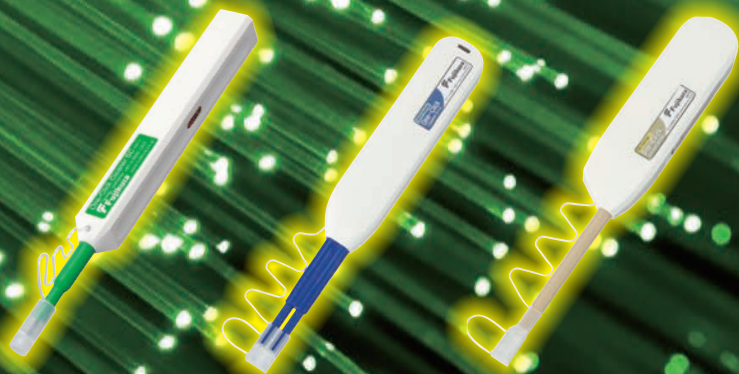


Issued in  
2017

# *Future* *Access*®

Optical Cable Network Product Catalog

# Future Access<sup>®</sup>



One-Click Cleaner SC

One-Click Cleaner D-LC

One-Click Cleaner MT-RJ

## One-Click<sup>™</sup> Cleaner Series

One-Click<sup>™</sup> Cleaner Series enable quick cleaning of various connectors even when mounted in adapters.

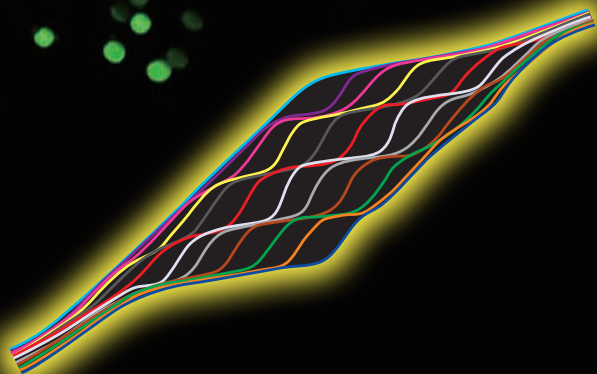
Effective for a variety of contaminants with over 500 cleanings per unit. Cut your connector cleaning time by more than 50% with the One-Click<sup>™</sup> Cleaner Series.

## Light is radiating Towards an enriching Future

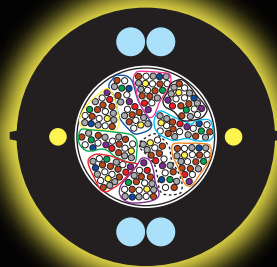
## Wrapping Tube Cable with Spider Web Ribbon<sup>®</sup>

Fujikura's innovative optical fiber ribbon, Spider Web Ribbon<sup>®</sup> allows 12 fiber mass fusion splicing as well as drastically reduces cable outer diameter and weight. Applying SWR, totally unique features of optical cable called wrapping tube cable (WTC) are now released for 288 - 864 fibers inside. Additionally, WTC's jelly-free central fiber core construction drastically reduces cable deployment time by allowing easy access to fibers and eliminating jelly cleaning time.

- Splitter module installation is available with option.



Spider Web Ribbon<sup>®</sup>



Wrapping Tube Cable

Fujikura prize ourselves as a total products supplier for end-to-end Optical Distribution Network.

For our valued customers who are keen on the installation of optical networks, this catalog will provide you with products that provide answers to your implementation needs.



Low Friction Optical Cable

**Low Friction Optical Cable**

Low friction cable with rigid property enables it to be easily pushed through the duct. It is very suitable for both vertical and horizontal installation in MDU's.

**Field Installable Connector**

Fujikura field installable connector series require no polishing, adhesives, and crimping in the field.

Quick and reliable connection reduce on-site installation and maintenance cost.



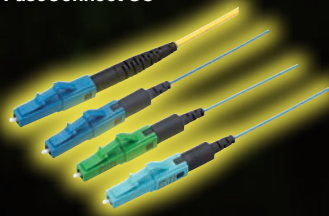
FAST-SC (for fiber type)



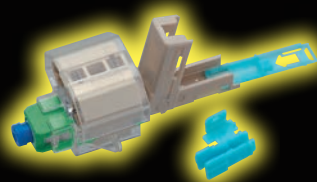
FuseConnect SC



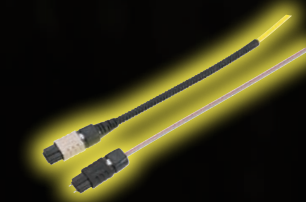
FAST-SC (for cord type)



FuseConnect LC



FAST-SC (for cable type)



FuseConnect MPO

**Content**

**OPTICAL FIBERS**



Optical Fibers FutureGuide® Lineup ..... 4

**OPTICAL CABLES**



Backbone/Feeder Cable ..... 6



Wrapping Tube Cable with Spider web Ribbon® ..... 8



Aerial Distribution/Drop Cable ..... 10



Indoor/Premise Cable ..... 14

**OPTICAL COMPONENTS**



Optical Termination Racks/Boxes ..... 16



Optical Splitter Modules ..... 28



Optical Closures ..... 30



Optical Connectors/Jumpers ..... 42



Field Installable splice/Connectors ..... 48



Connector Cleaners ..... 56

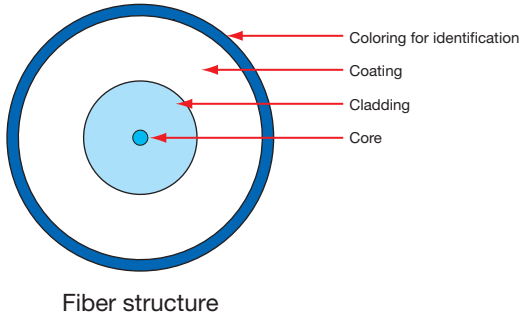
**RFTS**



FiMO: Fiber Monitoring System ..... 58

# FutureGuide® Optical Fibers

## Overview



Fiber structure

FutureGuide® optical fibers are glass fibers with polymer coating for optical signal transmission in optical networks.

Fujikura Ltd. has lead optical fiber and cable industries for more than 40 years as a front runner, and also kept on contributing to developments of the industries with various kinds of epoch-making products. These contributions have been realized by Fujikura's integrated technologies, including glass manufacturing technology, coating technology and so on, which are based on Fujikura's R&D effort over the years.

## Key Technologies

### Advanced Glass Manufacturing Technology

Glass (preform) manufacturing technology is a key technology of optical fiber characteristics. Especially, attenuation, which is one of the most important, strongly depends on quality of glass portion. Fujikura's fiber mass production method — Fujikura's VAD method\* — provides leading-edge characteristics of optical fiber at low cost, and it contributes to efficient transmission of light signals.

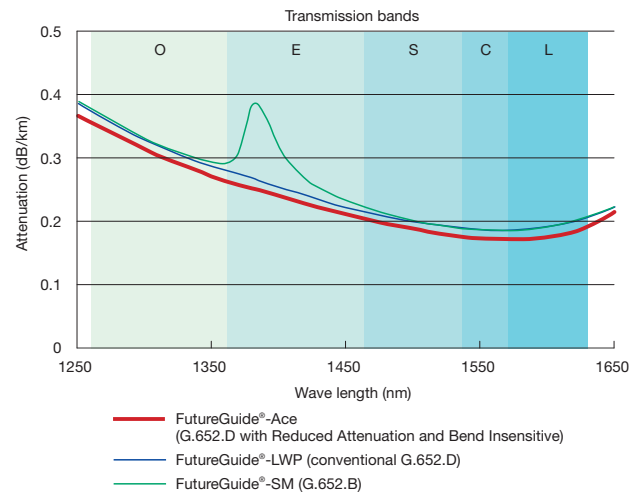
The advanced glass manufacturing technology has resulted in an enhanced ITU-T G.652.D fiber, named FutureGuide®-Ace. The fiber offers not only superior reduced attenuation characteristics but also bend insensitiveness. The reduced attenuation provides longer transmission distance with less number of amplifiers, and the bend insensitiveness offers reliable performance in harsh installation conditions. Furthermore, the fiber maintains backward compatibility with all existing conventional networks based on G.652 fibers. FutureGuide®-Ace is suitable for long-haul, core and access networks using 40Gbps, 100Gbps and beyond.

\* Fujikura was awarded a plaque from IEEE in 2015, for significant contribution to VAD (Vapor Axial Deposition) method. The VAD method is presently in the list of IEEE Milestones, for its contribution to construction of worldwide optical fiber networks.

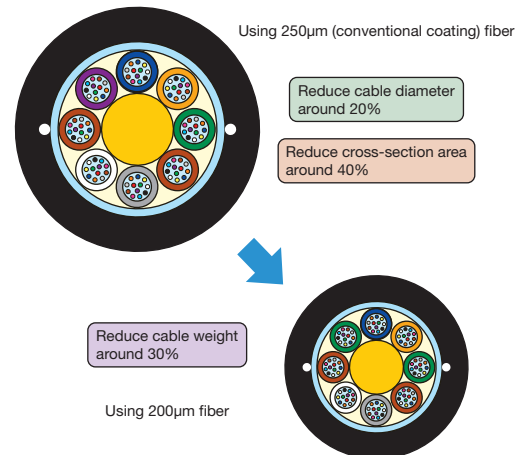
### Innovative Coating Technology

Not only optical characteristics, but stability of those in actual networks is also important for quality of optical fibers. It is difficult to eliminate various factors which affect stable signal transmission in installed cables, such as external stress, temperature change, water immersion etc. Robustness against such factors, therefore, is an important characteristic of optical fiber for cable designing as well as fiber characteristics. Fujikura's innovative fiber coating helps such cable designing and manufacturing by its robustness feature.

The coating technology of Fujikura attains a development of innovative ITU-T G.657.A1 and A2 fibers with 200µm coating diameter, named FutureGuide®-SR15E-200 and FutureGuide®-BIS-B-200. The fibers have drastically reduced coating diameter down to 200µm enabled by superior protection performance of new coating materials. The reduced fiber diameter allows more flexible cable designing. Especially downsizing of cable supports the demand in urban areas: more effective utilization of available space by installing high-density and more fiber-count cables underground.



Loss spectrum of FutureGuide®-Ace

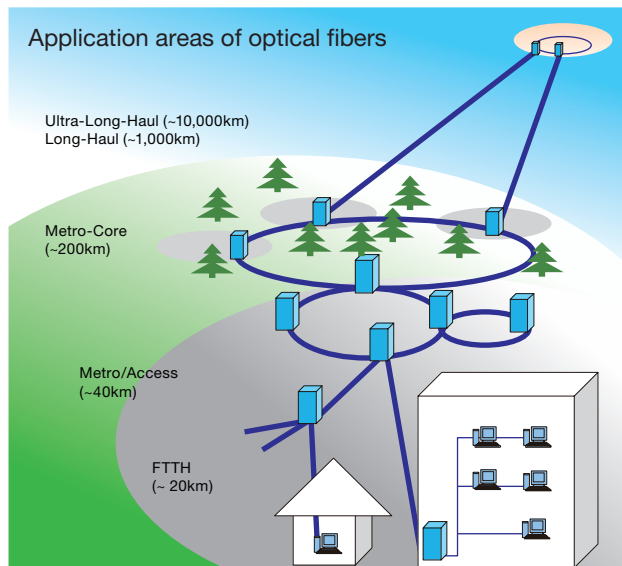


Example of cable downsizing by use of 200µm fibers

# FutureGuide® Optical Fibers

## Product Lineups

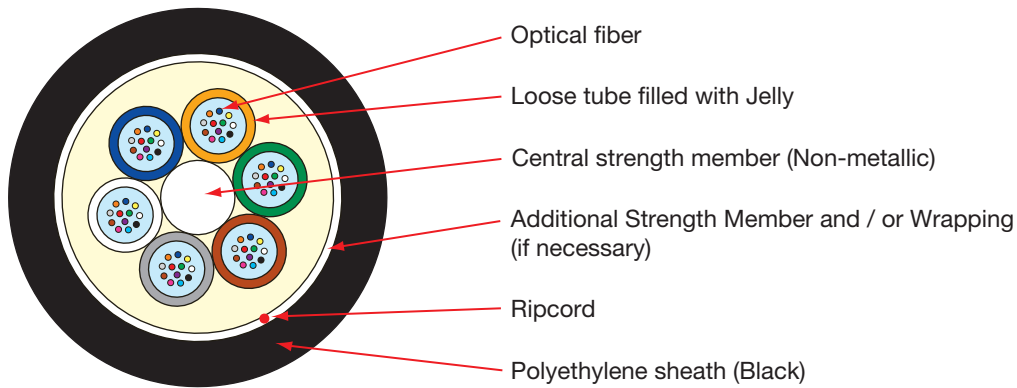
Fujikura has developed various products of optical fibers, selected according to transmission distance, transmission capacity and/or installation environment. All of these fibers meet the industry's latest international standards.



	Product	Description
Single-Mode	<b>FutureGuide®-Ace</b> (ITU-T G.652.D + Reduced Attenuation and Bend Insensitive)	G.652.D Fiber with Further Reduced Attenuation and improved Bend Insensitiveness Complying with G.657.A1 Long-Haul, Core and Access Networks for up to 100Gbps and Beyond
	<b>FutureGuide®-LWP-RA</b> (ITU-T G.652.D + Reduced Attenuation)	G.652.D Fiber with Further Reduced Attenuation within All Transmission Windows Long-Haul and High-Speed Transmission Network of 40Gbps, 100Gbps and Beyond
	<b>FutureGuide®-LWP</b> (ITU-T G.652.D)	Low(Zero)-Water-Peak Single-Mode Fiber with High Reliability CWDM and DWDM Optical Transmission for Metropolitan Networks
	<b>FutureGuide®-SM</b> (ITU-T G.652.B)	Conventional Single-Mode Fiber Optical Transmission for Metropolitan Networks
	<b>FutureGuide®-SR15E</b> (ITU-T G.657.A1)	Bend Insensitive down to 15mm Radius Low(Zero)-Water-Peak Single-Mode Fiber with High Reliability Optical Cord and Cable for FTTH / LAN / Premises
	<b>FutureGuide®-SR15E-200</b> (ITU-T G.657.A1 + 200µm Coating Diameter)	G.657.A1 Fiber with Drastically Reduced Coating Diameter down to 200µm High Fiber-Density Cable for FTTH / LAN / Premises
	<b>FutureGuide®-BIS-B</b> (ITU-T G.657.A2)	Bend Insensitive down to 7.5mm Radius Low(Zero)-Water-Peak Single-Mode Fiber with High Reliability Optical Cord and Cable for FTTH / LAN / Premises
	<b>FutureGuide®-BIS-B-200</b> (ITU-T G.657.A2 + 200µm Coating Diameter)	G.657.A2 Fiber with Drastically Reduced Coating Diameter down to 200µm High Fiber-Density Cable for FTTH / LAN / Premises
	<b>FutureGuide®-LA</b> (ITU-T G.655.C and D)	Non-Zero Dispersion Shifted Fiber with Large-effective Area of 72µm <sup>2</sup> Long-Distance DWDM Optical Transmission in the C- and L-Bands
	<b>FutureGuide®-SS</b> (ITU-T G.655.C and D)	Non-Zero Dispersion Shifted Fiber with Small-dispersion Slope of 0.05ps/nm <sup>2</sup> -km at 1550nm Long-Distance DWDM Optical Transmission in the C- and L-Bands
	<b>FutureGuide®-USS</b> (ITU-T G.656)	Non-Zero Dispersion-Shifted Fiber for Wideband Transport with Ultra Small-dispersion Slope of 0.02ps/nm <sup>2</sup> -km at 1550nm DWDM Transmission System Effectively Operating at S,C and L Bands
	MultiMode	<b>FutureGuide®-MM50</b> (ISO/IEC11801 OM1 and OM2)
<b>FutureGuide®-MM62.5</b> (ISO/IEC11801 OM1 and OM2)		62.5µm Core MultiMode Fiber with Graded-Index LAN / Data Center
<b>FutureGuide®-MM10G/300</b> (ISO/IEC11801, OM3)		50µm Core Graded Index MultiMode Fiber with 10Gbps Support LAN / Data Center

# Loose Tube Optical Fiber Cable

## Cable Construction



## Features

- Dielectric construction
- Core interstices are filled with water blocking material
- Comply with IEC 60794-3-10 and IEC 60794-1-2

## Applications

- Duct and lashed aerial
- Backbone and Access

## Mechanical Characteristics

Product code	Fiber count	Nominal diameter (mm)	Weight (kg/km)	Permissible tensile strength (N)		Bending radius (mm)	
				Installation	Service	Installation	Service
L0-24 (t*)	24	9.2	65	1500	450	200	100
L0-48 (t*)	48						
L0-72 (t*)	72						
L0-96 (t*)	96	10.5	85	1500	450	20D	10D
L0-144 (t*)	144	13	125	2000	600		

\*F denotes fiber type: FutureGuide®-LWP = LWP, FutureGuide®-SR15E = SR15E, FutureGuide®-LA = LA, FutureGuide®-SS = SS, FutureGuide®-MM50 = MM50, FutureGuide®-MM10G/300 = MM10G/300

D: Cable diameter

Mechanical characteristics can be customized.

## Identification

Fiber & tube identification							
1	Blue	2	Orange	3	Green	4	Brown
5	Grey	6	White	7	Red	8	Black
9	Yellow	10	Violet	11	Pink	12	Turquoise

\*Fiber and tube colors can be customized as per requirement.

## Environmental Characteristics

Criteria	Temperature
Transportation & Storage	-30°C - +70°C
Installation	-10°C - +50°C
Operation	-30°C - +70°C
Water Penetration	No water at the unsealed end

\*Environmental characteristics can be customized subject to limitations.

## Fiber Characteristics

Characteristics	Unit	Fiber type	
		FutureGuide®-LWP (ITU-T G.652.D)	FutureGuide®-SR15E (ITU-T G.657.A1)
<b>Geometrical Characteristics,</b>			
Mode field diameter at 1310nm	µm	9.2 ± 0.4	8.6 ± 0.4
Cladding diameter	µm	125 ± 1	125 ± 0.7
Core concentricity error	µm	≤ 0.6	≤ 0.5
Cladding non-circularity	%	≤ 1.0	≤ 1.0
Primary coating diameter (including color layer)	µm	250 ± 15	250 ± 15
Coating-cladding concentricity error	µm	≤ 12.5	≤ 12.5
Fiber curl radius	m	≥ 4	≥ 4
<b>Transmission Characteristics</b>			
Attenuation at 1310nm	dB/km	≤ 0.36	≤ 0.36
Attenuation at 1383nm*	dB/km	≤ 0.35	≤ 0.35
Attenuation at 1550nm	dB/km	≤ 0.22	≤ 0.22
Macro bending loss** φ 60mm, 100 turns, 1625nm	dB	≤ 0.1	-
Macro bending loss** φ 30mm, 10 turns, 1550nm	dB	-	≤ 0.25
Macro bending loss** φ 30mm, 10 turns, 1625nm	dB	-	≤ 1.0
Macro bending loss** φ 20mm, 1 turns, 1550nm	dB	-	≤ 0.75
Macro bending loss** φ 20mm, 1 turns, 1625nm	dB	-	≤ 1.5
Cut-off wavelength (λ <sub>cc</sub> )	nm	1260	1260
Chromatic dispersion at 1310nm	ps/nm.km	≤ 3.5	≤ 3.5
Chromatic dispersion at 1550nm	ps/nm.km	≤ 18	≤ 18
Zero dispersion wavelength	nm	1300-1324	1300-1324
Zero dispersion slope	ps/nm <sup>2</sup> .km	≤ 0.092	≤ 0.092
PMD (Link design value)	ps/√km	≤ 0.2	≤ 0.2
<b>Mechanical Characteristics</b>			
Proof stress level	%	1	1.5

\*Attenuation increase due to hydrogen aging at this wavelength in bare optical fiber is tested in accordance with IEC60793-2-50 test procedure.

\*\* This characteristics is measured before coloring process.

## Packing

Cables are packed in standard durable and export quality wooden drums and suitable protection means are applied to prevent damage of cables during shipment and storage. Drums are non-returnable. Cable ends sealed by suitable method are fastened so as not to protrude beyond any portion of the drum and to prevent the cable from becoming loose during transportation.

