

Light Weight Micro SMT Coaxial Connector, 1.9mm to 2.4mm Mated Height

U.FL Series



■ Features

1. Mated Height (1.9mm to 2.4mm NOM)

The maximum height from the board surface when the plug and Receptacle are mated is 2.0 to 2.0mm Max. depending on the plug for a low profile. (Refer to diagram on right)

2. Receptacle

Small and light weight with a mass of 15.7mg and occupied mounting space of 7.7mm². Compatible with board mounting. (Embossed packaging)

3. Frequency

Plug U.FL(A) : Up to 18GHz
 Plug U.FL : Up to 8GHz
 Receptacle can be used with both U.FL(A) and U.FL.

4. Plug compatible with ultra-fine coaxial (fluorinated resin insulated) cable

$\phi 1.37$, $\phi 1.32$, $\phi 1.13$, $\phi 0.95$, $\phi 0.81$

5. Various Accessories

Plug insertion/extraction tools, adapter for inspection and internal wiring, and SMA, MMCX, and TNC connectors for U.FL back end connection are available.

6. Tactile Mating

Tactile click sensation confirms fully mated condition, assuring complete electrical and mechanical connection.

7. Environmental Compatibility

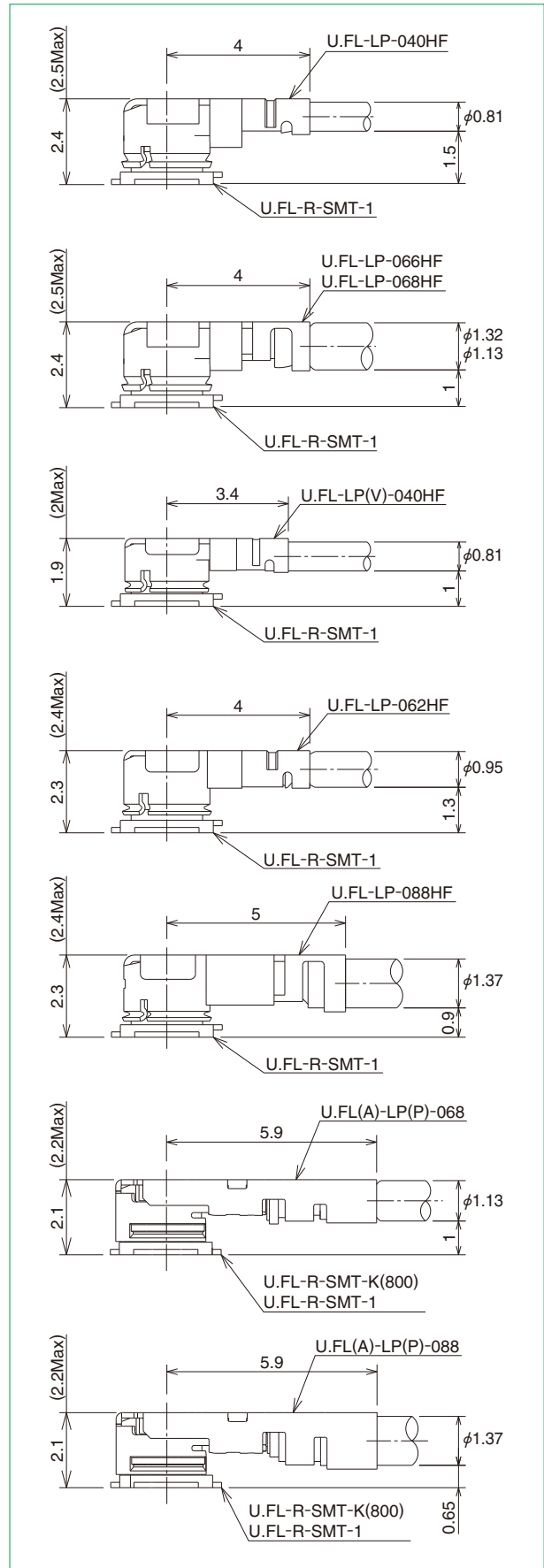
- ◆ Halogen Free
 Chlorine and bromine above the standard values are not used for receptacle and plug harnesses.
 *As defined by IEC61249-2-21
 Br-900 ppm maximum, Cl-900 ppm maximum,
 Cl+Br combined-1,500 ppm maximum
- ◆ ROHS2 Compatible

■ Applications

Wireless LAN Devices (Wi-Fi 6), Bluetooth devices, Car navigation, drone, PDA, GPS, wireless transmission devices, electronic measuring devices, etc.

Plug U.FL(A) : Up to 18GHz
 Plug U.FL : Up to 8GHz

● Space Factor of Mated Connector

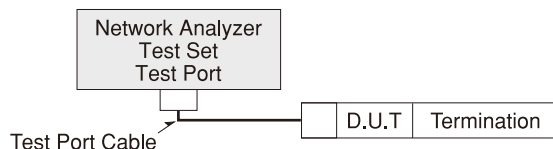


Product Specifications

| Ratings | Nominal characteristic impedance | 50Ω | Operating temperature range | -40°C to +105°C | Storage temperature range | -30°C to +70°C | |
|---|---|---|-----------------------------|-----------------|---------------------------|----------------|--|
| | Frequency range | DC to 8GHz | Operating humidity | 90%RH max. | Storage humidity | 90%RH max. | |
| Item | Specification | Conditions | | | | | |
| 1. Contact resistance | Center : 20mΩ max. (50mΩ max.) Outer : 10mΩ max. (20mΩ max.) (U.FL(A)) | 10mA max. | | | | | |
| 2. Insulation resistance | 500MΩmin. | 100V DC | | | | | |
| 3. Withstanding voltage | No flashover or insulation breakdown. | 200V AC / 1 minute | | | | | |
| 4. V.S.W.R.* | Cable Type | | DC~3GHz | 3~6GHz | 6~8GHz | | |
| | U.FL-LP-040HF | φ0.81 | 1.3 Max | 1.35 Max | 1.4 Max | | |
| | U.FL-LP(V)-040HF | φ0.81 | 1.3 Max | | | | |
| | U.FL-LP-068HF | φ1.13 | 1.3 Max | 1.4 Max | 1.6 Max | | |
| | U.FL-LP-066HF | φ1.32 | 1.3 Max | 1.5 Max | 1.7 Max | | |
| | U.FL-LP-062HF | φ0.95 | 1.3 Max | | | 1.4 Max | |
| | U.FL-LP-088HF | φ1.37 | 1.3 Max | 1.4 Max | 1.6 Max | | |
| | U.FL(A)-LP(P)-068 | φ1.13 | 1.3 Max | 1.4 Max | 6-9GHz : 1.5 Max | | |
| U.FL(A)-LP(P)-088 | φ1.37 | 9-12GHz : 1.6 Max 12-15GHz : 1.7 Max 15-18GHz : 2.0 Max | | | | | |
| 5. Female Contact Retention Force | 0.15N Min./0.1N Min. (062 Plug, U.FL(A)) | Measured with φ0.475 pin gauge | | | | | |
| 6. Durability (mating / un-mating, with corresponding plug) | Contact resistance Initial Value+5mΩ | 30 cycles | | | | | |
| 7. Vibration | No electrical discontinuity of 1μs min. No damage, cracks or parts dislocation. | Frequency : 10 to 100Hz, single amplitude of 1.5mm, acceleration of 59m/s ² , for 5 cycles in the direction of each of the 3 axis. | | | | | |
| 8. Shock | | Acceleration of 735m/s ² , 11ms duration, sine half-wave waveform, 3 cycles in each of 3 axes. | | | | | |
| 9. Humidity (Steady state) | Insulation Resistance 10MΩ min. (High Temperature) 500MΩ min. (When Dry) | 96 hours at temperature of 40°C and humidity of 95%. | | | | | |
| 10. Temperature cycle | No damage, cracks or parts dislocation. Contact resistance : 25mΩ max. (Center) 15mΩ max. (Outer) | Temperature : -40°C→+5 to +35°C→+105°C→+5 to +35°C Time : 30min. → 3min. → 30min. → 3min. 5 cycles | | | | | |
| 11. Salt spray | V.S.W.R. Satisfies initial value | 5% salt water solution, 48 hours | | | | | |

*V.S.W.R. Measurement System

The above V.S.W.R. standard values were measured using the measurement connection shown below.



Note 1 : Cable type connectors were measured with SMA conversion adapters attached to both ends of the harness product of a suitable 100cm cable.

Note 2 : Board type connectors were mounted to a 50Ω glass epoxy board and measurements were conducted with SMA conversion adapters attached.

