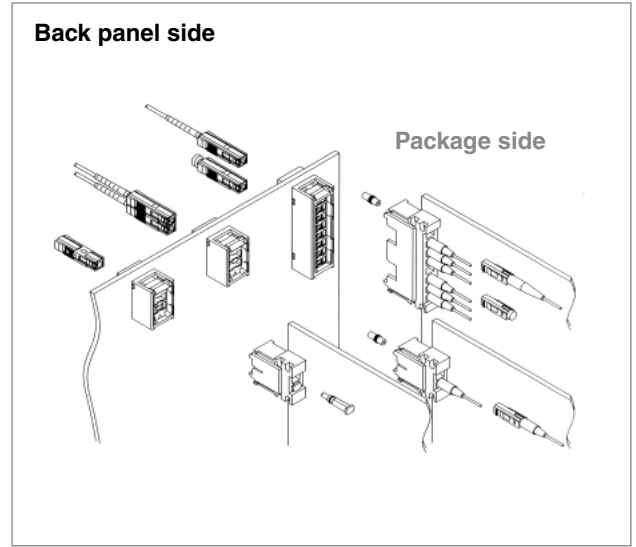
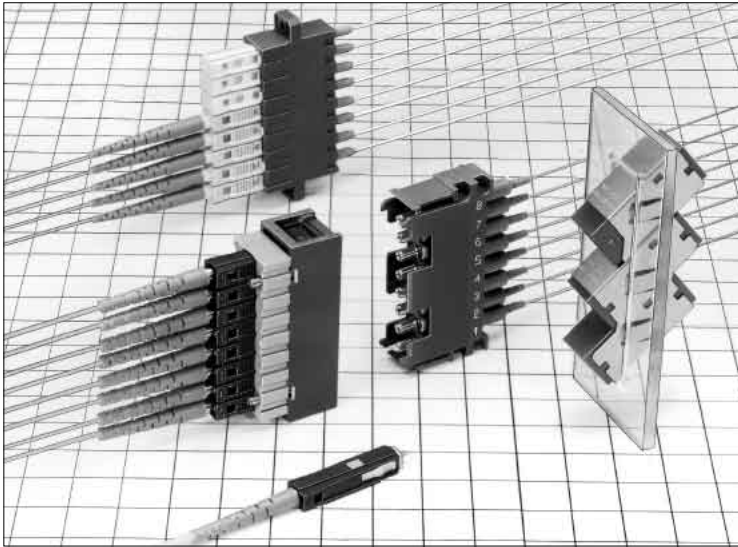


# MU Type Fiber Optic Connectors

## HMU Series



### ■ Features

#### 1. IEC, JIS standard compliant and intermateability test certified.

Comply with JIS C 5983 (F14 type fiber optic connectors) and IEC 61754-6.

MU intermate test by NTT certified connector.

#### 2. Flame resistant

Satisfies flammability rating UL94V-0

#### 3. Backplane

MU Backplane connector has a self-holding mechanism which does not transfer any force on the back panel when both side of connector assemblies are fully connected. Back panel side connectors can be removed or inserted even both sides are mated.

#### 4. Wide Variety of adapter type

Type	Number of Fiber connections				
	Single	Duplex	4 way	8 way	16 way
Board Mounting	✓	✓	—	✓	—
Snap-in Panel Mounting & Screw Panel Mounting	✓	✓	✓ (Only Snap-in)	✓	✓

#### 5. Simplified plugs and Receptacles

Extremely small size (only 13.75mm Plug length). MU simplified plug is designed for equipments inside connection.

## ■ Product Specifications

Ratings		Operating temperature range		-25°C to +70°C	Storage temperature range		-25°C to +70°C	
Item		Test Method (IEC 61300)			Specifications			
Optical Characteristics	Insertion Loss	SM	Wavelength 1310nm (LD)		0.5dB max. (AdPC)			
		MM(GI)	Wavelength 1310nm (LED)		0.3dB max. (PC)			
	Return Loss	SM	Wavelength 1310nm (LD)		40dB min.(AdPC)			
		MM(GI)			22dB min.(PC)			
Mechanical Characteristics	Engagement and Separation forces		Measured with corresponding connector.			Simplex plug	Engagement force: 20 N max. Separation force: 20 N max.	
	Ferrule with drawal force		Extract zirconia gauge 1.249 ±0.0005 mm diameter from split sleeve.			Duplex plug	Engagement force: 30 N max. Separation force: 30 N max.	
	Cable retention (Straight pull)		70N tensile loads for one minute.			Copper alloy split sleeve	1N to 3N	
	Durability (cycles, mating/un-mating)		200 times (Backplane) 500 times (Plug)			Zirconia split sleeve	1N to 2.5N	
	Vibration		Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 2 hours in each of the 3 axis.			1) Insertion loss fluctuation after test: 0.2dB max. 2) No visible damage, dislocation of clamp or cable.		
	Shock		Acceleration of 981 m/s <sup>2</sup> , 6 ms duration, sin half-wave waveform, 10 cycles in each of the 3 axis.					
Environmental Characteristics	Humidity (Temperature/ humidity- cycles)		-10°C to 65°C, humidity: 90% to 96% 10 cycles			1) Insertion loss fluctuation after test: 0.2dB max. 2) No visible damage, cracks or part dislocation.		
	Change of temperature		-25°C to +70°C 100 cycles					
	Dry heat		960 hours at 85°C					
	Cold		960 hours at -25°C					
	Salt mist		48 hours in a 5% concentration of salt mist					No significant corrosion.

## ■ Materials

Part	Material
Simplex plug housing	Synthetic resin
Spring	Steel
Ferrule	Zirconia
Simplex adapter housing	Synthetic resin
Adapter metal fittings	Stainless steel or copper alloy (Nickel plating)
Simplified receptacle housing	Synthetic resin
Simplified plug	Zirconia
Backplane connector housing	Synthetic resin
Split sleeve	Zirconia or copper alloy
Dust cap	Synthetic resin

# Function diagram

### Duplex plug

HMUA-2P2-H1 or  
HMUA-2P2-H2 and  
HMUA-F3-A\*\*\*



### Terminator

HMUA-TM-P2



### Simplex plug

HMUA-P2-H1 or  
HMUA-P2-H2 and  
HMUA-F3-A\*\*\*



### 8-position Backpanel side

HMUB-L8HA-1 or  
HMUB-L8HB-1



### 8-position package side

HMUB-L8PA-1



### Dust cap

HMUB-DP-1



Back panel  
Thickness:  
2.4mm or 3.2mm

### Simplex plug

HMUAJ-P2-H1 or  
HMUAJ-P2-H2 and  
HMUA-F3-A\*\*\*



Package

### Duplex backpanel side

HMUB-L2HA-1 or  
HMUB-L2HB-1



### Sleeve holder

HMUB-SH-1



### Duplex package side

HMUB-L2PA-1



### Simplex J plug

HMUAJ-P1-H1 or  
HMUAJ-P1-H2 and  
HMUA-F3-A\*\*\*

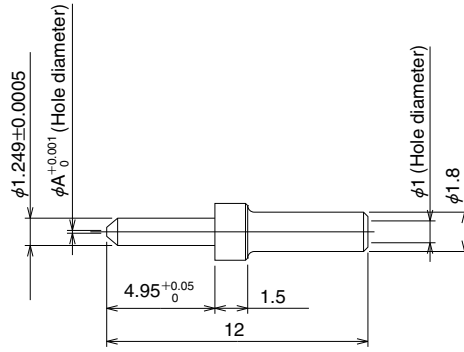
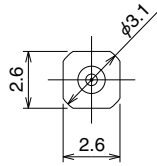
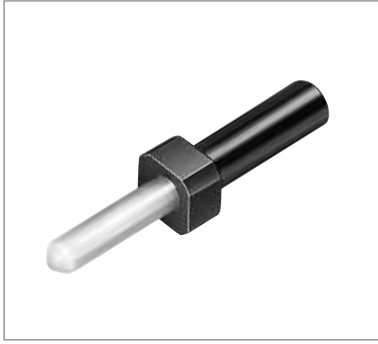


