

High Performance, Miniature Circular Connectors

HR22 Series



■ Features

- Both waterproof and non-waterproof types are available. (Waterproof and non-waterproof connectors can be mated with each other if needed, but will no longer result in a waterproof connection)
- Waterproof performance
The HR22 waterproof type is IP67 and IP68 rated when mated.
IP67: Left at a water depth of 1 m for 30 minutes
IP68: Left at a water depth of 2 m for 14 days
- Both crimp and solder type termination are available. Termination style can be chosen as required by your specific application.
- The receptacle features a jam nut configuration at the front, which allows for easy panel mounting.
- The jack connector can also be used as a panel jack.

■ Product specifications

| | | | | |
|---------|---------------|------------------|-----------------------------|----------------|
| Ratings | Rated current | 2A | Operating temperature range | -25°C to +85°C |
| | Rated voltage | 100V AC, 140V DC | Storage temperature range | -10°C to +60°C |

| Item | Specifications | Conditions |
|---------------------------------|--|---|
| 1. Contact resistance | 20mΩ max. | Measured at DC 1A |
| 2. Insulation resistance | 1,000 MΩ min. | Measured at DC 100V |
| 3. Withstanding voltage | No flashover or dielectric breakdown. | Measured at AC 300 V for one minute |
| 4. Vibration resistance | There shall be no electrical No electrical discontinuity for 10 μs or greater. | 10 to 500 Hz/cycle, amplitude: 0.75 mm, acceleration- 98 m/s ² 3 axis directions, 2 hours each |
| 5. Shock resistance | No electrical discontinuity for 10 μs or greater. | Acceleration: 490 m/s ² , duration: 11 ms, 3 axis directions, 3 times each |
| 6. Mating cycles | Contact resistance: 20 mΩ max. | 100 times |
| 7. Resistance to water pressure | No water penetration into the connector. | Mated connectors left in Water at a depth of 1.8 m for 48 hours. |

■ Materials

| Items | Material | Finish | Remarks |
|------------------|--------------------------------|----------------|---------|
| Plated shell | Brass | Nickel plating | _____ |
| | Zinc alloy | | |
| Insulator | PBT resin | Black | UL94V-0 |
| Male contact | Brass (Soldering) | Silver plating | _____ |
| | Phosphor bronze (Crimping) | | |
| Female contact | Beryllium copper (Soldering) | | |
| | Phosphor bronze (Crimping) | | |
| Hood and bushing | Acrylonitrile-butadiene rubber | Black | |

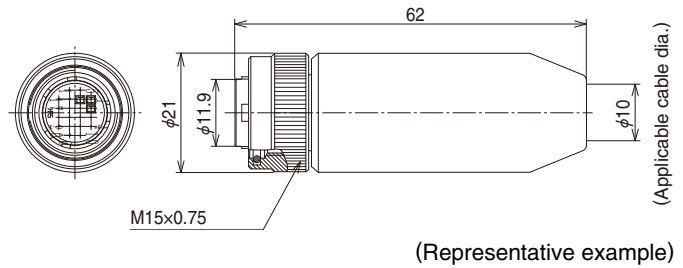
■ Ordering information

HR22 - 12 W T P A - 20 SC (73)

| | |
|---|--|
| ① | Model name: HR22 |
| ② | Shell size: The shell size is the outer diameter of the mating end of the plug. |
| ③ | W: Waterproof Blank: Non-waterproof |
| ④ | Locking mechanism T: Threaded coupling type |
| ⑤ | Shell type P: Plug J: Jack R: Receptacle |
| ⑥ | Shell variation: Variation of the same connector configuration is shown by A, B, C, D.... |
| ⑦ | Number of contacts |
| ⑧ | Contact form P: Male pin PC: Crimp type male pin S: Female pin SC: Crimp type female pin |
| ⑨ | Other specifications: A two-digit character is added to indicate other specifications as needed. |

