

LF Series

# Shielded Small Waterproof Connector



Bayonet



Waterproof



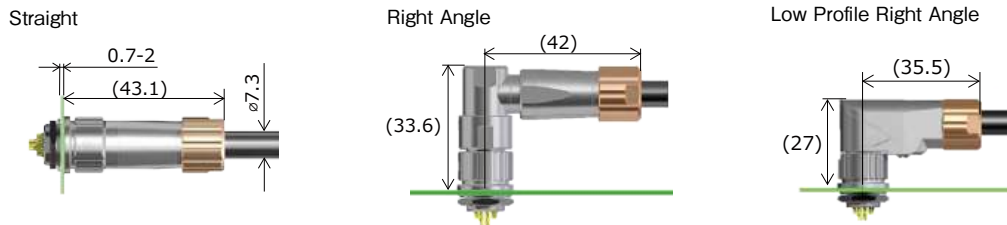
CAT6A



## Features

### 1. Small, Robust Design

Small, robust design with metal shell



\* Illustrations are different from actual sizes.

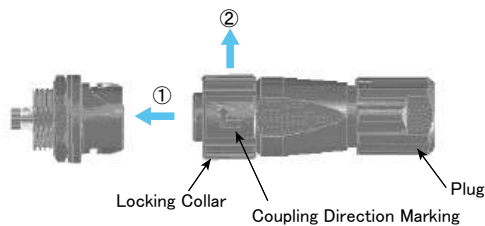
\* The dimensions are different when it is mated with the rear mount type.

Dimensions Example  
(LF10 Plug Mated with Front Mount Receptacle)

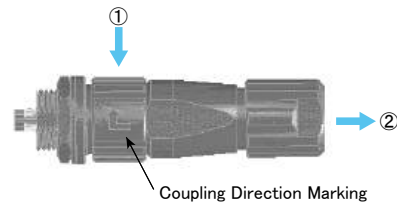
### 2. Bayonet Lock

User-friendly lock with superior vibration resistance.

Mating: Insert the plug, and then turn the locking collar clockwise, as indicated by the coupling direction marking.



Un-mating: Turn the locking collar counter-clockwise then pull off the plug.



Lock Design

### 3. Waterproof: IPX7/IPX8\* Compliant

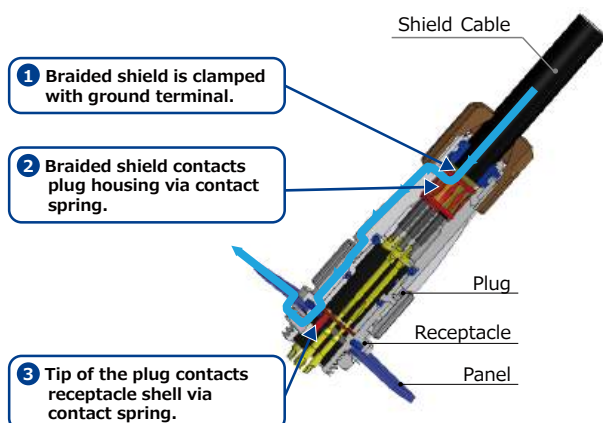
IPX7/IPX8 waterproof performance when mated.

\*IPX7: Left at a water depth of 1 meters for 30 minutes in mated condition.

IPX8: Left at a water depth of 2 meters for 14 days in mated condition.

### 4. Easy Shielding Termination

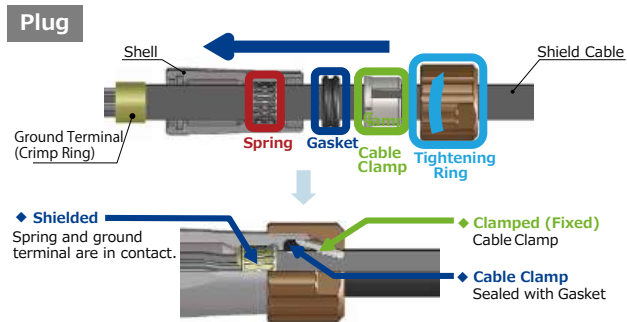
The cable shield is easily connected to the connector shell by attaching the metal clamp to the cable sheath.



Shield Connection Phase Diagram

## 5. Easy Assembly

Assembly using four included components easily completes the waterproof and shield design. The plug design reduces component and assembly costs.



## 6. Wide Variety of Configurations

- 2 types of cable assembly: solder and crimp
- Hybrid type with power and signal contacts in a single shell for space-saving
- Plug with easy to grip sleeve that prevents slipping for enhanced operability
- 2 receptacle mounting options: front mount and rear mount
- Cat.6A compliant

## 7. High Speed Transmission

Supports Cat.5e(1Gbps) and Cat.6A(10Gbps) high speed Ethernet

Cat.5e(1Gbps)

\*Based on EtoE Standard Class D 3-Conn E3

\*Characteristics depend on pin assignment, cable specifications and cable assembly conditions. Please check prior to use.

\*Please contact a Hirose representative for questions on the recommended pin assignment.

Cat.6A(10Gbps)

\*Based on TIA 568.2-D Patch cord Cat.6A 1.0m

## 8. Suited for Long-Term Outdoor Use

Sunshine weather meter test performed for 2,000 hours.

## 9. Safety Standard Certified

The 4 position variation meets TÜV safety standards at a current of 10A.

The 3 position and 4 position variations also meet UL safety standards.

## 10. RoHS2 Compliant

## Product Specifications

|               |                                                                                                                                                                                                                                                          |                                   |              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------|
| Rated Current | 3pos.: 5A<br>4pos.: 10A<br>6, 12, 20pos.: 2A<br>Hybrid 6pos.: Power 2pos. 4A, Signal 4pos. 1A<br>Hybrid 11pos.: Power 4pos. 10A, Signal 7pos. 2A<br>8pos. (Cat.6A): 2A                                                                                   | Operating Temperature<br>(Note 1) | -25 to +85°C |
| Rated Voltage | 3pos.: 125V AC / 175V DC<br>4pos.: 125V AC/DC<br>6, 12, 20pos.: 30V AC / 42V DC<br>Hybrid 6pos.: Power 2pos. 60V AC/DC, Signal 4pos. 60V AC/DC<br>Hybrid 11pos.: Power 4pos. 125V AC/DC, Signal 7pos. 30V AC / 42V DC<br>8pos. (Cat.6A): 50V AC / 60V DC | Storage Temperature Range         | -10 to +60°C |

| Items                                  | Specifications                                                                                                                                                                       | Conditions                                                                                                                                                                                                    |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Contact Resistance                     | 3, 6, 12, 20, Hybrid 6pos.: 15m Ω Max.<br>4pos.: 5m Ω Max.<br>Hybrid 11pos.: Power 4pos. 5m Ω Max., Signal 7pos. 15m Ω Max.<br>8pos. (Cat.6A): Signal 30m Ω Max., Shield 100m Ω Max. | Measured at 1A DC                                                                                                                                                                                             |
| Insulation Resistance                  | 1,000M Ω Min.<br>100M Ω Min. (8pos.)                                                                                                                                                 | 3, 4pos.: Measured at 500V DC<br>3, 6, 12, 20, Hybrid 6pos.: Measured at 100V DC<br>Hybrid 11pos.: Power 4pos.: Measured at 500V DC, Signal 7pos.: Measured at 100V DC<br>8pos. (Cat.6A): Measured at 100V DC |
| Withstand Voltage                      | No flashover and insulation breakdown                                                                                                                                                | 3, 4pos.: 1,250V AC for 1 min.<br>3, 6, 12, 20, Hybrid 6pos.: 300V AC for 1 min.<br>Hybrid 11pos.: Power 4pos. 1,250V AC, Signal 7pos.: 300V AC for 1 min.<br>8pos. (Cat.6A): 1,000V AC for 1 min.            |
| Mating Durability                      | 3, 6, 12, 20, Hybrid 6pos.: 30m Ω Max.<br>4pos.: 10m Ω Max.<br>Hybrid 11pos.: Power 4pos. 10m Ω Max., Signal 7pos. 30m Ω Max.                                                        | 1,000 times                                                                                                                                                                                                   |
| Vibration Resistance                   | No electrical interruption of 10 μs or more.<br>No damage, cracks or parts dislocation.                                                                                              | Frequency: 10 to 55 to 10Hz/cycle<br>Half amplitude 0.75mm, 5 minutes/cycle<br>10 cycles each in 3 axis directions                                                                                            |
| Shock Resistance                       | No electrical interruption of 10 μs or more.<br>No damage, cracks or parts dislocation.                                                                                              | Acceleration: 490m/s <sup>2</sup> , duration: 11ms,<br>3 times each in 3 axis directions                                                                                                                      |
| Humidity Resistance (Normal Condition) | Insulation resistance:<br>10M Ω Min. (at high humidity condition)<br>100M Ω Min. (at dry condition)                                                                                  | Temperature: 40°C , relative humidity: 90 to 95%,<br>left for 96 hours                                                                                                                                        |
| Temperature Cycle                      | Insulation resistance: 100M Ω Min.<br>No damage, cracks or parts dislocation.                                                                                                        | -55°C for 30 minutes → Room temperature for 2 to 3 minutes →<br>+85°C for 30 minutes →<br>Room temperature for 2 to 3 minutes,<br>Repeated for 5 cycles.                                                      |
| Water Resistance                       | No water intrusion inside connector                                                                                                                                                  | At a water depth of 1.8 meters for 48 hours in mated condition.                                                                                                                                               |