### Terminator

HMUAJ-TM-P2



## ■ Ferrules



Part Number	CL No.	A dimension	Applicable Fiber cable
HMUA-F3-A125(10)	710-0024-3-10	0.125	SM-9.5/125 GI-50/125
HMUA-F3-A1255(10)	710-0121-0-10	0.1255	
HMUA-F3-A126(10)	710-0025-6-10	0.126	

SC

FC

MU

Harsh Environment

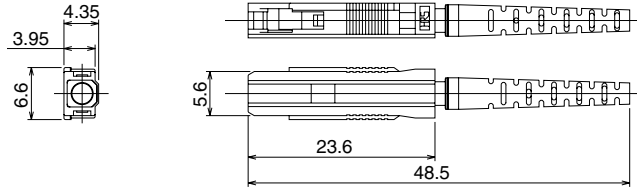
Attenuators

Terminators

POF / PCF

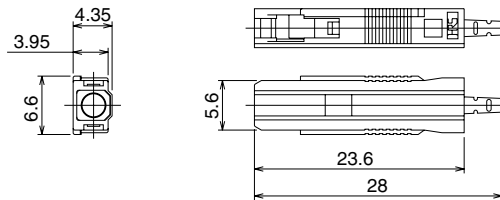
## ■ Plug Housings

### ● Simplex Plug Housing for 2mm cable



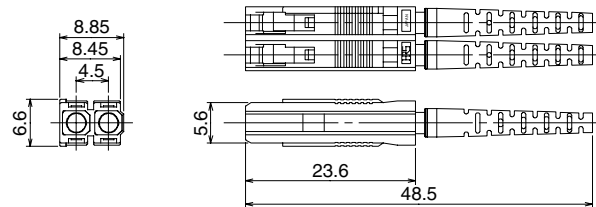
Part Number	CL No.	Boot color
HMUA-P2-H1(61)	710-0047-9-61	Blue
HMUA-P2-H2(61)	710-0001-8-61	Light purple

### ● Simplex Plug Housing for 0.9mm fiber



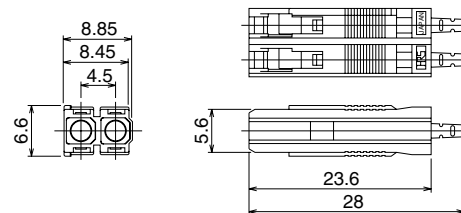
Part Number	CL No.	Boot color
HMUA-P0.9-H1(60)	710-0158-0-60	Blue
HMUA-P0.9-H2(60)	710-0159-2-60	Light purple

### ● Duplex Plug Housing for 2mm cable



Part Number	CL No.	Boot color
HMUA-2P2-H1(61)	710-0048-1-61	Blue
HMUA-2P2-H2(61)	710-0002-0-61	Light purple

### ● Duplex Plug Housing for 0.9mm fiber



Part Number	CL No.	Boot color
HMUA-2P0.9-H1(60)	710-0162-7-60	Blue
HMUA-2P0.9-H2(60)	710-0163-0-60	Light purple

SC

FC

MU

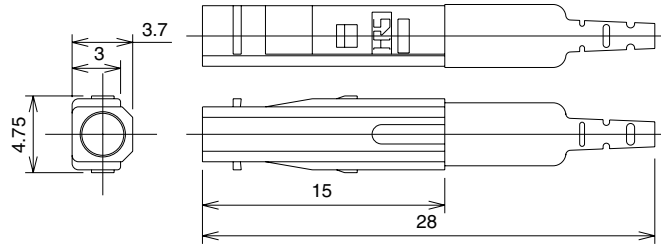
Harsh Environment

Attenuators

Terminators

POF / PCF

● Simplex J Plug Housing for 0.9mm fiber



Part Number	CL No.	Boot color
HMUAJ-P0.9-H1(60)	710-0160-1-60	Blue
HMUAJ-P0.9-H2(60)	710-0161-4-60	Light purple

Notes : Option for this products  
 Sleeve for temporary mating  
 Part Number : HMUA-RH-1  
 CL No. : CL710-0085-8  
 Available to mate with standard adapter.  
 (Usage example : Optical measurement)

Notes : This connector is the product for MU backplane solution, and is plugged into Package side Connector Housing with Sleeve Holder.  
 But can't mate with standard MU adapter.