Material / Finish

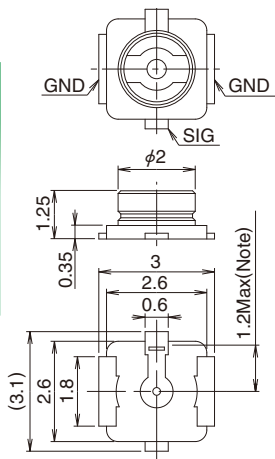
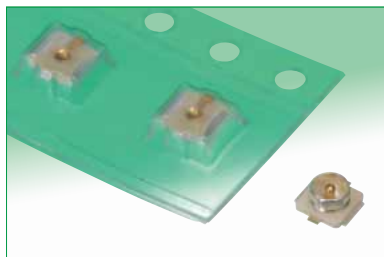
●Plug-right angle

| Part | Material | Finish/Remarks |
|-----------------------|--------------------------|---|
| Shell | Phosphor bronze | Silver plated / Nickel plated (Contact gold plated) (U.FL(A)) |
| Insulator | PBT, Color : Gray | UL94HB (LP(V)-040HF) |
| | LCP, Color : Milky-white | UL94V-0 (040HF,066HF, 068HF, 062HF, 088HF) |
| | LCP (Black) | UL94V-0 (U.FL(A)) |
| Female center contact | Phosphor bronze | Gold plated |

●Receptacle

| Part | Material | Finish/Remarks |
|---------------------|--------------------------|---|
| Shell | Phosphor bronze | Silver plated (U.FL-R-SMT-1) / Gold Plated (U.FL-R-SMT-K) |
| Insulator | LCP, Color : Milky-white | UL94V-0 (U.FL-R-SMT-1) |
| | LCP (Black) | UL94V-0 (U.FL-R-SMT-K) |
| Male center contact | Brass | Gold plated |

■ Receptacle

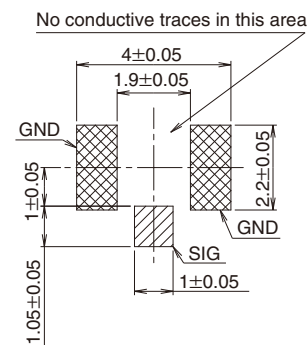


U.FL-R-SMT-1

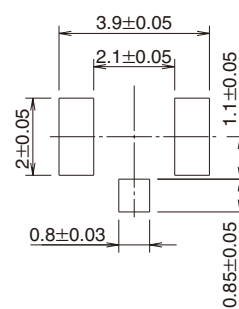
Shell : Silver plated

| Part No. | HRS No. | Packaging | Weight / EA |
|------------------|---------------|-----------------|-------------|
| U.FL-R-SMT-1(01) | 331-0472-2 01 | 100 pcs/pack | 15.7/mg |
| U.FL-R-SMT-1(60) | 331-0472-2 60 | 4,000 pcs/reel | |
| U.FL-R-SMT-1(80) | 331-0472-2 80 | 10,000 pcs/reel | |

◆ Recommended PCB Mounting Pattern

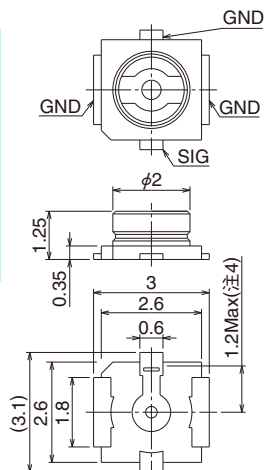


◆ Recommended Metal Mask Dimensions



Mask Thickness : 0.1mm/0.12mm

- (Note 1) The sales unit of the (01) specification receptacle is one pack (100 units per pack). Please order based on the number of packs.
- (Note 2) The sales unit of the (60) specification receptacle is 1 reel (4,000 pcs per reel) so please order based on the number of reels.
- (Note 3) The sales unit of the (80) specification receptacle is 1 reel (10,000 pcs per reel), so please order based on number of reels.
- (Note 4) Tolerance value of mold resin applied to center contact.

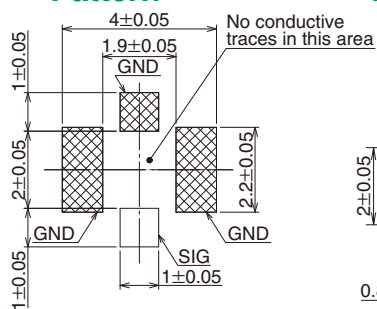


U.FL-R-SMT-K

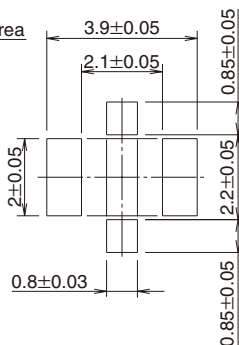
Shell : Gold plated

| Part No. | HRS No. | Packaging | Mass |
|-------------------|---------------|---------------------|---------|
| U.FL-R-SMT-K(800) | 480-0761-0 00 | 10,000 pcs per reel | 15.7/pc |

◆ Recommended PCB Mounting Pattern



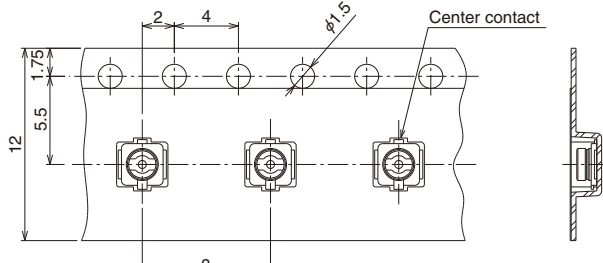
◆ Recommended Metal Mask Dimensions



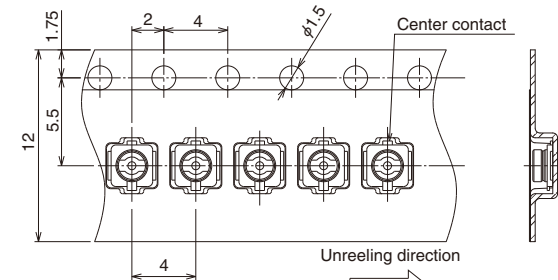
Mask Thickness : 0.1mm/0.12mm

- (Note 5) The sales unit of the receptacle is 1 reel (10,000 pcs per reel), so please order based on the number of reels.

● Embossed Carrier Tape Dimensions(IEC 60286-3 compliant)
Embossed Carrier Tape Dimensions



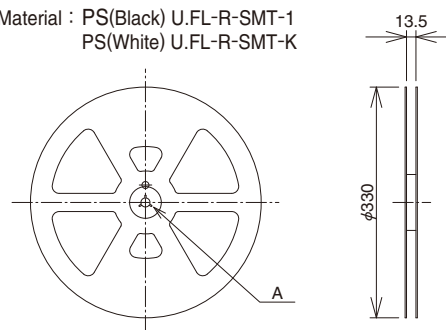
U.FL-R-SMT-1(60) : 8mm pitch



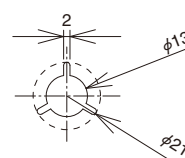
U.FL-R-SMT-1(80) / U.FL-R-SMT-K(800) : 4mm pitch

◆ Reel Dimensions

Material : PS(Black) U.FL-R-SMT-1
PS(White) U.FL-R-SMT-K



A(SCALE FREE)



■ Plug (Center Solder Type)



◆ U.FL Plug

- The center contact is gold plated and the outer contact is silver plated.

| | U.FL-LP-040HF | U.FL-LP-066HF U.FL-LP-068HF | U.FL-LP(V)-040HF | U.FL-LP-062HF | U.FL-LP-088HF |
|------------------|----------------------------|--------------------------------|----------------------------|----------------------------|----------------------------|
| Part No. Size | | | | | |
| Mated Height | 2.5mm Max. (2.4mm Nom.) | 2.5mm Max. (2.4mm Nom.) | 2.0mm Max. (1.9mm Nom.) | 2.4mm Max. (2.3mm Nom.) | 2.4mm Max. (2.3mm Nom.) |
| Applicable cable | Dia. 0.81mm | Dia. 1.13mm and Dia. 1.32mm | Dia. 0.81mm | Dia. 0.95mm | Dia. 1.37mm |
| Weight (mg) | 54 | 59 | 35 | 45.5 | 72 |

● Cable Guide

| Description | Cable Type | Cable Specification | | | | | | | |
|-------------------------------------|------------|---------------------|---------------------|------------------------|--------|-----------------------|----------------------------|---------|---------|
| | | Inner Conductor* | Dielectric Diameter | Outer Conductor* | Jacket | Flame Retardant Grade | Nominal attenuation (dB/m) | | |
| | | | | | | | At 3GHz | At 6GHz | At 8GHz |
| Dia.0.81mm Coaxial Cable | 04 | 7/0.05 SA (AWG#36) | Dia.0.4mm FEP | Single Shield TA | FEP | VW-1 | 5.4 | 8.0 | 10.2 |
| Dia.1.13mm Coaxial Cable | 068 | 7/0.08 SA (AWG#32) | Dia.0.68mm FEP | Single Shield TA | | | 3.73 | 5.44 | 6.5 |
| Dia.1.32mm Coaxial Cable | 066 | 7/0.08 SA (AWG#32) | Dia.0.66mm FEP | Double Shield TA | | | 3.8 | 5.6 | 7.1 |
| Dia.0.95mm Coaxial Cable | 062 | 7/0.071 SA (AWG#33) | Dia.0.62mm FEP | Tape, single Shield TA | | | 3.1 | 4.4 | 5.3 |
| Dia.1.37mm Coaxial Cable | 088 | 7/0.102 SA (AWG#30) | Dia.0.88mm FEP | Single Shield TA | | | 2.8 | 4.3 | 5.0 |
| Dia.1.37mm Coaxial Cable (Low Loss) | 088 | 7/0.102 SA (AWG#30) | Dia.0.88mm FEP/PTFE | Tape, Single Shield TA | | | 2.5 | 3.4 | 3.8 |

(Attenuation is a reference value.)