Note 1: Includes temperature rise caused by current flow.

Note 2: Depending on the cable construction and specifications, the cable clamp force, rotational force, waterproof performance, etc. may differ. Please use after confirming in advance.

## Materials / Finish

| Component      | Material                  | Finish / Remarks                              | UL      |
|----------------|---------------------------|-----------------------------------------------|---------|
| Outer Shell    | Zinc Alloy                | Nickel Plating                                | -       |
|                | PPS Resin                 | Brown                                         | UL94V-0 |
| Insulator      | PPS Resin                 | Black                                         | UL94V-0 |
| Contact        | Copper Alloy              | Partial Gold Plating Over Nickel Underplating | -       |
| Gasket, O-ring | Chloroprene Rubber        | Black                                         | -       |
|                | Silicone (8pos. (Cat.6A)) | Red                                           | -       |

## Product Number Structure

Refer to the chart below when determining the product specifications from the product number.  
Please select from the product numbers listed in this catalog when placing orders.

### ●Connector

**LF 07 W B P# - 6 S# - A (##)**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

|                  |                                                                                                                                                                                                 |                                     |                                                                                                     |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------|
| ① Series Name    | LF                                                                                                                                                                                              | ⑥ No. of Pos.                       |                                                                                                     |
| ② Shell Size     | 07, 10, 13                                                                                                                                                                                      | ⑦ Contact Gender                    | P: Male Contact<br>S: Female Contact<br>(Changed specifications for products of the same category.) |
| ③ Specialty      | W: Waterproof Type                                                                                                                                                                              | ⑧ Difference in Contact Arrangement | Added when contact arrangement differs from the standard type.<br>A: Contact Arrangement Difference |
| ④ Lock Mechanism | B: Bayonet Lock                                                                                                                                                                                 | ⑨ Other Specifications              | ① to ⑧ # two-digit character is added to indicate other specifications as needed.                   |
| ⑤ Shell Type     | P: Plug<br>LP: Right Angle Plug<br>R: Receptacle<br>J: Jack<br>PH: Plug (Cat.6A)<br>RH: Receptacle (Cat.6A)<br>JH: Jack (Cat.6A)<br>(Changed specifications for products of the same category.) |                                     |                                                                                                     |

### ●Crimp Contact

**HR10 - P C - 1 1 1**

① ② ③ ④ ⑤ ⑥

**HR12 - S C - 1 1 1**

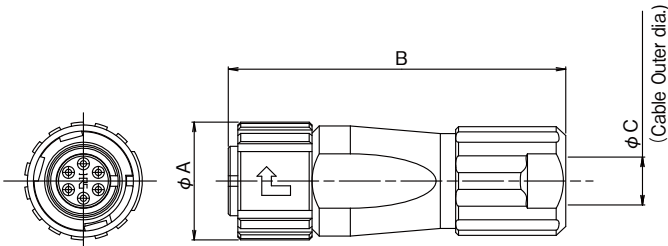
① ② ③ ④ ⑤ ⑥

|                    |                                      |                        |                                                                                                   |
|--------------------|--------------------------------------|------------------------|---------------------------------------------------------------------------------------------------|
| ① Series Name      | HR10<br>HR12<br>HR30 (Cat.6A)        | ④ Contact Shape        | 1: Loose Piece Contact<br>2: Reel Contact                                                         |
| ② Contact Gender   | P: Male Contact<br>S: Female Contact | ⑤ Design               | 1: If the design of contacts of the same size differs, 1, 2, 3 etc. are added to distinguish them |
| ③ Contact Assembly | C: Crimp                             | ⑥ Contact Area Plating | 1: Gold Plated                                                                                    |

Note: The LF Series uses the contacts from the existing HR10/HR12/HR30 Series.

Straight Plug

Solder Type



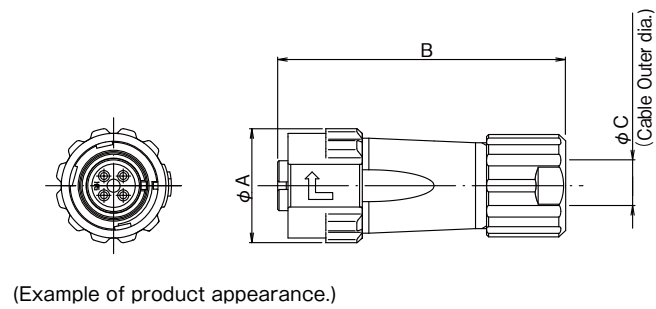
(Example of product appearance.)

Unit : mm

| Part No.         | HRS No.          | Shell Size | No. of Pos.               | φ A  | B    | φ C | Weight | Purchase Unit  |
|------------------|------------------|------------|---------------------------|------|------|-----|--------|----------------|
| LF07WBP-3S(31)   | CL0136-0003-7-31 | LF07       | 3                         | 12.3 | 35.8 | 5.0 | 11g    | 50pcs per tray |
| LF07WBP-3P(31)   | CL0136-0004-0-31 |            |                           |      |      |     |        |                |
| LF07WBP-6S(31)   | CL0136-0001-1-31 |            | 6                         |      |      |     |        |                |
| LF07WBP-6P(31)   | CL0136-0002-4-31 |            |                           |      |      |     |        |                |
| LF07WBP-6S-A(31) | CL0136-0029-0-31 | LF07-A     | Hybrid 6pos.<br>(Note 1)  | 12.3 | 35.8 | 5.0 | 11g    |                |
| LF07WBP-6P-A(31) | CL0136-0016-0-31 |            |                           |      |      |     |        |                |
| LF10WBP-4S(31)   | CL0136-0005-2-31 | LF10       | 4                         | 14.8 | 41.8 | 7.3 | 17g    |                |
| LF10WBP-4P(31)   | CL0136-0006-5-31 |            |                           |      |      |     |        |                |
| LF10WBP-12S(31)  | CL0136-0007-8-31 |            | 12                        |      |      |     | 16g    |                |
| LF10WBP-12P(31)  | CL0136-0008-0-31 |            |                           |      |      |     |        |                |
| LF13WBP-11S      | CL0136-0011-5-00 | LF13       | Hybrid 11pos.<br>(Note 2) | 17.9 | 51.9 | 8.7 | 29g    |                |
| LF13WBP-11P      | CL0136-0012-8-00 |            |                           |      |      |     |        |                |
| LF13WBP-20S      | CL0136-0009-3-00 |            | 20                        |      |      |     |        |                |
| LF13WBP-20P      | CL0136-0010-2-00 |            |                           |      |      |     |        |                |

Note 1: Power 2pos.+ Signal 4pos.  
Note 2: Power 4pos.+ Signal 7pos.