SC

FC

MU

Harsh Environment

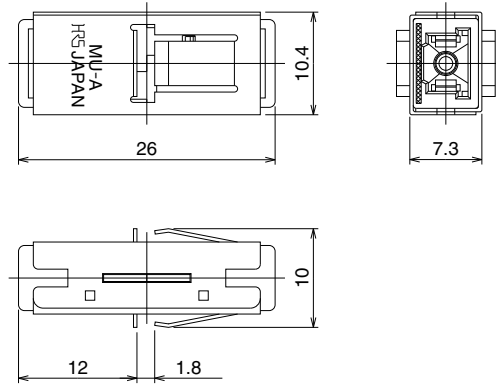
Attenuators

Terminators

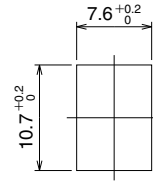
POF / PCF

## Adapters

### Simplex Adapter / Snap-in Panel Mounting



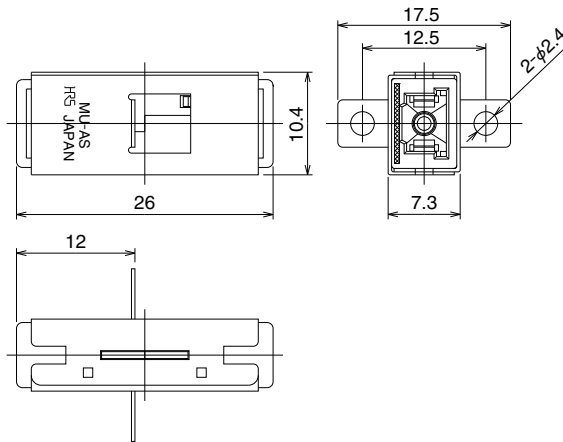
### Panel Cutout



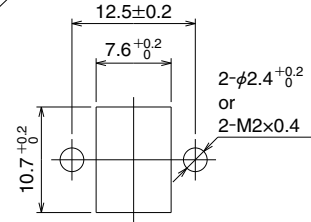
Panel thickness: 1.6mm

Part Number	CL No.	Split sleeve
HMUA-A-3	710-0103-8-00	Zirconia

### Simplex Adapter / Screw Panel Mounting



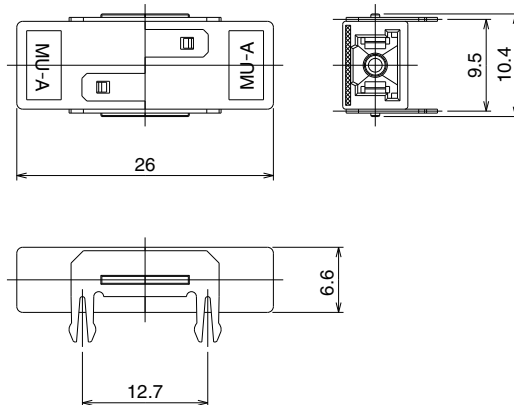
### Panel Cutout



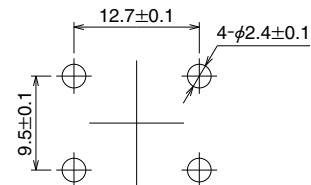
2- $\phi 2.4^{+0.2}$   
or  
2-M2x0.4

Part Number	CL No.	Split sleeve
HMUA-AS-3	710-0104-0-00	Zirconia

### Simplex Adapter / Board Mounting



### Board Mounting Pattern



Board thickness: 1.6mm

Part Number	CL No.	Split sleeve
HMUA-AH-3(40)	710-0105-3-40	Zirconia

SC

FC

MU

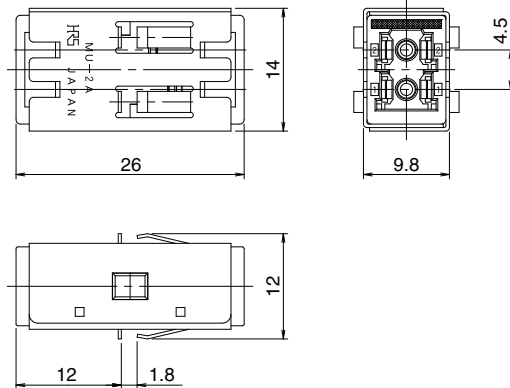
Harsh Environment

Attenuators

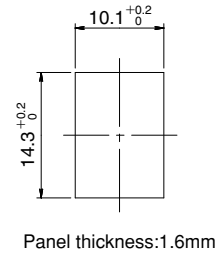
Terminators

POF / PCF

● Duplex adapter / Snap-in Panel Mounting

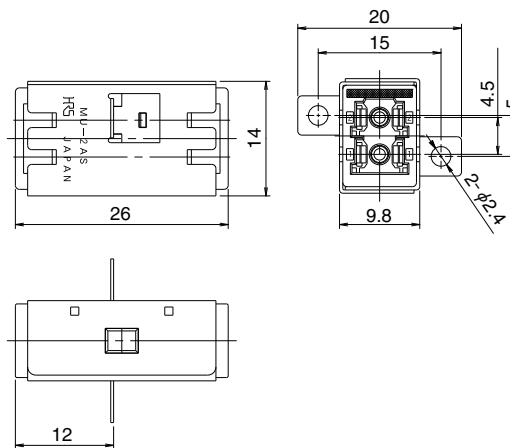


■ Panel Cutout

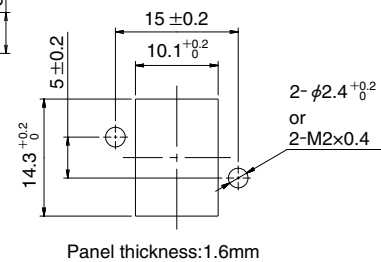


Part Number	CL No.	Split sleeve
HMUA-2A-4	710-0187-8-00	Zirconia

● Duplex Adapter / Screw Panel Mounting

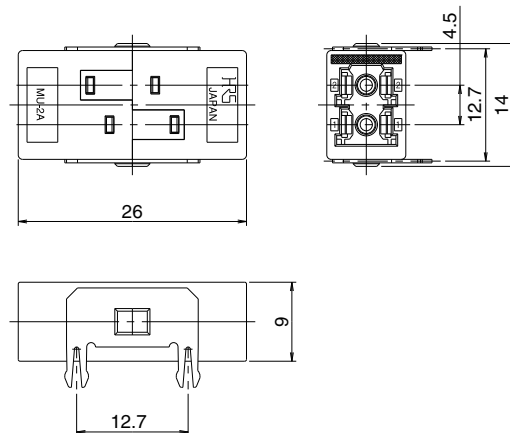


■ Panel Cutout

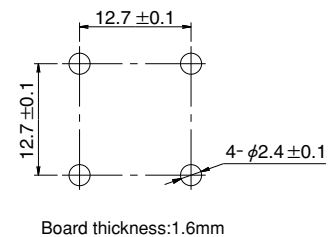


Part Number	CL No.	Split sleeve
HMUA-2AS-4	710-0188-0-00	Zirconia

● Duplex Adapter / Board Mounting



■ Board Mounting Pattern



Part Number	CL No.	Split sleeve
HMUA-2AH-4(40)	710-0189-3-40	Zirconia

SC

FC

MU

Harsh Environment

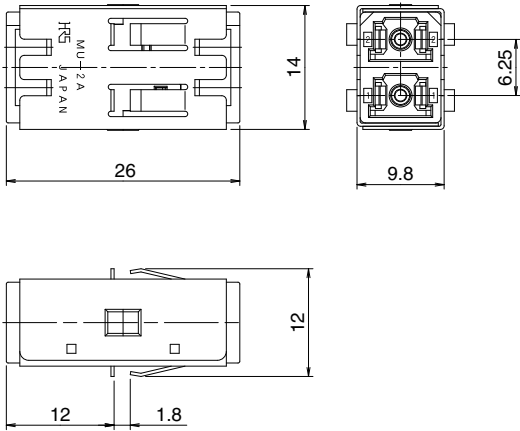
Attenuators

Terminators

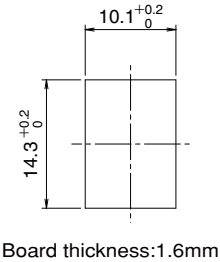
POF / PCF



● Duplex Adapter / Snap-in Panel Mounting  
6.25mm Type



■ Panel Cutout



Part Number	CL No.	Split sleeve
HMUA-2AK-1	710-0196-9-00	Zirconia

- Notes :
- Available to 6.25mm pitch MU-PJ attenuators.
  - The outer dimension (and panel cutout) is same as the above "HMUA-2A-4".