## Ordering Information

Product code	Fujikura product name
L0-24 (F*)	OGNMLWBE F × 24C
L0-48 (F*)	OGNMLWBE F × 48C
L0-72 (F*)	OGNMLWBE F × 72C
L0-96 (F*)	OGNMLWBE F × 96C
L0-144 (F*)	OGNMLWBE F × 144C

\* F denotes fiber type : FutureGuide®-LWP = LWP, FutureGuide®-SR15E = SR15E, FutureGuide®-LA = LA, FutureGuide®-SS = SS, FutureGuide®-MM50 = MM50, FutureGuide®-MM10G/300 = MM10G/300

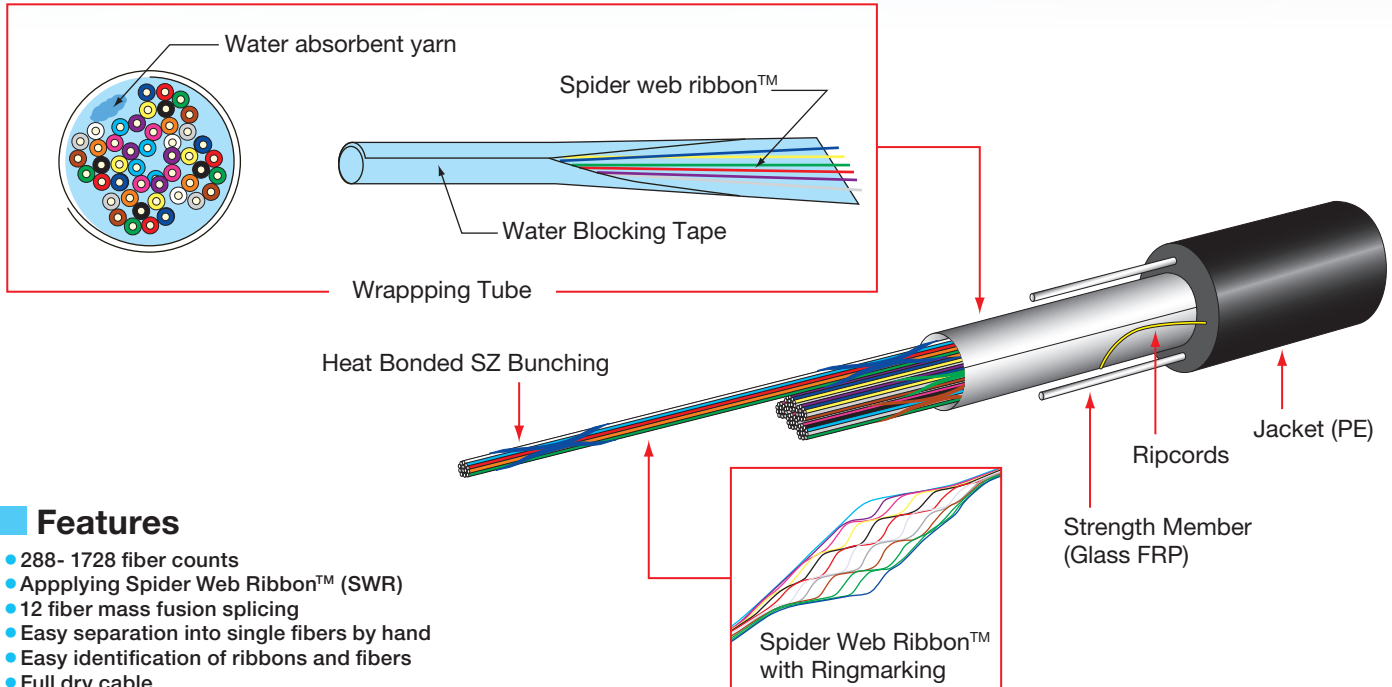
## Option

1. Stranded core filled with jelly and steel central strength member are available.
2. Flame retardant sheath can be provided.
3. Various type of armor can be provided.
4. Self Supporting type can be provided.

## Notes

# Wrapping Tube Cable™ with Spider Web Ribbon™

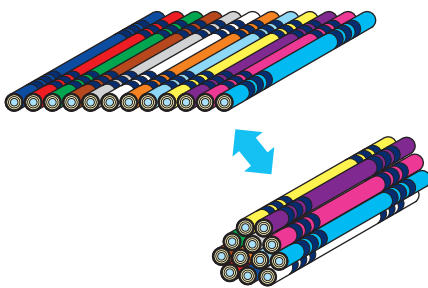
## Cable construction



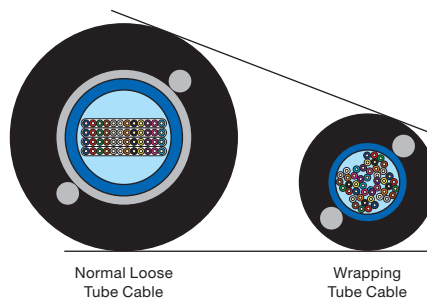
## Features

- 288- 1728 fiber counts
- Applying Spider Web Ribbon™ (SWR)
- 12 fiber mass fusion splicing
- Easy separation into single fibers by hand
- Easy identification of ribbons and fibers
- Full dry cable
- Easy and quick access to fibers
- Smallest cable diameter and lightest weight in the world
- Long cable length per drum

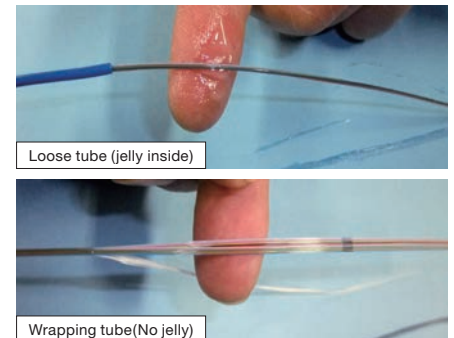
### Spider Web Ribbon™



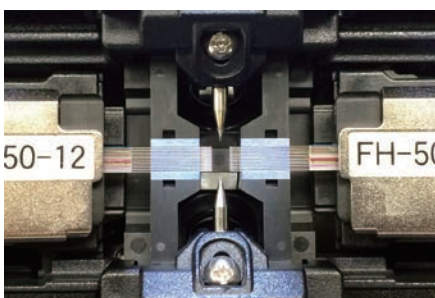
### High Fiber Packing Density



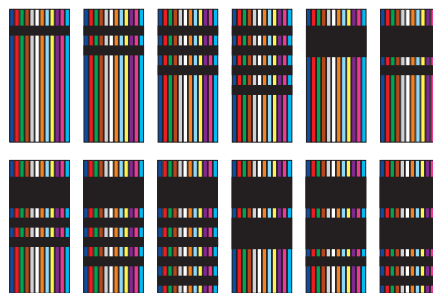
### Full Dry Structure



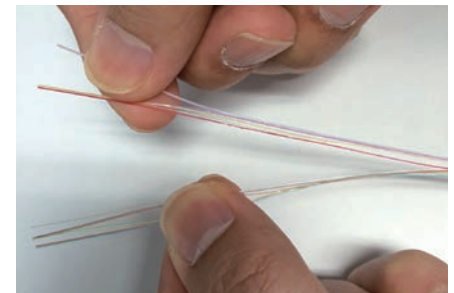
### 12F Mass fusion splice



### Stripe Ring Markings

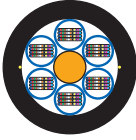
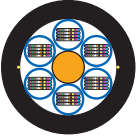
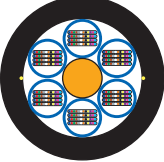
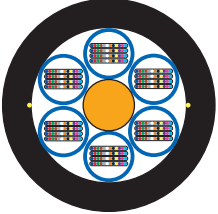






### Easy Separation by hands

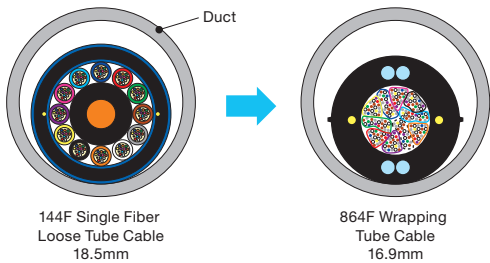




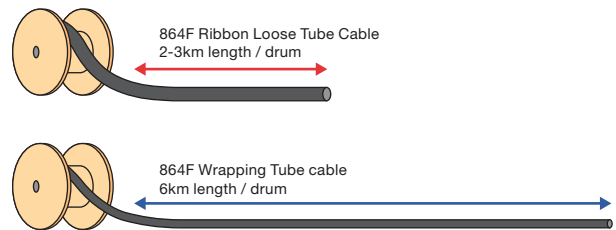
● Comparison of cable diameter

	288F	432F	864F	1728F
<b>Ribbon Loose Tube Cable</b>	 22.0mm	 22.0mm	 27.0mm	 35.1mm
<b>Wrapping Tube Cable</b>	 12.0mm	 13.5mm	 17.5mm	 22.7mm

● Examples for the advantage of small diameter cable



864F cable can be deployed into the same duct size of 144F single fiber loose tube cable



SWR/WTC's small diameter allows longer length of cable per drum than ribbon loose tube cable on the same drum size (Drum size on the above example; outer width: 1600mm, Flange Diameter; 2000mm)

■ Applications

- Duct and lashed aerial
- Suitable for Backbone and Feeder application

■ Mechanical Characteristics

Product code	Fiber count	Nominal diameter (mm)	Weight (kg/km)	Permissible tensile strength (N)		Bending radius (mm)	
				Installation	Service	Repeated bending	Cable bend
WTC-288C	288	12.0	105	2700	810	120	180
WTC-432C	432	13.5	135	2700	810	135	203
WTC-864C	864	17.5	220	2700	810	175	263
WTC-1728C	1728	22.7	340	2700	810	227	341

\* Small fiber count cables (<288C) are also available upon request.  
 \* Corrugated steel armour jacket is also available upon request.  
 \* Specification may change without prior notice.

■ Identification

Fiber & Bunching identification							
1	Blue	2	Orange	3	Green	4	Brown
5	Grey	6	White	7	Red	8	Black / Natural *
9	Yellow	10	Violet	11	Pink	12	Turquoise

\* Black is used for #8 bunching and natural is used for #8 fiber of ribbon.

■ Environmental characteristics

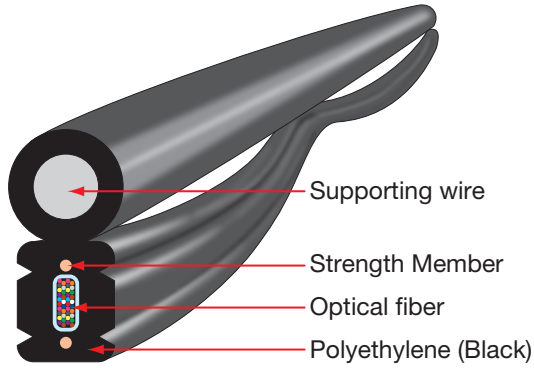
Condition	Temperature
Transportation & Storage	-30°C - +70°C
Installation	-30°C - +70°C
Operation	-30°C - +70°C

Notes

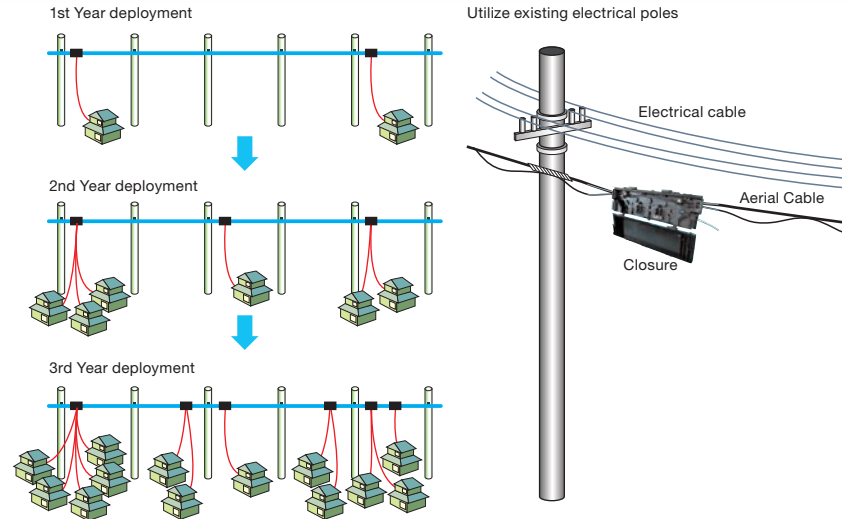
# Aerial Distribution and Aerial Drop Optical Fiber Cables

## Cable Construction

### Aerial Distribution Cables



### New Cabling technology has evolved from past difficulties



## Features

- Flexible, reconfigurable, expandable network design
- On-Demand installation - Pay-&-Build-As-You-Grow concept
- Easy mid-span branching at any location
- Unusually short project schedules

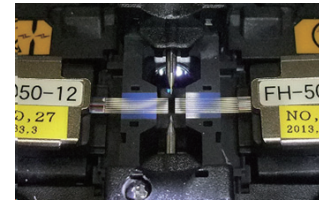
## Applications

- Outdoor Distribution Networks
- Campus Networks
- Smart meter Projects

### Easy Access to Fibers



### Mass Fusion Splicing



## Mechanical Characteristics

Product code	Fiber Count	Nominal dimension (mm)	Weight (kg/km)	Installation span (meters)	Permissible tensile strength during Installation (N)	Bending radius** (mm)
<b>Aerial Distribution cables*</b>						
AD-M-SSW-12 (F*)	12	4.0 × 10.5	70	50	1960	100
AD-M-SSW-24 (F*)	24	4.0 × 10.5	70	50	1960	100
<b>Non-Metallic SSW Cables</b>						
AD-NM-SSW-12 (F*)	12	6.0 × 12.8	65	50	2550	100
AD-NM-SSW-24 (F*)	24	6.0 × 12.8	65	50	2550	100
AD-NM-SSW-48 (F*)	48	6.0 × 12.8	75	50	2550	150

\*F denotes fiber type: FutureGuide®SR15E = SR15E, FutureGuide®BIS-B = BIS-B

## Fiber Identification

Unit No.	Ring Marking	Fiber No.											
		1	2	3	4	5	6	7	8	9	10	11	12
1	No ring marking	Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Turquoise
2	■	Blue	Orange	Green	Brown	Grey	White	Red	Natural	Yellow	Violet	Pink	Turquoise
3	■■	Blue	Orange	Green	Brown	Grey	White	Red	Natural	Yellow	Violet	Pink	Turquoise
4	■■■	Blue	Orange	Green	Brown	Grey	White	Red	Natural	Yellow	Violet	Pink	Turquoise

## Environmental Characteristics

Criteria	Temperature
Transportation & Storage	-30°C to +70°C
Installation	-10°C to +50°C
Operation	-30°C to +70°C

## Fiber Characteristics

Characteristics	Unit	Fiber type	
		FutureGuide®-SR15E	FutureGuide®-BIS-B
<b>Geometrical Characteristics</b>			
Mode field diameter at 1310nm	μm	8.6 ± 0.4	8.6 ± 0.4
Cladding diameter	μm	125 ± 0.7	125 ± 0.7
Core concentricity error	μm	≤ 0.5	≤ 0.5
Cladding non-circularity	%	≤ 1.0	≤ 1.0
Primary coating diameter (including color layer)	μm	250 ± 15	250 ± 15
Coating-cladding concentricity error	μm	≤ 12.5	≤ 12.5
Fiber curl radius	m	≥ 4	≥ 4
<b>Transmission Characteristics</b>			
Attenuation at 1310nm	dB/km	≤ 0.40	≤ 0.40
Attenuation at 1383nm*	dB/km	≤ 0.35	≤ 0.35
Attenuation at 1550nm	dB/km	≤ 0.30	≤ 0.30
Macro bending loss** φ 30mm, 10 turns, 1550nm	dB	≤ 0.25	≤ 0.03
Macro bending loss** φ 30mm, 10 turns, 1625nm	dB	≤ 1.0	≤ 0.10
Macro bending loss** φ 20mm, 1 turns, 1550nm	dB	≤ 0.75	≤ 0.10
Macro bending loss** φ 20mm, 1 turns, 1625nm	dB	≤ 1.50	≤ 0.20
Macro bending loss** φ 15mm, 1 turns, 1550nm	dB	-	≤ 0.50
Macro bending loss** φ 15mm, 1 turns, 1625nm	dB	-	≤ 1.0
Cut-off wavelength (λ <sub>co</sub> )	nm	≤ 1260	1260
Chromatic dispersion at 1310nm	ps/nm.km	≤ 3.5	≤ 3.5
Chromatic dispersion at 1550nm	ps/nm.km	≤ 18	≤ 18
Zero dispersion wavelength	nm	1300-1324	1300-1324
Zero dispersion slope	ps/nm <sup>2</sup> .km	≤ 0.092	≤ 0.092
<b>Mechanical Characteristics</b>			
Proof stress level	%	1.5	1.5

\*Attenuation increase due to hydrogen aging at this wavelength in bare optical fiber is tested in accordance with IEC60793-2-50 test procedure.

\*\* This characteristic is measured before coloring process.

## Packing

Cables are packed in wooden drums. Suitable protection means are applied to prevent damage of the cables during shipment and storage.

## Ordering Information

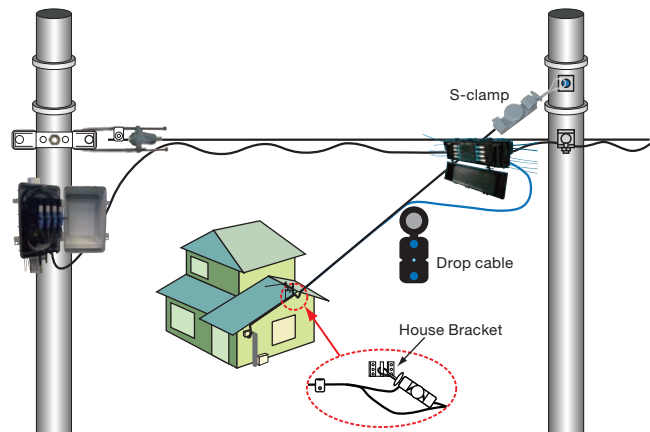
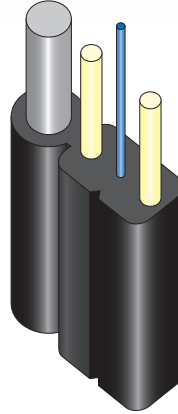
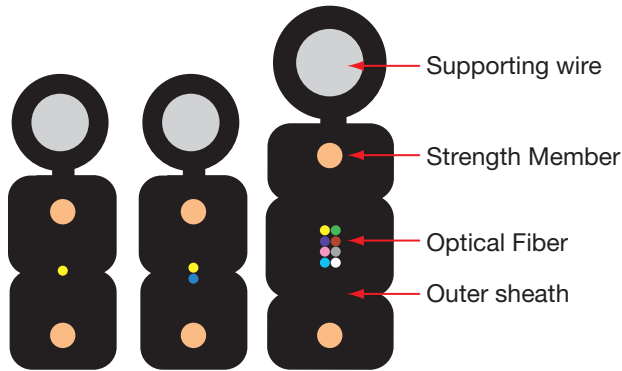
Product code	Fujikura product name
AD-M-SSW-12 (F*)	OGNM12WTGDE-SSW F × 12C
AD-M-SSW-24 (F*)	OGNM12WTGDE-SSW F × 24C
AD-NM-SSW-12 (F*)	OGNM12WTGDE-SSW(NM) F × 12C
AD-NM-SSW-24 (F*)	OGNM12WTGDE-SSW(NM) F × 24C
AD-NM-SSW-48 (F*)	OGNM12WTGDE-SSW(NM) F × 48C

\*F denotes fiber type: FutureGuide®SR15E = SR15E, FutureGuide®BIS-B = BIS-B

## Notes

# Aerial Distribution and Aerial Drop Optical Fiber Cables

## Cable Construction



## Features

- Easy installation, reconfiguration and maintenance
- Support On-Demand installation
- UV resistant

## Applications

- Outdoor Drop application
- Short distance campus duct

## Mechanical Characteristics

Product code	Fiber Count	Nominal dimension (mm)	Weight (kg/km)	Installation span (meters)	Permissible tensile strength during Installation (N)	Bending radius** (mm)
<b>Metallic Messenger Wire</b>						
ADO-M-1 (F*)	1	2.0 x 5.3	20	30	600	15
ADO-M-2 (F*)	2	2.0 x 5.3	20	30	600	15
ADO-M-R-4 (F*)	4	2.0 x 6.0	21	30	600	15
ADO-M-R-8 (F*)	8	2.0 x 6.0	21	30	600	70
<b>Non-Metallic Messenger Wire</b>						
ADO-NM-1 (F*)	1	3.5 x 7.0	23	30	700	15
ADO-NM-2 (F*)	2	3.5 x 7.0	23	30	700	15

\*F denotes fiber type: FutureGuide®SR15E = SR15E, FutureGuide®BIS-B = BIS-B

## Fiber Identification

Fiber No.											
1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Turquoise

## Environmental Characteristics

Criteria	Temperature
Transportation & Storage	-30°C to +70°C
Installation	-10°C to +50°C
Operation	-30°C to +70°C

## Fiber Characteristics

Characteristics	Unit	Fiber type	
		FutureGuide®-SR15E	FutureGuide®-BIS-B
<b>Geometrical Characteristics</b>			
Mode field diameter at 1310nm	μm	8.6 ± 0.4	8.6 ± 0.4
Cladding diameter	μm	125 ± 0.7	125 ± 0.7
Core concentricity error	μm	≤ 0.5	≤ 0.5
Cladding non-circularity	%	≤ 1.0	≤ 1.0
Primary coating diameter (including color layer)	μm	250 ± 15	250 ± 15
Coating-cladding concentricity error	μm	≤ 12.5	≤ 12.5
Fiber curl radius	m	≥ 4	≥ 4
<b>Transmission Characteristics</b>			
Attenuation at 1310nm	dB/km	≤ 0.40	≤ 0.40
Attenuation at 1383nm*	dB/km	≤ 0.35	≤ 0.35
Attenuation at 1550nm	dB/km	≤ 0.30	≤ 0.30
Macro bending loss** φ 30mm, 10 turns, 1550nm	dB	≤ 0.25	≤ 0.03
Macro bending loss** φ 30mm, 10 turns, 1625nm	dB	≤ 1.0	≤ 0.10
Macro bending loss** φ 20mm, 1 turns, 1550nm	dB	≤ 0.75	≤ 0.10
Macro bending loss** φ 20mm, 1 turns, 1625nm	dB	≤ 1.50	≤ 0.20
Macro bending loss** φ 15mm, 1 turns, 1550nm	dB	-	≤ 0.50
Macro bending loss** φ 15mm, 1 turns, 1625nm	dB	-	≤ 1.0
Cut-off wavelength (λ <sub>co</sub> )	nm	≤ 1260	1260
Chromatic dispersion at 1310nm	ps/nm.km	≤ 3.5	≤ 3.5
Chromatic dispersion at 1550nm	ps/nm.km	≤ 18	≤ 18
Zero dispersion wavelength	nm	1300-1324	1300-1324
Zero dispersion slope	ps/nm <sup>2</sup> .km	≤ 0.092	≤ 0.092
<b>Mechanical Characteristics</b>			
Proof stress level	%	1.5	1.5

\*Attenuation increase due to hydrogen aging at this wavelength in bare optical fiber is tested in accordance with IEC60793-2-50 test procedure.

\*\* This characteristic is measured before coloring process.

## Packing

Drop cables are packed in styrofoam or ply-wood reels. Suitable protection means are applied to prevent damage of the cables during shipment and storage.