## Easy Lock Solder Type

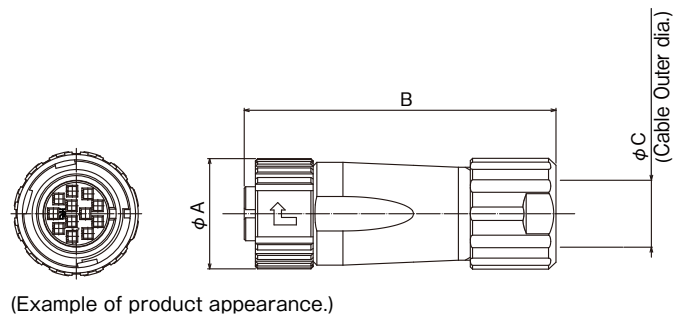


Unit : mm

Unit : mm

| Part No.         | HRS No.          | Shell Size | No. of Pos. | φ A  | B    | φ C | Weight | Purchase Unit  |
|------------------|------------------|------------|-------------|------|------|-----|--------|----------------|
| LF07WBPD-6S(31)  | CL0136-0020-6-31 | LF07       | 6           | 14.3 | 35.8 | 5.0 | 12g    | 50pcs per tray |
| LF10WBPD-4S(31)  | CL0136-0014-3-31 | LF10       | 4           | 16.8 | 41.8 | 7.3 | 19g    |                |
| LF10WBPD-4P(31)  | CL0136-0017-1-31 |            |             |      |      |     |        |                |
| LF10WBPD-12S(31) | CL0136-0015-6-31 |            | 12          |      |      |     |        |                |
| LF10WBPD-12P(31) | CL0136-0018-4-31 |            |             |      |      |     |        |                |

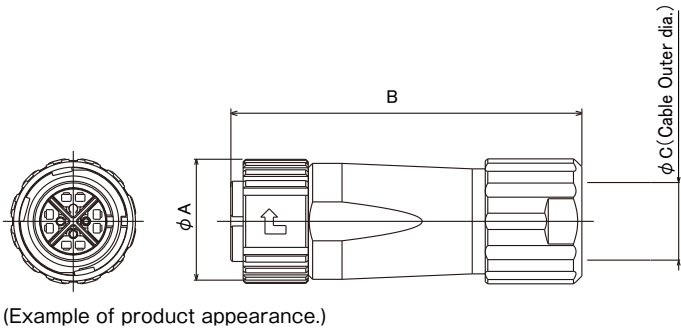
## Crimp Type



Unit : mm

| Part No.     | HRS No.          | Shell Size | No. of Pos. | φ A  | B    | φ C | Weight | Purchase Unit  |
|--------------|------------------|------------|-------------|------|------|-----|--------|----------------|
| LF10WBP-12SC | CL0136-0041-0-00 | LF10       | 12          | 14.8 | 41.8 | 7.3 | 17g    | 50pcs per tray |
| LF13WBP-20PC | CL0136-0040-0-00 | LF13       | 20          | 17.9 | 51.9 | 8.7 | 27g    |                |
| LF13WBP-20SC | CL0136-0044-0-00 |            |             |      |      |     |        |                |

Crimp Type (Cat.6A)



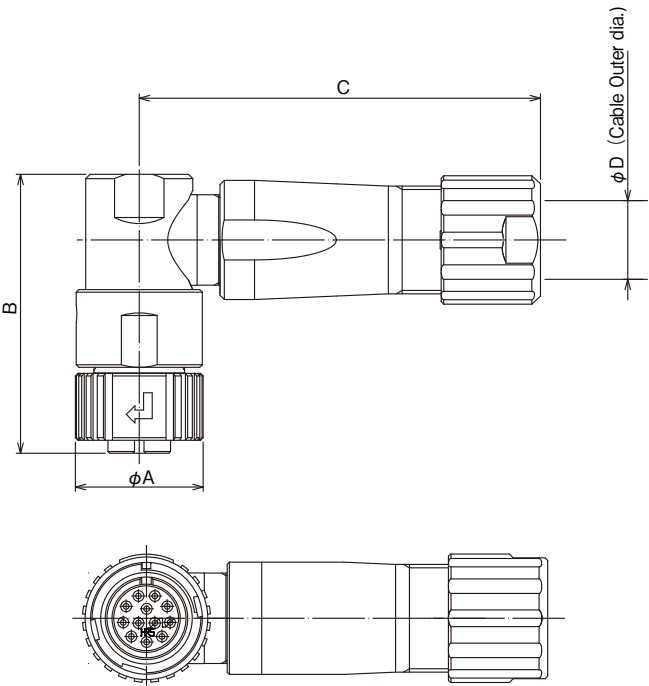
(Example of product appearance.)

Unit : mm

| Part No.          | HRS No.          | Shell Size | No. of Pos. | $\phi A$ | B    | $\phi C$ | Weight | Purchase Unit  |
|-------------------|------------------|------------|-------------|----------|------|----------|--------|----------------|
| LF10WBPHA-8PC(40) | CL0136-0065-0-40 | LF10       | 8           | 14.8     | 41.8 | 6.9      | 18g    | 50pcs per tray |
| LF10WBPHB-8PC(40) | CL0136-0072-0-40 |            |             |          |      | 6.5      |        |                |

Right Angle Plug

Solder Type



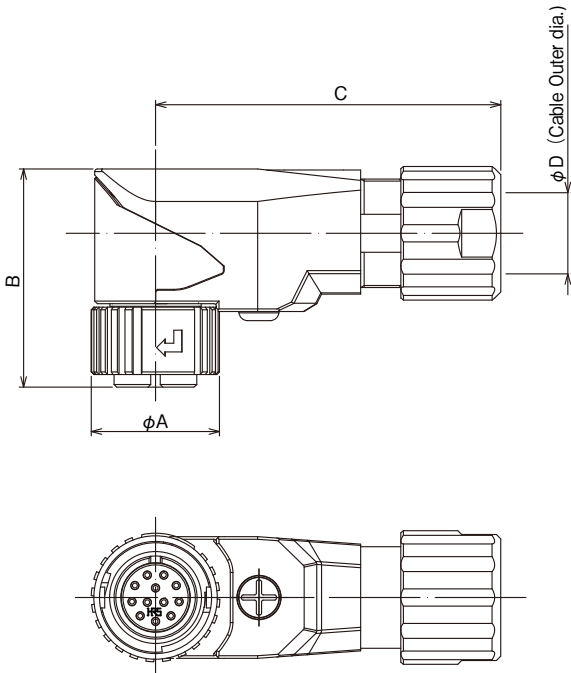
(Example of product appearance.)

Unit : mm

| Part No.          | HRS No.          | Shell Size | No. of Pos.             | ϕ A  | B    | C    | ϕ D | Weight | Purchase Unit |
|-------------------|------------------|------------|-------------------------|------|------|------|-----|--------|---------------|
| LF07WBLP-6PA(31)  | CL0136-0022-1-31 | LF07       | 6                       | 12.3 | 28.2 | 34.5 | 5.0 | 20g    | 20pcs per bag |
| LF10WBLP-12SA(31) | CL0136-0013-0-31 | LF10       | 12                      | 14.8 | 32.3 | 42.0 | 7.3 | 31g    |               |
| LF10WBLP-12PA(31) | CL0136-0025-0-31 |            |                         |      |      |      |     |        |               |
| LF13WBLP-11PA     | CL0136-0023-4-00 | LF13       | Hybrid 11pos.<br>(Note) | 17.9 | 33.6 | 53.4 | 8.7 | 49g    | 1pc per bag   |
| LF13WBLP-20PA     | CL0136-0031-0-00 |            | 20                      |      |      |      |     | 50g    | 10psc per bag |

Note: Power 4pos. + Signal 7pos.

Low Profile Solder Type



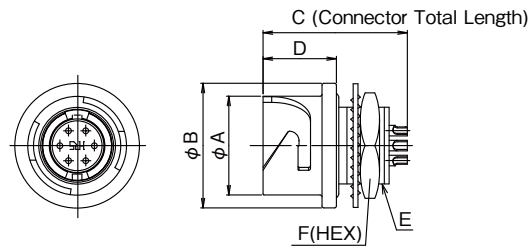
(Example of product appearance.)