■ Plug

● Waterproof type



Crimp type

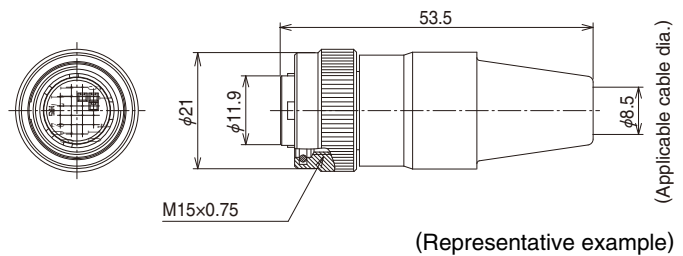
| Part No. | HRS No. | RoHS |
|----------------------|---------------|------|
| HR22-12WTPA-20SC(73) | 122-0004-7 73 | Yes |
| HR22-12WTPA-20PC(73) | 122-0024-4 73 | |

Solder type

| Part No. | HRS No. | RoHS |
|---------------------|---------------|------|
| HR22-12WTPA-20S(73) | 122-0015-3 73 | Yes |
| HR22-12WTPA-20P(73) | 122-0027-2 73 | |

Cable clamping force, rotation force, waterproof performance, and other types of performance may differ depending on the cable type used. Please make sure to verify the suitability of the cable assembly before use or production.

● Non-waterproof type



Crimp type

| Part No. | HRS No. | RoHS |
|---------------------|---------------|------|
| HR22-12TPD-20SC(73) | 122-0010-0 73 | Yes |
| HR22-12TPD-20PC(73) | 122-0018-1 73 | |

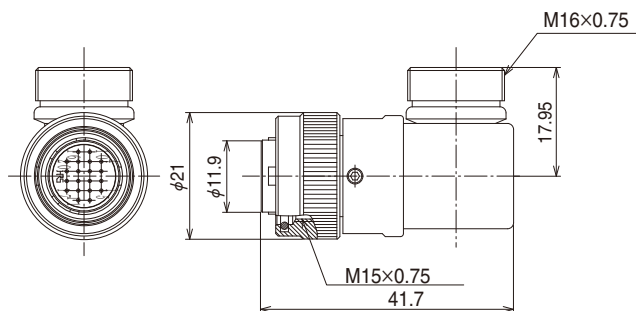
Solder type

| Part No. | HRS No. | RoHS |
|--------------------|---------------|------|
| HR22-12TPD-20S(73) | 122-0011-2 73 | Yes |
| HR22-12TPD-20P(73) | 122-0012-5 73 | |

Cable clamping force, rotation force, waterproof performance, and other types of performance may differ depending on the cable type used. Please make sure to verify the suitability of the cable assembly before use or production.

■ Right angle plug

● Waterproof type



(Representative example)

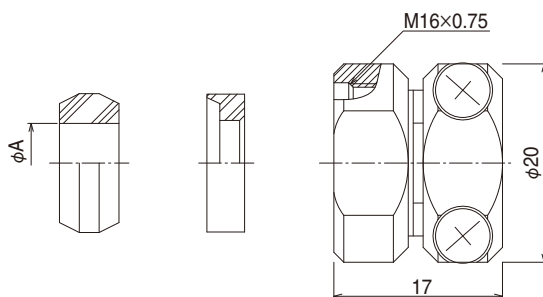
Crimp type

| Part No. | HRS No. | RoHS |
|------------------|---------------|------|
| HR22-12WTLP-20PC | 122-0064-9 00 | Yes |

Solder type

| Part No. | HRS No. | RoHS |
|---------------------|---------------|------|
| HR22-12WTLP-20P(73) | 122-0054-5 73 | Yes |

■ Cord clamp for use on right-angled plugs



(Representative example)