* SA : Silver plated annealed copper wire, TA : Tin plated annealed copper wire

[Plugs can be ordered only as terminated cable assemblies.]

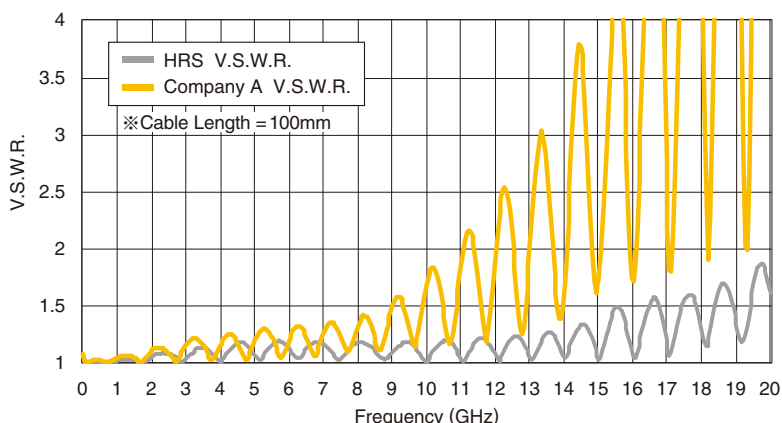
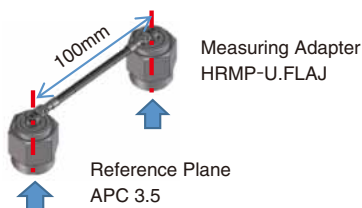
■ Plug (No Solder Type)



◆ U.FL(A) Plug

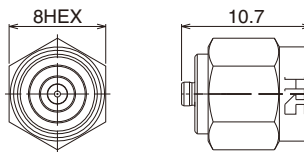
- Harness product guarantees frequency up to 18GHz and impedance matching.
- The inner and outer contact portion are gold plated (the main body is nickel plated)
- The receptacle can be mated with U.FL-R-SMT-1 (shell : silver plated) and U.FL-R-SMT-K (shell : gold plated).
- The SMA inspection adapter and extraction tool are only for the U.FL(A) Plug.
- Controls variation and improves extraction force by 50% compared to conventional products and competing products (Approx. 30N). It is difficult to remove the connector even when bending the cable.

| Part No. Size | U.FL(A)-LP(P)-068 | U.FL(A)-LP(P)-088 |
|------------------|-------------------------|-------------------|
| | | |
| Mated Height | 2.2mm Max. (2.1mm Nom.) | |
| Applicable cable | φ1.13 | φ1.37 |
| Weight (mg) | 56 | 58 |



■ U.FL(A) Inspection SMA Conversion Adapter

(Mated Portion: U.FLA Jack- SMA Plug)

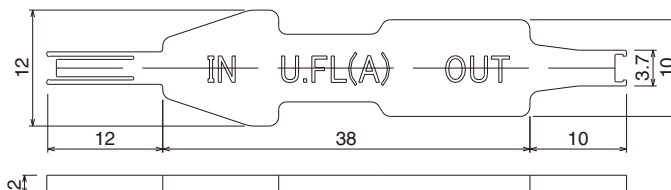


| Part No. | HRS No. |
|-------------|------------|
| HRMP-U.FLAJ | 311-2400-0 |

(Note) Since the U.FL side mated portion has a weaker lock than standard products, it cannot be used for purposes other than performance measurement.

■ U.FL(A) Insertion/Extraction Tool

For removing from the mated condition

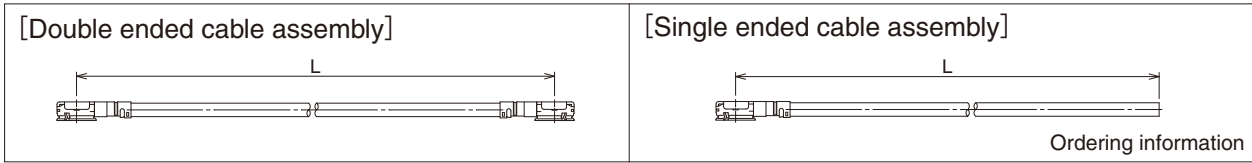


| Part No. | HRS No. |
|-------------------|------------|
| U.FL(A)-LP-IN.OUT | 331-2401-0 |

The Procedure for ordering patch cord

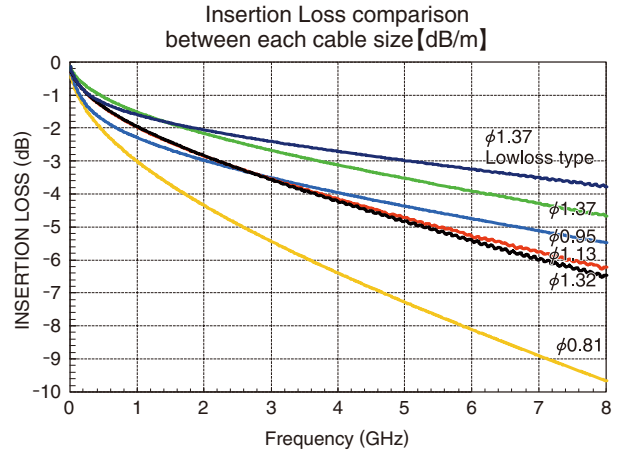
Please select the specifications in 3 steps. No need product name for ordering patch cords.

STEP 1 : Single end or both ends



STEP 2 : Cable and mating height

| No. | Jacket diameter | Cable color | Mating height (Max) | Plug |
|-----|-----------------|---------------|---------------------|-------------------|
| 1 | φ1.37 | Gray / Black | 2.3mm (2.4mm) | U.FL-LP-088HF |
| 2 | φ1.37 Low Loss | Gray / Black | 2.3mm (2.4mm) | U.FL-LP-088HF |
| 3 | φ1.37 | Gray / Black | 2.1mm (2.2mm) | U.FL(A)-LP(P)-088 |
| 4 | φ1.32 | Gray / Black | 2.4mm (2.5mm) | U.FL-LP-066HF |
| 5 | φ1.13 | Gray / Black | 2.4mm (2.5mm) | U.FL-LP-068HF |
| 6 | φ1.13 | Gray / Black | 2.1mm (2.2mm) | U.FL(A)-LP(P)-068 |
| 7 | φ0.95 | Gray / Black | 2.3mm (2.4mm) | U.FL-LP-062HF |
| 8 | φ0.81 | White / Black | 2.4mm (2.5mm) | U.FL-LP-040HF |
| 9 | φ0.81 | White / Black | 2.0mm (1.9mm) | U.FL-LP(V)-040HF |



STEP 3 : Cable length (mm)

● Standard tolerances for (L)

| (L)(mm) | Standard tolera(mm) |
|--------------------|---------------------|
| *L=35 to 200 | ±4 |
| L=201 to 500 | ±8 |
| L=501 to 1000 | ±12 |
| L=Longer than 1000 | ±1.5% of (L) |

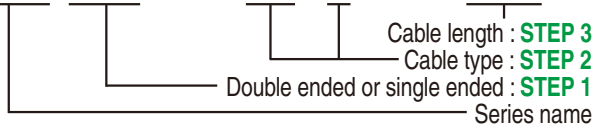
Note : Minimum available length(L) is 35mm. (U.FL(A) is from 80 to 1200mm)

Patch cord name example

Characters that are not red are for Hirose internal identification.

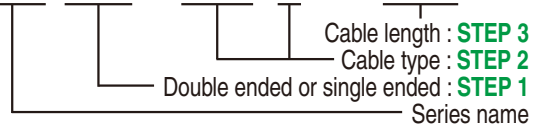
● Plug (Center Solder Type)

U.FL-2LPHF6-04N1TV-A-300



● Plug (No Solder Type)

UFL-2LPA-068Y2T-A-300



STEP 1 Example Notation

[Double ended] **U.FL-2LPHF6-04N1TV-A-300** [Single ended] **U.FL-LPHF6-04N1TV-A-300**

STEP 2 Example Notation

1 Cable-mating height

[Dia. 1.37 cable (088 cable)]
088 is listed in the third block representing the cable type.
U.FL-2LPHF6-088N1T-A-300 (Plug : U.FL)
UFL-2LPA-088Y1T-A-300 (Plug : U.FL(A))
 [Dia. 1.37 Cable (088) Low Loss]
 Block 3 that shows the cable times says **088**.
UFL-2LPHF6-088N1PD-A-300 (Plug : U.FL)
 [Dia. 1.32 cable (066 cable)]
066 is listed in the third block representing the cable type.
U.FL-2LPHF6-066N1-A-300 (Plug : U.FL)
 [Dia. 1.13 cable (068 cable)]
068 is listed in the third block representing the cable type.
U.FL-2LPHF6-068N1T-A-300 (Plug : U.FL)
UFL-2LPA-068Y1T-A-300 (Plug : U.FL(A))
 [Dia. 0.95 cable (062 cable)]
062 is listed in the third block representing the cable type.
U.FL-2LPHF6-062N1D-A-300 (Plug : U.FL)
 [Dia. 0.81 cable (040 cable)]
04 is listed in the third block representing the cable type.
 When the height is 1.9mm, **V** enters after LP.
 Dot does not needed for U.FL series name.
U.FL-2LPHF6-04N1TV-A-300 : Mating height 2.4mm
UFL-2LPVHF6-04N1TV-A-300 : Mating height 1.9mm