Unit : mm

| Part No.      | HRS No.          | Shell Size | No. of Pos. | φ A  | B    | C    | φ D | Weight | Purchase Unit  |
|---------------|------------------|------------|-------------|------|------|------|-----|--------|----------------|
| LF10WBLPA-12P | CL0136-0039-0-00 | LF10       | 12          | 14.8 | 25.1 | 35.5 | 7.3 | 34g    | 50pcs per tray |

## Receptacle (Front Mount)

### Solder Type



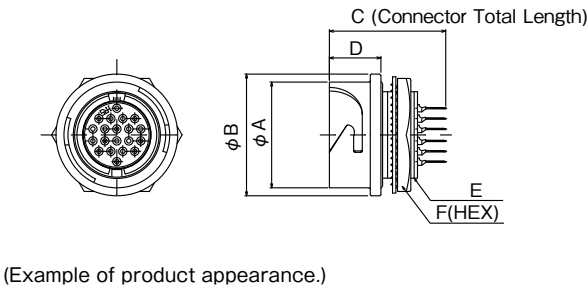
(Example of product appearance.)

Unit : mm

| Part No.    | HRS No.          | Shell Size | No. of Pos.             | ϕ A  | ϕ B  | C     | D    | E        | F    | Weight | Purchase Unit  |
|-------------|------------------|------------|-------------------------|------|------|-------|------|----------|------|--------|----------------|
| LF07WBR-3P  | CL0136-1003-2-00 | LF07       | 3                       | 10.3 | 13.0 | 16.55 | 7.65 | M9×0.75  | 11.0 | 4g     | 60pcs per tray |
| LF07WBR-3S  | CL0136-1004-5-00 |            | 6                       |      |      | 15.05 |      |          |      |        |                |
| LF07WBR-6P  | CL0136-1001-7-00 |            |                         |      |      | 15.25 |      |          |      |        |                |
| LF07WBR-6S  | CL0136-1002-0-00 |            |                         |      |      |       |      |          |      |        |                |
| LF10WBR-4P  | CL0136-1005-8-00 | LF10       | 4                       | 12.8 | 15.3 | 19.05 | 7.75 | M11×0.75 | 13.0 | 6g     |                |
| LF10WBR-4S  | CL0136-1006-0-00 |            | 12                      |      |      | 17.25 |      |          |      | 5g     |                |
| LF10WBR-12P | CL0136-1007-3-00 |            |                         |      |      |       |      |          |      | 6g     |                |
| LF10WBR-12S | CL0136-1008-6-00 |            |                         |      |      |       |      |          |      |        |                |
| LF13WBR-11P | CL0136-1011-0-00 | LF13       | Hybrid 11pos.<br>(Note) | 15.9 | 18.3 | 19.05 | 7.75 | M14×0.75 | 17.0 | 9g     | 50pcs per tray |
| LF13WBR-11S | CL0136-1012-3-00 |            | 20                      |      |      | 17.25 |      |          |      | 10g    |                |
| LF13WBR-20P | CL0136-1009-9-00 |            |                         |      |      |       |      |          |      | 9g     |                |
| LF13WBR-20S | CL0136-1010-8-00 |            |                         |      |      |       |      |          |      | 10g    |                |

Note: Power 4pos. + Signal 7pos.

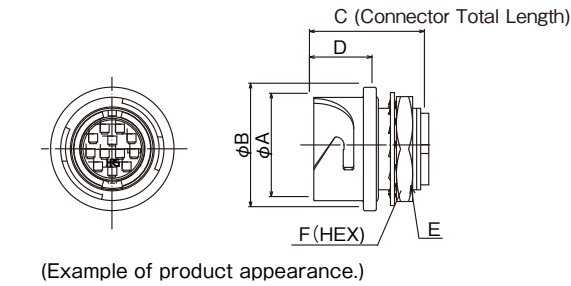
Through Hole Type



Unit : mm

| Part No.     | HRS No.          | Shell Size | No. of Pos. | ϕ A  | ϕ B  | C    | D    | E        | F    | Weight | Purchase Unit  |
|--------------|------------------|------------|-------------|------|------|------|------|----------|------|--------|----------------|
| LF13WBR-20SD | CL0136-1017-7-00 | LF13       | 20          | 15.9 | 18.3 | 17.5 | 7.75 | M14×0.75 | 17.0 | 9g     | 50pcs per tray |

Crimp Type

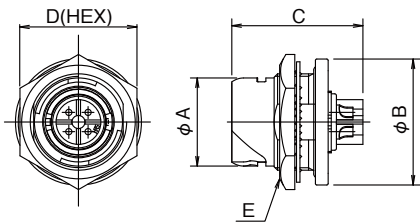


Unit : mm

| Part No.     | HRS No.          | Shell Size | No. of Pos. | ϕ A  | ϕ B  | C     | D    | E        | F    | Weight | Purchase Unit  |
|--------------|------------------|------------|-------------|------|------|-------|------|----------|------|--------|----------------|
| LF10WBR-12PC | CL0136-0042-0-00 | LF10       | 12          | 12.8 | 15.3 | 14.25 | 7.75 | M11×0.75 | 13.0 | 6g     | 50pcs per tray |

Receptacle (Rear Mount)

Solder Type



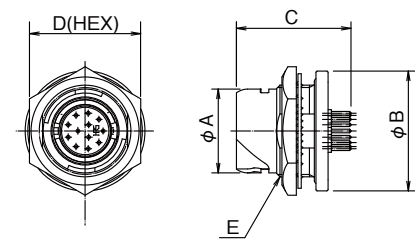
(Example of product appearance.)

Unit : mm

| Part No.     | HRS No.          | Shell Size | No. of Pos.             | ϕ A  | ϕ B  | C     | D  | E        | Weight | Purchase Unit  |  |                |  |  |  |
|--------------|------------------|------------|-------------------------|------|------|-------|----|----------|--------|----------------|--|----------------|--|--|--|
| LF07WBRB-6S  | CL0136-0054-0-00 | LF07       | 6                       | 10.3 | 15   | 17.25 | 13 | M11×0.75 | 8g     | 50pcs per tray |  |                |  |  |  |
| LF10WBRB-4P  | CL0136-1118-4-00 | LF10       | 4                       | 12.8 | 18.3 | 19.05 | 17 | M14×0.75 | 10g    |                |  |                |  |  |  |
| LF10WBRB-4S  | CL0136-1123-0-00 |            | 12                      |      |      | 17.25 |    |          | 11g    |                |  |                |  |  |  |
| LF10WBRB-12P | CL0136-1013-6-00 |            |                         |      |      |       |    |          | 10g    |                |  |                |  |  |  |
| LF10WBRB-12S | CL0136-1014-9-00 |            |                         |      |      |       |    |          |        |                |  |                |  |  |  |
| LF13WBRB-11P | CL0136-1024-0-00 | LF13       | Hybrid 11pos.<br>(Note) | 15.9 | 21.5 | 19.25 | 20 | M17×0.75 | 15g    | 10pcs per bag  |  |                |  |  |  |
| LF13WBRB-11S | CL0136-1019-2-00 |            | 20                      |      |      |       |    |          | 16g    |                |  | 20pcs per tray |  |  |  |
| LF13WBRB-20P | CL0136-1023-0-00 |            |                         |      |      |       |    |          |        |                |  |                |  |  |  |
| LF13WBRB-20S | CL0136-1018-0-00 |            |                         |      |      |       |    |          |        |                |  |                |  |  |  |

Note: Power 4pos. + Signal 7pos.

Through Hole Type



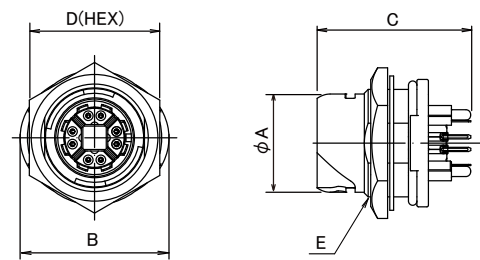
(Example of product appearance.)