SC

FC

MU

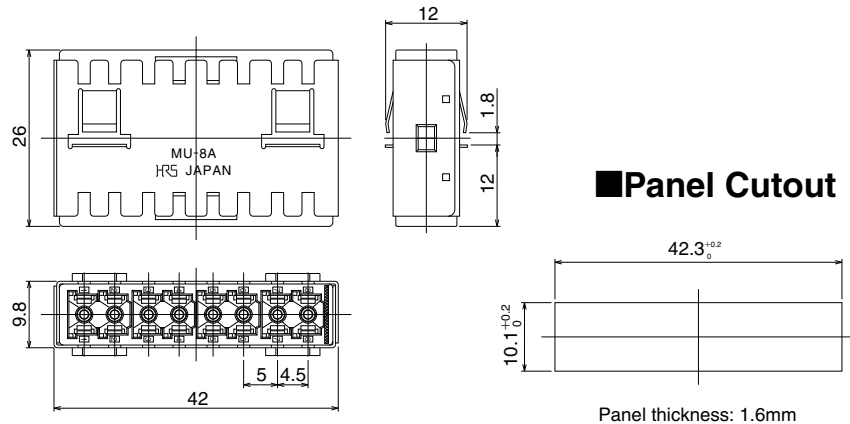
Harsh Environment

Attenuators

Terminators

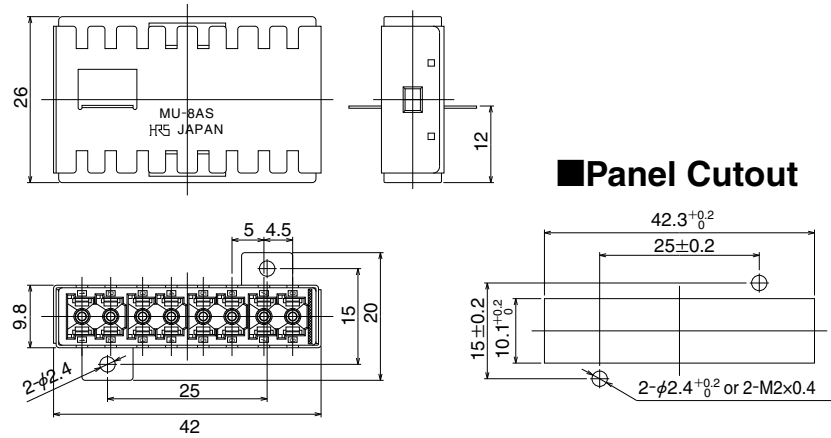
POF / PCF

●8-Position Adapter / Snap-in Panel Mounting



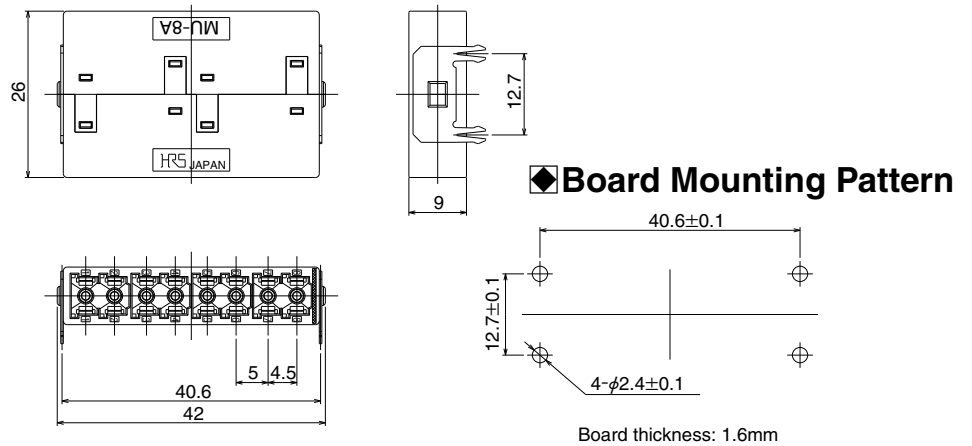
Part Number	CL No.	Split sleeve
HMUA-8A-3	710-0174-6-00	Zirconia

●8-Position Adapter / Screw Panel Mounting



Part Number	CL No.	Split sleeve
HMUA-8AS-3	710-0175-9-00	Zirconia

●8-Position Adapter / Board Mounting



Part Number	CL No.	Split sleeve
HMUA-8AH-3(40)	710-0176-1-40	Zirconia

SC

FC

MU

Harsh Environment

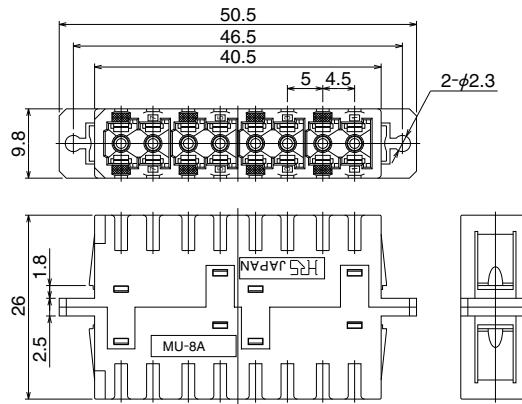
Attenuators

Terminators

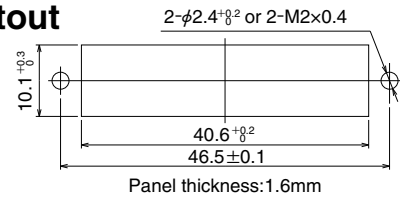
POF / PCF

## ■ Cost effective adapters

### ● 8-Position Adapter / Screw Panel Mounting

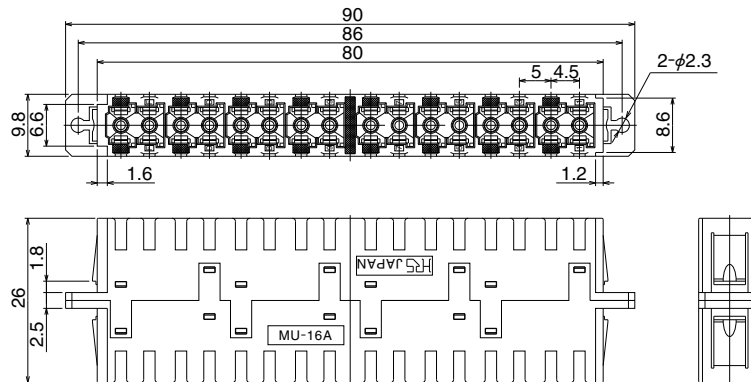


### ■ Panel Cutout

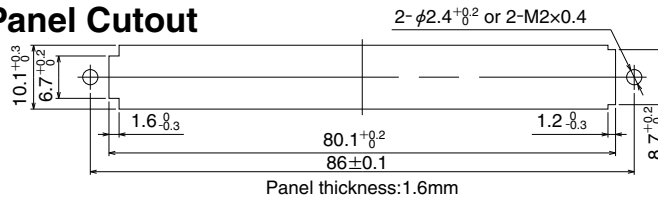


Part Number	CL No.	Split sleeve
HMUA-8A-2(40)	710-0155-1-40	Zirconia
HMUA-8A-B2	710-0119-8-00	Copper alloy

### ● 16-Position Adapter / Screw Panel Mounting



### ■ Panel Cutout



Part Number	CL No.	Split sleeve
HMUA-16A-2	710-0143-2-00	Zirconia
HMUA-16A-B2(40)	710-0113-1-40	Copper alloy

SC

FC

MU

Harsh Environment

Attenuators

Terminators

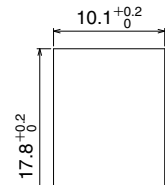
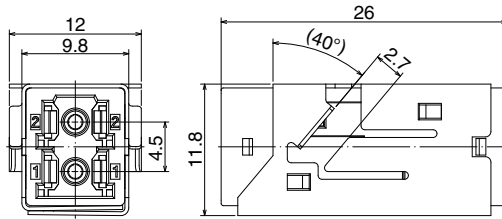
POF / PCF

## ■Angled Adapters

Special design for angled mount. (The installation angle is 40 degrees.)

### ●Duplex Angled Adapter / Snap-in Panel Mounting

### ■Panel Cutout

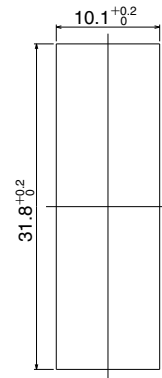
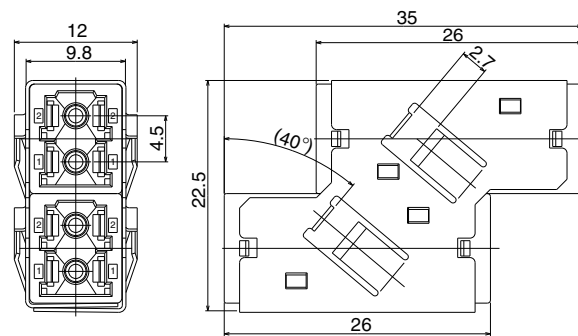


Panel thickness: 2.5mm

Part Number	CL No.	Split sleeve	Mounting Angle
HMUA-2A-40A-4	710-0243-7-00	Zirconia	40°

### ●4-Position Angled Adapter / Snap-in Panel Mounting

### ■Panel Cutout



Panel thickness: 2.5mm

Part Number	CL No.	Split sleeve	Mounting Angle
HMUA-4A-40-4	710-0178-7-00	Zirconia	40°

SC

FC

MU

Harsh Environment

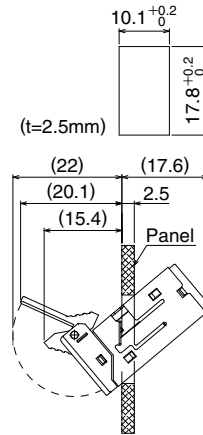
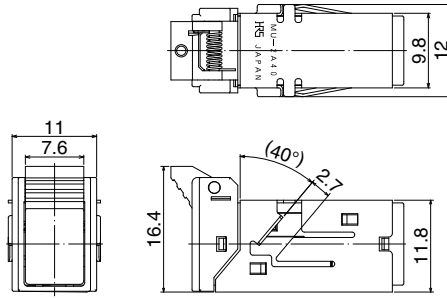
Attenuators

Terminators

POF / PCF

●Duplex Angled Adapter with Shutter / Snap-in Panel Mounting

■Panel Cutout



Part Number	CL No.	Split sleeve	Mounting Angle
HMUA-2A-40A-4-S1	710-0242-4-00	Zirconia	40°

Note:

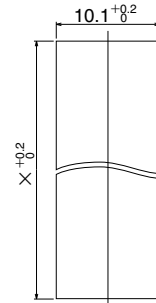
- 1)Under no circumstances look into the inside of shutter when the laser device is operational. The laser radiation is not visible to the human eye, but it can seriously damage your eyesight.
- 2)Please indicate the necessary safety labels when using high power light source.