## Ordering Information

Product code	Fujikura product name
ADO-M-1 (F*)	FR-OGNMGDE-SSD F × 1C
ADO-M-2 (F*)	FR-OGNMGDE-SSD F × 2C
ADO-M-R-4 (F*)	FR-OGNM4UTGDE-SSD F × 4C
ADO-M-R-8 (F*)	FR-OGNM4UTGDE-SSD F × 8C
ADO-NM-1 (F*)	FR-OGNMGDE-SSD (NM) F × 1C
ADO-NM-2 (F*)	FR-OGNMGDE-SSD (NM) F × 2C

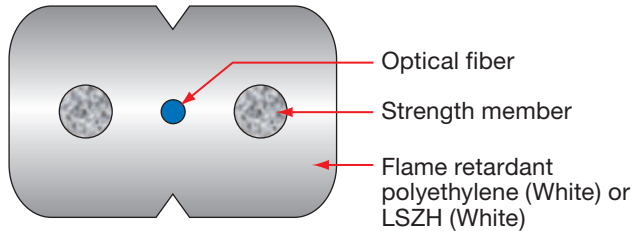
\*F denotes fiber type: FutureGuide®SR15E = SR15E, FutureGuide®BIS-B = BIS-B

## Notes

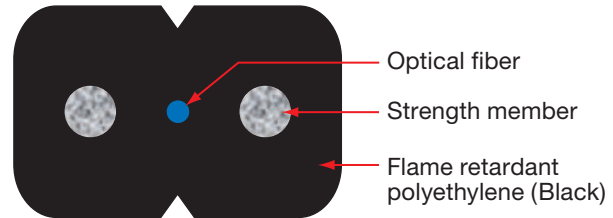
# Low Friction Indoor Optical Fiber Cable

## Cable Construction

### Indoor type



### Indoor/Outdoor type

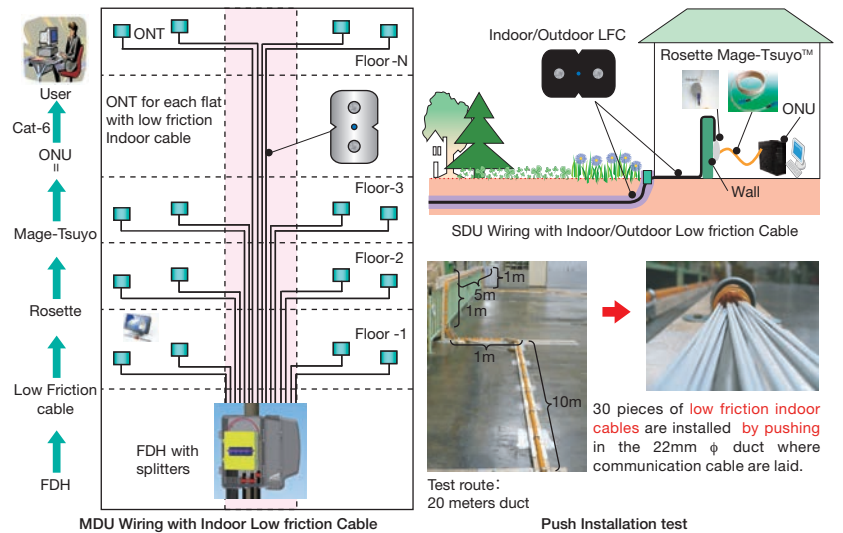


## Features

- Very low coefficient of friction that makes installation extremely easier
- Pushing installation method can be employed with metallic strength members.
- Helps to build fast and simple FTTH networks with reduced CAPEX.
- Indoor/Outdoor type is UV resistant and flame retardant as per IEC 60332-1

## Applications

- Premise and Indoor
- FTTx



## Mechanical Characteristics

Product code	Fiber count	Structure	Nominal dimension (mm)	Weight (kg/km)	Permissible tensile strength (N)	Bending radius (mm)
<b>Indoor type</b>						
IN-M-1 (F*)	1	Metallic	1.6 × 2.0	7	220	15
IN-M-2 (F*)	2	Metallic	1.6 × 2.3	7	220	15
IN-M-4 (F*)	4	Metallic	1.6 × 2.8	8	220	15
IN-M-8 (F*)	8	Metallic	2.0 × 3.4	10	220	70
IN-M-1-LSZH (F*)	1	Metallic	1.6 × 2.0	8	220	15
IN-M-2-LSZH (F*)	2	Metallic	1.6 × 2.4	8	220	15
IN-NM-1 (F*)	1	Non-metallic	1.6 × 2.0	4	80	15
IN-NM-2 (F*)	2	Non-metallic	1.6 × 2.3	5	80	15
IN-NM-4 (F*)	4	Non-metallic	1.6 × 2.8	5	80	15
IN-NM-8 (F*)	8	Non-metallic	2.0 × 3.4	7	80	70
IN-NM-1-LSZH (F*)	1	Non-metallic	1.8 × 2.6	8	150	30
<b>Indoor/Outdoor type</b>						
INO-M-1 (F*)	1	Metallic	1.6 × 2.0	7	220	15
INO-M-2 (F*)	2	Metallic	1.6 × 2.3	8	220	15
INO-M-4 (F*)	4	Metallic	1.6 × 2.8	9	220	15
INO-M-8 (F*)	8	Metallic	2.0 × 3.4	12	220	70
INO-NM-1 (F*)	1	Non-metallic	1.6 × 2.0	4	80	15
INO-NM-2 (F*)	2	Non-metallic	1.6 × 2.3	5	80	15
INO-NM-4 (F*)	4	Non-metallic	1.6 × 2.8	6	80	15
INO-NM-8 (F*)	8	Non-metallic	2.0 × 3.4	8	80	70

\* F denotes fiber type : FutureGuide®-SR15E = SR15E, FutureGuide®-BIS-B = BIS-B.

## Fiber Identification

Fiber count	Fiber color
1	Blue
2	Blue, Orange
4	Blue, Orange, Green, Brown
8	Blue, Orange, Green, Brown, Grey, white, Red, Black

\* Fiber colors can be customized as per requirement.

## Environmental Characteristics

Criteria	Indoor type	Indoor/Outdoor type
Transportation & Storage	-10°C - +40°C	-15°C - +70°C
Installation	-10°C - +40°C	-10°C - +50°C
Operation	-10°C - +40°C	-15°C - +70°C

## Fiber Characteristics

Characteristics	Unit	Fiber type	
		FutureGuide®-SR15E (ITU-T G.657.A1)	FutureGuide®-BIS-B (ITU-T G.657.A2)
<b>Geometrical Characteristics</b>			
Mode field diameter at 1310nm	μm	8.6 ± 0.4	8.6 ± 0.4
Cladding diameter	μm	125 ± 0.7	125 ± 0.7
Core concentricity error	μm	≤ 0.5	≤ 0.5
Cladding non-circularity	%	≤ 1.0	≤ 1.0
Primary coating diameter (including color layer)	μm	250 ± 15	250 ± 15
Coating-cladding concentricity error	μm	≤ 12.5	≤ 12.5
Fiber curl radius	m	≥ 4	≥ 4
<b>Transmission Characteristics</b>			
Attenuation at 1310nm	dB/km	≤ 0.40	≤ 0.40
Attenuation at 1383nm	dB/km	≤ 0.35	≤ 0.35
Attenuation at 1550nm	dB/km	≤ 0.30	≤ 0.30
Macro bending loss** φ 30mm, 10 turns, 1550nm	dB	≤ 0.25	≤ 0.03
Macro bending loss** φ 30mm, 10 turns, 1625nm	dB	≤ 1.0	≤ 0.10
Macro bending loss** φ 20mm, 1 turns, 1550nm	dB	≤ 0.75	≤ 0.10
Macro bending loss** φ 20mm, 1 turns, 1625nm	dB	≤ 1.50	≤ 0.20
Macro bending loss** φ 15mm, 1 turns, 1550nm	dB	-	≤ 0.50
Macro bending loss** φ 15mm, 1 turns, 1625nm	dB	-	≤ 1.0
Cut-off wavelength (λ <sub>co</sub> )	nm	1260	1260
Chromatic dispersion at 1310nm	ps/nm.km	≤ 3.5	≤ 3.5
Chromatic dispersion at 1550nm	ps/nm.km	≤ 18	≤ 18
Zero dispersion wavelength	nm	1300-1324	1300-1324
Zero dispersion slope	ps/nm <sup>2</sup> .km	≤ 0.092	≤ 0.092
<b>Mechanical Characteristics</b>			
Proof stress level	%	1.5	

\*Attenuation increase due to hydrogen aging at this wavelength in bare optical fiber is tested in accordance with IEC60793-2-50 test procedure.

## Packing

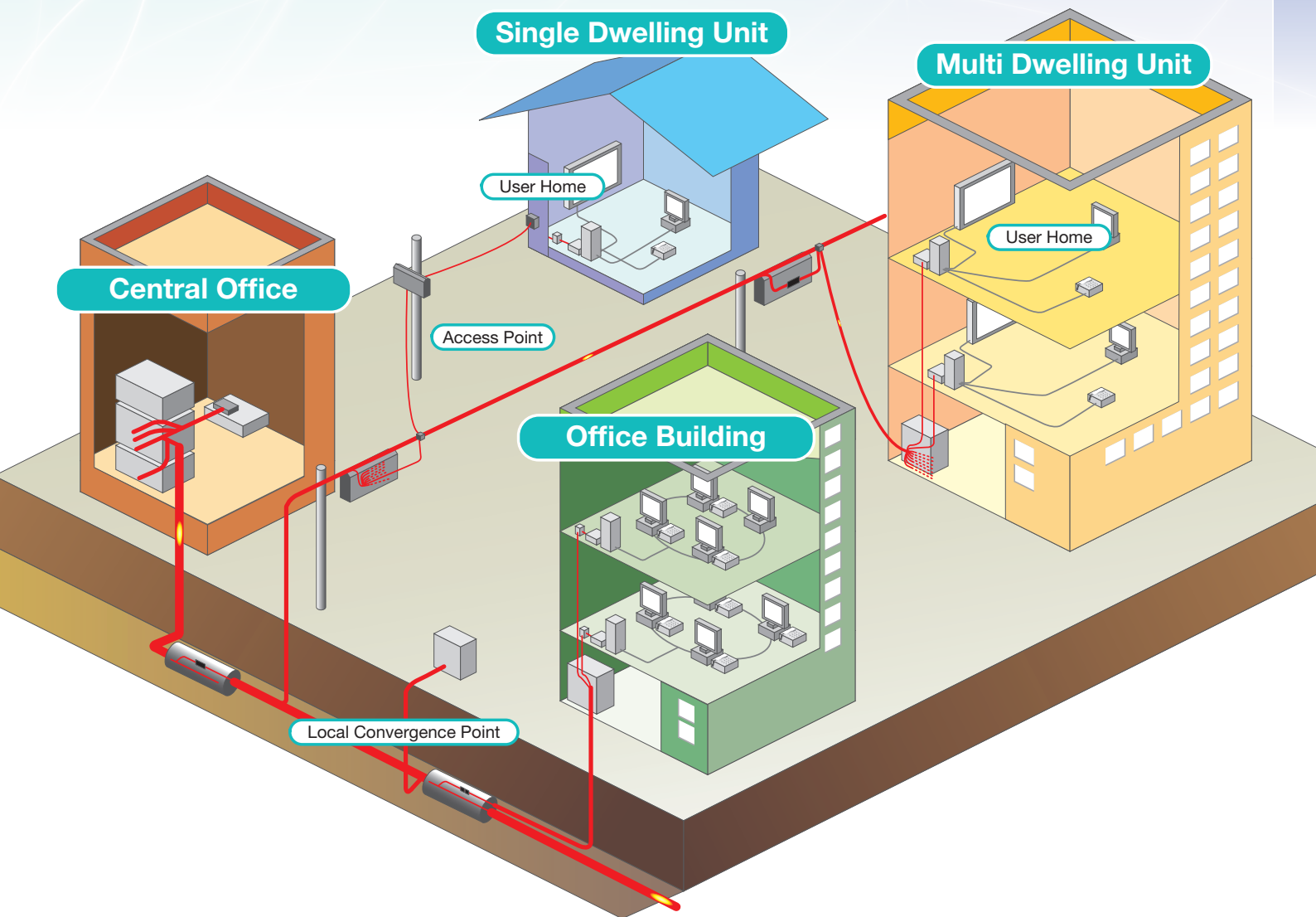
Cables are packed in suitable reels / boxes and suitable protection means are applied to prevent damage of cables during shipment and storage.

## Ordering Information

Product code	Fujikura product name
<b>Indoor type</b>	
IN-M-1 (F*)	FR-OGINHE F × 1C
IN-M-2 (F*)	FR-OGINHE F × 2C
IN-M-4 (F*)	FR-OGINHE F × 4C
IN-M-8 (F*)	FR-OGINHE F × 8C
IN-M-1-LSZH (F*)	LSZH-OGINHE F × 1C
IN-M-2-LSZH (F*)	LSZH-OGINHE F × 2C
IN-NM-1 (F*)	FR-OGNMINHE F × 1C
IN-NM-2 (F*)	FR-OGNMINHE F × 2C
IN-NM-4 (F*)	FR-OGNMINHE F × 4C
IN-NM-8 (F*)	FR-OGNMINHE F × 8C
IN-NM-1-LSZH (F*)	LSZH-OGINHE F × 1C
<b>Indoor/Outdoor type</b>	
INO-M-1 (F*)	FR-OGINHE F × 1C
INO-M-2 (F*)	FR-OGINHE F × 2C
INO-M-4 (F*)	FR-OGINHE F × 4C
INO-M-8 (F*)	FR-OGINHE F × 8C
INO-NM-1 (F*)	FR-OGNMINHE F × 1C
INO-NM-2 (F*)	FR-OGNMINHE F × 2C
INO-NM-4 (F*)	FR-OGNMINHE F × 4C
INO-NM-8 (F*)	FR-OGNMINHE F × 8C

\* F denotes fiber type : FutureGuide®-SR15E = SR15E, FutureGuide®-BIS-B = BIS-B.

## Notes



Application Site	Product Names	Features
Central Office	FTM Series, optional racks	Ultra-high density, large capacity, start of feeder cables
Local Convergence Point	ODC-C, HRB Solution	Larger capacity, connect feeder cables with distribution cables
Network Access Point	FTB-601, FODP, ODP-HRB	Middle capacity, connect distribution cables with drop cables
User House	FPB Series, FOPT Series	1~4F capacity, termination of drop cables



# Optical Termination Rack

## Variety Type of High-density Termination Racks



Super High Density type  
4,000-port Termination Rack  
MU connector, pre-connectorized cable (OSP cable)  
(Fiber Monitoring system integrated)



Standard type  
2,400-port Termination Rack  
SC connector , Splice Tray



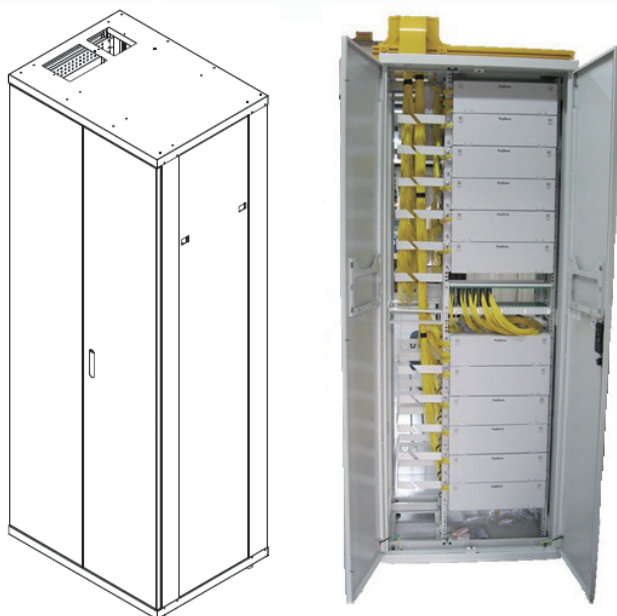
Only Front Access type  
(Depth 300mm)  
1,000-port Termination Rack  
SC connector , Splice Tray

**For all your connection needs  
Full Customization for Full Flexibility**

### Notes

## Central Office Application

## FTM-1000C

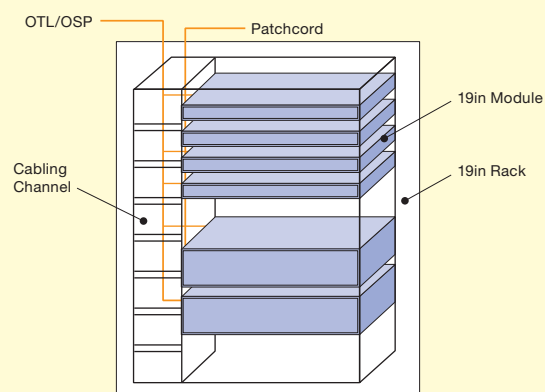


## Features &amp; Benefits

- Efficient termination, splicing or management of optical cables
- Up to 1000C cord organizing capacity and cascadable
- EIA 19-inch standard rack with additional vertical space
- Removal side and back plates, easy access and maintenance
- Front door, comprise 2 doors left and right, easy access
- Abundant and flexible option units configuration
- Compatible with industry standard devices

## Applications

- Central office, data center indoor applications
- Indoor



## Specifications

Item	FTM-6822	FTM-6817	FTM-6812
Unit Height	46U	35U	23U
FDU-144C Capacity (pcs)	7	5	3
Cable Input	Number Capacity	21	15
	Outer Diameter (mm)	7~23	
Cable Output	Number Capacity*	1008	720
	Outer Diameter (mm)	2mm cord	
Main Body	Steel with coated; Light gray		
Dimension (H × W × D mm)	H2200 × W800 × D600	H1700 × W800 × D600	H1200 × W800 × D600
Weight (Kg)	Approx. 120	Approx. 92	Approx. 60

\* Capacity is counted when FDU-144C termination units are used.

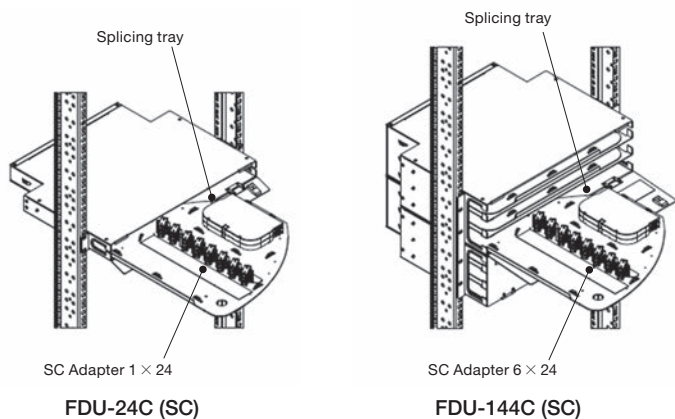
## Ordering Information

#	Model #	Description
1	FTM-6822	FTM Rack (2200mm height), cable clamps, cord guides, accessory kit, assembly manual
2	FTM-6817	FTM Rack (1700mm height), cable clamps, cord guides, accessory kit, assembly manual
3	FTM-6812	FTM Rack (1200mm height), cable clamps, cord guides, accessory kit, assembly manual

\* Please contact us for more information on different rack height and applicable options.

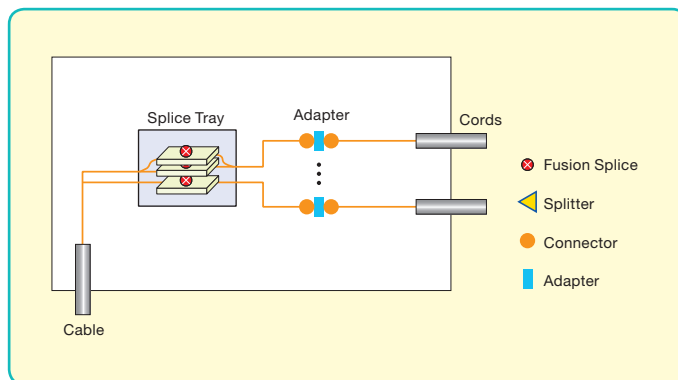
## Central Office Application

# Termination Unit FDU Series



### Features & Benefits

- Compatible with 19-inch standard rack
- Efficient termination and neat maintenance of fiber termination
- Easy maintenance



### Applications

- Central office, data center applications
- Indoor fiber management

### Specifications

Item	FDU-24C (SC)	FDU-48C (SC)	FDU-72C (SC)	FDU-96C (SC)	FDU-144C (SC)	
Rack Unit Height	1U	2U	3U	4U	6U	
Number of SC Adapter (pcs)	24	48	72	96	144	
Number of Splice Tray (12 splices/tray) (pcs)	2	4	6	8	12	
Operating Temperature	Up to 65°C (without condensation)					
Dimensions	H (mm)	43.6	88.1	132.6	176.9	265.9
	W × D (mm)	W482.6 × D360				
Weight (Kg)	4	5	7	10	14	
Color	Light Gray					

\* Please contact us for SC/APC type

### Ordering Information

#	Model #	Description
1	FDU-24C (SC)	Termination unit, SC adapter 24pcs, SC pigtail 24pcs, fuse sleeve 24pcs, accessory kit, assembly manual
2	FDU-48C (SC)	Termination unit, SC adapter 48pcs, SC pigtail 48pcs, fuse sleeve 48pcs, accessory kit, assembly manual
3	FDU-72C (SC)	Termination unit, SC adapter 72pcs, SC pigtail 72pcs, fuse sleeve 72pcs, accessory kit, assembly manual
4	FDU-96C (SC)	Termination unit, SC adapter 96pcs, SC pigtail 96pcs, fuse sleeve 96pcs, accessory kit, assembly manual
5	FDU-144C (SC)	Termination unit, SC adapter 144pcs, SC pigtail 144pcs, fuse sleeve 144pcs, accessory kit, assembly manual

### Notes

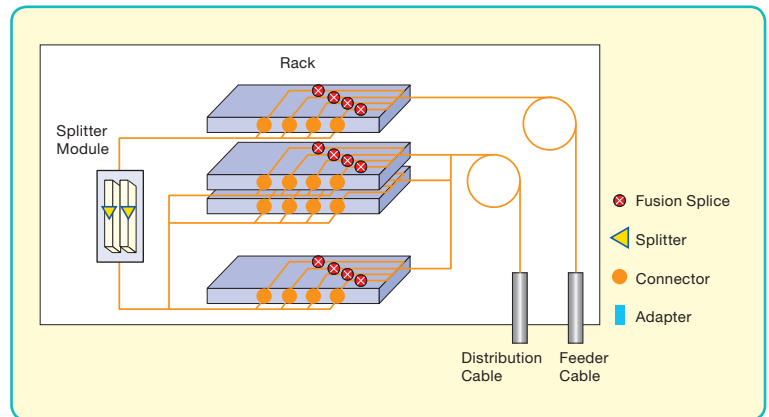
## Local Convergence Point Application

## ODC-C Series



## Features &amp; Benefits

- Expandable to larger capacity upon request
- Flexible capacity configuration
- Mount spaces for splitter module
- Parking lots for reserved connectors



## Applications

- FTTH OSP network applications.