2 Cable color

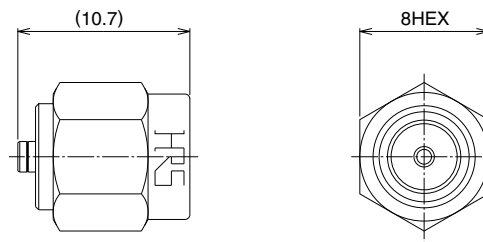
~Except Dia. 0.81 cable~
 [Gray]
1 is listed in the third block representing the cable type.
U.FL-2LPHF6-062N1D-A-300 (Plug : U.FL)
 [Black]
2 is listed in the third block representing the cable type.
U.FL-2LPHF6-062N2D-A-300 (Plug : U.FL)
 ~Dia. 0.81 cable~
 [White]
1 is listed in the third block representing the cable type.
U.FL-2LPHF6-04N1TV-A-300 (Plug : U.FL)
 [Black]
2 is listed in the third block representing the cable type.
U.FL-2LPHF6-04N2TV-A-300 (Plug : U.FL)

STEP 3 Example Notation

Cable length is written in millimeters at the end.
 EX : 300mm
U.FL-2LPHF6-088N1T-A-300

■ Conversion Adapter

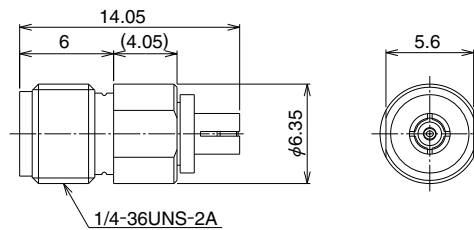
● SMA Conversion Adapter (Mated Portion : UFL Jack - SMA Plug)



| Part No. | HRS No. |
|----------------|---------------|
| HRMP-U.FLJ(40) | 311-0300-2 40 |

(Note) Since the U.FL side mating portion has a weaker lock than standard products, it cannot be used for purposes other than performance measurement.

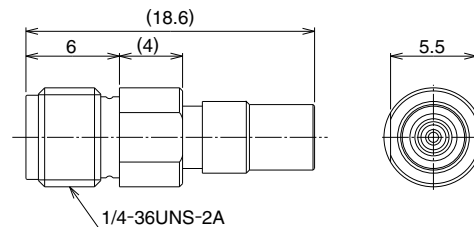
● SMA Conversion Adapter (Mated Portion : U.FL Plug - SMA Jack)



| Part No. | HRS No. |
|----------------|---------------|
| HRMJ-U.FLP(40) | 311-0301-5 40 |

(Note) Since the U.FL side mating portion has a weaker lock than standard products, it cannot be used for purposes other than performance measurement.

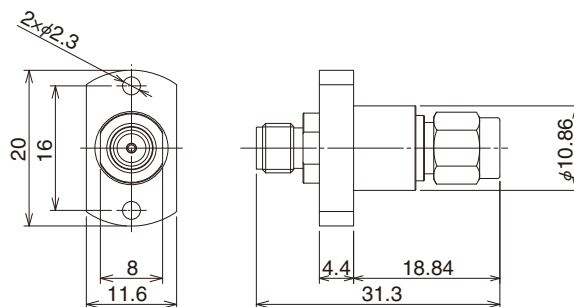
● SMA Conversion Adapter (Mated Portion : U.FL Plug - SMA Jack)



| Part No. | HRS No. |
|--------------------|---------------|
| HRMJ-U.FLP-ST1(40) | 311-0385-5 40 |

This connector is used by pressing the mating portion of the U.FL side with the mating portion of U.FL-R-SMT.

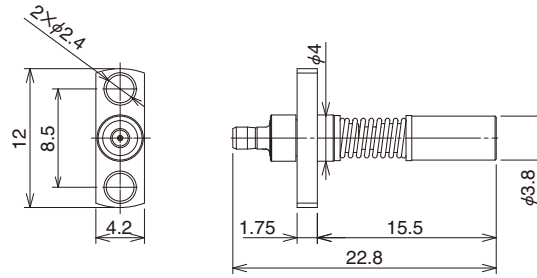
● SMA Conversion Adapter (Mated Portion: SMA Jack (Measuring Device Connection Side) -SMA Plug)



| Part No. | HRS No. |
|--------------------|---------------|
| HRM-PA-PJ(F)-1(40) | 323-0805-9 40 |

(Note) HRMJ-U.FLP-ST1 absorbs misalignment when mated with the plug (coupling side) and connecting the jack with the measuring device.
(Refer to next page)

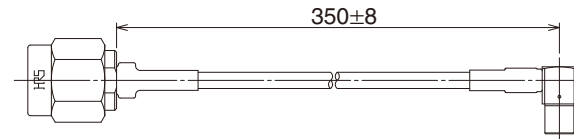
● Probe for Inspect of Multiple Narrow Pitch Receptacles (Mated Portion : U.FL Plug (No lock) - ML51 Jack)



| Part No. | HRS No. |
|-----------------------|------------|
| U.FLP-ML51.J-PA(F)-ST | 311-0446-8 |

(Note) Hirose's ML51 is used for the measuring device interface. It is ideal for simultaneous inspection of multiple narrow pitch mounted receptacles.

● Harness for Narrow Pitch Probe Connection (Mated Portion : SMA Plug (Measuring Device Connection Side) - ML55 Plug)

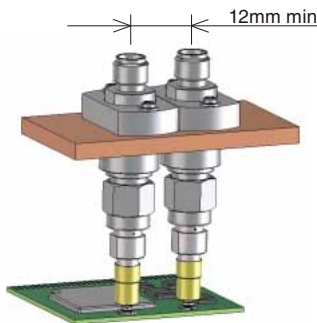


| Part No. | HRS No. |
|--------------------------|---------------|
| HRMP-ML51LP-DTR178-350RS | 321-4926-2 01 |

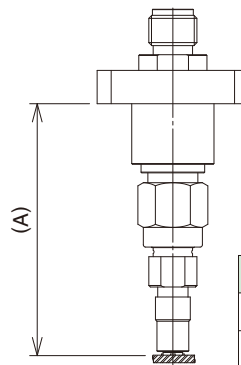
(Note) Used to connect U.FLP-ML51J-PA(F)-ST and the measuring device. It is recommended to provide slack to the cable length so that it can absorb misalignment smoothly.

■ Inspection Probe

● HRMJ-U.FLP-ST1 and HRM-PA-PJ(F)1 Combination and Usage

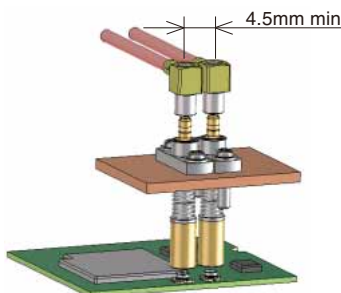


Shortest Pitch for Adjacency

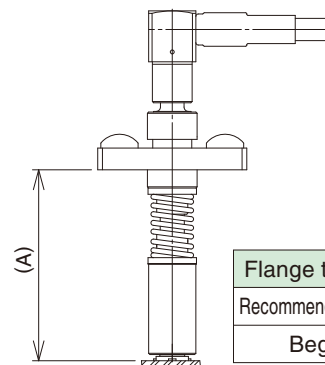


| | |
|--------------------------------|----------|
| Flange to Board Surface | (A) |
| Recommendation for Measurement | 32.5±0.2 |
| Starting Load | 33.2 |

● U.FLP-ML51.J-PA(F)-ST and HRMP-ML51LP-DTR178-350RS Combination and Usage



Shortest Pitch for Adjacency

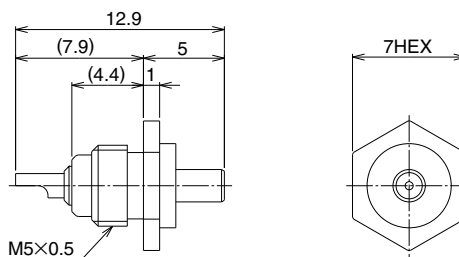


| | |
|--------------------------------|----------|
| Flange to Board Surface | (A) |
| Recommendation for Measurement | 15.1±0.2 |
| Beginning Load | 16 |

*For the inspection probe do not tilt the tip contact from the tensile load of the connecting cable.

■ Inspection Receptacle

Receptacle for inspecting the conduction and withstanding voltage of harness products.

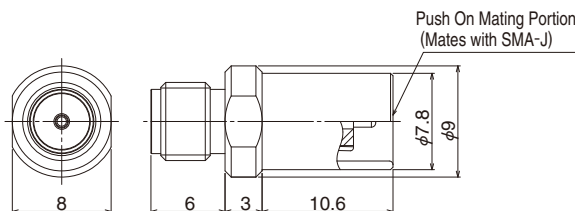


| | |
|----------|------------|
| Part No. | HRS No. |
| U.FL-R-1 | 331-0466-0 |

(Note 1) Product cannot be used for purposes other than conduction or withstanding voltage inspection because there is no lock on the mating portion.