Panel Cutout dimensions

Only the angled adapter without shutter.

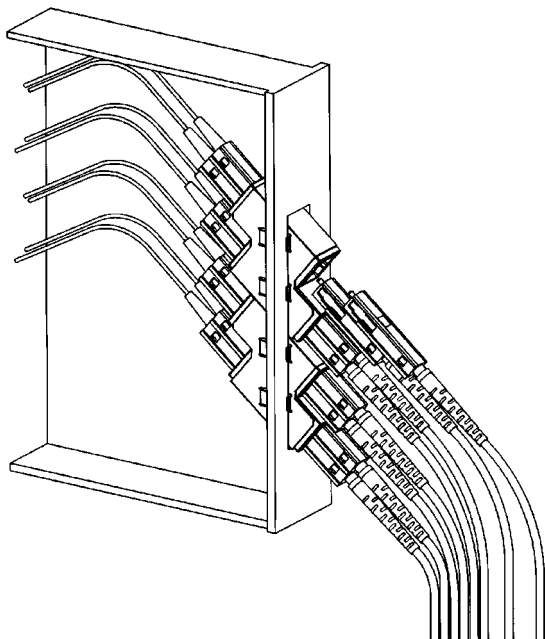
Fiber Position	Panel cutout:Xmm
06(Duplex+4 position)	47.4
08(4 position×2)	61.4
10(Duplex+4 position×2)	77.1
12(4 position×3)	91.0
14(Duplex+4 position×3)	106.7
16(4 position×4)	120.7
18(Duplex+4 position×4)	136.3
20(4 position×5)	150.3

■Panel Cutout



Panel thickness: 2.5mm

■Usage Example



SC

FC

MU

Harsh Environment

Attenuators

Terminators

POF / PCF

SC

FC

MU

Harsh Environment

Attenuators

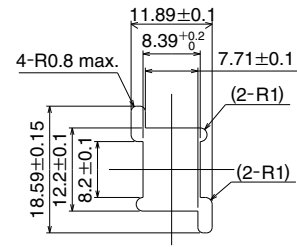
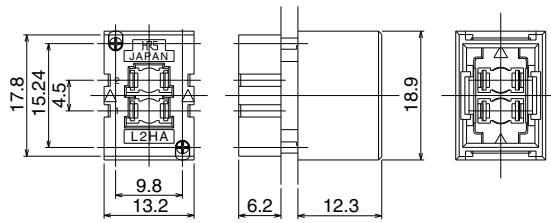
Terminators

POF / PCF

## ■ Backpanel side Connector Housings

### ● Duplex Backpanel side Connector Housing

### ■ Panel Cutout

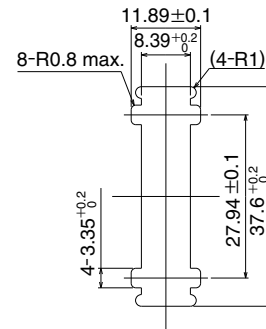
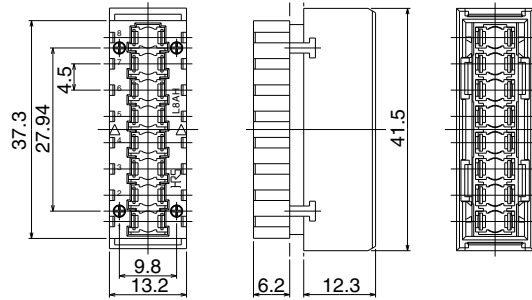


Part Number	CL No.	Panel thickness
HMUB-L2HA-1(40)	710-0017-8-40	2.4mm
HMUB-L2HB-1(40)	710-0018-0-40	3.2mm

Note: Screw fastening torque: 0.03Nm

### ● 8-Position Backpanel side Connector Housing

### ■ Panel Cutout

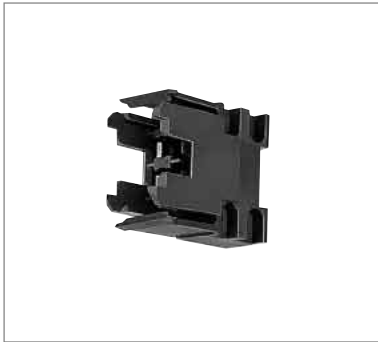


Part Number	CL No.	Panel thickness
HA-1(40)	710-0019-3-40	2.4mm
HMUB-L8HB-1(40)	710-0020-2-40	3.2mm

Note: Screw fastening torque: 0.03Nm

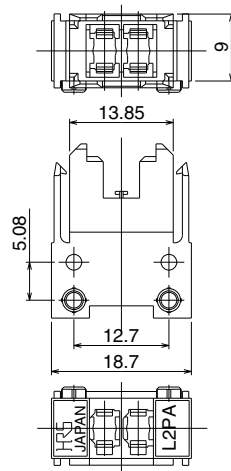
## ■ Package side Connector Housings

### ● Duplex Package side Connector Housing

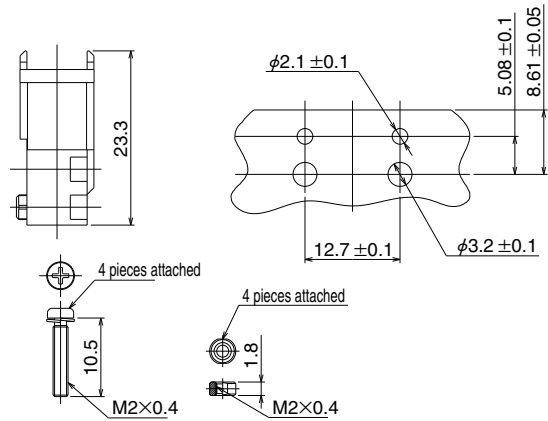


Part Number	CL No.
HMUB-L2PA-1(40)	710-0015-2-40

Note : Screw fastening torque : 0.15Nm



### ■ Board Mounting Pattern

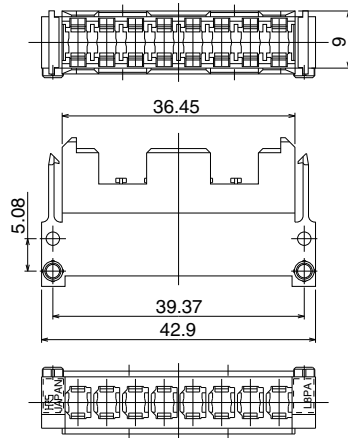


### ● 8-Position Package side Connector Housing

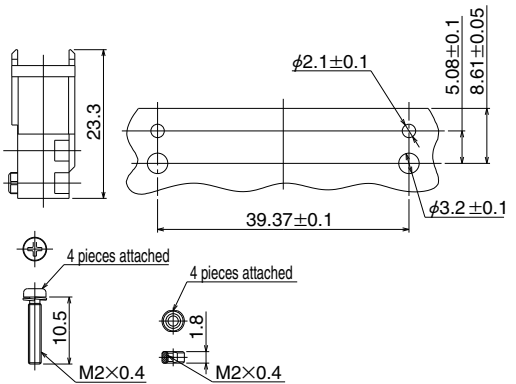


Part Number	CL No.
HMUB-L8PA-1(40)	710-0016-5-40

Note : Screw fastening torque : 0.15Nm



### ■ Board Mounting Pattern



## ■ Sleeve Holder

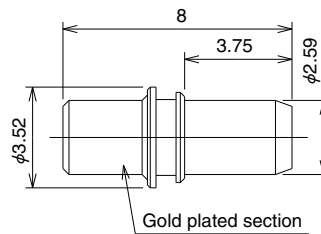


Part Number	CL No.	Split sleeve
HMUB-SH-1(40)	710-0021-5-40	Zirconia

Note: This Sleeve Holder should be used for duplex and 8-position package side connector housing and J Plug Housing connector plug.