Unit : mm

| Part No.           | HRS No.          | Shell Size | No. of Pos.            | ϕ A  | ϕ B  | C    | D    | E        | Weight | Purchase Unit  |  |  |  |  |  |  |  |  |  |  |
|--------------------|------------------|------------|------------------------|------|------|------|------|----------|--------|----------------|--|--|--|--|--|--|--|--|--|--|
| LF07WBRB-3SD(31)   | CL0136-1025-0-31 | LF07       | 3                      | 10.3 | 15.0 | 20.0 | 13.0 | M11×0.5  | 8g     | 50pcs per tray |  |  |  |  |  |  |  |  |  |  |
| LF07WBRB-6SD(31)   | CL0136-1026-0-31 |            | 6                      |      |      |      | -    |          |        |                |  |  |  |  |  |  |  |  |  |  |
| LF07WBRB-6PD-A(31) | CL0136-1021-0-31 | LF07-A     | Hybrid 6pos.<br>(Note) |      |      |      |      |          |        |                |  |  |  |  |  |  |  |  |  |  |
| LF07WBRB-6SD-A(31) | CL0136-1022-0-31 |            |                        |      |      |      |      |          |        |                |  |  |  |  |  |  |  |  |  |  |
| LF10WBRB-12PD      | CL0136-1015-1-00 | LF10       | 12                     | 12.8 | 18.3 | 17.5 | 17.0 | M14×0.75 | 10g    |                |  |  |  |  |  |  |  |  |  |  |
| LF10WBRB-12SD      | CL0136-1016-4-00 |            |                        |      |      |      |      |          |        |                |  |  |  |  |  |  |  |  |  |  |
| LF13WBRB-20SD      | CL0136-1027-0-00 | LF13       | 20                     | 15.9 | 21.5 | 20.0 | 20.0 | M17×0.75 | 16g    |                |  |  |  |  |  |  |  |  |  |  |

Note: Power 2pos. + Signal 4pos.

Through Hole Type (Cat.6A)

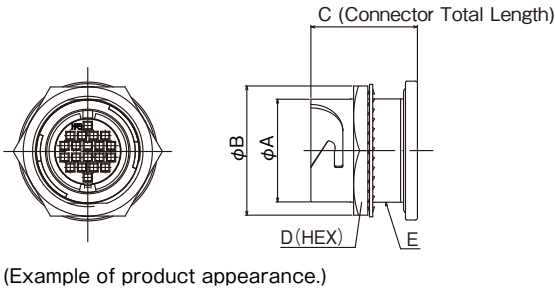


(Example of product appearance.)

Unit : mm

| Part No.          | HRS No.          | Shell Size | No. of Pos. | ϕ A  | B    | C    | D  | E        | Weight | Purchase Unit  |
|-------------------|------------------|------------|-------------|------|------|------|----|----------|--------|----------------|
| LF10WBRBH-8SD(40) | CL0136-0058-0-40 | LF10       | 8           | 12.8 | 19.4 | 20.5 | 17 | M14×0.75 | 12g    | 50pcs per tray |

Crimp Type

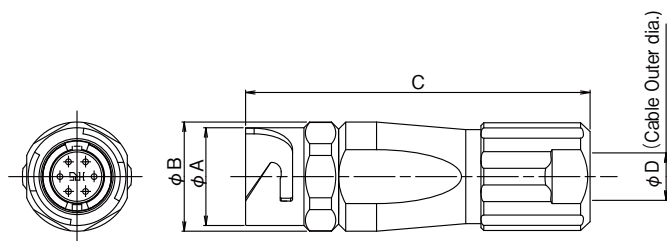


Unit : mm

| Part No.      | HRS No.          | Shell Size | No. of Pos. | $\phi A$ | $\phi B$ | C    | D    | E          | Weight | Purchase Unit |
|---------------|------------------|------------|-------------|----------|----------|------|------|------------|--------|---------------|
| LF13WBRB-20SC | CL0136-1033-0-00 | LF13       | 20          | 15.9     | 21.5     | 16.5 | 20.0 | M17 × 0.75 | 15g    | 20pcs per bag |
| LF13WBRB-20PC | CL0136-1124-0-00 |            |             |          |          |      |      |            | 14g    |               |

## Jack

### Solder Type



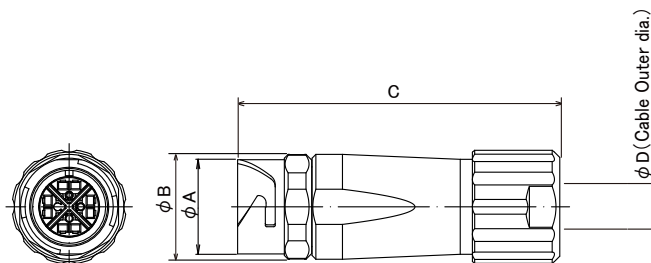
(Example of product appearance.)

Unit : mm

| Part No.    | HRS No.          | Shell Size | No. of Pos.             | φ A  | φ B  | C    | φ D | Weight | Purchase Unit  |
|-------------|------------------|------------|-------------------------|------|------|------|-----|--------|----------------|
| LF07WBJ-3P  | CL0136-2003-8-00 | LF07       | 3                       | 10.3 | 11.5 | 36.3 | 5.0 | 11g    | 50pcs per tray |
| LF07WBJ-3S  | CL0136-2004-0-00 |            |                         |      |      |      |     |        |                |
| LF07WBJ-6P  | CL0136-2001-2-00 |            | 6                       |      |      |      |     |        |                |
| LF07WBJ-6S  | CL0136-2002-5-00 |            |                         |      |      |      |     |        |                |
| LF10WBJ-4P  | CL0136-2005-3-00 | LF10       | 4                       | 12.8 | 13.8 | 42.4 | 7.3 | 16g    |                |
| LF10WBJ-4S  | CL0136-2006-6-00 |            |                         |      |      |      |     |        |                |
| LF10WBJ-12P | CL0136-2007-9-00 |            | 12                      |      |      |      |     |        |                |
| LF10WBJ-12S | CL0136-2008-1-00 |            |                         |      |      |      |     |        |                |
| LF13WBJ-11P | CL0136-2011-6-00 | LF13       | Hybrid 11pos.<br>(Note) | 15.9 | 16.9 | 52.4 | 8.7 | 29g    |                |
| LF13WBJ-11S | CL0136-2012-9-00 |            |                         |      |      |      |     | 30g    |                |
| LF13WBJ-20P | CL0136-2009-4-00 |            | 20                      |      |      |      |     | 29g    |                |
| LF13WBJ-20S | CL0136-2010-3-00 |            |                         |      |      |      |     | 30g    |                |

Note: Power 4pos. + Signal 7pos.

### Crimping Type (Cat.6A)



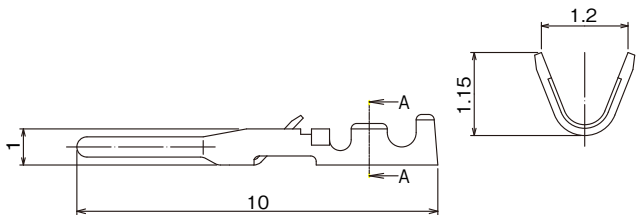
(Example of product appearance.)