■ Inspection Assistance Device

● SMA Mating Push On Conversion Adapter

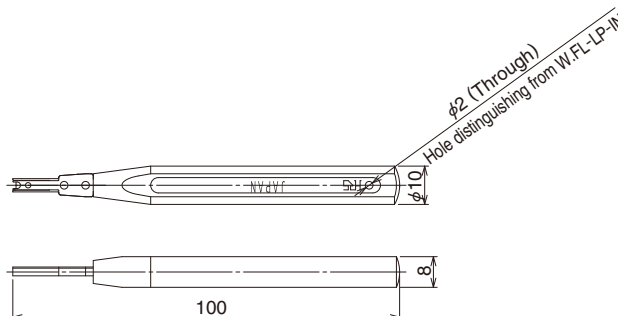


| | |
|---------------|------------|
| Part No. | HRS No. |
| HRMP(PO)-HRMJ | 323-0741-8 |

Coverts SMA plug mating portion to push on type, reducing the number of steps required for repeated SMA mating.

■ Insertion Tool

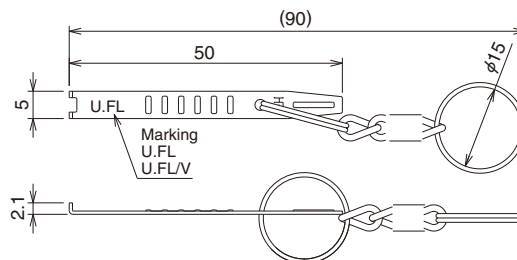
Tool for plug insertion.



| | |
|------------|------------|
| Part No. | HRS No. |
| U.FL-LP-IN | 331-0334-9 |

◆ Extraction Tool

Tool for unmating.

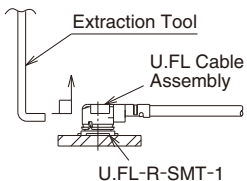
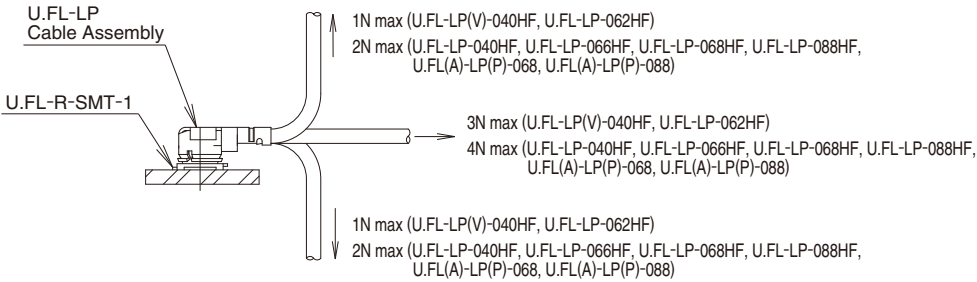


| Part No. | HRS No. | Applicable Plug |
|----------------|------------|------------------------------------|
| U.FL-LP-N-2 | 331-0494-5 | U.FL-LP-040HF, 066HF, 088HF, 068HF |
| U.FL-LP(V)-N-2 | 331-0493-2 | U.FL-LP-062HF, U.FL-LP(V)-040HF |

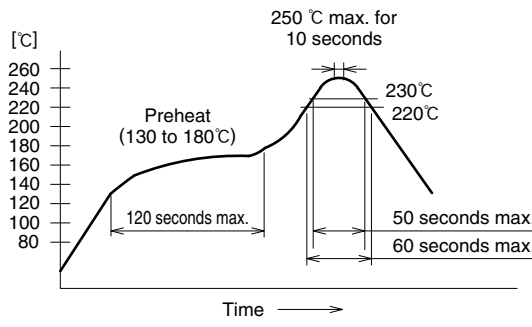
(Note) U.FL-LP-N is also used with E.FL Series.

Usage Precautions

1. Plugs

| | |
|---|--|
| <p>(1) Mating / unmating</p> | <p>1) To disconnect connectors, insert the end portion of U.FL-LP-N-2 and U.FL-LP(V)-N-2 under the connector flanges and pull off vertically, in the direction of the connector mating axis. However for U.FL(A) (Solderless connection type, use U.FL(A)-LP-IN.OUT and pull out vertically. When removing the connector directly, hold the connector lid and pull out vertically in relation to the connector mating axis. (Be careful not to damage the connector with fingers or nails.)</p> <p>2) To mate the connectors, the mating axes of both connectors must be aligned and the connectors can be mated. The "click" will confirm fully mated connection. Do not attempt to insert on an extreme angle.</p>  |
| <p>(2) Pull forces on the cable after connectors are mated.</p> | <p>After the connectors are mating, do not apply a load to the cable in excess of the values indicated in the diagram below.</p>  <p>1N max (U.FL-LP(V)-040HF, U.FL-LP-062HF) 2N max (U.FL-LP-040HF, U.FL-LP-066HF, U.FL-LP-068HF, U.FL-LP-088HF, U.FL(A)-LP(P)-068, U.FL(A)-LP(P)-088)</p> <p>3N max (U.FL-LP(V)-040HF, U.FL-LP-062HF) 4N max (U.FL-LP-040HF, U.FL-LP-066HF, U.FL-LP-068HF, U.FL-LP-088HF, U.FL(A)-LP(P)-068, U.FL(A)-LP(P)-088)</p> <p>1N max (U.FL-LP(V)-040HF, U.FL-LP-062HF) 2N max (U.FL-LP-040HF, U.FL-LP-066HF, U.FL-LP-068HF, U.FL-LP-088HF, U.FL(A)-LP(P)-068, U.FL(A)-LP(P)-088)</p> |
| <p>(3) Precautions</p> | <p>Do NOT forcefully twist or deform wires.</p> |

2. Receptacles

| | |
|---|--|
| <p>(1) Recommended reflow temperature profile</p> |  <p>① The temperature of the printed circuit board surface temperature at the points of contact with the terminals.</p> <p>② Reflow soldering should be performed at a printed circuit surface temperature of 250°C max.</p> <p>③ In individual applications the actual temperature may vary, depending on the solder paste type, volume / thickness and board size / thickness. Consult your solder paste and equipment manufacturer for specific recommendations.</p> |
| <p>(2) Recommended manual soldering</p> | <p>Manual soldering : 350°C for 5 seconds</p> |
| <p>(3) Recommended metal mask thickness</p> | <p>0.1 to 0.12mm</p> |
| <p>(4) Reflow cycles</p> | <p>2 times</p> |

3. Operating environment and storage conditions

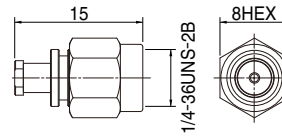
| | |
|--|--|
| <p>(1) Operating environment</p> | <p>The connectors are not designed to operate in the following environments :</p> <ul style="list-style-type: none"> Exposed to a excessive amounts of fine particles and dust Regions and places having a high density of sulfur dioxide, hydrogen sulfide, nitrogen dioxide or other corrosive gasses. Environments having large rapid variations in temperature. |
| <p>(2) Storage conditions - Receptacle</p> | <p>Store in the Hirose Electric packaging. Temperature : -10 to +40°C, Humidity : 85% max. Use within 6 months of delivery. Receptacles for which the storage period has elapsed must be tested for solderability to the PC board mounting surface.</p> |
| <p>(3) Silver Plating Discoloration</p> | <p>Discoloration occurs only on the plating surface. Since the contact portion is wiped, there is no effect on the electrical contact.</p> |

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Standard Connectors that Connect with U.FL

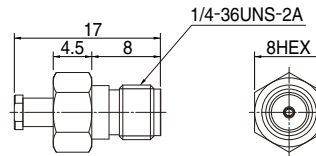
SMA Cable Type

● Straight Plug



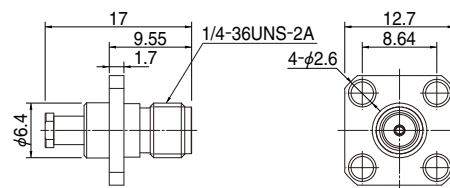
| Part No. | HRS No. | Applicable cable | Notes |
|--------------------|---------------|--------------------------|--------------------------|
| HRM-200-040PBN(40) | 323-0790-3 40 | Dia. 0.81 type | SMA (Male Contact) |
| HRM-200-066PBN(40) | 323-0791-6 40 | Dia. 1.13, Dia.1.32 type | |
| HRM-200-088PBN(40) | 323-0800-5 40 | Dia. 1.37 type | |

● Straight Jack



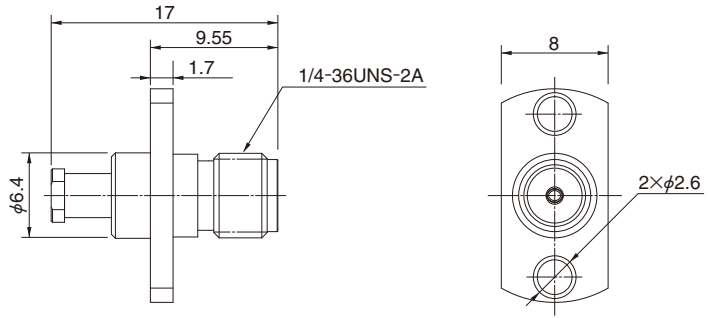
| Part No. | HRS No. | Applicable cable | Notes |
|--------------------|---------------|--------------------------|----------------------------|
| HRM-200-040JBN(40) | 323-0792-9 40 | Dia. 0.81 type | SMA (Female Contact) |
| HRM-200-066JBN(40) | 323-0793-1 40 | Dia. 1.13, Dia.1.32 type | |
| HRM-200-088JBN(40) | 323-0801-8 40 | Dia. 1.37 type | |