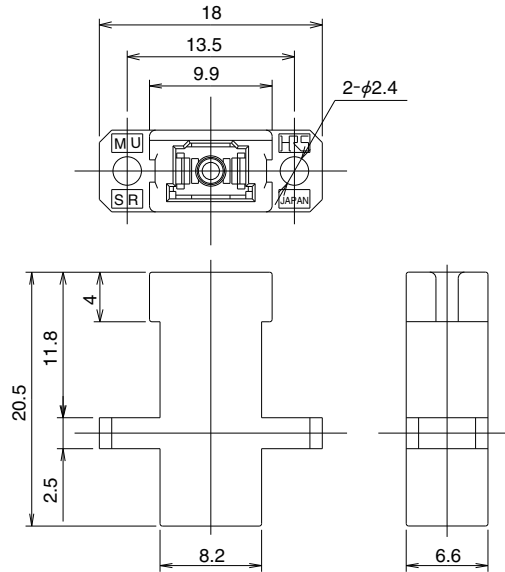
Insert the Sleeve Holder using dedicated tool #HMUB-TS-1.

The gold plated section of the Sleeve Holder should be inserted into the package side connector housing.

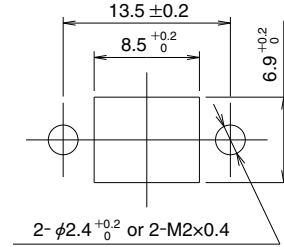


## ■ Simplified Receptacles

### ● Simplex Simplified Receptacle / Screw Panel Mounting

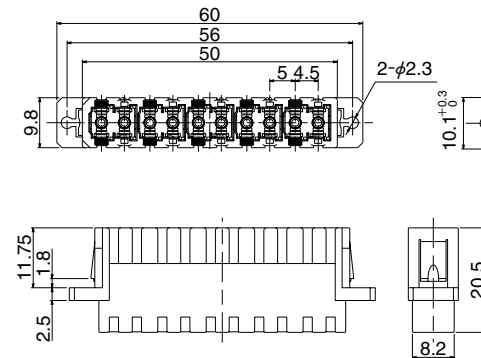


### ■ Panel Cutout

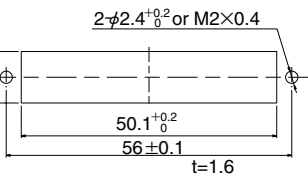


Part Number	CL No.	Split sleeve
HMUA-SR-1(40)	710-0094-9-40	Zirconia
HMUA-SR-B1	710-0182-4-00	Copper alloy

### ● 10-position Simplified Receptacle / Screw Panel Mounting



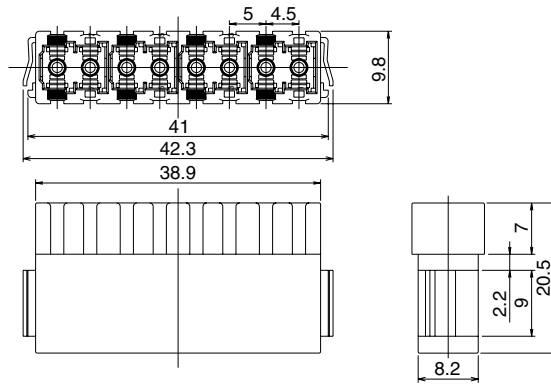
### ■ Panel Cutout



Part Number	CL No.	Split sleeve
HMUA-10SR-4	710-0193-0-00	Zirconia
HMUA-10SR-B4	710-0201-7-00	Copper alloy



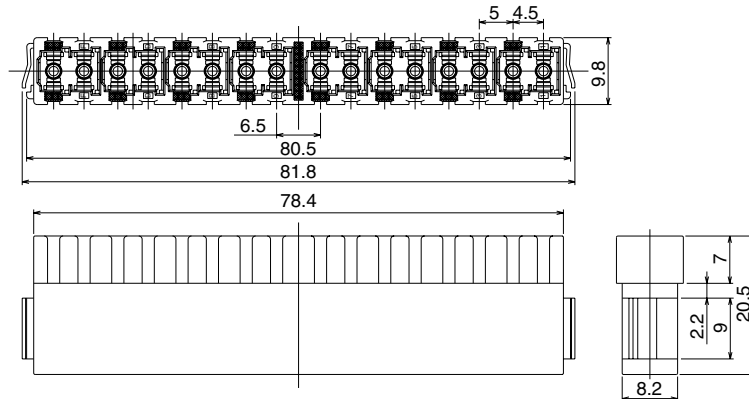
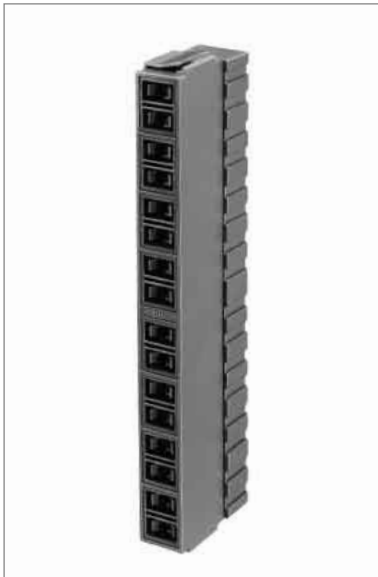
●8-position Simplified Receptacle - for extremely high density applications



Part Number	CL No.	Split sleeve
HMUA-8SR-3(40)	710-0168-3-40	Zirconia
HMUA-8SR-B3(40)	710-0117-2-40	Copper alloy

Please contact to HIROSE for the mounting dimension.

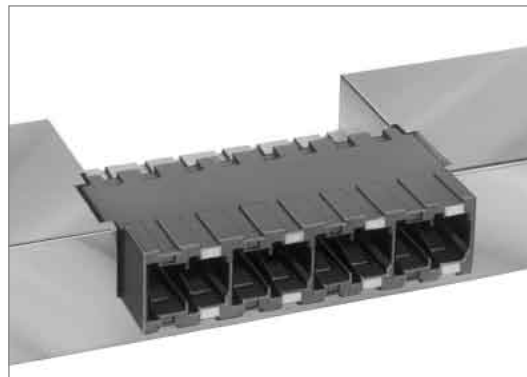
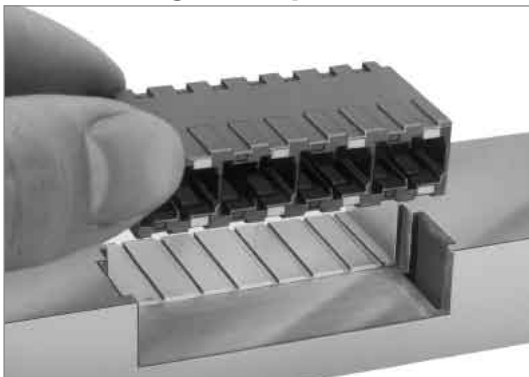
●16-Position Simplified Receptacle - for extremely high density applications



Part Number	CL No.	Split sleeve
HMUA-16SR-5	710-0173-3-00	Zirconia
HMUA-16SR-B5	710-0122-2-00	Copper alloy

Please contact to HIROSE for the mounting dimension.