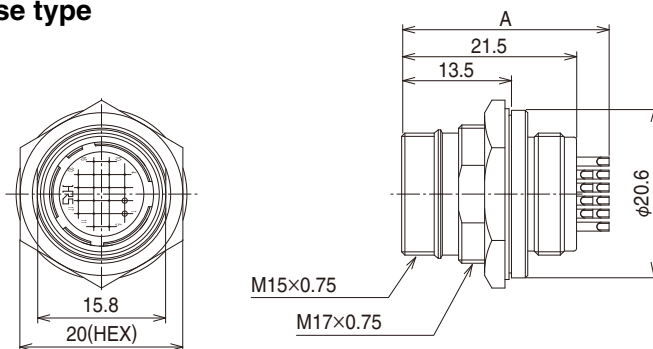
| Part No. | HRS No. | A | RoHS |
|---------------|---------------|---|------|
| JR13WCC-4(72) | 114-2045-0 72 | 4 | Yes |
| JR13WCC-5(72) | 114-2046-3 72 | 5 | |
| JR13WCC-6(72) | 114-2047-6 72 | 6 | |

| Part No. | HRS No. | A | RoHS |
|----------------|---------------|----|------|
| JR13WCC-7(72) | 114-2048-9 72 | 7 | Yes |
| JR13WCC-8(72) | 114-2049-1 72 | 8 | |
| JR13WCC-9(72) | 114-2050-0 72 | 9 | |
| JR13WCC-10(72) | 114-2051-3 72 | 10 | |

Cable clamping force, rotation force, waterproof performance, and other types of performance may differ depending on the cable type used. Please make sure to verify the suitability of the cable assembly before use or production.

■ Receptacle

● Waterproof / Non-waterproof combined use type



(Representative example)

Crimp type

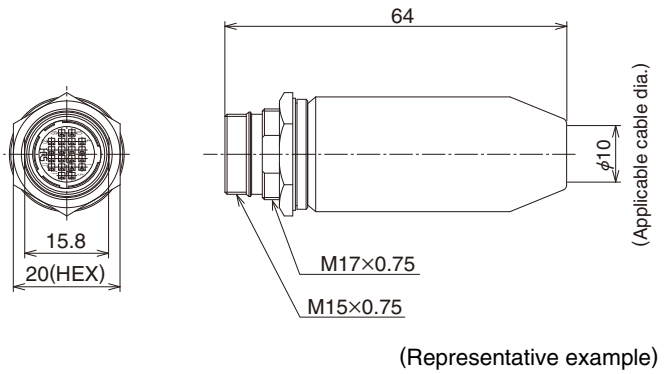
| Part No. | HRS No. | RoHS |
|----------------------|---------------|------|
| HR22-12WTRA-20SC(73) | 122-0021-6 73 | Yes |
| HR22-12WTRA-20PC(73) | 122-0005-0 73 | |

Solder type

| Part No. | HRS No. | A | RoHS |
|---------------------|---------------|------|------|
| HR22-12WTRA-20S(73) | 122-0014-0 73 | 24 | Yes |
| HR22-12WTRA-20P(73) | 122-0013-8 73 | 25.5 | |

■ Jack

● Waterproof type

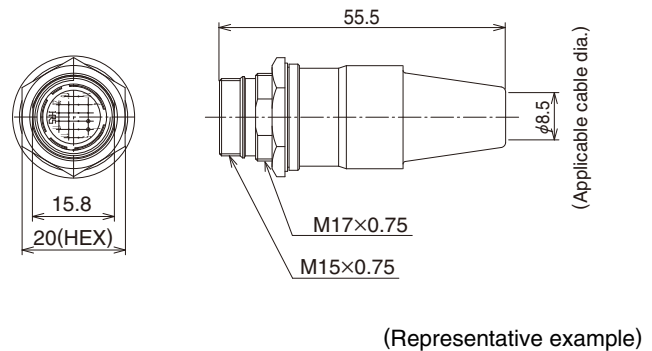


Crimp type

| Part No. | HRS No. | RoHS |
|----------------------|---------------|------|
| HR22-12WTJA-20SC(73) | 122-0025-7 73 | Yes |
| HR22-12WTJA-20PC(73) | 122-0006-2 73 | |

Cable clamping force, rotation force, waterproof performance, and other types of performance may differ depending on the cable type used. Please make sure to verify the suitability of the cable assembly before use or production.