Unit : mm

| Part No.          | HRS No.          | Shell Size | No. of Pos. | φ A  | φ B  | C    | φ D | Weight | Purchase Unit  |
|-------------------|------------------|------------|-------------|------|------|------|-----|--------|----------------|
| LF10WBJHA-8SC(40) | CL0136-0070-0-40 | LF10       | 8           | 12.8 | 13.8 | 42.4 | 6.9 | 18g    | 50pcs per tray |
| LF10WBJHB-8SC(40) | CL0136-0073-0-40 |            |             |      |      |      | 6.5 |        |                |

Crimp Contact

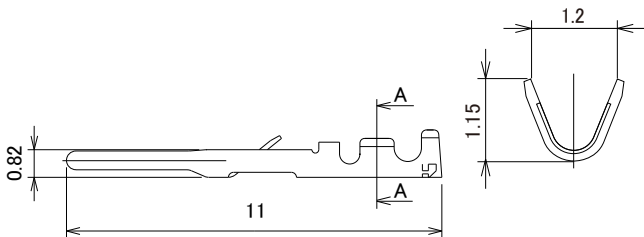
Male Contact



| Type          | Part No.    | HRS No.          | Applicable Connector                          | Applicable Cable                      | Purchase Unit      |
|---------------|-------------|------------------|-----------------------------------------------|---------------------------------------|--------------------|
| Loose Contact | HR10-PC-111 | CL0110-0515-6-00 | LF13WBP-20PC<br>LF10WBR-12PC<br>LF13WBRB-20PC | 26-30 AWG<br>Outer Dia. $\phi$ 1 Max. | 100pcs per bag     |
| Reel Contact  | HR10-PC-211 | CL0110-0516-9-00 |                                               |                                       | 10,000pcs per reel |

Note: The LF Series uses the contacts from the existing HR10 Series.

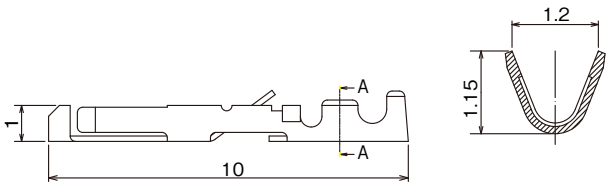
Male Contact (Cat.6A)



| Type          | Part No.    | HRS No.          | Applicable Connector                   | Applicable Cable                      | Purchase Unit      |
|---------------|-------------|------------------|----------------------------------------|---------------------------------------|--------------------|
| Loose Contact | HR30-PC-111 | CL0130-0022-3-00 | LF10WBPHA-8PC(40)<br>LF10WBPHB-8PC(40) | 26-30 AWG<br>Outer Dia. $\phi$ 1 Max. | 100pcs per bag     |
| Reel Contact  | HR30-PC-211 | CL0130-0016-0-00 |                                        |                                       | 10,000pcs per reel |

Note: The LF Series uses the contacts from the existing HR30 Series.

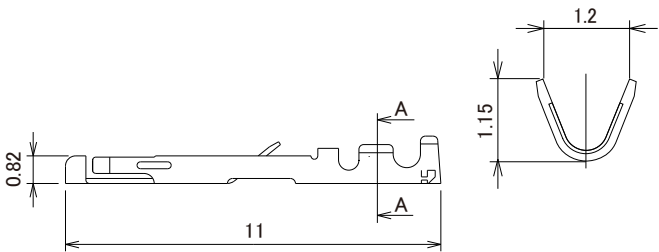
Female Contact



| Type          | Part No.    | HRS No.          | Applicable Connector                          | Applicable Cable                      | Purchase Unit      |
|---------------|-------------|------------------|-----------------------------------------------|---------------------------------------|--------------------|
| Loose Contact | HR12-SC-111 | CL0112-0410-0-00 | LF10WBP-12SC<br>LF13WBP-20SC<br>LF13WBRB-20SC | 26-30 AWG<br>Outer Dia. $\phi$ 1 Max. | 100pcs per bag     |
| Reel Contact  | HR12-SC-211 | CL0112-0407-6-00 |                                               |                                       | 10,000pcs per reel |

Note: The LF Series uses the contacts from the existing HR12 Series.

Female Contact (Cat.6A)

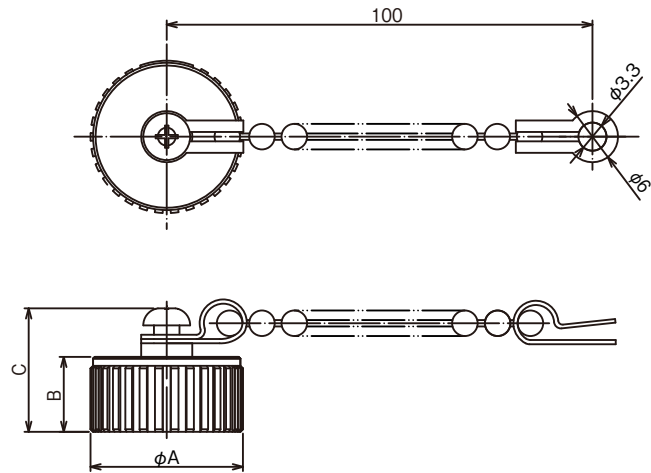


| Type          | Part No.    | HRS No.          | Applicable Connector                   | Applicable Cable                      | Purchase Unit      |
|---------------|-------------|------------------|----------------------------------------|---------------------------------------|--------------------|
| Loose Contact | HR30-SC-111 | CL0130-0023-6-00 | LF10WBJHA-8SC(40)<br>LF10WBJHB-8SC(40) | 26-30 AWG<br>Outer Dia. $\phi$ 1 Max. | 100pcs per bag     |
| Reel Contact  | HR30-SC-211 | CL0130-0017-3-00 |                                        |                                       | 10,000pcs per reel |

Note: The LF Series uses the contacts from the existing HR30 Series.

## Cap

### Metal Receptacle Cap

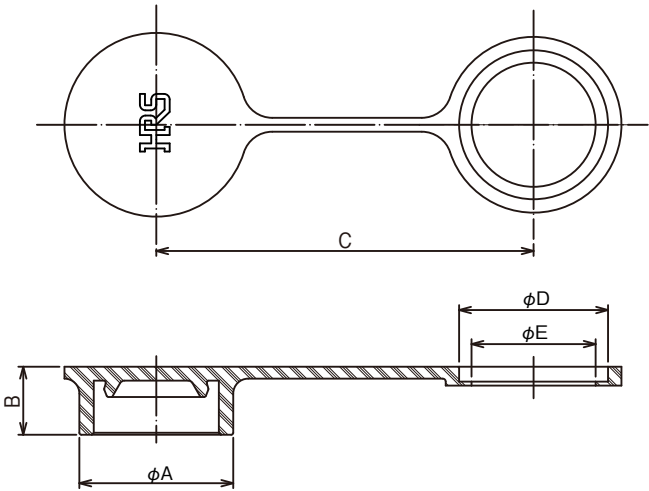


(Example of product appearance.)

Unit : mm

| Type          | Part No.   | HRS No.          | Applicable Connector                                                                                                                                                                        | $\phi A$ | B   | C    | Weight | Purchase Unit |
|---------------|------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----|------|--------|---------------|
| Without Chain | LF07WBR-C  | CL0136-3008-7-00 | LF07WBR-3P<br>LF07WBR-3S<br>LF07WBR-6P<br>LF07WBR-6S<br>LF07WBRB-6S<br>LF07WBRB-3SD(31)<br>LF07WBRB-6SD(31)<br>LF07WBRB-6PD-A(31)<br>LF07WBRB-6SD-A(31)                                     | 12.3     | 8.8 | -    | 4g     | 20pcs per bag |
|               | LF10WBR-C  | CL0136-3001-8-00 | LF10WBR-4P<br>LF10WBR-4S<br>LF10WBR-12P<br>LF10WBR-12S<br>LF10WBR-12PC<br>LF10WBRB-4P<br>LF10WBRB-4S<br>LF10WBRB-12P<br>LF10WBRB-12S<br>LF10WBRB-12PD<br>LF10WBRB-12SD<br>LF10WBRB-8SD(40)  | 14.8     |     |      | 5g     |               |
|               | LF13WBR-C  | CL0136-3003-3-00 | LF13WBR-11P<br>LF13WBR-11S<br>LF13WBR-20P<br>LF13WBR-20S<br>LF13WBR-20SD<br>LF13WBRB-11P<br>LF13WBRB-11S<br>LF13WBRB-20P<br>LF13WBRB-20S<br>LF13WBRB-20SD<br>LF13WBRB-20PC<br>LF13WBRB-20SC | 17.9     |     |      | 7g     |               |
| With Chain    | LF13WBR-C1 | CL0136-3006-1-00 | LF13WBR-11P<br>LF13WBR-11S<br>LF13WBR-20P<br>LF13WBR-20S<br>LF13WBR-20SD<br>LF13WBRB-11P<br>LF13WBRB-11S<br>LF13WBRB-20P<br>LF13WBRB-20S<br>LF13WBRB-20SD<br>LF13WBRB-20PC<br>LF13WBRB-20SC | 17.9     | -   | 14.5 | 12g    |               |

Rubber Receptacle Cap



(Example of product appearance.)