■Mounting Example



SC

FC

MU

Harsh Environment

Attenuators

Terminators

POF / PCF

SC

FC

MU

Harsh Environment

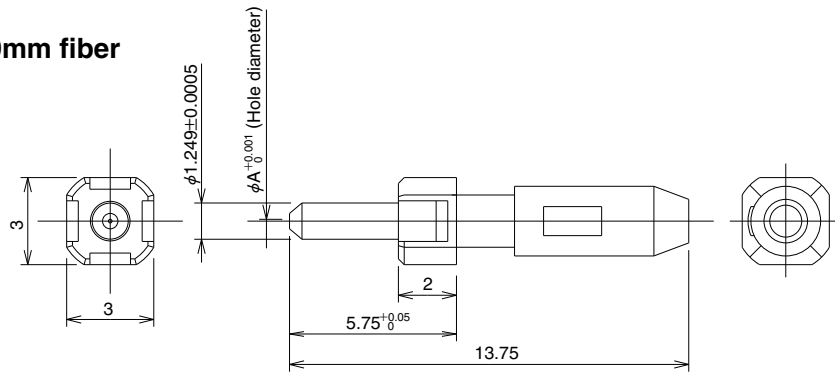
Attenuators

Terminators

POF / PCF

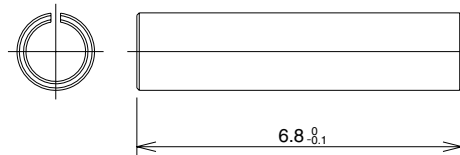
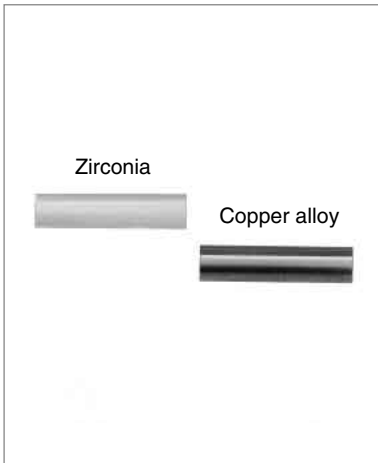
## ■ Simplified Plug

### ● Simplex simplified Plug for 0.9mm fiber



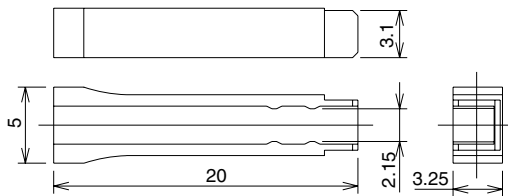
Part Number	CL No.	A dimension	Applicable Fiber cable	Ferrule
HMUA-FK-A125(04)	710-0099-2-04	0.125	SM-9.5/125 GI-50/125	Zirconia
HMUA-FK-A1255(04)	710-0107-9-04	0.1255		
HMUA-FK-A126(04)	710-0100-0-04	0.126		

## ■ Split Sleeve



Part Number	CL No.	Split sleeve
HMUA-D	710-0147-3-00	Zirconia
HMUA-SLIT-SLEEVE(01)	710-0130-0-01	Copper alloy

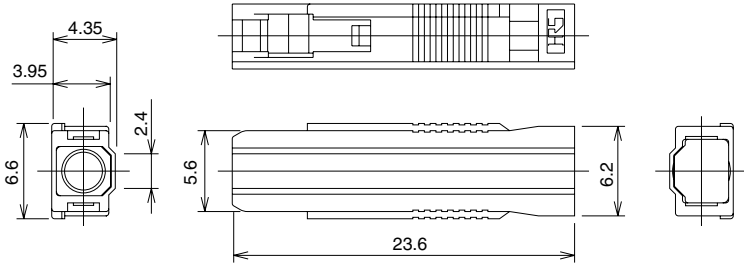
## ■ Extraction Tool for Simplified Plug



Part Number	CL No.
HMUA-FK-T3	710-0148-6-00

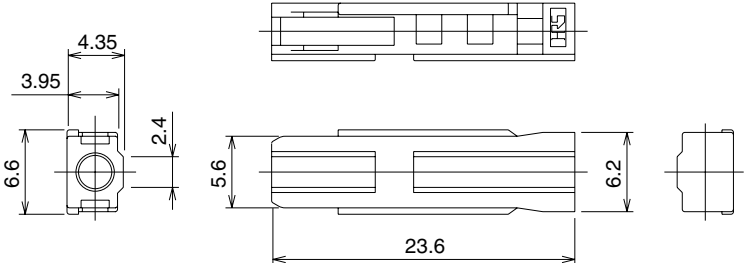
### ■ Dust Caps

#### ● Dust Cap for Backpanel side connector housings



Part Number	CL No.	Applicable connector
HMUB-DP-1(40)	710-0135-4-40	Back panel side housing

#### ● Dust Cap for Adapters



Part Number	CL No.	Applicable connector
HMUA-DP-2	710-0131-3-00	Adapter, simplified receptacle

- SC
- FC
- MU
- Harsh Environment
- Attenuators
- Terminators
- POF / PCF

## ■ Tools

### ● Insertion / Extraction Tool for Plug



Part Number	CL No.	Color of Tip	Remarks
HMUA-TP-1	710-0074-1	Blue	For Conventional Adapters
HMUB-TP-1	710-0075-4	Brown	For MU Backplane system

### ● Insertion / Extraction Tool for Plug Cost effective type



Part Number	CL No.	Remarks
HMU/HEMD-1P	902-6045-8	For Conventional Adapters and MU Backplane system

### ● Extraction Tool for J Plug



Part Number	CL No.	Remarks
HMUB-TJ-1	710-0076-7	HMUB-L2PA-1, L8PA-1

### ● Insertion / Extraction Tool for Sleeve Holder



Part Number	CL No.	Remarks
HMUB-TS-1	710-0077-0	HMUB-L2PA-1, L8PA-1

SC

FC

MU

Harsh Environment

Attenuators

Terminators

POF / PCF

●Crimp Tools



Part Number	CL No.	Applicable plug housing
HT402/HMUA-P2-H2	902-6040-4	HMUA-P2-H2,H1
		HMUA-2P2-H2,H1

●Stop Ring Insertion Tool



Part Number	CL No.	Applicable connector
HMUA.J/PRMD	902-6019-8	MU plug housings except HMUA-P1.1-H2

## ■ Patch cords

### ● Single mode, Polishing type: AdPC (Advanced PC)

Connector	Cable Dia.	Polishing type	Length	Part Number	CL No.
SC	φ0.9	AdPC	1m	HSC-ASPK2-F3L-1M(61)	704-1095-5-61
			2m	HSC-ASPK2-F3L-2M(62)	704-1095-5-62
			3m	HSC-ASPK2-F3L-3M(63)	704-1095-5-63
	φ2.0		1m	HSC-ASPAD2-F3Q-1M(21)	704-1170-9-21
			2m	HSC-ASPAD2-F3Q-2M(22)	704-1170-9-22
			3m	HSC-ASPAD2-F3Q-3M(23)	704-1170-9-23
FC	φ0.9		1m	HRFC-ASPA2-F3L-1M(01)	701-1073-3-01
			2m	HRFC-ASPA2-F3L-2M(02)	701-1073-3-02
			3m	HRFC-ASPA2-F3L-3M(03)	701-1073-3-03
	φ2.0		1m	HRFC-ASP72-F3Q-1M(41)	701-1059-2-41
			2m	HRFC-ASP72-F3Q-2M(42)	701-1059-2-42
			3m	HRFC-ASP72-F3Q-3M(43)	701-1059-2-43
MU	φ0.9		1m	HMUA-ASPH2-F3L-1M(61)	710-1052-4-61
			2m	HMUA-ASPH2-F3L-2M(62)	710-1052-4-62
			3m	HMUA-ASPH2-F3L-3M(63)	710-1052-4-63
	φ2.0		1m	HMUA-ASP2-F3Q-1M(70)	710-0029-7-70
			2m	HMUA-ASP2-F3Q-2M(71)	710-0029-7-71
			3m	HMUA-ASP2-F3Q-3M(72)	710-0029-7-72