● Non-waterproof type



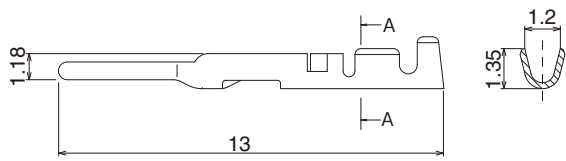
Solder type

| Part No. | HRS No. | RoHS |
|--------------------|---------------|------|
| HR22-12TJD-20S(73) | 122-0023-1 73 | Yes |
| HR22-12TJD-20P(73) | 122-0022-9 73 | |

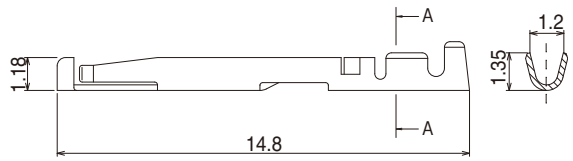
Cable clamping force, rotation force, waterproof performance, and other types of performance may differ depending on the cable type used. Please make sure to verify the suitability of the cable assembly before use or production.

◆ Contact

● Male contact



● Female contact



Male contact

| Item | Part No. | HRS No. | Applicable cable | Packaging | RoHS |
|---------------|-------------|---------------|------------------|-----------------|------|
| Loose contact | HR22-PC-122 | 122-0017-9 00 | AWG#24 ~ 28 | 100 pcs/pack | Yes |
| Reel contact | HR22-PC-222 | 122-0009-0 00 | AWG#24 ~ 28 | 10,000 pcs/reel | |

Female contact

| Item | Part No. | HRS No. | Applicable cable | Packaging | RoHS |
|---------------|-------------|---------------|------------------|-----------------|------|
| Loose contact | HR22-SC-122 | 122-0016-6 00 | AWG#24 ~ 28 | 100 pcs/pack | Yes |
| Reel contact | HR22-SC-222 | 122-0008-8 00 | AWG#24 ~ 28 | 10,000 pcs/reel | |

◆ Applicable tools

| Item | Part No. | HRS No. | Applicable terminal | Applicable wire |
|-------------------------|---------------|---------------|----------------------------|---|
| Manual crimping tool | HR22-TA2428HC | 150-0200-4 00 | HR22-PC-122 HR22-SC-122 | AWG#24 ~ 28 Coating outer diameter φ1.15MAX |
| Automatic crimping tool | Machine body | CM-105 | ———— | ———— |
| | Applicator | AP105-HR22-2 | HR22-PC-222 HR22-SC-222 | AWG#24 ~ 28 Coating outer diameter φ1.15MAX |
| Cable crimping tool | HR10A-TC-04 | 150-0058-5 00 | ———— | φ8.5 |
| Extractor | RP6-SC-TP | 150-0039-0 00 | ———— | ———— |
| Cable termination tool | HR22-12P-T01 | 150-0075-4 00 | ———— | Plug connector use |



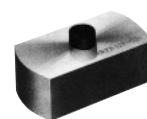
Manual crimping tool



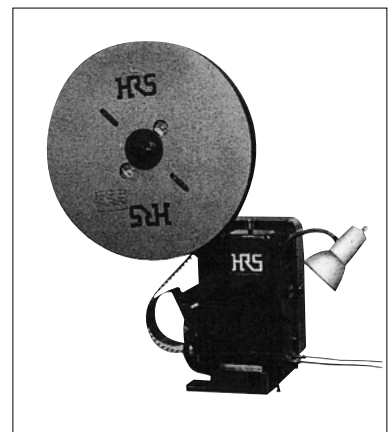
Extractor



Cable crimping tool

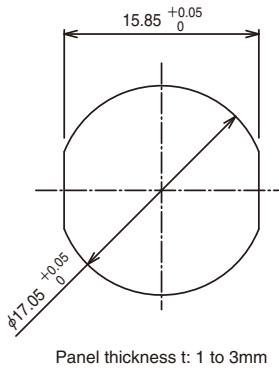


HR22-12P-T01



Automatic crimping machine
CM-105

◆ Panel mounting dimensions



| | |
|-----------------------|------|
| Pin allocation | |
| Solder pot inner dia. | φ0.8 |

Notes: The above figure shows the pin allocation viewed from the engagement side.