Unit : mm

| Part No.   | HRS No.          | Applicable Connector                                                                                                                                                                        | φ A  | B    | C    | φ D  | φ E  | Weight | Purchase Unit |
|------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|--------|---------------|
| LF07WBR-C2 | CL0136-3005-9-00 | LF07WBR-3P<br>LF07WBR-3S<br>LF07WBR-6P<br>LF07WBR-6S<br>LF07WBRB-6S<br>LF07WBRB-3SD(31)<br>LF07WBRB-6SD(31)<br>LF07WBRB-6PD-A(31)<br>LF07WBRB-6SD-A(31)                                     | 13.0 | 6.55 | 38.0 | 10.0 | -    | 1g     | 20pcs per bag |
| LF10WBR-C2 | CL0136-3007-4-00 | LF10WBR-4P<br>LF10WBR-4S<br>LF10WBR-12P<br>LF10WBR-12S<br>LF10WBR-12PC                                                                                                                      | 15.5 | 6.85 | 38.0 | 15.0 | 12.5 | 2g     |               |
| LF13WBR-C2 | CL0136-3011-0-00 | LF13WBR-11P<br>LF13WBR-11S<br>LF13WBR-20P<br>LF13WBR-20S<br>LF13WBR-20SD<br>LF13WBRB-11P<br>LF13WBRB-11S<br>LF13WBRB-20P<br>LF13WBRB-20S<br>LF13WBRB-20SD<br>LF13WBRB-20PC<br>LF13WBRB-20SC | 18.6 | 6.55 | 40.0 | 15.5 | -    |        |               |

## Applicable Tools

### Termination Tools



(Example of product appearance.)

| Part No.   | HRS No.          | Applicable Connector | Purchase Unit |
|------------|------------------|----------------------|---------------|
| LF07BP-T01 | CL0150-0232-0-00 | LF07WBP#-##          | 1pc per bag   |
| LF07BJ-T01 | CL0150-0233-3-00 | LF07WBJ#-##          |               |
| LF10BP-T01 | CL0150-0235-9-00 | LF10WBP#-##          |               |
| LF10BJ-T01 | CL0150-0236-1-00 | LF10WBJ#-##          |               |
| LF13BP-T01 | CL0150-0237-4-00 | LF13WBP#-##          |               |
| LF13BJ-T01 | CL0150-0238-7-00 | LF13WBJ#-##          |               |

Note 1: The applicable alphanumeric is added in place of ## based on the pin count. (Example: 6S)

Note 2: Use the termination tool as a base for termination or assembly.

### Cable Crimp Tool

| Item              | Part No.    | HRS No.          | LF Series Applicable Cable Dia.        |
|-------------------|-------------|------------------|----------------------------------------|
| Manual Crimp Tool | HR10A-TC-02 | CL0150-0041-2-00 | φ 5mm (Note)                           |
|                   | LF-TC-01    | CL0150-0234-6-00 | φ 7.3mm · φ 8.7mm<br>φ 6.5mm · φ 6.9mm |

Note: Please note that while the applicable cable diameters for the HR10A-TC-02 crimp tool are φ 5mm and φ 7mm, the applicable cable diameter of the LF Series is φ 5mm only.

### Crimp Contact Tool

| Item                    | Type                  | Part No.        | HRS No.          | Applicable Contact                                       | Applicable Cable                 |
|-------------------------|-----------------------|-----------------|------------------|----------------------------------------------------------|----------------------------------|
| Automatic               | Automatic Crimp Press | CM-105C         | CL0901-0001-0-00 | -                                                        | -                                |
|                         | Applicator            | AP105-HR12-1    | CL0901-2015-9-00 | HR10-PC-211<br>HR12-SC-211                               | 26-30 AWG<br>Outer Dia. φ 1 Max. |
|                         |                       | AP105-HR30-1    | CL0901-2049-0-00 | HR30-PC-211<br>HR30-SC-211                               | 26-30 AWG<br>Outer Dia. φ 1 Max. |
| Manual                  | Manual Crimp Tool     | HT802/HR12-SC-1 | CL0150-0400-3-00 | HR10-PC-111<br>HR12-SC-111                               | 26-30 AWG<br>Outer Dia. φ 1 Max. |
|                         |                       | HT102/HR30-1    | CL0150-0229-6-00 | HR30-PC-111<br>HR30-SC-111                               | 26-30 AWG<br>Outer Dia. φ 1 Max. |
| Contact Extraction Tool |                       | RP6-SC-TP       | CL0150-0039-0-00 | HR10-PC-211<br>HR10-PC-111                               | -                                |
|                         |                       | HR12-SC-TP      | CL0150-0050-3-00 | HR12-SC-211<br>HR12-SC-111                               | -                                |
|                         |                       | HR30-TP         | CL0150-0219-2-00 | HR30-PC-211<br>HR30-PC-111<br>HR30-SC-211<br>HR30-SC-111 | -                                |

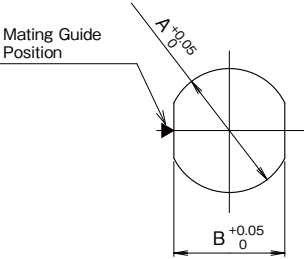
Note 1: Please conduct crimping work according to the Crimp Quality Standard and Crimp Conditions.

Note 2: Problems with tools other than those specified by Hirose are outside the scope of warranty.

Note 3: Applicable Cable and contacts are limited to those listed in the table.

Please refer to the Crimp Conditions for applicable cable core wire configuration. The Crimp Conditions are available from Part No. link.  
(If you are using a cable that is not listed in Crimp Condition, please contact a Hirose sales representative.)

Panel Cut-Out Dimensions

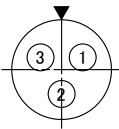
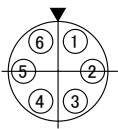
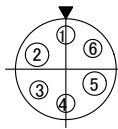


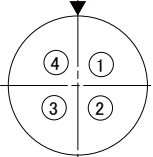
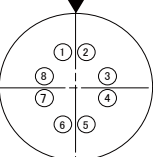
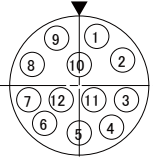
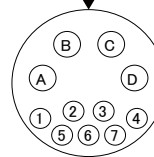
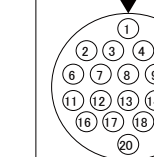
Unit : mm

| Type        | Shell Size | Applicable Connector | $\phi$ A | B    | Panel Thickness |
|-------------|------------|----------------------|----------|------|-----------------|
| Front Mount | LF07       | LF07WBR#-##          | 9.05     | 8.1  | 0.7 to 2.0      |
|             | LF10       | LF10WBR#-##          | 11.05    | 10.2 |                 |
|             | LF13       | LF13WBR#-##          | 14.05    | 13.1 |                 |
| Rear Mount  | LF07       | LF07WBRB#-##         | 11.05    | 10.5 | 0.7 to 4.0      |
|             | LF10       | LF10WBRB#-##         | 14.05    | 13.1 | 0.7 to 2.0      |
|             | LF13       | LF13WBRB#-##         | 17.05    | 16.1 | 0.7 to 4.8      |

Note: The applicable alphanumeric is added in place of ## based on the pin count. (Example: 6S)