### ● Single mode, Polishing type: APC (Angled PC)

Connector	Cable Dia.	Polishing type	Length	Part Number	CL No.
SC	φ2.0	APC	1m	HSC-CSPE2-F3Q-1M(21)	704-3139-0-21
			2m	HSC-CSPE2-F3Q-2M(22)	704-3139-0-22
			3m	HSC-CSPE2-F3Q-3M(23)	704-3139-0-23

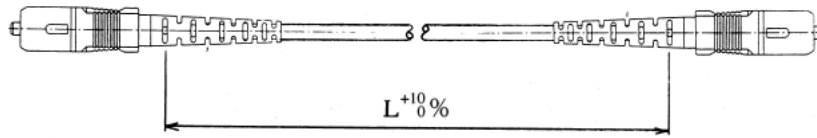
### ● Multi mode, Polishing type: PC

Connector	Cable Dia.	Polishing type	Length	Part Number	CL No.
SC	φ0.9	PC	1m	HSC-SPK2-F3M7-1M(01)	704-1172-4-01
			2m	HSC-SPK2-F3M7-2M(02)	704-1172-4-02
			3m	HSC-SPK2-F3M7-3M(03)	704-1172-4-03
	φ2.0		1m	HSC-SPAD2-F3P-1M(01)	704-1173-7-01
			2m	HSC-SPAD2-F3P-2M(02)	704-1173-7-02
			3m	HSC-SPAD2-F3P-3M(03)	704-1173-7-03
FC	φ2.0		1m	HRFC-SP72-F3P-1M(51)	701-1062-7-51
			2m	HRFC-SP72-F3P-2M(52)	701-1062-7-52
			3m	HRFC-SP72-F3P-3M(53)	701-1062-7-53

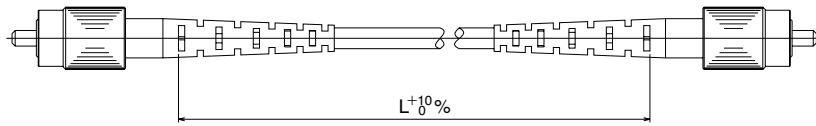
Please contact HIROSE for other specifications.

## ● Patch cord structure

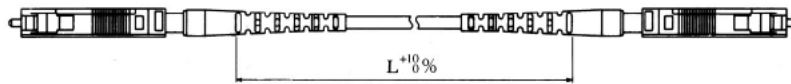
SC-SC



FC-FC



MU-MU



Please refer to each connector's page for SC, FC or MU type Connector's detail.

## ● Other type patch cords

Please select connector and cord specification from Table, and contact HIROSE.

Parts	Item	Specified example
Side A connector	Connector type	SC, FC, MU, LC, Simplified SC, Simplified MU
	Polishing type	AdPC, APC, PC
Side B connector	Connector type	SC, FC, MU, LC, Simplified SC, Simplified MU, None(pigtail)
	Polishing type	AdPC, APC, PC
Optical Fiber Cord	Cord style	Simplex, Duplex zipcord
	Fiber mode	SM-9.5/125, MM-50/125
	Cord diameter	φ0.9(Tight buffered), φ2, φ3
	Length	Unit: m

Please contact HIROSE for other specifications.

SC

FC

MU

Harsh  
Environment

Attenuators

Terminators

POF / PCF

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Hirose Electric:

[HMUA-P2-H2\(25\)](#) [HMUA-P2-H2\(40\)](#) [HMUA-P2-H2\(41\)](#) [HMUA-P2-H2\(43\)](#) [HMUA-2P2-H2\(40\)](#) [HMUA-2P2-H2\(41\)](#)  
[HMUA-2P2-H2\(42\)](#) [HMUAJ-P1-H2\(25\)](#) [HMUAJ-P1-H2\(40\)](#) [HMUAJ-P1-H2\(41\)](#) [HMUAJ-P2-H2\(40\)](#) [HMUAJ-P2-H2\(43\)](#)  
[HMUA-RA-1\(40\)](#) [HMUB-L8PA-1\(40\)](#) [HMUB-L2HA-1\(40\)](#) [HMUB-L8HA-1\(40\)](#) [HMUB-L8HB-1\(40\)](#) [HMUB-SH-1\(40\)](#)  
[HMUA-F3-A125\(10\)](#) [HMUA-F3-A125\(21\)](#) [HMUA-F3-A126\(10\)](#) [HMUA-F3-A126\(21\)](#) [HMUA-F3-A127](#) [HMUA-P2-H1\(40\)](#)  
[HMUA-P2-H1\(41\)](#) [HMUA-P2-H1\(43\)](#) [HMUA-P2-H1\(44\)](#) [HMUA-2P2-H1\(40\)](#) [HMUA-2P2-H1\(41\)](#) [HMUA-2P2-H1\(42\)](#)  
[HMUAJ-P1-H1\(40\)](#) [HMUAJ-P1-H1\(41\)](#) [HMUAJ-P2-H1\(43\)](#) [HMUA-DP-1](#) [HMUA-P1-H1\(40\)](#) [HMUA-P1-H1\(42\)](#) [HMUA-](#)  
[P1-H1\(43\)](#) [HMUA-P1-H2\(40\)](#) [HMUA-P1-H2\(42\)](#) [HMUA-P1-H2\(43\)](#) [HMUA-2P1-H1\(40\)](#) [HMUA-2P1-H1\(41\)](#) [HMUA-](#)  
[2P1-H1\(42\)](#) [HMUA-2P1-H2\(40\)](#) [HMUA-2P1-H2\(41\)](#) [HMUA-2P1-H2\(42\)](#) [HMUA-TP-1](#) [HMUB-TP-1](#) [HMUB-TJ-1](#)  
[HMUB-TS-1](#) [HMUA-RH-1](#) [HMUB-L2PA-CAP](#) [HMUB-L2PA-CAP\(01\)](#) [HMUB-L8PA-CAP](#) [HMUA-P1-H3\(40\)](#) [HMUA-P1-](#)  
[H3\(41\)](#) [HMUA-P1-H3\(42\)](#) [HMUA-P1-H3\(43\)](#) [HMUA-P1-H4\(40\)](#) [HMUA-P1-H4\(41\)](#) [HMUA-P1-H4\(42\)](#) [HMUA-P1-](#)  
[H4\(43\)](#) [HMUA-2P1-H3\(41\)](#) [HMUA-2P1-H4\(40\)](#) [HMUA-SR-1\(01\)](#) [HMUA-SR-1\(40\)](#) [HMUA-FK-A125\(01\)](#) [HMUA-FK-](#)  
[A125\(04\)](#) [HMUA-FK-A126\(01\)](#) [HMUA-FK-A126\(04\)](#) [HMUA-A-3](#) [HMUA-AS-3](#) [HMUA-AH-3\(40\)](#) [HMUA-FK-A1255\(01\)](#)  
[HMUA-FK-A1255\(04\)](#) [HMUA-FK-A1255\(05\)](#) [HMUB-L2HA-2\(40\)](#) [HMUA-16A-B2\(04\)](#) [HMUA-16A-B2\(40\)](#) [HMUA-16A-](#)  
[B2\(51\)](#) [HMUA-8SR-B3\(02\)](#) [HMUA-8SR-B3\(40\)](#) [HMUA-8A-B2](#) [HMUA-8A-B2\(51\)](#) [HMUA-F3-A1255\(10\)](#) [HMUA-F3-](#)  
[A1255\(21\)](#) [HMUA-16SR-B5](#) [HMUA-16SR-B5\(01\)](#) [HMUA-16SR-B5\(40\)](#) [HMUA-16SR-B5\(51\)](#) [HMUA-16SR-B5\(53\)](#)  
[HMUA-SLIT-SLEEVE\(01\)](#) [HMUA-DP-2](#) [HMUA-DP-3\(01\)](#) [HMUA-P1.1-H2\(40\)](#) [HMUA-C1](#) [HMUA-C1\(01\)](#) [HMUB-DP-](#)  
[1\(01\)](#) [HMUA-F3A2-A125\(10\)](#) [HMUA-F3A2-A126](#)