◆ Precautions

1. Switch off the power of the circuit before disconnecting or plugging-in the connectors.
2. Use connectors with socket contacts at the power side of the circuit.
3. Make sure that the coupling is in completely cocked position.
4. The cable pull and twisting strength and other characteristics may differ, depending on the cable structure. Please confirm before the use.
5. This product uses silver plated contacts. Please be aware that silver easily reacts to sulfur gases, causing discoloration or degradation when exposed to certain environmental conditions as shown below. These conditions include areas with:
 - Dusty site
 - Area or location with a high density of sulfur dioxide gas, hydrogen sulfide gas, nitrogen dioxide gas, or other gas (Emission gases from vehicles and factories, etc.)
 - Highly fluctuating temperatures, such as close to a heating apparatus.

In addition, it is recommended to store the products in their original packaging or similar state in order to prevent discoloration.

- Temperature: -10 to +60°C, relative humidity: 80% or lower (An environment where temperature and relative humidity are constant and there is little temperature variation.)

Please use the products within six months after delivery. (If the storage period has expired, please examine the connectors and solder cups for corrosion and/or tarnish.)

USA:

HIROSE ELECTRIC (U.S.A.), INC. HEADQUARTERS
 2688 Westhills Court, Simi Valley, CA 93065-6235
 Phone : +1-805-522-7958
 Fax : +1-805-522-3217
<http://www.hirose.com/us/>

USA:

HIROSE ELECTRIC (U.S.A.), INC. SAN JOSE OFFICE
 3255 Scott Boulevard, Building 7, Suite 101
 Santa Clara, CA 95054
 Phone : +1-408-253-9640
 Fax : +1-408-253-9641
<http://www.hirose.com/us/>

USA:

HIROSE ELECTRIC (U.S.A.), INC. CHICAGO OFFICE
 580 Waters Edge Lane, Suite 205 Lombard IL
 60148
 Phone : +1-630-282-6706
 Mail : inquiries@hirose.com
<http://www.hirose.com/us/>

USA:

HIROSE ELECTRIC (U.S.A.), INC. DETROIT OFFICE (AUTOMOTIVE)
 37677 Professional Center Drive, Suite #100C
 Livonia, MI 48154
 Phone : +1-734-542-9963
 Fax : +1-734-542-9964
<http://www.hirose.com/us/>

THE NETHERLANDS:

HIROSE ELECTRIC EUROPE B.V.
 Hogehillweg #8 1101 CC Amsterdam Z-0
 Phone : +31-20-6557460
 Fax : +31-20-6557469
<http://www.hirose.com/eu/>

GERMANY:

HIROSE ELECTRIC EUROPE B.V. GERMAN BRANCH
 Herzog-Carl-Strasse 4 D-73760 Ostfildern
 (Scharnhäuser Park)
 Phone : +49-711-4560-02-1
 Fax : +49-711-4560-02-299
<http://www.hirose.com/eu/>

GERMANY:

HIROSE ELECTRIC EUROPE B.V. NUERNBERG OFFICE
 Muggenhofer Str. 136 90429 Nuernberg
 Phone : +49-911 32 68 89 63
 Fax : +49-911 32 68 89 69
<http://www.hirose.com/eu/>

UNITED KINGDOM:

HIROSE ELECTRIC EUROPE BV (UK BRANCH)
 4 Newton Court, Kelvin Drive, Knowlhill,
 Milton Keynes, MK5 8NH
 Phone : +44-1908 202050
 Fax : +44-1908 202058
<http://www.hirose.com/eu/>