## Contact Arrangement and Main Specifications

| Shell Size                | LF07                                                                              |                                                                                   | LF07-A                                                                            |                            |
|---------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------|
| Contact Arrangement       |  |  |  |                            |
| No. of Pos.               | 3                                                                                 | 6                                                                                 | Power/Signal Hybrid 6pos.                                                         |                            |
| Withstanding Voltage      | 1,250V AC                                                                         | 300V AC                                                                           | 300V AC                                                                           |                            |
| Current Rating            | 5A                                                                                | 2A                                                                                | Power 2pos.<br>4A                                                                 | Signal 4pos.<br>1A         |
| Insulation Resistance     | 1,000M $\Omega$                                                                   |                                                                                   |                                                                                   |                            |
| Contact Resistance        | 15m $\Omega$                                                                      |                                                                                   |                                                                                   |                            |
| Solder Pot Inner Diameter | $\phi$ 1.15                                                                       | $\phi$ 0.8                                                                        | Power 2pos.<br>$\phi$ 1.15                                                        | Signal 4pos.<br>$\phi$ 0.8 |

| Shell Size                | LF10                                                                               |                                                                                    |                                                                                    | LF13                                                                                |                                                                                      |              |
|---------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------|
| Contact Arrangement       |  |  |  |  |  |              |
| No. of Pos.               | 4                                                                                  | 8                                                                                  | 12                                                                                 | Hybrid 11pos.                                                                       |                                                                                      | 20           |
| Withstanding Voltage      | 1,250V AC                                                                          | 1,000V AC                                                                          | 300V AC                                                                            | Power 4pos.<br>1,250V AC                                                            | Signal 7pos.<br>300V AC                                                              | 300V AC      |
| Current Rating            | 10A                                                                                | 2A                                                                                 | 2A                                                                                 | Power 4pos.<br>10A                                                                  | Signal 7pos.<br>2A                                                                   | 2A           |
| Insulation Resistance     | 1,000M $\Omega$                                                                    | 100M $\Omega$                                                                      | 1,000M $\Omega$                                                                    |                                                                                     |                                                                                      |              |
| Contact Resistance        | 5m $\Omega$                                                                        | Signal 30m $\Omega$<br>Shield 30m $\Omega$                                         | 15m $\Omega$                                                                       | Power 4pos.<br>5m $\Omega$                                                          | Signal 7pos.<br>15m $\Omega$                                                         | 15m $\Omega$ |
| Solder Pot Inner Diameter | $\phi$ 1.7                                                                         | —                                                                                  | $\phi$ 0.8                                                                         | Power 4pos.<br>$\phi$ 1.7                                                           | Signal 7pos.<br>$\phi$ 0.8                                                           | $\phi$ 0.8   |

Note 1: The contact arrangements are from the view of the female contact connector mating face.

Note 2: The ▼ symbol in the above diagrams indicates the mating guide position.

Note 3: The withstanding voltage values in the above tables are tested values.

## Cable Specifications (Reference)

| No. of Pos. |                      | 3pos.                       | 4pos.       | 6pos.                | 12pos.      | 20pos.      | 11pos.      |            |
|-------------|----------------------|-----------------------------|-------------|----------------------|-------------|-------------|-------------|------------|
| Conductor   | Material             | Tin Plated Soft Copper Wire |             |                      |             |             |             |            |
|             | Size (mm)            | ϕ 0.18                      | ϕ 0.26      | ϕ 0.16               | ϕ 0.16      | ϕ 0.16      | ϕ 0.26      | ϕ 0.16     |
|             | Construction         | 20 / ϕ 0.18                 | 20 / ϕ 0.26 | 7 / ϕ 0.16           | 7 / ϕ 0.16  | 7 / ϕ 0.16  | 26 / ϕ 0.26 | 7 / ϕ 0.16 |
|             | Size (AWG)           | 20                          | 16          | 26                   | 26          | 26          | 16          | 26         |
|             | Sectional Area (mm²) | 0.5                         | 1.25        | 0.14                 | 0.14        | 0.14        | 1.25        | 0.14       |
|             | Diameter (mm)        | ϕ 0.98                      | ϕ 1.5       | ϕ 0.48               | ϕ 0.48      | ϕ 0.48      | ϕ 1.5       | ϕ 0.48     |
| Insulator   | Diameter (mm)        | ϕ 1.5<br>(Standard)         | ϕ 2.1       | ϕ 0.88<br>(Standard) | ϕ 0.9       | ϕ 0.9       | ϕ 2.1       | ϕ 0.95     |
|             | Thickness (mm)       | 0.26                        | 0.3         | 0.2                  | 0.21        | 0.21        | 0.3         | 0.24       |
| Shield      | Material             | Tin Plated Soft Copper Wire |             |                      |             |             |             |            |
|             | Density (%)          | 85%                         | 80% Min.    | 85%                  | 80% Min.    | 80% Min.    | 80% Min.    |            |
|             | Diameter (mm)        | ϕ 3.6                       | ϕ 5.5       | ϕ 3.4                | ϕ 4.2       | ϕ 5.1       | ϕ 6.7       |            |
| Jacket      | Diameter (mm)        | ϕ 5 ± 0.2                   | ϕ 7.3 ± 0.2 | ϕ 5 ± 0.2            | ϕ 7.3 ± 0.2 | ϕ 8.7 ± 0.2 | ϕ 8.7 ± 0.2 |            |

Note 1: The cable specifications in the above table satisfy UL requirements.

Note 2: Use a cable without empty space inside. If there is empty space in the cable, clamping and waterproof performance may not be maintained.

## 8pos. (Cat.6A) Cable

| Cable Supplier             | Product Name                                                             | Conductor |      |      |            |                 | Insulator       | Sheath                        |                 |       |
|----------------------------|--------------------------------------------------------------------------|-----------|------|------|------------|-----------------|-----------------|-------------------------------|-----------------|-------|
|                            |                                                                          | Wire type | Size |      | Structure  | Outer dia. (mm) | Outer dia. (mm) | Material                      | Outer dia. (mm) | Color |
|                            |                                                                          |           | AWG  | sq   |            |                 |                 |                               |                 |       |
| Nippon Seisen Cable        | 4P NSGDT6-PC-10G-SB                                                      | Stranded  | 26   | 0.12 | 7/<br>0.17 | φ 0.51          | φ 0.90          | PVC                           | φ 6.3           | Blue  |
| Quabbin                    | 4PR. SF/UTP HIGH FLEX INDUSTRIAL ETHERNET/IP PATCH CORD -- CATEGORY 6/6a | Stranded  | 26   | 0.14 | 7/<br>0.16 | φ 0.48          | φ 0.91          | Thermoplastidc elastomer      | φ 7.0           | Teal  |
| Taiyo Cabletec Corporation | TCAPTC-17005<br>FAFX-6A26SLAB(BK)<br>4P × 26AWG                          | Stranded  | 26   | 0.16 | 7/<br>0.17 | φ 0.46          | φ 0.84          | Flame retardant lead free PVC | φ 6.5           | Black |

## Connector Usage Precautions

- When assembling the connector and installing to equipment, refer to the separate procedure manual and drawings. Please also make sure to use the specified tightening torque. If the torque is too low or high, it may result in loosening or product damage. In order to prevent loosening, apply Locktight 263 manufactured by Henkel Japan Ltd., Tokyo at the male screw.(Contact a Hirose sales representative for the procedure manual.)
- Once mated, pull lightly on the cable to confirm the mated status and that the connector does not come off.
- Excessive external force applied to the connector may cause deformation or damage, resulting in poor conduction or waterproofing performance issues. Please avoid forceful insertion/removal, impact and pulling, routing or twisting of the cables. Also, when routing inside equipment, make sure to provide sufficient slack to the cable so that a load is not applied directly to the connector such as through excessive cable bending or tension on the cable.
- Damage of the waterproof seal or waterproof surface may result in issues with the waterproof performance, so please refrain from using a damaged product.

## While Taking into Consideration

Specifications mentioned in this catalog are reference values.

When considering to order or use this product, please review the Drawing and Product Specifications sheets.

Use an appropriate cable when using the connector in combination with cables.

If considering usage of a non-specified cable, please contact your sales representative.

If assembly process is done by jigs & tools which are not identified by Hirose, assurance will not be given.

If considering usage for below mentioned applications, please contact your sales representative.

In cases where the application will demand a high level of reliability, such as automotive, medical instruments, public infrastructure, aerospace/ defense etc. Hirose must review before assurance of reliability can be given.

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