● Panel mount Jack (Four Screws)



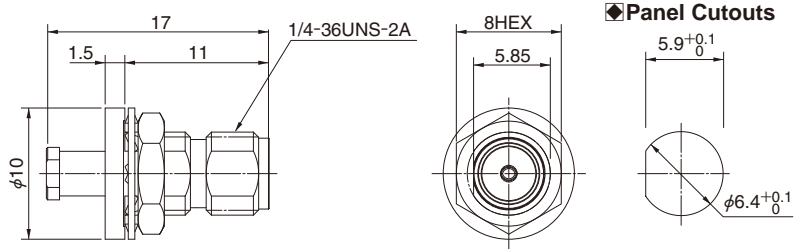
| Part No. | HRS No. | Applicable cable | Notes |
|----------------------|---------------|--------------------------|----------------------------|
| HRM-200-040PJ4BN(40) | 323-0795-7 40 | Dia. 0.81 type | SMA (Female Contact) |
| HRM-200-066PJ4BN(40) | 323-0796-0 40 | Dia. 1.13, Dia.1.32 type | |
| HRM-200-088PJ4BN(40) | 323-0803-3 40 | Dia. 1.37 type | |

● Panel mount Jack (Two Screws)



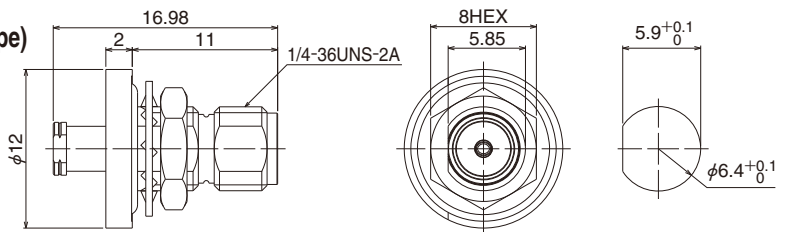
| Part No. | HRS No. | Applicable cable | Notes |
|-----------------------|---------------|---------------------------|----------------------|
| HRM-200-040PJ2BN (40) | 323-0794-4 40 | Dia. 0.81 type | SMA (Female Contact) |
| HRM-200-066PJ2BN (40) | 323-0788-1 40 | Dia. 1.13, Dia. 1.32 type | |
| HRM-200-088PJ2BN (40) | 323-0802-0 40 | Dia. 1.37 type | |

● Panel mount Jack (Bulkhead)



| Part No. | HRS No. | Applicable cable | Notes |
|-----------------------|---------------|---------------------------|----------------------|
| HRM-200-040BPJBN (40) | 323-0797-2 40 | Dia. 0.81 type | SMA (Female Contact) |
| HRM-200-066BPJBN (40) | 323-0798-5 40 | Dia. 1.13, Dia. 1.32 type | |
| HRM-200-088BPJBN (40) | 323-0804-6 40 | Dia. 1.37 type | |

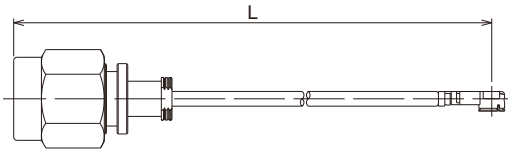
● Panel mount Jack (Bulkhead, Waterproof Mounting Surface Type)



| Part No. | HRS No. | Applicable cable | Notes |
|-------------------|------------|---------------------------|----------------------|
| HRM-200-040WBPJBN | 323-0945-8 | Dia. 0.81 type | SMA (Female Contact) |
| HRM-200-066WBPJBN | 323-0946-0 | Dia. 1.13, Dia. 1.32 type | |
| HRM-200-088WBPJBN | 323-0920-7 | Dia. 1.37 type | |

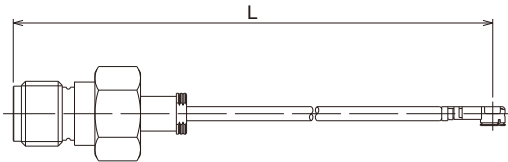
■ SMA-U.FL Cable Assembly Representative Product

● SMA Straight Plug-U.FL Plug



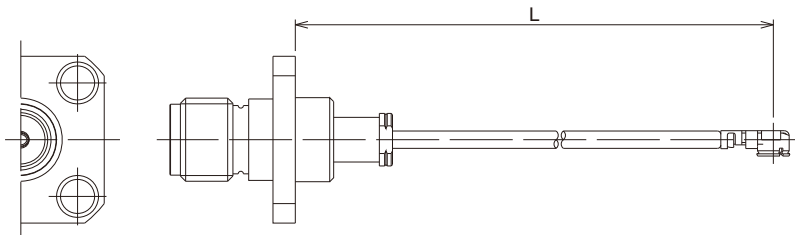
| Part No. | HRS No. | Cable (Color) | Lmm | Notes |
|---------------------------|---------------|---------------|-------|----------------------------|
| HRMP-UFLHF6-04N2TV-A200RS | 321-0753-0-04 | φ0.81 (Black) | 200±4 | SMA (Female Contact) |
| HRMP-UFLHF6-068N2T-A200RS | 321-0854-0-02 | φ1.13 (Black) | | |
| HRMP-UFLHF6-066N2-A200RS | 321-0862-0-05 | φ1.32 (Black) | | |
| HRMP-UFLHF6-088N2T-A200RS | 321-0755-0-07 | φ1.37 (Black) | | |

● SMA Straight Jack-U.FL Plug



| Part No. | HRS No. | Cable (Color) | Lmm | Notes |
|---------------------------|---------------|---------------|-------|--------------------------|
| HRMJ-UFLHF6-04N2TV-A200RS | 321-0881-0-02 | φ0.81 (Black) | 200±4 | SMA (Male Contact) |
| HRMJ-UFLHF6-068N2T-A200RS | 321-0869-0-03 | φ1.13 (Black) | | |
| HRMJ-UFLHF6-066N2-A200RS | 321-0868-0-02 | φ1.32 (Black) | | |
| HRMJ-UFLHF6-088N2T-A200RS | 321-0904-0-04 | φ1.37 (Black) | | |

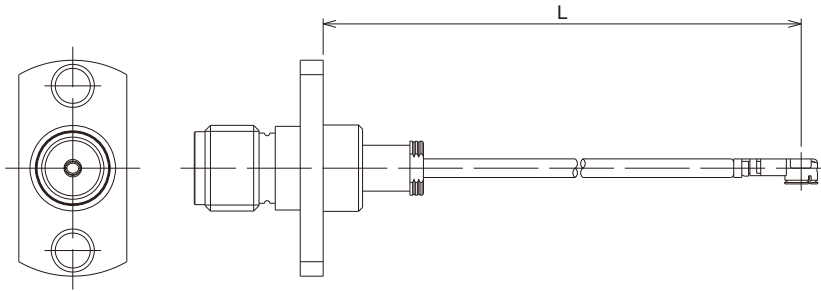
● SMA Panel Mount Jack (Four Screws)-U.FL Plug



| Part No. | HRS No. | Cable (Color) | Lmm | Notes |
|--------------------------|---------------|---------------|-------|----------------------------|
| HPJ-UFLHF6-04N2TV-A200RS | 321-0965-0-02 | φ0.81 (Black) | 200±4 | SMA (Female Contact) |
| HPJ-UFLHF6-068N2T-A200RS | 321-3660-0-02 | φ1.13 (Black) | | |
| HPJ-UFLHF6-066N2-A200RS | 321-0905-0-01 | φ1.32 (Black) | | |
| HPJ-UFLHF6-088N2T-A200RS | 321-0911-0-03 | φ1.37 (Black) | | |

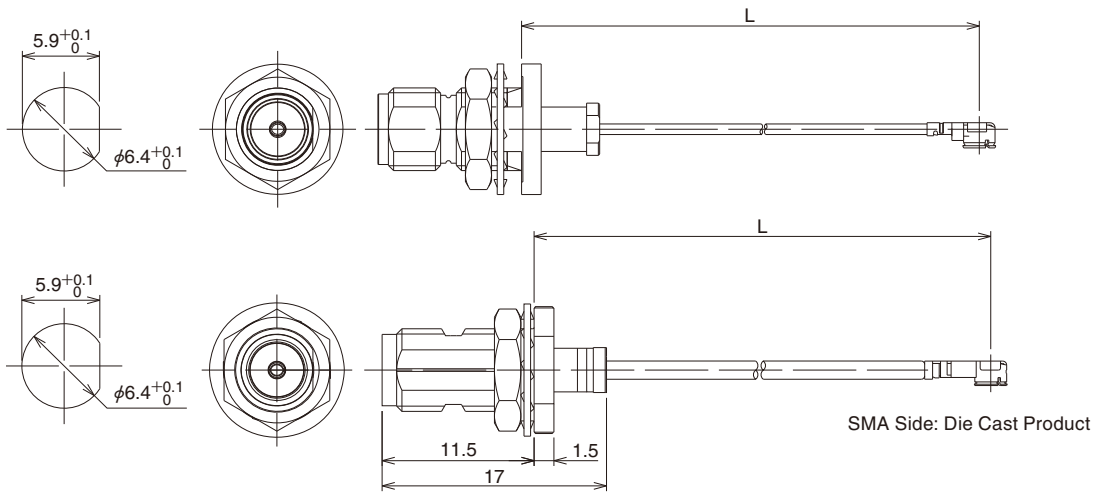
◆ For cable lengths, cable colors and connector combinations other than those listed above, please contact a Hirose representative.