## Specifications

Item	ODC-C-96RD	ODC-C-144RD	ODC-C-288RD	ODC-C-576RD
Cable Entry (Input / Output)	Capacity		11	24
	Outer Diameter (mm)		7-23	
Splitter Modules Capacity (1 × 4 or 1 × 8 splitter module)	18	18	36	72
Splitter Modules Capacity (1 × 16 or 1 × 32 splitter module)	9	9	18	36
Number of Parking Lot	36		66	132
Connector Type**	SC/APC (Green) or SC/UPC (Blue); Compliant with IEC61754-4			
Main Body*	Fiber reinforced plastic (FRP); Light gray; UL-94 V0 compliant			
Dimension (H × W × D mm)	H1035 × W556 × D310		H1450 × W756 × D360	H1457 × W753 × D542
Weight (Kg, included parts)	Approx. 43	Approx. 45	Approx. 95	Approx. 190
Degree of Protection	IP54; IEC 60529, IEC 61300-2-1, IEC60068-2-6, IEC 6130-3-3 compliant Temperature: up to 65°C; Humidity: up to 95% at 35°C without condensation			

\* Please contact us for steel type

\*\* Please contact us for SC/APC type

## Ordering Information

#	Model #	Description
1	ODC-C-96RD	Cabinet 1pc, pedestal 1pc, splicing tray 8pcs, accessory kit 1set, SC pigtail 96pcs, fuse sleeve 96pcs, assembly manual
2	ODC-C-144RD	Cabinet 1pc, pedestal 1pc, splicing tray 12pcs, accessory kit 1set, SC pigtail 144pcs, fuse sleeve 144pcs, assembly manual
3	ODC-C-288RD	Cabinet 1pc, pedestal 1pc, splicing tray 24pcs, accessory kit 1set, SC pigtail 288pcs, fuse sleeve 288pcs, assembly manual
4	ODC-C-576RD	Cabinet 1pc, pedestal 1pc, splicing tray 48pcs, accessory kit 1set, SC pigtail 576pcs, fuse sleeve 576pcs, assembly manual

## Option

Item	Description
FSC121 type splitter	Splitter module

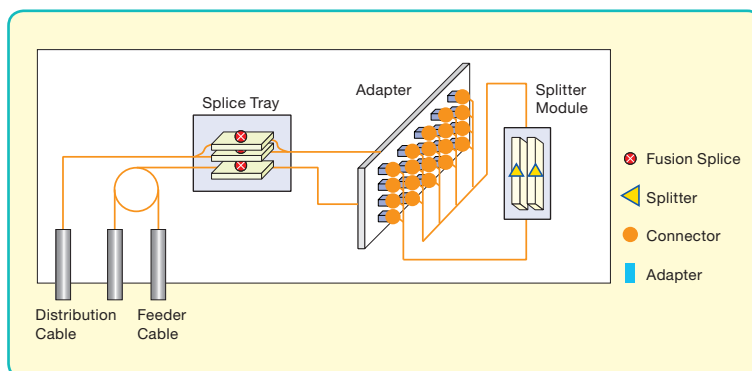
## Local Convergence Point Application

# ODC-C-48



### Features & Benefits

- Maximum 48F access capacity
- Termination module structure
- Mount space for splitter module
- Flexible connector patch panel design



### Applications

- FTTH network outdoor application
- Wall or pole mount installations

### Specifications

Item	ODC-C-48 (N)	
Cable Entry (Input / Output)	Capacity	4
	Outer Diameter (mm)	7-13
Number of Splice Trays	4	
Splitter Modules Capacity	1 × 4 or 1 × 8	6
	1 × 16 or 1 × 32	3
Number of Parking Lot	8	
Connector Type*	SC/APC (Green) or SC/UPC (Blue); Compliant with IEC61754-4	
Main Body	Fiber reinforced plastic (FRP); Light gray; UL-94 V0 compliant	
Dimension (H × W × D mm)	H450 × W520 × D170	
Weight (Kg, included parts)	Approx. 20	
Degree of Protection	IP54 compliant; IEC 60529, IEC 61300-2-1, IEC60068-2-6, IEC 61300-3-3 compliant; Temperature: up to 65°C; Humidity: up to 95% at 35°C without condensation	

\* Please contact us for SC/APC type

### Ordering Information

#	Model #	Description
1	ODC-C-48(SC)	Cabinet 1pc, pole mount 1pc, accessory kit 1set, assembly manual

### Option

Item	Description
Splitter	Splitter module
Pigtail	Pigtail cord
FAST Connector	Field installable connector

## Notes

## Local Convergence Point Application

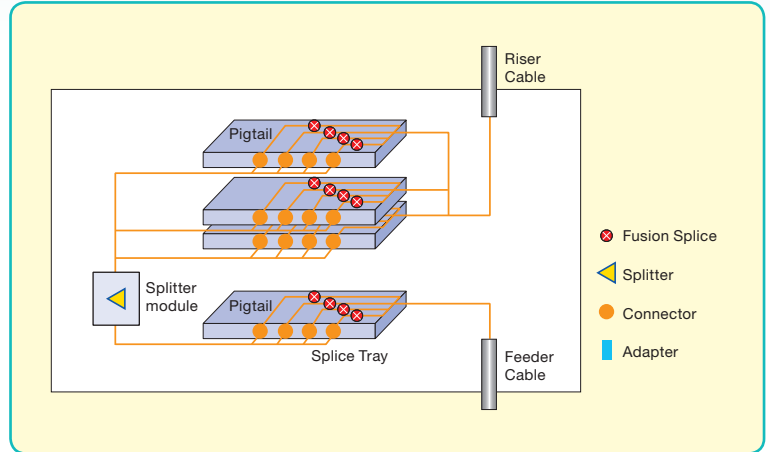
## HRB (High-Rise Building) Solution

## Features &amp; Benefits

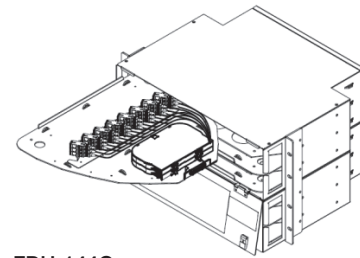
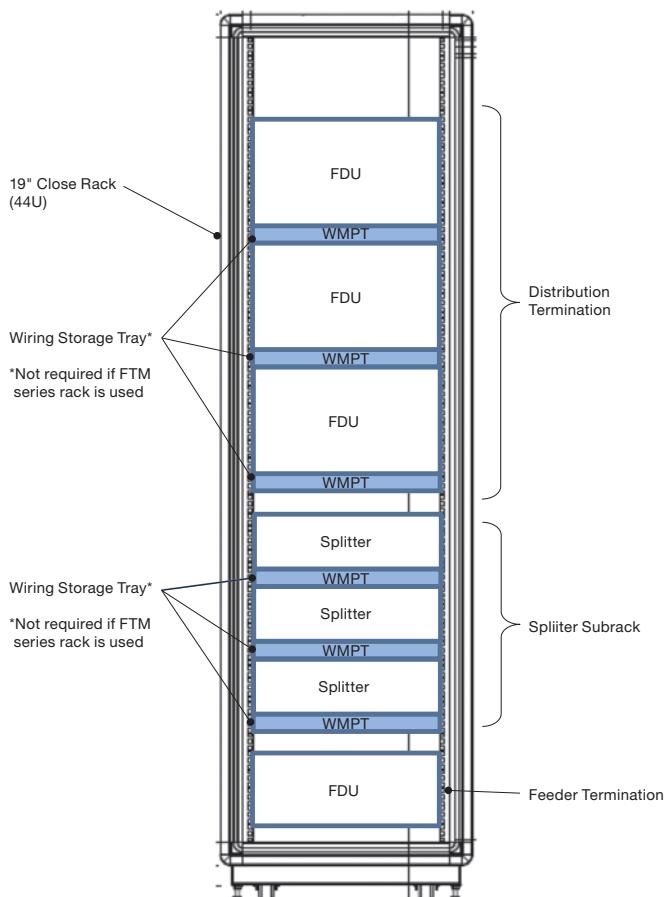
- Compatible with 19-inch standard rack
- Large-scaled subscribers access capacity
- Flexible configuration and addition of splice trays, splitter trays, and other subracks

## Applications

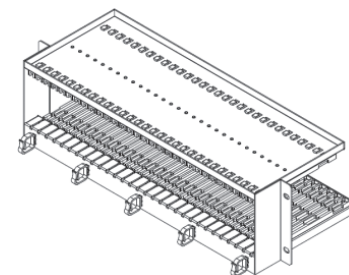
- FTTH high-rise building or apartment indoor applications



## Configuration Example and Materials



Wiring Storage Tray FTB-R-WMPT (1U)



Splitter Chassis/Subrack (3U)

# Fiber Splice Box FTB-601



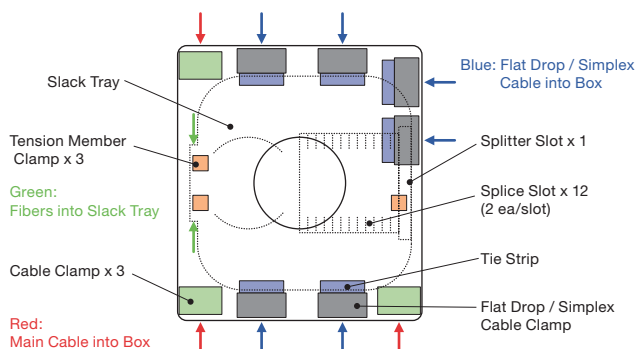
## Features & Benefits

- Versatile splice box for FTTH MDU application
- Compact and suitable for limited riser space
- Various types of cable can be installed in various directions
- Splitter installable
- Mid-span access with through-fiber

## Applications

- FTTH MDU applications
- Indoor, wall mount

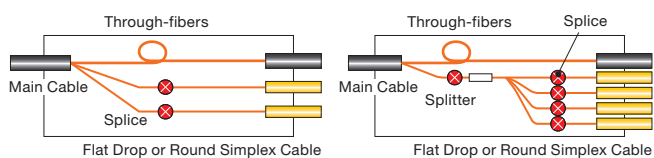
## Structure



## Specifications

Item	Value
Cable Input Capacity	Round cable ( $\leq 16$ mm dia.): 1
	Flat drop cable (1.6 / 2 / 3.3 mm): 3
Cable Output Capacity	Round cable ( $\leq 16$ mm dia.): 2
	Simplex cable (1.6 / 2 mm dia.): 12
Splitter Capacity	Flat drop cable (1.6 / 2 / 3.3 mm): 24
	1 × 4: 4 pcs
	1 × 8: 2 pcs
Splice Capacity	1 × 16: 1 pc
	1 × 32: 1 pc
	Single fiber (0.25 mm dia.): 24F
Splice Capacity	Single fiber (0.9 mm dia.): 8F
	4F ribbon: 40F (40 ribbons)
	Through-fiber Capacity (4F Ribbon)
Main Body	ABS plastic, Ivory
Dimension (H × W × D mm)	H180 × W160 × D38
Weight(Kg)	Approx. 0.3

## Wiring Configuration



## Ordering Information

#	Model #	Description
1	FTB-601-12C	Fiber splice box 1pc, wall mount kit 1set, 12 drop cables application, assembly manual
2	FTB-601-24Q	Fiber splice box 1pc, wall mount kit 1set, 24 drop cables application, assembly manual
3	FTB-601-12C (C)	Fiber splice box 1pc, wall mount kit 1set, 12 low friction application, assembly manual
4	FTB-601-24Q (C)	Fiber splice box 1pc, wall mount kit 1set, 24 low friction application, assembly manual

## Option

Item	Description
Splitter	Splitter module
Mechanical splicer	Mechanical splicer
C-Sleeve	Sleeve for FRP strength member

## Notes

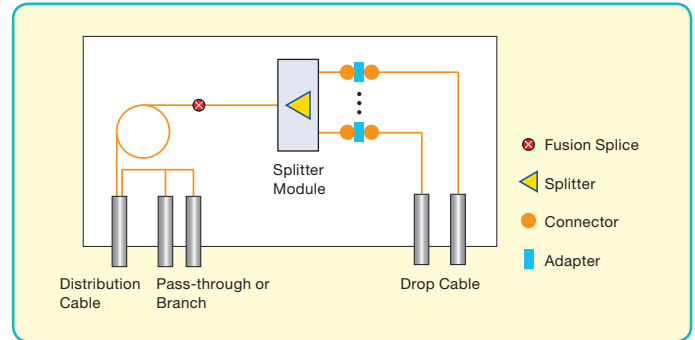
## Access Network Point Application

## FODP Series



## Features &amp; Benefits

- Easy installation and maintenance
- Built-in fiber splice tray
- Can be used for branching
- Pole or wall mount installation



## Applications

- FTTH MDU/SDU outdoor installation
- Wall or pole mount

## Specifications

Item	FODP-SC8	FODP-SC16
Cable Input	3	3
Cable Output	16	16
Splitter Capacity (1 × 4, 1 × 8)	2	2
Number of SC Adapter	8	16
Connector Type	SC/APC (Green) or SC/U/PC (Blue); IEC 61754-4 compliant	
Main Body	ASA, Black (or Light gray)	
Dimension (H × W × D mm)	H335 × W280 × D120	
Weight (Kg)	Approx. 2	
Degree of Protection	IP54 compliant; IEC 60529 compliant; Temperature: up to 65°C; humidity: up to 95% at 35°C without condensation	

\*\* Please contact us for SC/APC type

## Ordering Information

#	Model #	Description
1	FODP-SC8	Cabinet 1pc, 8-SC adapter plate 1pc, mounting kit 2 pcs, accessory kit 1set, assembly manual, fuse sleeve 1pc
2	FODP-SC16	Cabinet 1pc, 8-SC adapter plate 2pcs, mounting kit 2 pcs, accessory kit 1set, assembly manual, fuse sleeve 2pcs

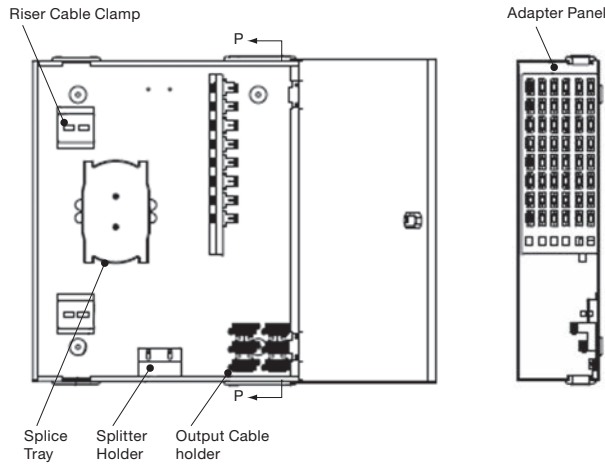
## Option

Item	Description
Splitter	PLC Type 1 × 8 Splitter or Cassette type 1 × 8 Splitter Module, Max. 2pcs
Pigtail	SC connector 0.9 mm pigtail



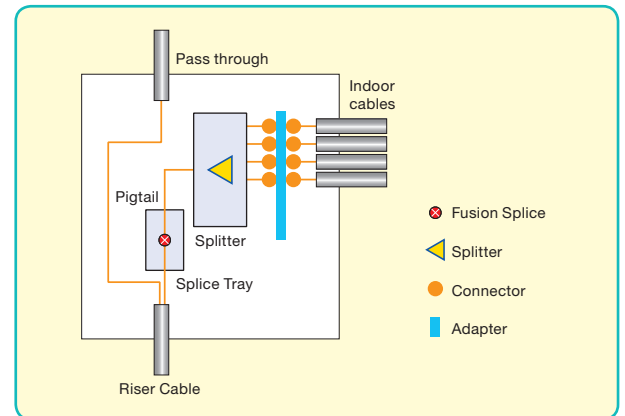
## Access Network Point Application

# ODP-HRB Series



## Features & Benefits

- Security lock attached
- Plug-in operation in building
- Save install space in building



## Applications

- FTTH indoor application
- Wall mount

## Specifications

Item		ODP-HRB-32C	ODP-HRB-64C
Cable Input	Number Capacity	2	2
	Outer Diameter (mm)	7-22	
Cable Output	Number Capacity	Max. 32	Max. 64
	Outer Diameter (mm)	2 × 1.6 (Low friction indoor cable)	
Splitter Module Capacity	1 × 4	8	16
	1 × 8	4	8
Connector Type*		SC/APC (Green) or SC/UPC (Blue); Compliant with IEC61754-4	
Main Body		PC + ABS; Light gray; UL-94 V0 compliant	
Dimension (H × W × D mm)		H330 × W260 × D130	H412 × W312 × D140
Weight (Kg)		Approx. 2	Approx. 4
Degree of Protection		IEC 60529 reference	

\* Please contact us for SC/APC type

## Ordering Information

#	Model #	Description
1	ODP-HRB-32SC	Cabinet 1pc, accessory kit 1set, assembly manual
2	ODP-HRB-64SC	Cabinet 1pc, accessory kit 1set, assembly manual

## Option

Item	Description
FWGC-SR15 Splitter	Preconnectorized bare splitter
Pigtail	SC connector 0.9 mm pigtail

## Notes

## User Home Application

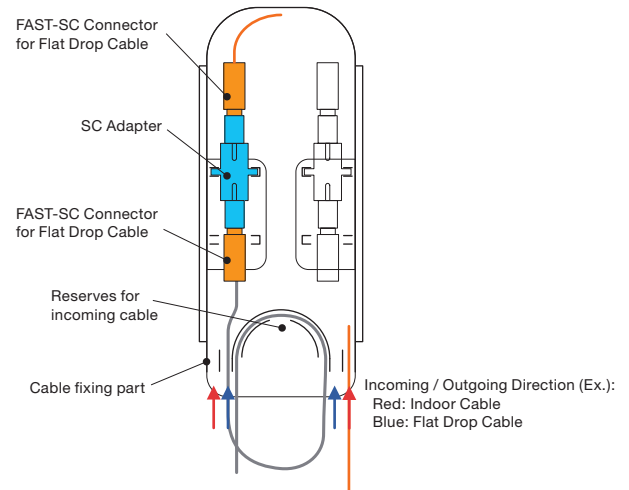
## Demarcation Box FPB-202



FPB-202-1SC

## Features &amp; Benefits

- Joins flat drop cables and indoor cables through connectors as a demarcation box.
- Wall-mountable and suitable for indoor and outdoor use.



## Applications

- FTTH MDU and SDU applications.

## Specifications

Item	FPB-202-1SC	FPB-202-2SC
Cable Input/Output	Standard flat drop cable/low friction cable	
	Cable Type	
Capacity	4	4
Number of Connection/SC Adapter	1	2
Connector Type*	SC/APC (Green) or SC/UPC (Blue); IEC 61754-4 compliant	
Main Body	PP, UL94V-0 Compliant, Gray	
Dimension (H × W × D mm)	H183 × W77 × D37	
Weight (Kg)	Approx. 0.2	
Degree of Protection	IPX3 (IPX5 if silicon or other sealant is used at cable ports)	

\* Please contact us for SC/APC type.

## Ordering Information

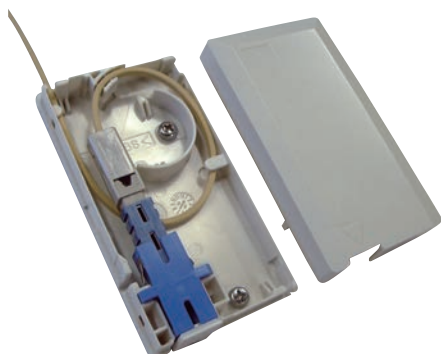
#	Model #	Description
1	FPB-202-1SC	Optical outlet 1pc, SC adapter (UPC) 1pc, accessory kit 1 set, assembly manual
2	FPB-202-1SC (APC)	Optical outlet 1pc, SC adapter (APC) 1pc, accessory kit 1 set, assembly manual
3	FPB-202-2SC	Optical outlet 1pc, SC adapter (UPC) 2pc, accessory kit 1 set, assembly manual
3	FPB-202-2SC (APC)	Optical outlet 1pc, SC adapter (APC) 2pc, accessory kit 1 set, assembly manual

## Option

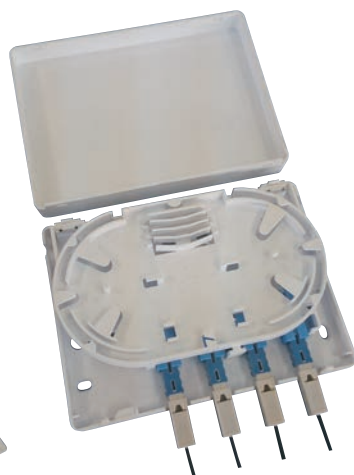
Item	Description
Connector	Field installable connector

## User Home Application

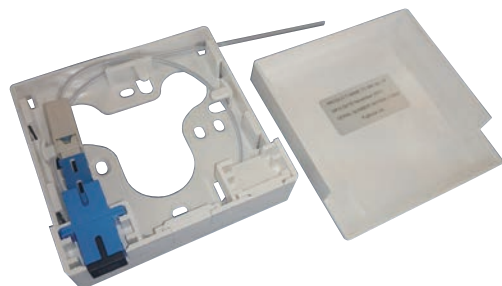
# Optical Outlet FPB-103A, FPB-401 Series



FPB-103A



FPB-401-4C



FPB-401-1/2C

### Features & Benefits

- Indoor wall mountable outlet with 1/2/4 SC port(s)
- Compact and light weight
- Cable entry from any of 4 directions is possible to enable flexible cabling

### Applications

- FTTH MDU and SDU indoor installation
- Embedded wall application application

## Specifications

Item		FPB-103A	FPB-401-1C	FPB-401-2C	FPB-401-4C
Cable Input	Cable Type	Standard flat drop cable/low friction cable			
	Capacity	1	1	1	1
Cable Output	Cable Type	Bend-insensitive patchcord			
	Capacity	1	1	2	4
Number of Connection/SC Adapter		1	1	2	4
Connection Type*		Connector	Connector or pigtail splicing*		
Main Body		PC+HIIPS	ABS		
Color		Light Gray	White	White	Light gray
Dimensions (H × W × D mm)		H93 × W50 × D18	H86 × W86 × D27	H86 × W86 × D27	H150 × W110 × D33
Weight (Kg)		Approx. 0.1	Approx. 0.07	Approx. 0.07	Approx. 0.1

\*Please contact us for SC/APC type.

