 | |
| CL221-0113-4-51 | 24 | QR/P1-24S-C (51) | 68.8 | 59.3 | 4.3 | |
| CL221-0132-9-51 | 32 | QR/P1-32S-C (51) | 85.5 | 76.0 | 4.3 | |

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

Crimp Contact (Power Circuit)

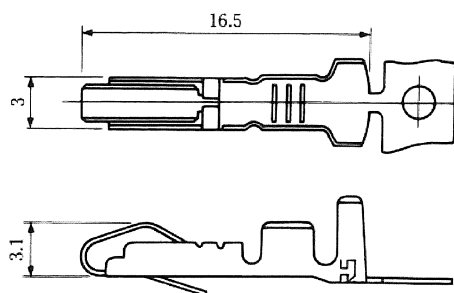
Male Contact



Plating: Partly gold plated over nickel plating

| Applicable Wire | HRS No. | Part No. | Type | Packing | RoHS |
|-----------------|-----------------|---------------------|---------------|----------|------|
| AWG#14~16 | CL221-0114-7-12 | QR/P1-PC1B-121 (12) | Loose contact | 100pin | ○ |
| | CL221-0118-8-12 | QR/P1-PC1B-221 (12) | Chain contact | 3,000pin | |
| AWG#18~24 | CL221-0102-8-12 | QR/P1-PC1A-111 (12) | Loose contact | 100pin | |
| | CL221-0106-9-12 | QR/P1-PC1A-211 (12) | Chain contact | 5,000pin | |

Female Contact



Plating: Partly gold plated over nickel plating

| Applicable Wire | HRS No. | Part No. | Type | Packing | RoHS |
|-----------------|-----------------|---------------------|---------------|----------|------|
| AWG#14~16 | CL221-0116-2-12 | QR/P1-SC1B-121 (12) | Loose contact | 100pin | ○ |
| | CL221-0120-0-12 | QR/P1-SC1B-122 (12) | Chain contact | 3,000pin | |
| AWG#18~24 | CL221-0104-3-12 | QR/P1-SC1A-111 (12) | Loose contact | 100pin | |
| | CL221-0108-4-12 | QR/P1-SC1A-211 (12) | Chain contact | 5,000pin | |

Crimp Contact (Signal Circuit)

Male Contact



Female Contact



Plated: Gold plated over nickel 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 | 3,000pin | |
| AWG#24 ~ 28 | 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 | |

Plated: Gold plated over nickel plating

| Applicable Wire | HRS No. | Part No. | Type | Packing | RoHS |
|-----------------|-----------------|---------------------|---------------|----------|------|
| AWG#20 ~ 24 | CL221-0117-5-12 | QR/P1-SC2B-121 (12) | Loose contact | 100pin | ○ |
| | CL221-0121-2-12 | QR/P1-SC2B-122 (12) | Chain contact | 3,000pin | |
| 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 | |

Recommended Mounting Hole



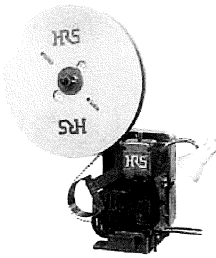
| No. of pin | | 8 Pin | 12 Pin | 16 Pin | 24 Pin | 32 Pin |
|----------------|---|-------|--------|--------|--------|--------|
| Rear Mounting | A | 36.9 | 42 | 48.1 | 59.3 | 76 |
| | B | 29.4 | 34.5 | 40.6 | 51.8 | 68.5 |
| | C | 28.4 | 33.5 | 39.6 | 50.8 | 67.5 |
| | D | 4.3 | 3.3 | 4.3 | 4.3 | 4.3 |
| Front Mounting | E | 22.4 | 27.5 | 33.6 | 44.8 | 61 |
| | F | 36.9 | 42 | 48.1 | 59.3 | 76 |
| | G | 4.3 | 3.3 | 4.3 | 4.3 | 4.3 |

Note: Panel mounting dimensions for the P insulation case are symmetrical with request to the vertical axis, in relation to the S insulation case.

Applicable Tools



Hand crimping



Automatic crimping machine
CM-105
CL901-0054-4

| Type | HRS No. | Part No. | Applicator terminay |
|-------------------------------|---------------|------------------|----------------------------------|
| Hand Crimp Tool | CL250-0020-0 | TC-QR/P1-PC1B | QR/P1-PC1B-121 |
| | CL250-0015-0 | TC-QR/P1-PC1A | QR/P1-PC1A-111 |
| | CL250-0022-6 | TC-QR/P1-SC1B | QR/P1-SC1B-121 |
| | CL250-0017-6 | TC-QR/P1-SC1A | QR/P1-SC1A-111 |
| | 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 |
| Auto Crimp Machine Applicator | CL250-0018-9 | TC-QR/P1-SC2A | QR/P1-SC2A-111 |
| | CL901-2529-06 | AP105-QR/P1-1B-2 | QR/P1-PC1B-221 QR/P1-SC1B-221 |
| | CL901-2530-5 | AP105-QR/P1-2B-2 | QR/P1-PC2B-221 QR/P1-SC2B-221 |
| | CL901-2527-0 | AP105-QR/P1-1A-1 | QR/P1-PC1A-211 QR/P1-SC1A-211 |
| Hand Tool | CL250-0019-1 | AP105-QR/P1-2A-1 | QR/P1-PC2A-211 QR/P1-SC2A-211 |
| | | TC-QR/P1-21 | |

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