● SMA Panel Mount Jack (Two Screws)-U.FL Plug



| Part No. | HRS No. | Cable (Color) | Lmm | Notes |
|---------------------------|---------------|---------------|-------|----------------------|
| HPJ2-UFLHF6-04N2TV-A200RS | 321-0969-0-03 | φ0.81 (Black) | 200±4 | SMA (Female Contact) |
| HPJ2-UFLHF6-068N2T-A200RS | 321-1083-0-03 | φ1.13 (Black) | | |
| HPJ2-UFLHF6-066N2-A200RS | 321-1084-0-03 | φ1.32 (Black) | | |
| HPJ2-UFLHF6-088N2T-A200RS | 321-0812-0-04 | φ1.37 (Black) | | |

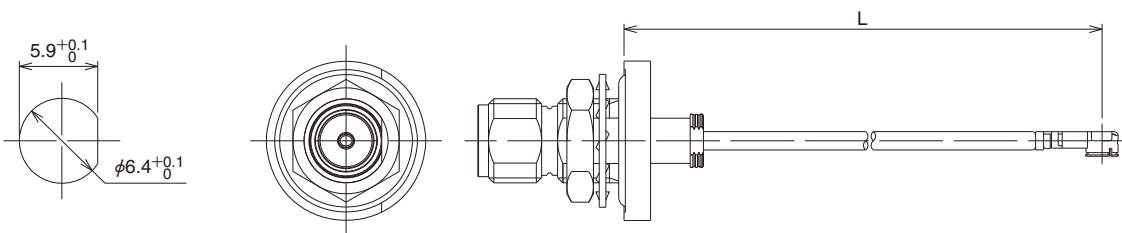
● SMA Panel Mount Jack (Bulkhead)-U.FL Plug



| Part No. | HRS No. | Cable (Color) | Lmm | Notes |
|-------------------------------|---------------|---------------|-------|----------------------|
| HBPJ-UFLHF6-04N2TV-A200RS | 321-0964-0-02 | φ0.81 (Black) | 200±4 | SMA (Female Contact) |
| HBPJD-UHF6-068N2T-A200 (Note) | 321-5463-0-02 | φ1.13 (Black) | | |
| HBPJD-UHF6-066N2-A200 (Note) | 321-5464-0-02 | φ1.32 (Black) | | |
| HBPJD-UHF6-088N2T-A200 (Note) | 321-5600-0-02 | φ1.37 (Black) | | |

(Note) Die Cast Body on SMA Side (Different product than those listed on the SMA Cable Type Page)

● SMA Panel Mount Jack (Bulkhead, Waterproof Mounting Surface)-U.FL Plug



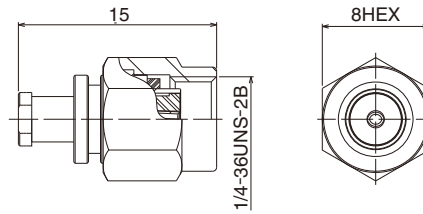
| Part No. | HRS No. | Cable (Color) | Lmm | Notes |
|--------------------------|---------------|---------------|-------|----------------------|
| HWBPJ-UHF6-068N2T-A-200 | 321-1235-0-03 | φ1.13 (Black) | 200±4 | SMA (Female Contact) |
| HWBPJ-UFLHF6-088N2T-A200 | 321-0760-0-04 | φ1.37 (Black) | | |

◆ For cable lengths, cable colors and connector combinations other than those listed above, please contact a Hirose representative.

Standard Connectors that Connect with U.FL

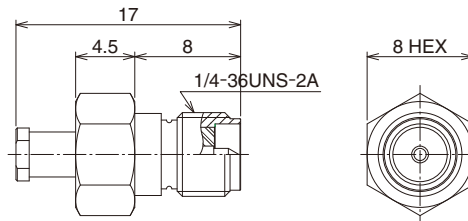
SMA/R Cable Type /R : Reverse Polarity SMA Connector

● Straight Plug



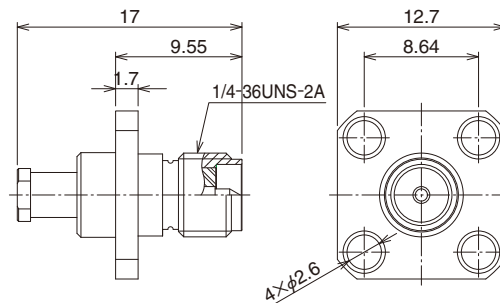
| Part No. | HRS No. | Applicable cable | Notes |
|-------------------|------------|---------------------------|------------------------------|
| SMA(R)-200-040PBN | 323-0925-0 | Dia. 0.81 type | SMA Reverse (Female Contact) |
| SMA(R)-200-066PBN | 323-0930-0 | Dia. 1.13, Dia. 1.32 type | |
| SMA(R)-200-088PBN | 323-0905-3 | Dia. 1.37 type | |

● Straight Jack



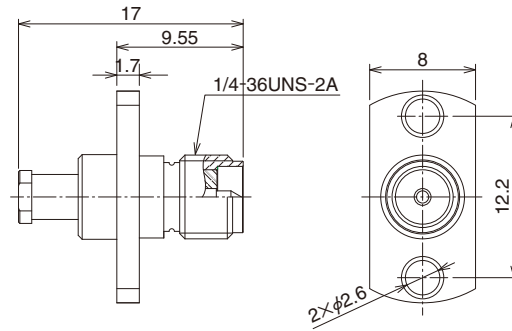
| Part No. | HRS No. | Applicable cable | Notes |
|-------------------|------------|---------------------------|----------------------------|
| SMA(R)-200-040JBN | 323-0926-3 | Dia. 0.81 type | SMA Reverse (Male Contact) |
| SMA(R)-200-066JBN | 323-0931-3 | Dia. 1.13, Dia. 1.32 type | |
| SMA(R)-200-088JBN | 323-0904-0 | Dia. 1.37 type | |

● Panel Mount Jack (Four Screws)



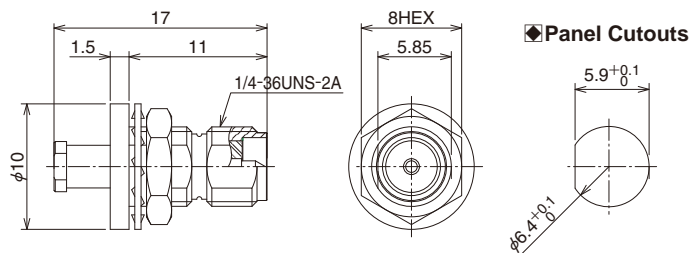
| Part No. | HRS No. | Applicable cable | Notes |
|---------------------|------------|---------------------------|----------------------------|
| SMA(R)-200-040PJ4BN | 323-0928-9 | Dia. 0.81 type | SMA Reverse (Male Contact) |
| SMA(R)-200-066PJ4BN | 323-0932-6 | Dia. 1.13, Dia. 1.32 type | |
| SMA(R)-200-088PJ4BN | 323-0934-1 | Dia. 1.37 type | |

● Panel Mount Jack (Two Screws)



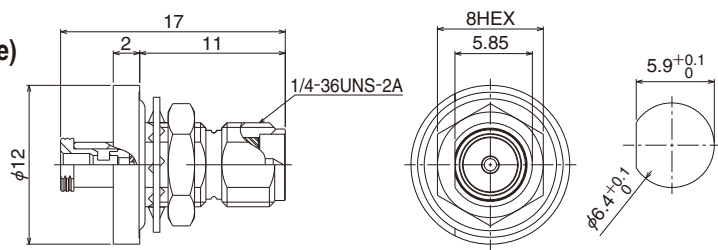
| Part No. | HRS No. | Applicable cable | Notes |
|---------------------|------------|---------------------------|----------------------------|
| SMA(R)-200-040PJ2BN | 323-0929-1 | Dia. 0.81 type | SMA Reverse (Male Contact) |
| SMA(R)-200-066PJ2BN | 323-0933-9 | Dia. 1.13, Dia. 1.32 type | |
| SMA(R)-200-088PJ2BN | 323-0935-4 | Dia. 1.37 type | |

● Panel Mount Jack (Bulkhead)



| Part No. | HRS No. | Applicable cable | Notes |
|---------------------|------------|---------------------------|----------------------------|
| SMA(R)-200-040BPJBN | 323-0927-6 | Dia. 0.81 type | SMA Reverse (Male Contact) |
| SMA(R)-200-066BPJBN | 323-0902-5 | Dia. 1.13, Dia. 1.32 type | |
| SMA(R)-200-088BPJBN | 323-0901-2 | Dia. 1.37 type | |

● Panel Mount Jack (Bulkhead, Waterproof Mounting Surface Type)