## Ordering Information

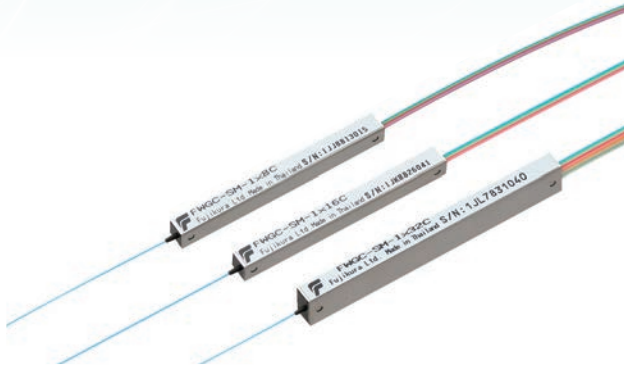
#	Model Number	Description
1	FPB-103A	Optical outlet 1pc, SC adapter 1pc, accessory kit 1 set, assembly manual
2	FPB-401-1C	Optical outlet 1pc, SC adapter 1pc, accessory kit 1 set, assembly manual
3	FPB-401-2C	Optical outlet 1pc, SC adapter 2pc, accessory kit 1 set, assembly manual
4	FPB-401-4C	Optical outlet 1pc, SC adapter 4pc, accessory kit 1 set, assembly manual

## Option

Item	Description
Connector	Field installable connector
Patch cord	Bend-insensitive fiber patch cord

## Notes

# Optical Splitter / Module



## Feature & Benefits

- High performance and reliability
- Module design and easy Installation
- Compact size and high density
- Large operating temperature range

## Applications

- High performance and reliability
- Module design and easy Installation

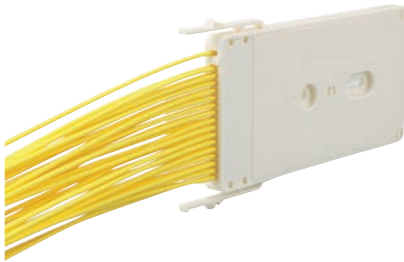
## Specifications

Item	1 × N					2 × N				
	1 × 2	1 × 4	1 × 8	1 × 16	1 × 32	2 × 2	2 × 4	2 × 8	2 × 16	2 × 32
Operating Wavelength (nm)	1260-1650									
Insertion Loss (dB)	≲ 3.7	≲ 7.0	≲ 10.4	≲ 13.5	≲ 17.0	≲ 4.2	≲ 7.5	≲ 11.0	≲ 14.3	≲ 17.5
Uniformity (dB)	≲ 0.6	≲ 0.6	≲ 1.0	≲ 1.1	≲ 1.5	≲ 1.2	≲ 1.3	≲ 1.6	≲ 1.8	≲ 2.3
Polarization Dependence Loss (dB)	≲ 0.2	≲ 0.2	≲ 0.2	≲ 0.3	≲ 0.3	≲ 0.3	≲ 0.3	≲ 0.3	≲ 0.4	≲ 0.4
Return Loss (dB)	≳ 50									
Directivity (dB)	≳ 55									
Fiber type	ITU-T G.657A1									

\*Splitter performance (Without connector)

Fujikura can offer many kind of splitter module.  
Please contact us.

### • Cassette type with 2mm cordage



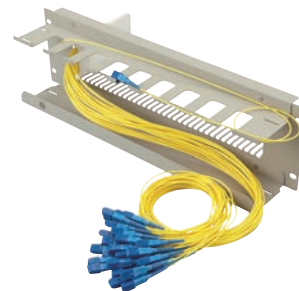
### • Cassette type with adapter



### • Subrack

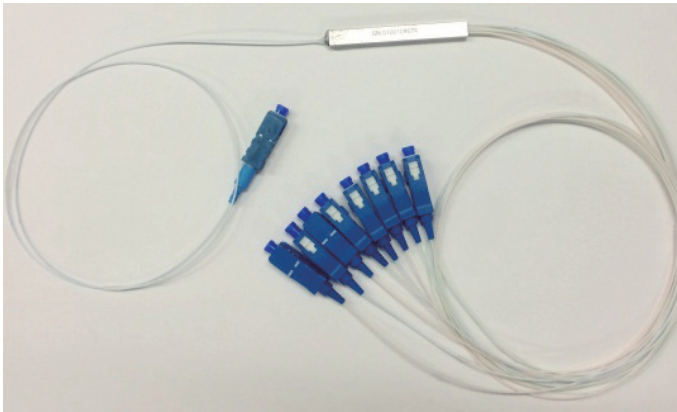


### • Mount splitter module on subrack

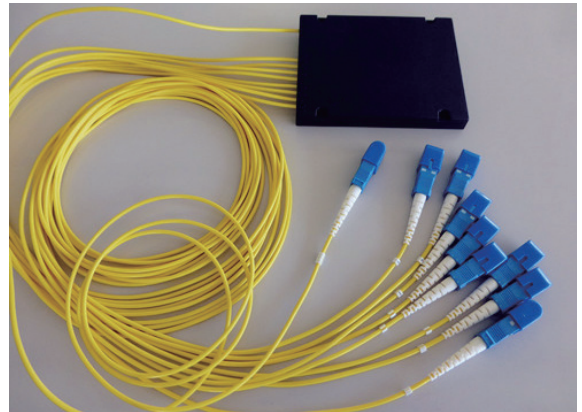


# Optical Splitter / Module

● 900um pigtail type



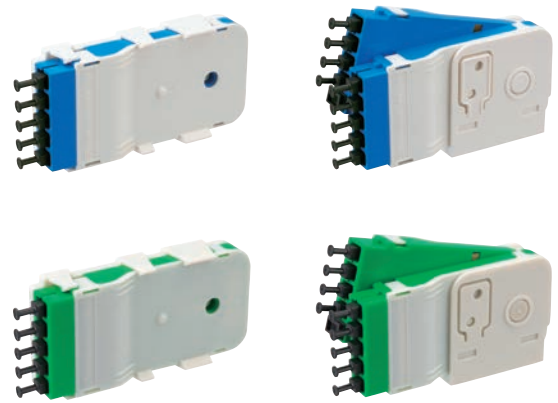
● Splitter box with 2mm cordage



● Cassette type with adapter



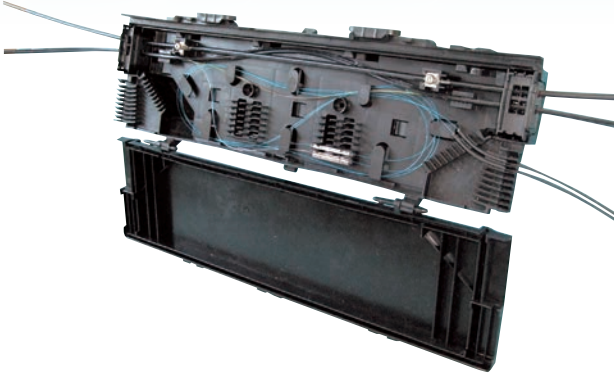
● Compact splitter module



## Notes

## Aerial Weathertight Fiber Optic Splice Closures

# FSCO-AS



### Features

FSCO-AS Aerial Weathertight Splice Closures are designed for aerial, strand-mount FTTH drop locations where drop cables are spliced to distribution cables.

These free breathing closures combine grommet cable sealing technology and splice tray, the splitter module is also available.

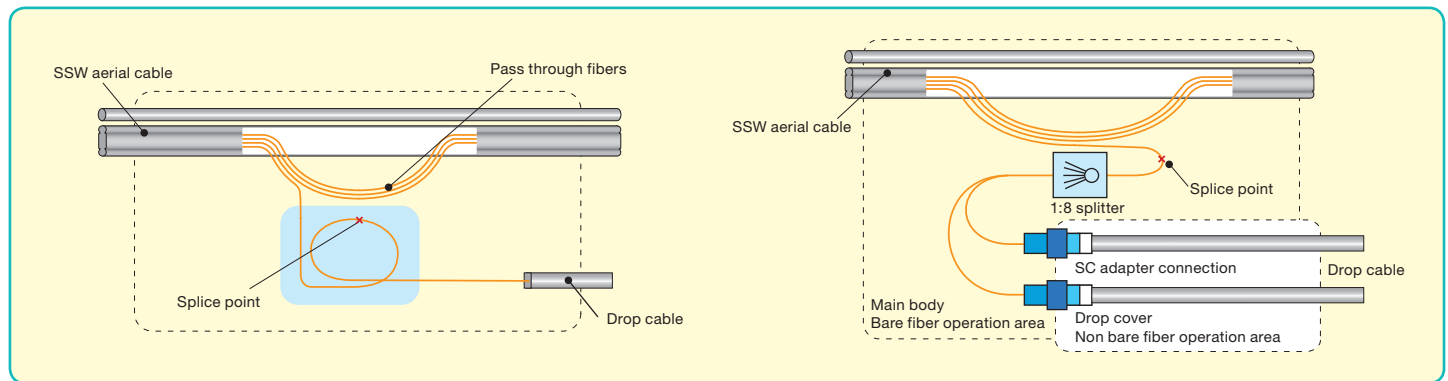
FSCO-AS Aerial Weathertight Splice Closures are suitable for special feature with SSW cable.

- Closure adopts hinge/buckle mechanism which makes dismantling/ assembling easy
- Cable entry section can accommodate 1 main cable with up to 48c SSW cable.
- Can accommodate up to 8 drop cables.
- Convenient attachable splitter module with 1:8 splitter module & 1:4 splitter module for drop cable installation.
- Re-useable grommet sealing open and close easily for adding or removing drop cables providing efficient cable installation with no mess.

### Applications

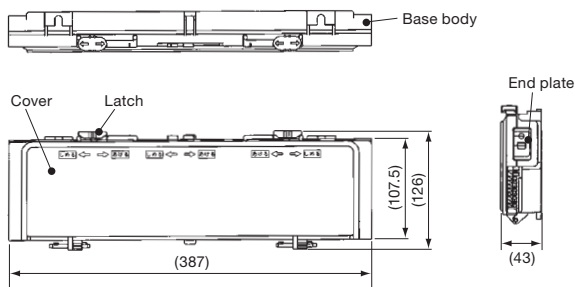
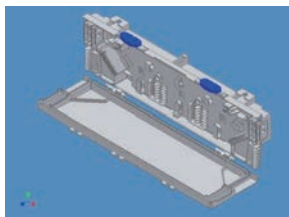
FSCO-AS Aerial Weathertight Splice Closures is suitable for up to 8 drop cable splicing, which can cover most of the applications in the premise wiring networks like Fiber To The Home (FTTH).

Aerial application is possible with this closure. FSCO-AS has chemical and mechanical resistance for all the aerial application areas in the fiber networks.

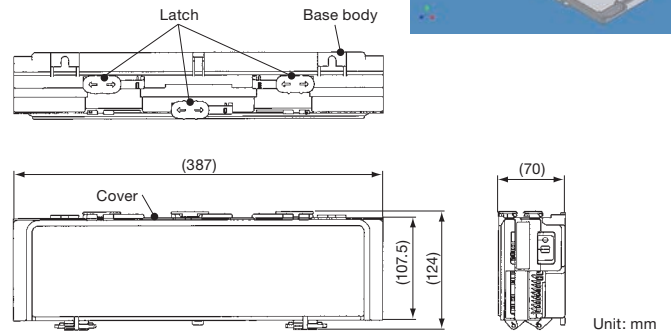
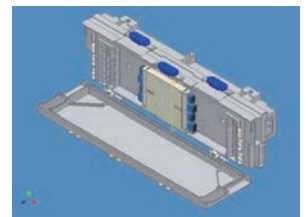


### Structure

#### ● Splice type



#### ● Splitter module type



## Specifications

### Physical characteristics

<b>Material</b>	Molded plastic	
<b>Dimension</b>	L 387mm x W 70mm x H 124mm ( Splitter module type )	
<b>Weight (without kit)</b>	0.8 kg	
<b>Cable diameter</b>	Main cable	SSW aerial optical cable: 1pc
	Drop cable	2 x 3 mm : up to 8pc
<b>Cable ports</b>	2 for main cable	
<b>Maximum fiber storage capacity</b>	Single-fiber	12 splices points
<b>No. of optical adapter</b>	Max.8xSC adapter	with 1x8 splitter module.

Note 1: Fiber protection sleeve is attached to the product.

### Technical characteristics

ITU-T L.13 complied

<b>Vibration</b> IEC61300-2-1	A=±5mm, f=10Hz, 1,000,000 Cy, No splice case degradation. No damage.
<b>Cable fixture(bend)</b> IEC61300-2-37	Bending radius:15mm, ±90° bending, 3Cy/cable. No splice case degradation. No damage.
<b>Cable retention</b> IEC61300-2-4	Main cable : 98N Drop cable : 49N. No splice case degradation.
<b>Temperature cycling</b> IEC61300-2-22	-20C-20C-60C, 8h/Cy 100Cy. No splice case degradation No damage.
<b>Impact(free drop)</b> IEC61300-2-12	0.75m @ -15C & +45 C. No splice case degradation.
<b>Degrees of protection (IP Code)</b> IEC 60529	IPX4 Protected against Wind driven rain proof. (option :IP54 Wind driven rain proof & no effective by dust.)
<b>Salt mist</b> IEC61300-2-26	5% NaCl for 5days, without rust. No damage.
<b>Re-entries</b> IEC61300-2-33	At least 1 thermal cycle to repeat Open & Close the closure sleeve 10 times. No damage.

## Ordering Information

Product Code

**FSCO-AS**

Splice type

**FSCO-AS- X / Y**

**Connector type**  
Null : UPC adapter  
A : APC adapter

**Splitter type**  
Example:  
4SP : 1 x 4 splitter module  
8SP : 1 x 8 splitter module

## Notes

## Sealed Fiber optic splice Closure

**FSCO-CB / FSCO-CB3****Features**

Cable entrance configuration is In-line, which is suitable for space constrained hand holes (also possible to be used in man-holes, telephone tunnels and aerial, etc)

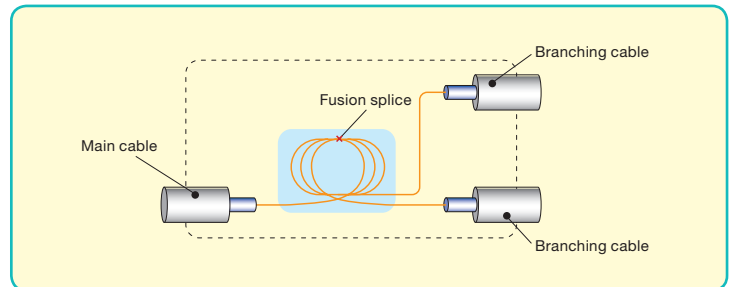
Closure adopts band mechanism, which makes dismantling/assembling easy.

Cable entry section can accommodate maximum 6 cables (main cable 2pcs, branching cable 4pcs)

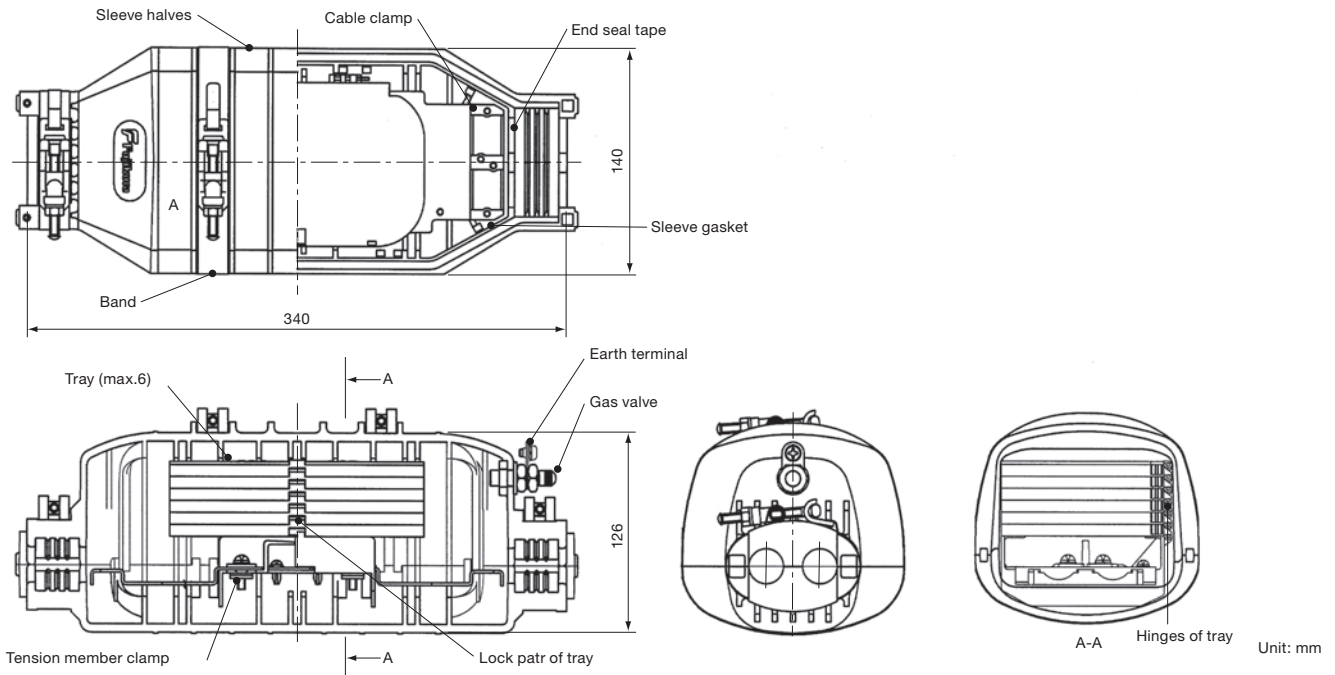
Supports loose tube cable and slotted core cable.

**Applications**

Closure is suitable for up to 96 single fiber splicing, which can cover most of the applications in the fiber distribution networks like Fiber To The Home / Fiber To The Curb (FTTH/FTTC). Underground, aerial, or pedestal applications are possible with this closure.

**Structure**

## ● FSCO-CB Structure





# FSCO-CB / FSCO-CB3

## Specifications

### Physical characteristics

Item	FSCO-CB	FSCO-CB3
Material	<ul style="list-style-type: none"> <li>Molded plastic (Sleeve, Splice tray)</li> <li>Stainless steel (band),</li> <li>Anti-rusted steel (Connecting bar, Organizer)</li> <li>Synthetic rubber (Sleeve gasket, end seal tape)</li> </ul>	
Dimension (mm)	W140 × H126 × L340	W158 × H145 × L405
Weight (kg)	Approx. 3	Approx. 3
Fiber storage tray	Maximum 6	Maximum 8
Cable capacity	2 for main cable 2 for branch cable	2 for main cable 4 for branch cable
Maximum Fiber Storage	Single fiber	96 fibers (12 fibers / tray)
	4-fiber ribbon	120 fibers (5 ribbons / tray)
Cable diameter (mm)	8 - 21	

Note 1 : Fiber protection sleeve is attached to the product.