CHINA:

HIROSE ELECTRIC (SHANGHAI) CO., LTD.
 1601, Henderson Metropolitan, NO.300, East Nanjing
 Road, Huangpu District, Shanghai, China 200001
 Phone : +86-21-6391-3355
 Fax : +86-21-6391-3335
<http://www.hirose.com/cn/>

CHINA:

HIROSE ELECTRIC (SHANGHAI) CO.,LTD. BEIJING BRANCH
 A1001, Ocean International Center, Building 56# East 4th
 Ring Middle Road, ChaoYang District, Beijing, 100025
 Phone : +86-10-5165-9332
 Fax : +86-10-5908-1381
<http://www.hirose.com/cn/>

CHINA:

HIROSE ELECTRIC TECHNOLOGIES (SHENZHEN) CO., LTD.
 Room 09-13, 19/F, Office Tower Shun Hing Square, Di Wang Commercial Centre,
 5002 Shen Nan Dong Road, Shenzhen City, Guangdong Province, 518008
 Phone : +86-755-8207-0851
 Fax : +86-755-8207-0873
<http://www.hirose.com/cn/>

HONG KONG:

HIROSE ELECTRIC HONGKONG TRADING CO., LTD.
 Room 1001, West Wing, Tsim Sha Tsui Centre, 66
 Mody Road, Tsim Sha Tsui East, Kowloon, Hong Kong
 Phone : +852-2803-5338
 Fax : +852-2591-6560
<http://www.hirose.com/hk/>

TAIWAN:

HIROSE ELECTRIC TAIWAN CO., LTD.
 103 8F, No.87, Zhengzhou Rd., Taipei
 Phone : +886-2-2555-7377
 Fax : +886-2-2555-7350
<http://www.hirose.com/cn/>

KOREA:

HIROSE KOREA CO., LTD.
 1261-10, Jeoungwhang-Dong, Shihung-City,
 Kyunggi-Do 429-450
 Phone : +82-31-496-7000,7124
 Fax : +82-31-496-7100
<http://www.hirose.co.kr/>

SINGAPORE:

HIROSE ELECTRIC SINGAPORE PTE. LTD.
 10 Anson Road #26-1, International Plaza
 079903, Singapore
 Phone : +65-6324-6113
 Fax : +65-6324-6123
<http://www.hirose.com/sg/>

INDIA:

HIROSE ELECTRIC SINGAPORE PTE. LTD. DELHI LIAISON OFFICE
 Office NO.519, Regus-Green Boulevard, Level5, Tower C,
 Sec62, Plot B-9A, Block B, Noida, 201301, Uttar Pradesh, India
 Phone : +91-12-660-8018
 Fax : +91-120-4804949
<http://www.hirose.com/sg/>

INDIA:

HIROSE ELECTRIC SINGAPORE PTE. LTD. BANGALORE LIAISON OFFICE
 Unit No.03, Ground Floor, Explorer Building International Tech
 Park Whitefield Road, Bangalore 560066 Karnataka, India
 Phone : +91-80-4120 1907
 Fax : +91-80-4120 9908
<http://www.hirose.com/sg/>

MALAYSIA:

HIROSE ELECTRIC SINGAPORE PTE. LTD. (REPRESENTATIVE OFFICE)
 1-10-07, Suntech @ Penang Cybercity (1164),Lintang
 Mayang Pasir 3,11950, Bayan Baru, Penang, Malaysia.
 Phone : +604-619-2564
 Fax : +604-619-2574
<http://www.hirose.com/sg/>



HIROSE ELECTRIC CO.,LTD.

2-6-3,Nakagawa Chuoh,Tsuzuki-Ku,Yokohama-Shi 224-8540,JAPAN
 TEL: +81-45-620-3526 Fax: +81-45-591-3726
<http://www.hirose.com>
<http://www.hirose-connectors.com>