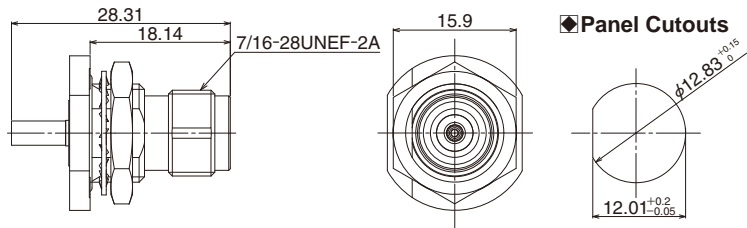


| Part No. | HRS No. | Applicable cable | Notes |
|----------------------|------------|---------------------------|----------------------------|
| SMA(R)-200-040WBPJBN | 323-0947-3 | Dia. 0.81 type | SMA Reverse (Male Contact) |
| SMA(R)-200-066WBPJBN | 323-0948-6 | Dia. 1.13, Dia. 1.32 type | |
| SMA(R)-200-088WBPJBN | 323-0949-9 | Dia. 1.37 type | |

Standard Connectors that Connect with U.FL

TNC Cable Type

● Panel Jack (Bulkhead, Waterproof Panel Mounting Surface Type)

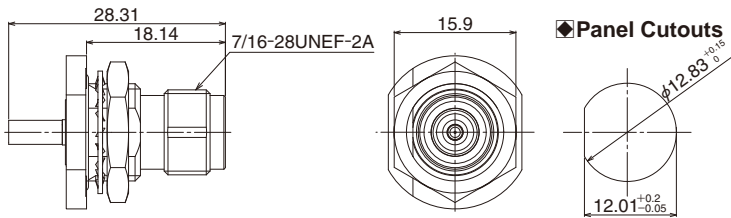


| Part No. | HRS No. | Applicable cable |
|----------------|------------|-------------------|
| TNC-WBPJ-088-1 | 313-0004-0 | $\phi 1.37$ cable |

*Please order the product after designating the harness specifications including product length, etc.

TNC/R Cable Type /R : Reverse Polarity SMA Connector

● Panel Jack (Bulkhead, Waterproof Panel Mounting Surface Type)

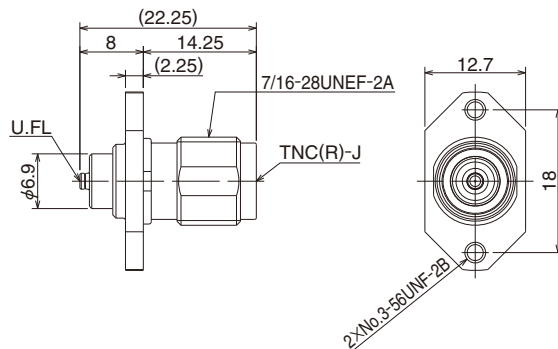


| Part No. | HRS No. | Applicable cable |
|-----------------|------------|-------------------|
| TNC(R)-WBPJ-088 | 313-0003-0 | $\phi 1.37$ cable |

*Please order the product after designating the harness specifications including product length, etc.

TNC/R Conversion Adapter /R : Reverse Polarity SMA Connector

● Panel Mount Adapter (Two Screws)

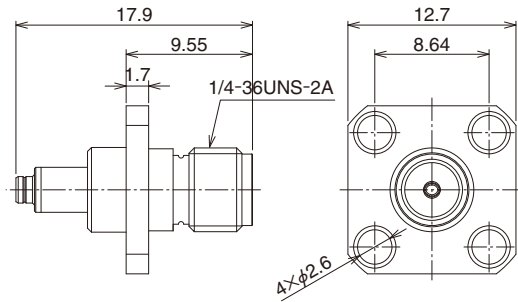


| Part No. | HRS No. | Notes |
|--------------------|------------|----------------------------|
| TNC(R)J-U.FLJ-PA-2 | 311-0416-7 | TNC Reverse (Male Contact) |

SMA Conversion Adapter

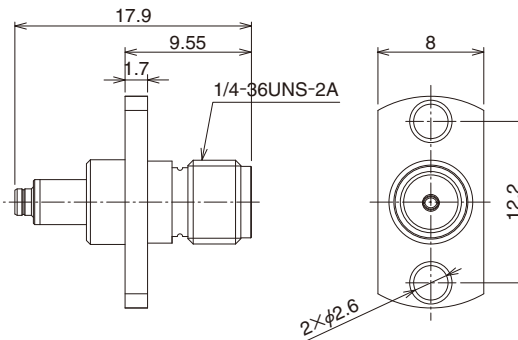
Note : Please avoid mating with the U.FL(A) plug.

● **Panel Mount Adapter (Four Screws)**



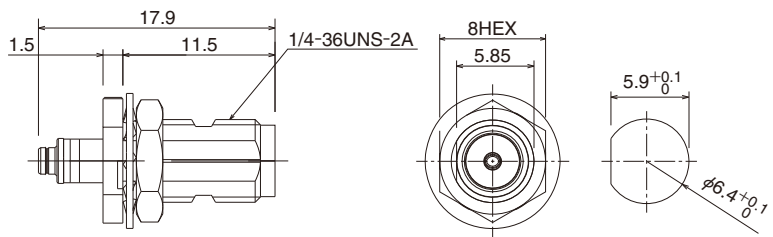
| Part No. | HRS No. | Notes |
|----------------|------------|----------------------|
| HRMJ-U.FLJ-PA4 | 311-0465-2 | SMA (Female Contact) |

● **Panel Mount Adapter (Two Screws)**



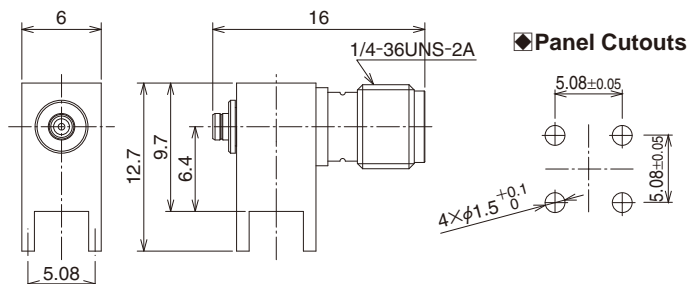
| Part No. | HRS No. | Notes |
|----------------|------------|----------------------|
| HRMJ-U.FLJ-PA2 | 311-0467-8 | SMA (Female Contact) |

● **Panel Mount Adapter (Bulkhead)**



| Part No. | HRS No. | Notes |
|-------------------|------------|--|
| HRMJ-U.FLJ-BPAD-5 | 311-1004-0 | SMA (Female Contact) Body : Die Cast Type |

● **PCB Mount Adapter**



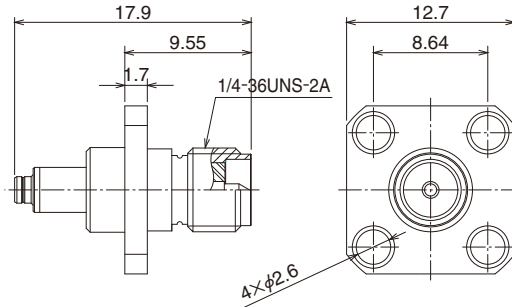
◆ **Panel Cutouts**

| Part No. | HRS No. | Notes |
|---------------|------------|-----------------|
| HRMJ-U.FLJ-PC | 311-0411-3 | Nickel Exterior |

SMA/R Conversion Adapter R : Reverse Polarity SMA Connector

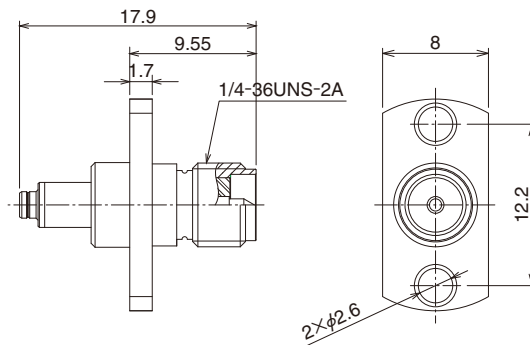
Note : Please avoid mating with the U.FL(A) plug.

● **Panel Mount Adapter (Four Screws)**



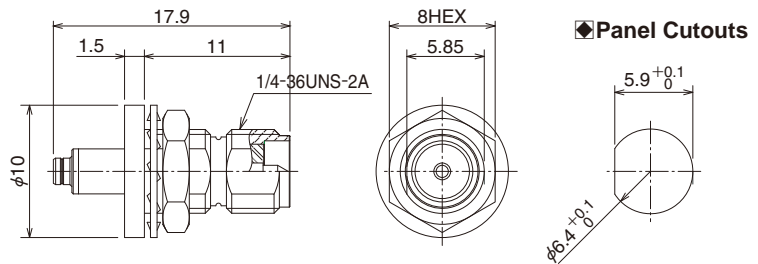
| Part No. | HRS No. | Notes |
|-------------------|------------|-------------------------------------|
| SMA(R)J-U.FLJ-PA4 | 311-0466-5 | Reverse Polarity SMA (Male Contact) |

● **Panel Mount Adapter (Two Screws)**



| Part No. | HRS No. | Notes |
|-------------------|------------|-------------------------------------|
| SMA(R)J-U.FLJ-PA2 | 311-0468-0 | Reverse Polarity SMA (Male Contact) |

● **Panel Mount Adapter (Bulkhead)**



| Part No. | HRS No. | Notes |
|---------------------|------------|-------------------------------------|
| SMA(R)J-U.FLJ-BPA-4 | 311-0464-0 | Reverse Polarity SMA (Male Contact) |