### Technical characteristics

ITU-T L.13 complied

Vibration IEC61300-2-1	49kPa, A=±5mm, f=10Hz, 1,000,000 Cy, No damage, No leakage.
Cable fixture (bend) IEC61300-2-37	49kPa, ±90° bending radius 6D, 6Cy. No damage, No leakage.
Cable torsion IEC61300-2-5	49kPa, 400mm, ±90 degree, -15°C and 45°C, 5Cy. No damage, No leakage.
Cable axial tension IEC61300-2-4	49kPa, D/45 x 1000N (Max.1000N), 1hr No leakage
Temperature cycling IEC61300-2-22	-20°C ~ 60°C, 8h/Cy 100Cy. Then fill 49kPa air-pressure, No leakage.
Impact IEC61300-2-12	0.5kg, 0.3m @ -10C. No damage, No splice case degradation.
Immersion IEC61300-2-23	Water depth 5m, 7days, No water intrusion.
Air tightness IEC61300-2-38	49kPa@Room temperature, 15min. No leakage.
Degrees of protection (IP code) IEC60529	IP67 : Water proof and No effective by duct
Compression IEC61300-2-10	1000N, 25cm2, 10min, -15°C and 45°C No leakage
Chemical Resistance IEC61300-2-34	pH2, pH12 for 5 days. No leakage, Visual appearance.
Rust resistance IEC61300-2-26	Salt spray 5% NaCl for 5days, No rust

## Ordering Information

### Product Code

**FSCO-CB / \*\* / X / Y / Z / <a1><a2><b1><b2>**

Tray type BH or BL

Presence of gas valve and earth terminal  
(Yes:2 No:1)

Number of slack Tray (1~6)

### Cable size

Cable diameter D (mm)	The size of cable clamp and sealing washer
8 ≤ D ≤ 11	S
11 ≤ D ≤ 16	M
16 ≤ D ≤ 21	L
End packing	E

Presence of optional parts  
(Yes:2 No:1)



**FSCO-CB3 / \*\* / X / Y / Z / <a1><a2><a3><b1><b2><a3>**

## Option

C sleeve	Fro FRP tension member use. Please order when Non-metallic cable installation
Re-entry kit	End seal tape 4pcs, Sleeve gasket 2pcs
Cable kit	Size S, M, L for additional branching cable

## Sealed Fiber Optic Splice Closure

## FSCO-L5BR



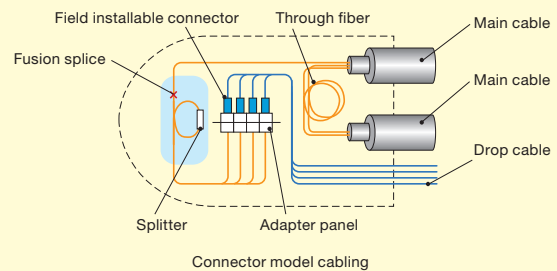
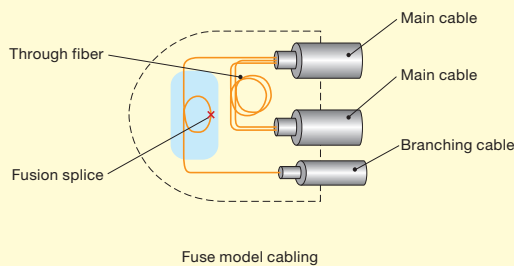
### Features

Cable entry section is single-sided dome structure which is suitable for space constrained hand holes (also possible to be used in man-holes, telephone tunnels etc.).

- Closure adopts hinge/buckle mechanism which makes dismantling/ assembling easy.
- Cable entry section can accommodate maximum 6 cables (main cable 2pcs, branching cable 4pcs).
- Supports both loose tube cables and slotted core cables
- Optional splitter tray accommodates 2pcs 1×8 splitters and support maximum 16 drop cables
- Suitable for apply in limited space areas such as hand holes
- Fully mechanical design, fiber reinforced plastic
- Recommendation of life span for 15 to 20 years (depends on environment)
- Concept of separate cable entries system
- Laser caution signs provided on cover of the top tray
- 360-deg access permits complete access to all wirework and equipment

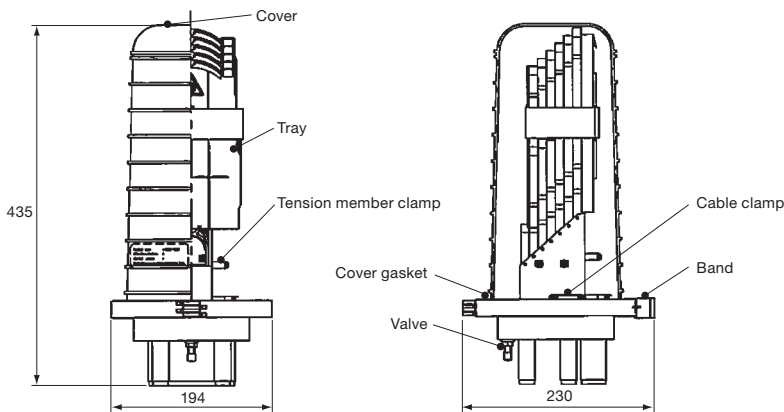
### Applications

- Up to maximum 240 fibers (4-ribbon fiber) splicing FTTH distribution networks
- Applicable for both branch cables and drop cables
- Chemical and mechanical resistance for underground, aerial and pedestal installation

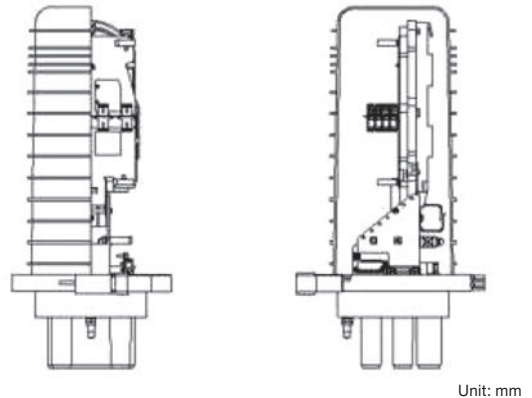


### Structure

#### • Fuse model structure



#### • Connector model structure



## Specifications

### Physical characteristics

<b>Material</b>	<ul style="list-style-type: none"> <li>Molded plastic (Cover, Splice tray, Tray base, End plate, Cable clamping)</li> <li>Stainless steel (Tension member clamp, Drop cable clamp, adapter tray),</li> <li>Synthetic rubber (Cover gasket, Valve gasket)</li> </ul>
<b>Dimension</b>	L435mm × D230mm
<b>Weight (without kit)</b>	Approx. 3.7kg
<b>Cable diameter</b>	Main cable:12-21 mm, Branch cable:8-17.5mm Drop cable :2 × 3mm(flat type) , 3mm dia.(round type)
<b>Cable capacity</b>	Main cable : 2cables Branch cable :2cables - 4cables* (*cannot be accommodated when 3mm round type drop cables are installed) Drop/indoor cable :Max 16cables (*cannot be accommodated when 4 branch cables are installed)
<b>Cable ports</b>	1 oval port for 2 main cables 4 round ports for branch cables or drop/indoor cables
<b>Splice tray capacity</b>	Max. 6 trays
<b>SC adapter capacity</b>	Max. 16 pcs
<b>Splitter capacity</b>	1 × 4: 4pcs or 1 × 8: 2pcs or 1 × 16: 1pcs
<b>Maximum fiber storage capacity</b>	Single fiber                      144 fibers (24 fiber/tray) 4-fiber ribbon                    240 fibers (10 ribbon/tray)
<b>Unreusable parts</b>	Heat shrink tube, branching clip

Note 1: Defaults to SC/UPC type adapter and splitter, please contact your local distributor for SC/APC type

Note 2: Fiber protection sleeves are attached to the product.

Note 3: Pole mount bracket is optionally available

### Technical characteristics

ITU-T L.13 complied

<b>Vibration IEC61300-2-1</b>	49kPa, A=±5mm, f=10Hz, 1,000,000 Cy, No damage, No leakage.
<b>Cable fixture (bend) IEC61300-2-37</b>	49kPa, ±90° bending radius 6D, 6Cy. No damage, No leakage.
<b>Cable torsion IEC61300-2-5</b>	49kPa, 400mm, ±90 degree, -15°C and 45°C, 5Cy. No damage, No leakage.
<b>Cable axial tension IEC61300-2-4</b>	49kPa, D/45 × 1000N (Max.1000N), 1hr No leakage
<b>Temperature cycling IEC61300-2-22</b>	-20°C ~ 60°C, 8h/Cy 100Cy. Then fill 49kPa air-pressure, No leakage.
<b>Impact IEC61300-2-12</b>	0.5kg, 0.3m @ -10C. No damage, No splice case degradation.
<b>Immersion IEC61300-2-23</b>	Water depth 5m, 7days, No water intrusion.
<b>Air tightness IEC61300-2-38</b>	49kPa@Room temperature, 15min. No leakage.
<b>Degrees of protection (IP code) IEC60529</b>	IP67 : Water proof and No effective by duct
<b>Compression IEC61300-2-10</b>	1000N, 25cm <sup>2</sup> , 10min, -15°C and 45°C No leakage
<b>Chemical Resistance IEC61300-2-34</b>	pH2, pH12 for 5 days. No leakage, Visual appearance.
<b>Rust resistance IEC61300-2-26</b>	Salt spray 5% NaCl for 5days, No rust

## Ordering Information

Product Code

# FSCO-L5BR-X / Y

**Type of fiber capacity:**  
12, 24, 36, 48, 72, 96, 120, 144 fibers

**Number of splice tray:**  
1, 2, 3, 4, 5, 6

# FSCO-L5BR-16 / X / Y

**Type of splitter module (FWGC-SR15 Series)**

**4SP** : 1 × 4 splitter module  
**8SP** : 1 × 8 splitter module  
**16SP** : 1 × 16 splitter module  
**2(8SP)** : 1 × 8 splitter module × 2 sets

**Type of adapter**

Null : UPC adapter  
A : APC adapter

**Number of SC adapters :**  
16 pcs

## Notes

# FSCO-BU Series



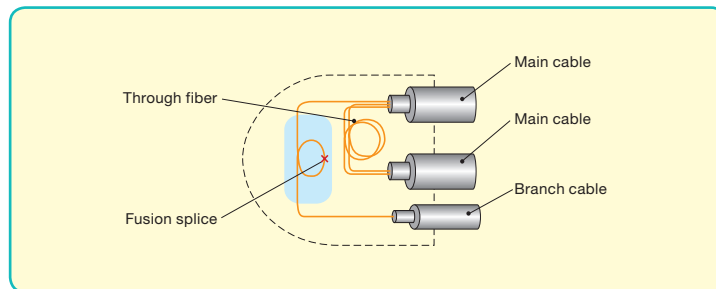
## Features

Cable entry section is single-sided dome structure which is suitable for space constrained hand holes (also possible to be used in man-holes, telephone tunnels etc.).

- Closure adopts hinge/buckle mechanism which makes dismantling/ assembling easy.
- Cable entry section can accommodate maximum 8 cables (main cable: 2, branching cable: 6).
- Supports loose tube cables, slotted core cables, and Spider Web Ribbon® (SWR) cables
- Suitable for apply in limited space areas such as hand holes
- Fully mechanical design, fiber reinforced plastic
- Concept of separate cable entries system
- 360-deg access permits complete access to all wirework and equipment

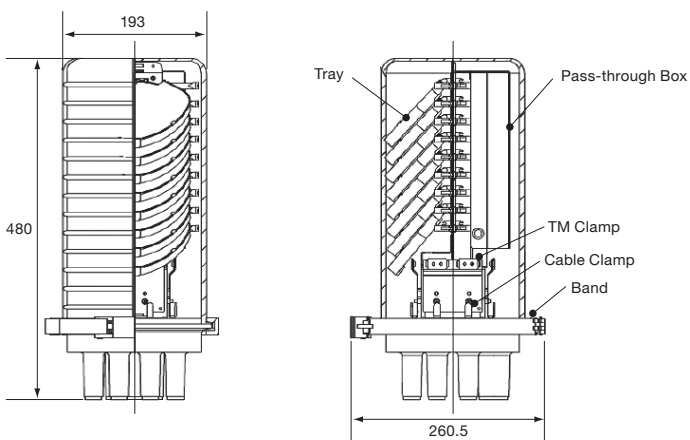
## Applications

- Up to 864 fibers (12f-SWR) splicing FTTH distribution networks
- Chemical and mechanical resistance for underground, aerial and pedestal installation

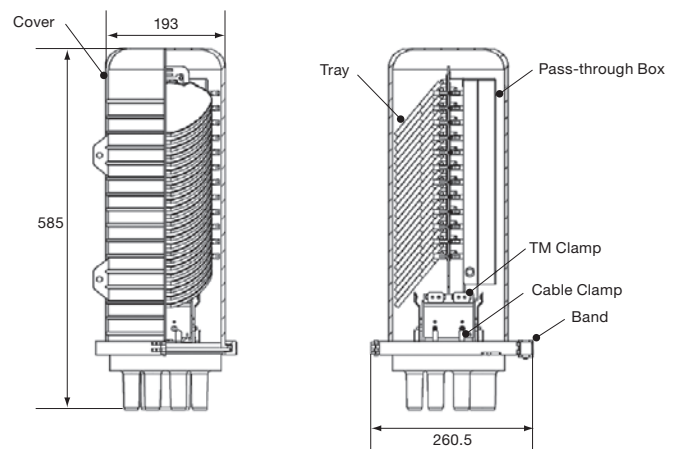


## Structure

- Middle Type



- Large Type



Unit: mm

# FSCO-BU Series

## Specifications

### Physical characteristics

Item	Middle Type	Large Type
Material	<ul style="list-style-type: none"> <li>Molded plastic (Cover, Splice tray, Tray base, End plate, Cable clamping)</li> <li>Stainless steel (Tension member clamp)</li> <li>Synthetic rubber (Cover gasket, Valve gasket)</li> </ul>	
Dimension	H480mm × φ260mm	H585mm × φ260mm
Weight (without kit)	Approx. 6.5kg	Approx. 7.0kg
Cable diameter	Main cable: φ10-22 mm, Branch cable: φ10-17.5mm	
Cable capacity	Main cable : 2cables Branch cable : 6 cables	
Cable ports	1 oval port for 2 main cables 6 round ports for branch cables	
Splice tray capacity	12f-SWR	8 trays (6 splices /tray)
	8f-SWR	8 trays (8 splices / tray)
	4f-SWR	8 trays (8 splices / tray)
	Single fiber	17 trays (12 splices /tray)
Splitter capacity *1	SWR	1 × 2: 4pcs, 1 × 4: 2pcs, 1 × 8: 2pcs
	Single fiber	1 × 2: 2pcs, 1 × 4: 1pcs, 1 × 8: 1pcs
Maximum fiber capacity	12f-SWR	48 × 12f-SWR / 576 fibers
	8f-SWR	64 × 8f-SWR / 512 fibers
	4f-SWR	64 × 4f-SWR / 256 fibers
	Single fiber	204 fibers
Unreusable parts	Heat shrink tube, branching clip	

\*1 A tray for SWR fiber shall be able to accommodate an optical splitter  
Note 1 : Fiber protection sleeve is attached to the product.

### Technical characteristics

ITU-T L.13 complied

Vibration IEC61300-2-1	49kPa, A=±5mm, f=10Hz, 1,000,000 Cy, No damage, No leakage.
Cable fixture (bend) IEC61300-2-37	49kPa, ±90° bending radius 6D, 6Cy. No damage, No leakage.
Cable torsion IEC61300-2-5	49kPa, 400mm, ±90 degree, -15°C and 45°C, 5Cy. No damage, No leakage.
Cable axial tension IEC61300-2-4	49kPa, D/45 x 1000N (Max.1000N), 1hr No leakage
Temperature cycling IEC61300-2-22	-20°C ~ 60°C, 8h/Cy 100Cy. Then fill 49kPa air-pressure, No leakage.
Impact IEC61300-2-12	0.5kg, 0.3m @ -10C. No damage, No splice case degradation.
Immersion IEC61300-2-23	Water depth 5m, 7days, No water intrusion.
Air tightness IEC61300-2-38	49kPa@Room temperature, 15min. No leakage.
Degrees of protection (IP code) IEC60529	IP67 : Water proof and No effective by duct
Compression IEC61300-2-10	1000N, 25cm <sup>2</sup> , 10min, -15°C and 45°C No leakage
Chemical Resistance IEC61300-2-34	pH2, pH12 for 5 days. No leakage, Visual appearance.
Rust resistance IEC61300-2-26	Salt spray 5% NaCl for 5days, No rust

## Ordering Information

Product Code

**FSCO-BU M 8 - R 8**

Type of Closure: BU  
(BU: Butt closure)

Size of Closure: M  
(M: Middle type)  
(L: Large type)

Number of cable : 8 cables

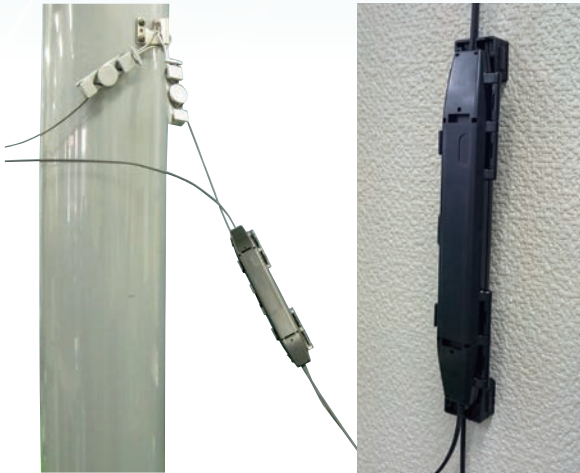
The number of tray: 8 trays

=Ribbon Fiber=  
(1-8 for Middle type)  
(1-12 for Large Type)  
=Single Fiber=  
(1-17 for Middle type)  
(1-24 for Large Type)

Type of fiber tray: R  
(R: SWR fiber type)  
(S: Single fiber type)

## Notes

# FBCO-DRP



## Features

- Provides for accommodating and protecting a connector, fusion splice, and mechanical splice jointed point in between drop/low friction cables.
- Provide easy of repair and maintenance for existing aerial drop cables.

## Applications

- Can accommodate drop cable messenger wire. So that the closure itself can be hung in between a drop point and a premise.
- Can be mounted on a wall with using plastic wall cleats.

## Configuration



accommodates drop cable segment repair point



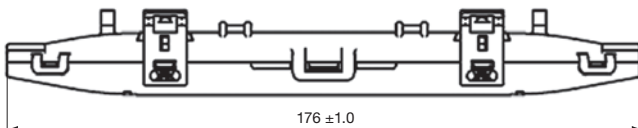
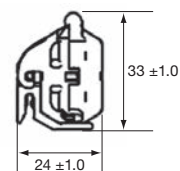
accommodates FAST Connectors jointed point



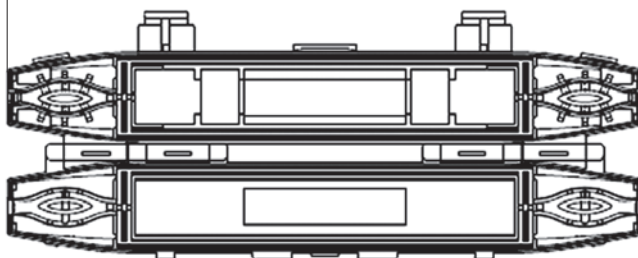
accommodates mechanical spliced point

## Structure

### • Outside Structure



### • Inside Structure



## Specifications

### Physical characteristics

Installation	Aerial in line installation and wall mount * Possible Installation area depends on cable specifications.
Connection	Connector
Number of connection	1
Connector type	SC Connector
Applicable cable	Figure-8 Drop Cable (Approx. 2.0 × 5.3 mm)
	Low Friction Indoor/Outdoor Cable (Approx. 2.0 × 1.6 mm) Indoor Cable (Approx. 2.0 × 3.1 mm)

Note 1 : Fiber protection sleeve, adapter, FAST-SC connectors, or Cable Grip Splice is not attached to the product.

### Technical characteristics

Temperature Cycling with Humidity	42 day cycling -40 °C ~ +75 °C with 95% RH
Degrees of protection (IP code) IEC60529	IPX4: Water splashing against the enclosure from any direction shall have no harmful effect
Flammability	UL94-V0
Heat temperature storage	240 hours at +70 °C

## Notes

# Simplex and zip-cord patchcord

## Optical connectors

### SC Connector



Simplex SC type



Duplex SC type

Item		Content	
Fiber Type		Single Mode	Multi Mode
		SM10/125	G50/125
		DSM8/125	G62.5/125
Insertion Loss (with master cord)	PC polish	Typical 0.2 dB	≤ 0.3dB
	Ultra PC polish (UPC)		-
	Angled PC polish (APC)		-
Return Loss	Ultra PC polish (UPC)	Typical 55 dB	-
	Angled PC polish (APC)	≥ 60 dB	-
Suitable Cord Type		φ 2 cord, φ 3 cord, φ 0.9 fiber	
Conformity Standard		IEC61754-4	

(※) Available for "premium grade" with excellent insertion loss and return loss.

(※) Please enquire on the return loss for multi-mode fiber if required.

### LC Connector



Simplex LC type



Duplex LC type

Item		Content	
Fiber Type		Single Mode	Multi Mode
		SM10/125	G50/125
		DSM8/125	G62.5/125
Insertion Loss (with master cord)	PC polish	Typical 0.2 dB	≤ 0.3dB
	Ultra PC polish (UPC)		-
	Angled PC polish (APC)		-
Return Loss	Ultra PC polish (UPC)	Typical 55 dB	-
	Angled PC polish (APC)	≥ 60 dB	-
Suitable Cord Type		φ 2 cord, φ 0.9 fiber	
Conformity Standard		TIA/EIA-604-10, IEC61754-20	

(※) Available for "premium grade" with excellent insertion loss and return loss.

(※) Please enquire on the return loss for multi-mode fiber if required.

### MU Connector



Simplex MU type



Duplex MU type

Item		Content	
Fiber Type		Single Mode	Multi Mode
		SM10/125	G50/125
		DSM8/125	G62.5/125
Insertion Loss (with master cord)	PC polish	Typical 0.2 dB	≤ 0.3dB
	Ultra PC polish (UPC)		-
	Angled PC polish (APC)		-
Return Loss	Ultra PC polish (UPC)	Typical 55 dB	-
Suitable Cord Type		φ 2 cord, φ 0.9 fiber	
Conformity Standard		IEC61754-6	

(※) Available for "premium grade" with excellent insertion loss and return loss.

(※) Please enquire on the return loss for multi-mode fiber if required.

### FC Connector



Cord type



Tight-buffered fiber type

Item		Content	
Fiber Type		Single Mode	Multi Mode
		SM10/125	G50/125
		DSM8/125	G62.5/125
Connector Loss (with master cord)	PC polish	Typical 0.2 dB	≤ 0.3dB
	Ultra PC polish (UPC)		-
	Angled PC polish (APC)		-
Return Loss	Ultra PC polish (UPC)	Typical 55 dB	-
	Angled PC polish (APC)	≥ 60dB	-
Suitable Cord Type		φ 2 cord, φ 3 cord, φ 0.9 fiber	
Conformity Standard		JIS C5970(F01), IEC61754-13	

(※) Available for "premium grade" with excellent insertion loss and return loss.

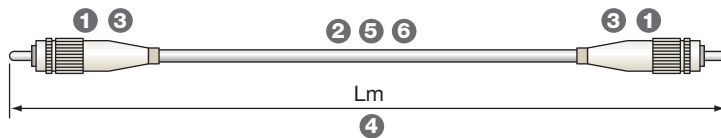
(※) Please enquire on the return loss for multi-mode fiber if required.



# Simplex and zip-cord patchcord

## Pigtails, Simplex and Duplex Cable Assemblies

- Compatible with SC, FC and other types of single fiber connectors.
- Available in various cord sizes  $\phi 0.9$  (TBF), 1.6, 2 and 3 mm.



### Product Code Interpretation

**FFC-2PS-UPC-LM-SMC10/125-S**

1 2 3 4 5 6

1	2	3	4	5	6
Optical Connector Name	Differentiate Between Single/Double Ended Termination and Fiber Type (SM or GI)	Polishing Method	Product Length	Fiber Type and Size	Cord Size
<ul style="list-style-type: none"> <li>■ Shows the connector type</li> <li>■ Please indicate clearly if different connectors are required to be terminated at both ends (ex. FFC/FSC)</li> </ul>	<ul style="list-style-type: none"> <li>* Single-ended: 1</li> <li>* Double-ended: 2</li> <li>* GI:P</li> <li>* SM:PS</li> </ul>	<ul style="list-style-type: none"> <li>* Spherical: PC</li> <li>* Ultra PC:UPC</li> <li>* Angled PC:APC</li> <li>■ Please indicate clearly if polishing is different at both ends (ex. APC /UPC)</li> </ul>	<ul style="list-style-type: none"> <li>* Unit in meter</li> <li>* Tolerance</li> <li><math>L \leq 1m +10cm, -0</math></li> <li><math>1m &lt; L \leq 10m +10\%, -0</math></li> <li><math>10m &lt; L \leq 50m +1m, -0</math></li> <li><math>L &gt; 50m +2\%, -0</math></li> </ul>	<ul style="list-style-type: none"> <li>* GC50/125: MM50 (Orange)</li> <li>* GC62.5/125: MM62.5 (Orange)</li> <li>* SMC10/125: SM (Yellow)</li> <li>* SR15E -SMC10/125: SR15E (Yellow)</li> <li>* DSMC8/125: DSM (Orange)</li> </ul>	<ul style="list-style-type: none"> <li>* <math>\phi 2</math> simplex: S</li> <li>* <math>\phi 3</math> simplex: Leave blank.</li> <li>* <math>\phi 2</math> zipcord: 2SR</li> <li>* <math>\phi 3</math> zipcord: 2R</li> <li>* <math>\phi 1.6</math> simplex: SS</li> <li>* <math>\phi 1.6</math> zipcord: 2SSR</li> </ul>

- Please refer to the Application Table for the relevant fibers and cords for each type of connector.
- Shape and color of connector boot may vary depending on the type of fiber/cord and polishing method.
- Please enquire on flame retardant type of cords.

### Application Table

Connector	Single Mode (SM/DSM)								Multi-Mode								
	Polishing Method			Suitable TBF/cord diameter				Suitable Cord		Polishing Method	Suitable TBF/cord diameter				Suitable Cord		
	PC	UPC	APC	$\phi 0.9$	$\phi 1.6$	$\phi 2$	$\phi 3$	Simplex	Duplex		PC	$\phi 0.9$	$\phi 1.6$	$\phi 2$	$\phi 3$	Simplex	Duplex
SC	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
FC	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
MU	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
LC	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DXSC	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DXMU	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DXLC	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

- Patchcords compliant with ISO/IEC 11801 and TIA/EIA-568-C.3 available for customer premises and commercial building telecommunications cabling.
- Simplex and zipcord cables meet TIA/EIA 568-C.3, Telcordia GR-409-CORE and Directive 2002/95/EC (RoHS) and Plenum, Riser and OFNR-listed LSZH grade jackets available.
- LSZH meets the requirement of IEC 61034-1, 61034-2, 60332-1-1,60332-1-2, 60754-1 and 60754-2.
- OS1, OS2, bend-insensitive FutureGuide-SR15E (ITU-T G.657.A1), FutureGuide-BIS-B (ITU-T G.657.A2) and ITU-T G.657.B3 fiber for singlemode applications and OM1, OM2, OM3 and OM4 for multimode applications available as options.
- 3 or 4 mm dia. ultra-flexible cables (MageTsuyo) with FutureGuide-BIS-B (ITU-T G.657.A2) for FTTH cabling available as options.

## Notes

# Ultra Flexible Cable

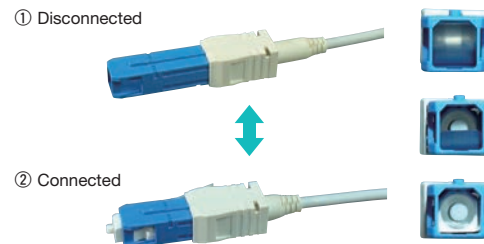
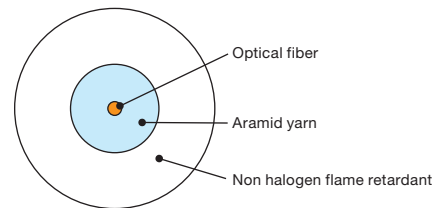
**Mage Tsuyo™ (3mm)**



FutureGuide® BIS-B

## Features

- Mage Tsuyo cable is the best product for indoor wiring
- Good performance of lateral pressure, it is no effect even if cable is stepped.
- Fiber with high performance of bending
- Connector with shutter, which can shut the optical signal when connector is disconnected.
- Only provide the patch cord with both ends of connector



## Specification

Item	Mage Tsuyo (3mm)	
Fiber type	FutureGuide BIS-B	
Nominal Diameter (mm)	3mm	
Sheath	Non halogen flame retardant	
Color	White	
Permissible tensile strength (N)	68.5	
Permissible bending radius (mm)	7.5	
Connector type	SC or SC with Shutter	
Insertion Loss	Ultra PC polish (UPC)	Typical 0.2dB
(with master cord)	Angled PC polish (APC)	
Return Loss	Ultra PC polish (UPC)	Typical 55dB >=60dB
	Angled PC polish (APC)	
Conformity Standard	IEC61754-4	

## Ordering Information

Product Code

**FSC-2PS-UPC-LM-MAGETSUYO3**

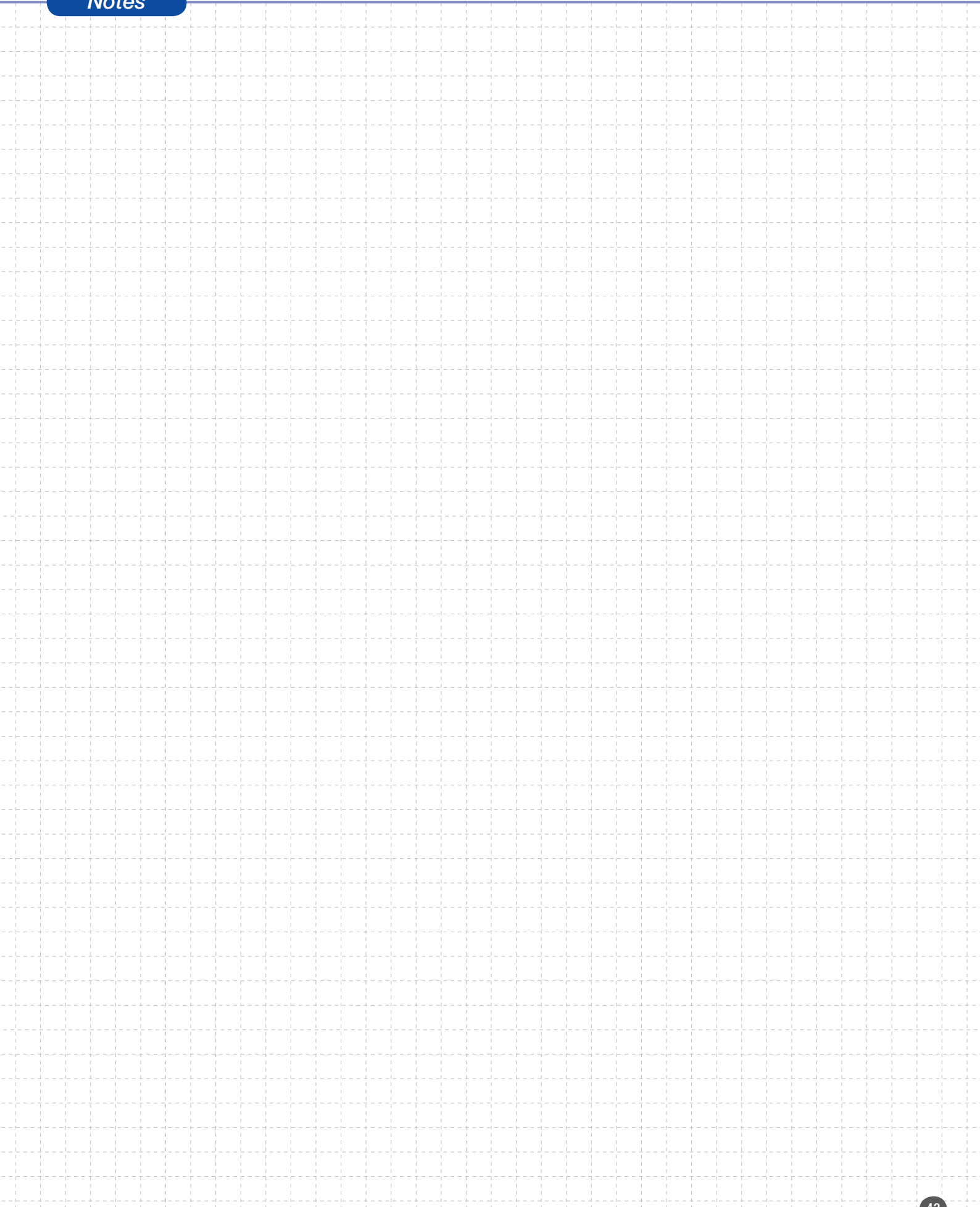
①

②

③

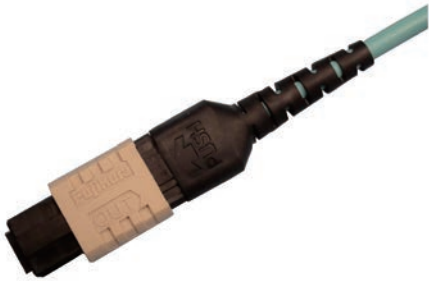
① Connector Type	② Polishing Type	③ Length
SC SCS : SC with shutter	UPC APC	1.5 : 1.5m 3 : 3m 5 : 5m 10 : 10m

## Notes



# Multiple fibers patchcord

## MPO Patchcord



## Features & Benefits

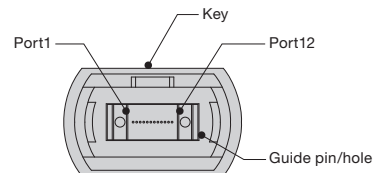
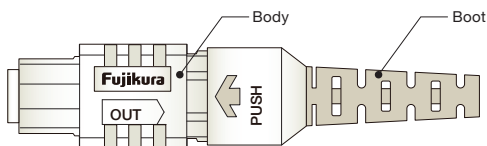
- Multiple fiber connection for high capacity system
- High density providing space and cost saving
- Easy installation, maintenance and expansion
- Reliable optical performance

## Applications

- Data center and central office cabling
- Equipment internal connection
- High capacity data exchange application

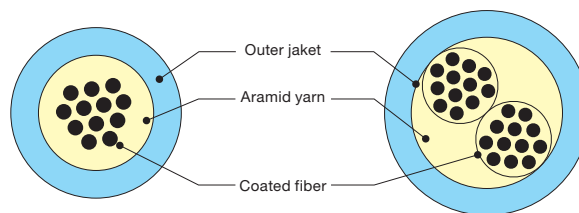
## Specification

### MPO connector



Item		Content			
Fiber type		SM(SM10/125)		MM(G50/125)	
Connector count		12F	24F	12F	24F
Polishing		Angled PC		Flat PC	
Insert loss	Standard type	$\leq 1.0\text{dB}$		$\leq 0.5\text{dB}$	
	Low-loss type	$\leq 0.25\text{dB}$	$\leq 0.35\text{dB}$	$\leq 0.3\text{dB}$	$\leq 0.3\text{dB}$
Return loss		$\geq 55\text{dB}$			
Suitable cord type		Ribbon fiber, round cord			
Conformity standard		IEC61754-7			

### Cordage



Item		Content	
Fiber type		SM(SM10/125), MM(G50/125)	
Cable count		12C	24C
Outer diameter(mm)		3.0	3.8
Bandwidth(MHz-Km, at 850nm)		SM:N/A, OM2: 500MHz-Km, OM3:1500MHz-Km, OM4:3500MHz-Km	
Max transmission length at 10GbE (m)		SM:N/A, OM2: 82m, OM3:300m, OM4:550m (850nm)	
Sheath color		OS2: yellow, OM2: orange, OM3/OM4: aqua or customized	
Sheath flame retardant grade		Plenum grade*	

\* Contact us for PVC, Riser or LSZH grade

# Multiple fibers patchcord

## Ordering Information



**Product Code**    **12MPOF / 12MPOF - 2PS - 5M - PL - OM2C×12C - X**

1 2	3	4	5	6	7
Connector type	Fiber mode	Length	Flame grade	Fiber type	Polarity
12MPOF: 12F-MPO without pin 12MPOM: 12F-MPO with pin  *SM: angled polishing; MM: PC polishing	1P: single-ended MM type 2P: double-ended MM type 1PS: single-ended SM type 2PS: double-ended SM type	Unit: meter Tolerance: L≤10m: +10%, -0 10m<L≤50m: +1m, -0 50m<L: +2%, -0	PL: Plenum grade  * PVC, Riser, LSZH also available	SMCx12C: 12F, SM OM2Cx12C: 12F, OM2 OM3Cx12C: 12F, OM3 OM4Cx12C: 12F, OM4 SMCx24C: 24F, SM OM2Cx24C: 24F, OM2 OM3Cx24C: 24F, OM3 OM4Cx24C: 24F, OM4  *3mm cord	X: Cross wiring ST: Straight wiring  *refer to 'Polarity Table'

- Please refer to the 'Application Table' for the relevant fibers and cords for each type of connector.
- Shape and color of connector housing part may vary depending on the type of fiber/cord and polishing method
- Contact us for other type MPO, such as 24, 48F-MPO cords

### Polarity Table

#### ● Straight wiring

MPO No.	Port No.											
MPO 1	1	2	3	4	5	6	7	8	9	10	11	12
MPO 2	1	2	3	4	5	6	7	8	9	10	11	12

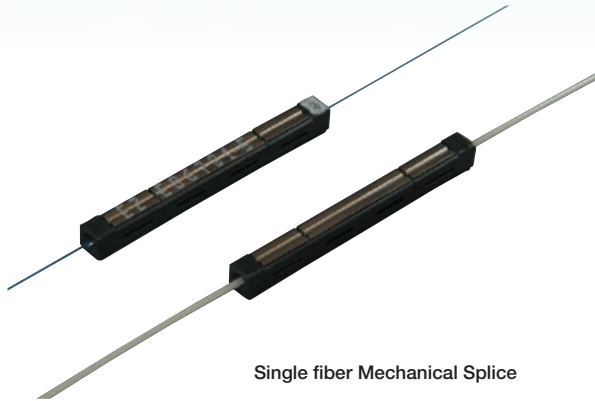
#### ● Cross wiring

MPO No.	Port No.											
MPO 1	1	2	3	4	5	6	7	8	9	10	11	12
MPO 2	12	11	10	9	8	7	6	5	4	3	2	1

## Notes

## Mechanical Splice

# Mechanical Splice Unit



Single fiber Mechanical Splice

## Features

Mechanical splice connection makes use of mechanical splice unit where 2 fibers are first inserted into the unit. The fibers are next aligned and then held in position by clamping parts.

- Fast and Easy splicing of 250 or 900um SM/MM fibers.
- Power source not required, all necessary tools are provided in the standard tool kit.
- Much faster compared to fusion splicing method

## Structure

Mechanical splice connection is done by using the mechanical splice shown in Figure 1. Fibers are set to the V-groove of the mechanical splice. The fibers are held in place by clamping with the clamping parts. Index matching gel is added to the center of the mechanical splice (at the supposed connection point of the two fibers) to ensure good insertion and return loss.

Figure 2 and Figure 3 show the inner structure of the mechanical splice. Both the 0.25mm section and 0.125mm (bare fiber) section of the fiber are being clamped and held in position. Therefore, to ensure good connection, both the fiber stripping length and the fiber cleaved length must be controlled within specifications.

Figure 2-1

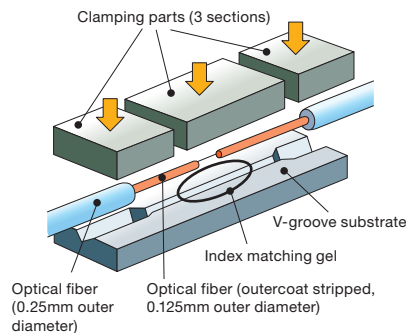


Figure 2-2

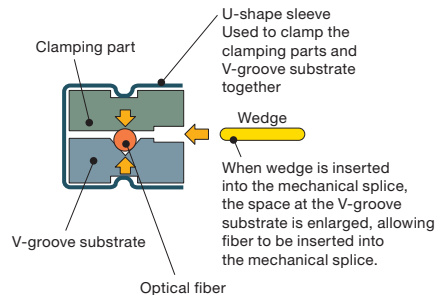


Figure 1

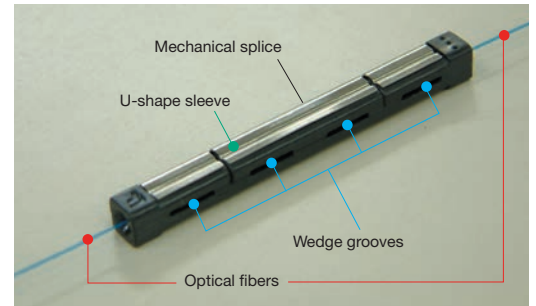
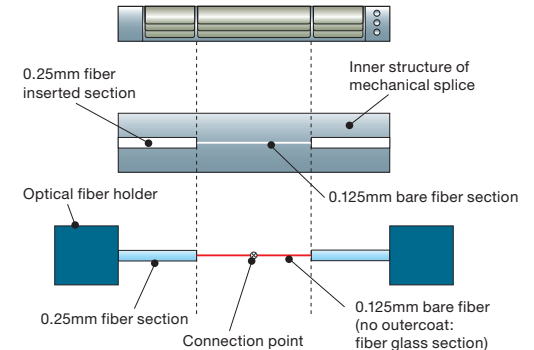


Figure 3

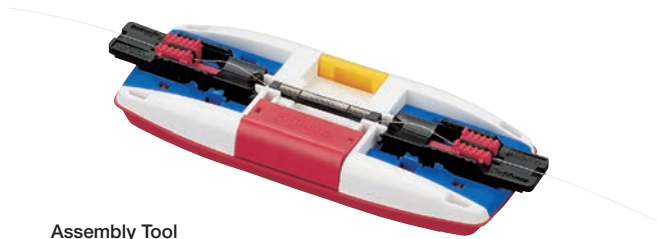


## Specifications

Type	Mechanical Splice Unit	Remark
Product Code	FMSEZ-025/09	
Application	Dia.0.25mm single fiber or Dia.0.9mm single fiber	Cladding : 0.125mm Except Nylon coating fibers
Applicable fiber diameter range	Dia.0.235mm to 0.265mm , Dia. 0.85mm to 0.95mm	ITU-T compliance
Size	L40 x W4 x H4 (mm)	
Connection Loss	Average < 0.1dB	
Return Loss	≥ 40dB	
Fiber Adhesion Force	< 3N (Connection Loss change < 0.2dB)	
Required Tools	Single fiber MS/EZ Assembly tool	

## Mechanical Splice

# MS/EZ Assembly tool



Assembly Tool

### Features

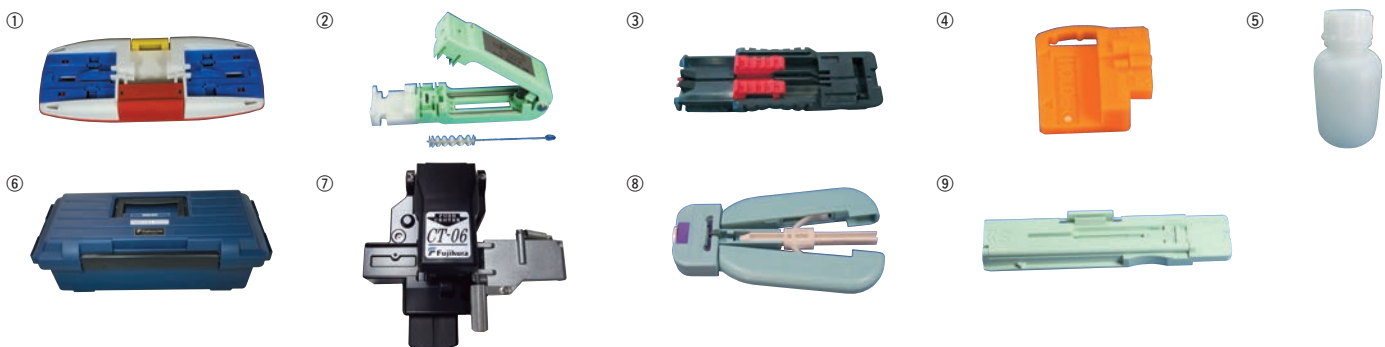
- MS/EZ assembly tool for  $\phi 0.25/0.9\text{mm}$  single optical fiber.
- MS/EZ assembly tool for FMSEZ-025/09.
- No electric power is required and assembly can be done quickly.
- Suitable for FTTH drop cable solution.
- MS/EZ assembly kit is also available.

### Single Fiber MS/EZ Assembly tool

	Item	Model No.	Quantity	Remarks
①	MS/EZ Assembly Tool	FMSECO-TL2-EZ	1ea	
②	Mechanical Stripper [F]	FMSECO-MSTR025	1ea	
③	Single Fiber Holder [F]	FMSECO-FH05/025	10ea	
④	Spacer for Mechanical Splice Spacer [F]	FMSECO-SP-C2	2ea	
⑤	Alcohol Bottle	FMSEZ-ALC	1ea	
	Wiper	-	1set	
	Instruction Manual	-	1set	
⑥	Carrying Case	-	1set	
⑦	Fiber Cleaver	CT-06	-	Option
⑧	Micro Stripper ( $\phi 0.9$ )	MS1-08S-40-FS	-	Option
⑨	Single Fiber Holder [F] ( $\phi 0.9$ ) (Instruction Manual Included)	FMSECO-FH09	-	Option

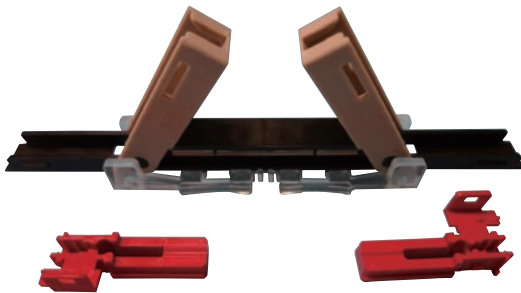
Single fiber MS/EZ assembly tool (for  $\phi 250\mu\text{m}$  fiber) is also available.

- FMSEC0EZ-KIT025C-10 (without Fiber Cleaver)
- FMSEC0EZ-KIT025C-11 (with Fiber Cleaver)



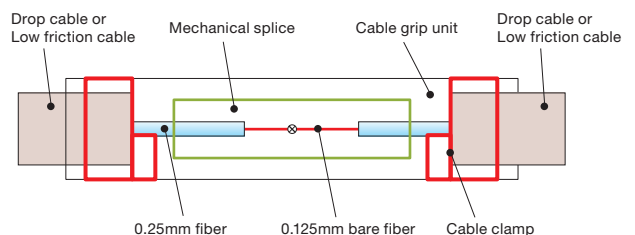
## Mechanical Splice

# Cable Grip Splice



### Features

- Cable grip splice enables the connection between drop cables and low friction cables.
- No need to prepare special tool.



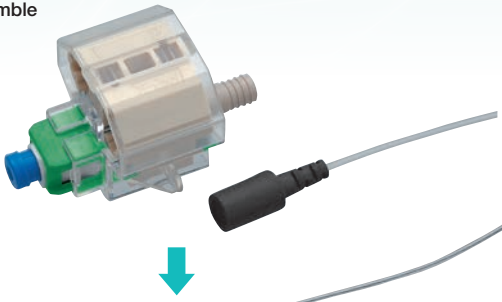
### Specificaiton

Type	Mechanical Splice Unit for cables
Product Code	CABLE GRIP SPLICE
Applicable cable	Drop cable, Low friction cable
Size	L 97 x W 9.2 x H 7.4 (mm)
Connection Loss	Average $\leq 0.1\text{dB}$
Return Loss	$\geq 40\text{dB}$
Cable Adhesion Force	$> 20\text{N}$ (Connection Loss change $\leq 0.2\text{dB}$ )

## FAST-Connector

## FAST-Connector (UNI) Series (for 250um, 900um fiber)

Before Assemble



After Assemble



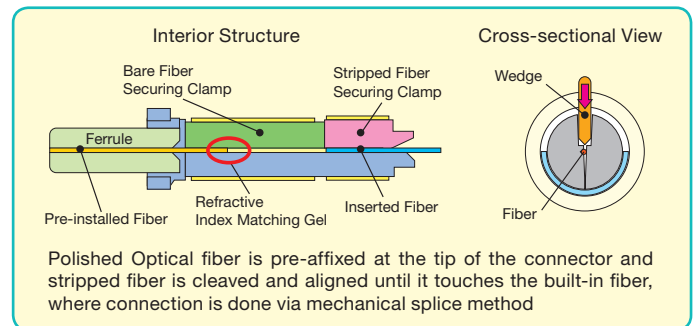
Fujikura has greatly simplified process of joining two fibers, therefore providing significant support for our customers in the construction of FTTH network. Fujikura FAST connector is a series of field-installable connectors, which require no polishing. Unlike conventional field-installable connectors, FAST connector series do not employ assembling tool but incorporate its own pre-assembled wedge launcher. The pre-assembled wedge launcher is a disposal part after installing fiber. Fujikura FAST connector uses a mechanism of "Push-pull-wedge", which has been introduced by Fujikura's Mechanical Splices. As the "Push-pull-wedge" mechanism achieves clamping both bare fiber part and coating part, this clamping mechanism enhances strength against fiber twist.

## Features

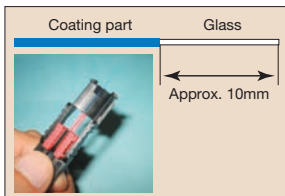
FAST-SC-UNI, FAST-LC-UNI has own design to clamp 250um and 900um coated fibers. Both are fully compatible with the standard SC, LC connectors and demonstrate the performance combining SC, LC connectors and Mechanical Splices.

## Specification

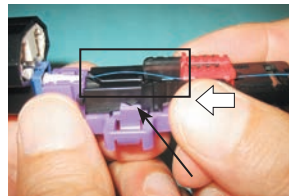
Item	Content
Applicable fiber diameter	240 ~ 265 um (for 250um fiber), 850 ~ 950 um (for 900um fiber)
Fiber Polishing Method	UPC Polish, APC Polish
Connection Loss	< 0.5dB (Singlemode)
	< 0.6dB (Singlemode APC Polish)
	< 0.4dB (Multimode)
Return Loss	> 45dB (SM fiber UPC polish)
	> 65dB (SM fiber APC polish / When use with Angled cleaver)
	> 50dB (SM fiber APC polish / When use with Flat cleaver)
Working temperature	-40°C ~ 75 °C (for 250um fiber)
	Base on fiber spec (for 900um fiber)



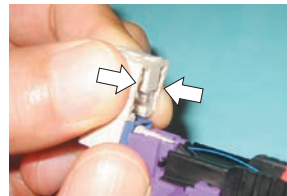
## Assembly Flow



1. Prepare fiber



2. Insert fiber into connector body and confirm fiber bend



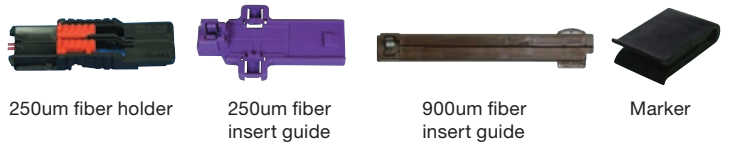
3. Remove connector unit from the wedge launcher



4. Insert the boots

## Package Information

- 250um Fiber holder : 1pc/10connectors
- 250um Fiber insert guide : 1pc/10connectors
- 900um Fiber Holder : Order separately
- 1pc of spacer/10connectors
- 1pc of marker/10 connectors (only for APC connector with angled fiber cleave)



## Ordering Information

Type	Product Code		
	FAST-SC	FAST-LC	FAST-ST
Singlemode UPC Polish	FAST-SC-SM-UNI/00-BL/BK	FAST-LC-SM-UNI/00-BL/BK	FAST-ST-SM-UNI/00-BL/BK
Singlemode APC Polish	FAST-SC-APC-SM-UNI/00	FAST-LC-APC-SM-UNI/00	-
50/125 Multimode	FAST-SC-GI5-UNI/00-BK/BK	FAST-LC-GI5-UNI/00-BK/BK	FAST-ST-GI5-UNI/00-BK/BK
62.5/125 Multimode	FAST-SC-GI6-UNI/00-BG/BK	FAST-LC-GI6-UNI/00-BG/BK	FAST-ST-GI6-UNI/00-BG/BK
MM10G	FAST-SC-10G-UNI/00-AQ/BK	FAST-LC-10G-UNI/00-AQ/BK	FAST-ST-10G-UNI/00-AQ/BK

Interface-APC connector with flat fiber cleave available upon request.



# FAST-Connector

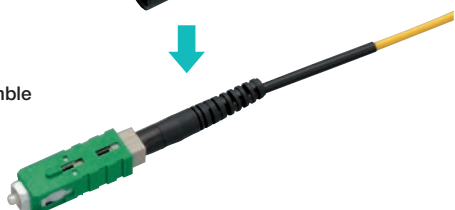
## FAST-Connector

### FAST-Connector Cord series (for 2mm & 3mm)

Before Assemble



After Assemble



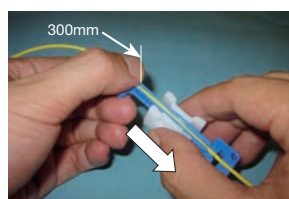
#### Features

FAST-SC-09/CO FAST-LC-09/CO have own design to clamp 2mm, and 3mm cord. Both are fully compatible with the standard SC, LC connectors. Therefore, FAST-SC, FAST-LC demonstrates the performance combining SC, LC connectors and Mechanical Splices.

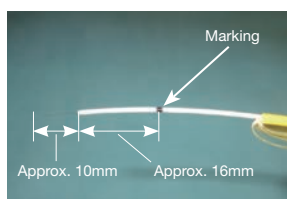
#### Specification

Item	Content
Applicable Cord Diameter	φ 2mm (for 2mm cord), φ 3mm (for 3mm cord)
Fiber Polishing Method	UPC Polish, APC Polish
Connection Loss	< 0.5dB (Singlemode)
	< 0.6dB (Singlemode APC Polish)
Return Loss	< 0.4dB (Multimode)
	> 45dB (SM fiber UPC polish)
Fiber Retention Force	> 65dB (SM fiber APC polish / When use with Angled cleaver)
	> 50dB (SM fiber APC plish / When use with Flat cleaver)
	Cord : <68.6N

#### Assembly Flow



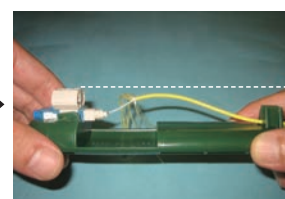
1. Secure cord using cable clamp



2. Remove outer jacket and strip



3. Set connector and cord onto assembly tool and insert fiber to connector



4. Make bend and disengage Wedge Unit



5. Fix aramid yarn



6. Tighten boot, remove connector from assembly tool and trim aramid yarn

#### Package Information

- Assembly Tool : 1pc/50connectors
- φ2 Cable Clamp : 1pc / 50 connectors
- φ3 Cable Clamp : 1pc / 50 connectors
- 1pc of spacer/10 connectors
- 1pc of marker/10 connectors (only for APC connector with angled fiber cleave)



Assembly Tool



φ 2 Cable Clamp



φ 3 Cable Clamp



Marker

#### Ordering Information

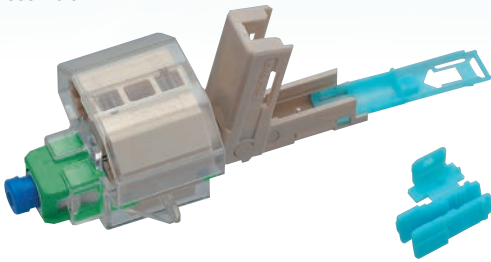
Type	Product Code		
	FAST-SC	FAST-LC	FAST-ST
Singlemode UPC Polish	FAST-SC-SM-09/CO	FAST-LC-SM-09/CO	FAST-ST-SM-09/CO
Singlemode APC Polish	FAST-SC-APC-SM-09/CO	FAST-LC-APC-SM-09/CO	-
50/125 Multimode	FAST-SC-GI5-09/CO	FAST-LC-GI5-09/CO	FAST-ST-GI5-09/CO
62.5/125 Multimode	FAST-SC-GI6-09/CO	FAST-LC-GI6-09/CO	FAST-ST-GI6-09/CO
MM10G	FAST-SC-10G-09/CO	FAST-LC-10G-09/CO	FAST-ST-10G-09/CO

Interface-APC connector with flat fiber cleave available upon request.

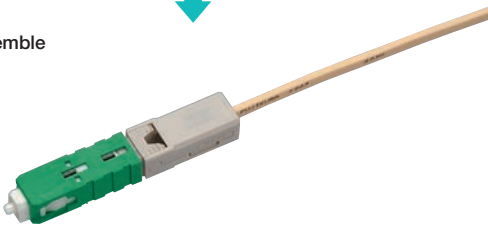
## FAST-Connector

## FAST-Connector (for Drop/Indoor Cable/Low Friction Indoor Cable)

Before Assemble



After Assemble



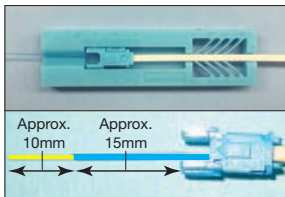
## Features

FAST-SC/(LC)-GT type has own design to clamp drop cable or indoor cable and low friction indoor cable. FAST-SC/(LC) is fully compatible with the standard SC/(LC) connectors. Therefore, FAST-SC/(LC) demonstrates the performance combining both SC/(LC) connectors and Mechanical Splices.

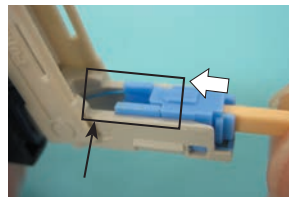
## Specification

Item	Content
Applicable Cable Diameter	3.1 ± 0.2mm x 2.0 ± 0.2mm (Drop/Indoor Cable)
	2.0 ± 0.1mm x 1.6 ± 0.1mm (Low Friction Indoor Cable)
Fiber Polishing Method	UPC Polish, APC Polish
Connection Loss	< 0.5dB (Singlemode)
	< 0.6dB (Singlemode APC Polish) < 0.4dB (Multimode)
Return Loss	> 45dB (SM fiber UPC polish)
	> 65dB (SM fiber APC polish / When use with Angled cleaver) > 50dB (SM fiber APC polish / When use with Flat cleaver)
Fiber Retention Force	> 20N (<0.2dB with impressed pressure)

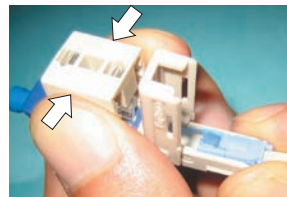
## Assembly Flow



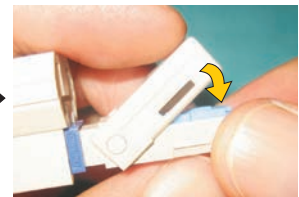
1. Secure cable using with matching cable clamp & holder



2. Insert fiber and confirm fiber bend



3. Disengage Wedged unit



4. Down the lever and fix cable

## Package Information

- Cable clamp: 1pc blue clamp and 1pc Yellow clamp for 1pc connector
- Cable holder: 1pc/10pcs connectors
- 250um fiber stripper: 1pcs/10pcs connectors



Blue Clamp



Yellow Clamp



Cable Holder



250um Fiber Stripper

## Ordering Information

Item	Product code
Drop/Indoor cable, UPC polish, SC	FAST-SC-SM-025/GT
Drop/Indoor cable, APC polish, flat pre-installed fiber*	FAST-SC-Interface-APC-SM-025/GT
Low friction indoor cable, UPC polish, SC	FAST-SC-SM-LF/GT
Low friction indoor cable, UPC polish, LC	FAST-LC-SM-LF/GT
Low friction indoor cable, APC polish, SC, flat pre-installed fiber*	FAST-SC-Interface-APC-SM-LF/GT
Low friction indoor cable, APC polish, LC, flat pre-installed fiber*	FAST-LC-Interface-APC-SM-LF/GT

\*Contact us for angled pre-installed fiber

## Mechanical Splice

# FAST-Connector Assembly Tools



The FAST Connector Assembly Tool Kit provides all the necessary installation tools.

### Features

- Industry standard fiber preparation tools
- Compact design, flexible but rugged case
- Complete instructions provided

No.	Name	Model	Purpose	KIT (A)	KIT (B)	KIT (C)	KIT (D)
1	Optical fiber holder 025	FMSECO-FH05/025	To assemble FAST-SC for 250um fiber	●	●	●	●
2	Cable Holder	-	To assemble FAST-SC(GT)	●	●	●	●
3	Mechanical Stripper 025	FMSECO-MSTR025	To strip 250um fiber	●	●	●	●
4	Micro Stripper 09	MS1-08S-40-FS	To strip 900um fiber	●	●	●	●
5	Alcohol Container	FMSEZ-ALC	-	●	●	●	●
6	Cotton Pad	-	-	●	●	●	●
7	High Precision Cleaver	CT-06	Flat Cleaving		●		●
8	Fiber Plates	AD-10	To adjust bare fiber length	Option			
9	Spacer	FMSECO-SP-C2	To adjust bare fiber length	●	●	●	●
10	250um fiber insert tool	-	To assemble FAST-SC for 250um fiber	●	●	●	●
11	Carrying Case	-	-	●	●	●	●
12	Cordage Assembly tool	FAST-SC-KIT-CO	To assemble cordage			●	●
13	φ 2mm Cable Clamp	FAST-SC-KIT-CO	To assemble φ 2mm cordage			●	●
14	φ 3mm Cable Clamp	FAST-SC-KIT-CO	To assemble φ 3mm cordage			●	●

\* Kit(A) ; FAST-SC-KIT025DR-10, Kit(B) ; FAST-SC-KIT025DR-11 , Kit(C) ; FAST-SC-KIT/ALL-10, Kit(D) ; FAST-SC-KIT/ALL-11



### Notes

FuseConnect™

# FuseConnect™ (for 900um fiber)



FuseConnect-SC-SF-SM-09



FuseConnect-LC-SF-SM-09

## Features & Benefits

Fujikura's FuseConnector™ family connectors are factory pre-polished, and easily terminate by fusion splicer in the field. Similar with Fujikura's FAST family connectors, FuseConnector™ family are extremely simple and easy to assemble and apply via many innovative designs. Besides, FuseConnector™ provides less than 0.3dB insert loss and more than 65dB (APC polishing) return loss, and extend the applications from digital network to analog network.

## Applications

- Optical equipment internal connection
- FTTx network connection
- General optical network connection

## Specification

Item	Content
Cable type	φ 900um fiber
Connector type	SC, LC
Ferrule polishing	UPC polishing, APC polishing
Insert loss	SM/MM: ≤ 0.30dB
Return loss	SM UPC: ≥ 55dB, SM APC: ≥ 65dB

## Assembly Flow



1. fiber processing



2. fiber splicing



3. protection sleeve shrinking



4. assembled connector

## Ordering Information

Product Code

# FuseConnect - X1 - SF - X2 - 09

**Connector type:**  
**SC** : SC connector  
**LC** : LC connector

**Ferrule polishing:**  
**SM** : SM UPC polishing  
**APC** : SM APC polishing  
**G15** : 50/125 MM UPC polishing  
**G16** : 62.5/125 MM UPC polishing  
**10G** : MM 10G UPC polishing

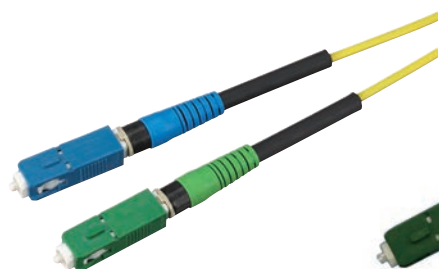
## Package Information

- Connector with necessary parts: 1set / box

## Option

Item	Description
Fusion splicer	single-fiber fusion splicer, such as 70S, 19S, FSM-60S, 12S
Assembly tools	900um fiber stripper (MS1-08S-40-FS), fiber cleaver (CT-06)

# FuseConnect™ (for 2mm and 3mm cord)



FuseConnect-SC-SF



FuseConnect-SC-QA-APC-30

## Feature

- Applicable for 2/3mm cordage
- High optical performance
- High reliability

## Applications

- FTTx network connection
- Optical equipment internal connection
- General optical network connection

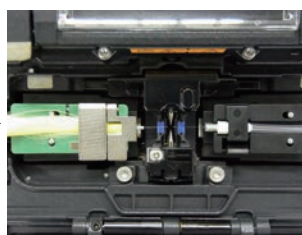
## Specification

Item	Content
Cable type	φ 2mm, 3mm cord
Connector type	SC, LC
Ferrule polishing	UPC polishing, APC polishing
Insert loss (wrt master)	SM/MM: ≤ 0.30dB
Return loss	SM UPC: ≥ 55dB, SM APC: ≥ 65dB

## Assembly Flow



1. fiber processing



2. fiber splicing



3. protection sleeve shrinking



4. assembled connector

## Ordering Information

Product Code

**FuseConnect - X1 - QA - X3 - X4**

**Connector type:**  
**SC** : SC connector  
**LC** : LC connector

**Cord type:**  
**20** : 2mm cord  
**30** : 3mm cord\*

**Ferrule polishing:**  
**SM** : SM UPC polishing  
**APC** : SM APC polishing  
**G15** : 50/125 MM UPC polishing  
**G16** : 62.5/125 MM UPC polishing  
**10G** : MM 10G UPC polishing

\*Only for SC type

## Package Information

- Connector with necessary parts: 1set / box
- Cable clamp for 2mm or 3mm cord: 1pc / 10 connectors

## Option

Item	Description
Fusion splicer	single-fiber fusion splicer, such as 70S, 19S, FSM-60S, 12S
Assembly tools	Jacket split tool (FUSE-ST), 900um fiber stripper (MS1-08S-40-FS), fiber cleaver (CT-06)

## Notes

FuseConnect™

# FuseConnect™ (for drop cable and low friction indoor cable)



FuseConnect-SC-LFC



FuseConnect-SC-DC

## Feature

- Fusion termination for drop cable and low-friction indoor cable
- Factory pre-polished ferrule and easy assembly
- Low insert loss and high return loss

## Applications

- FTTx network connection
- CATV or RoF network connection
- General optical network connection

## Specification

Item	Content	
Cable type	Drop cable	Low-friction cable
Cable dimension	3.1 ± 0.2 × 2.0 ± 0.2mm	2.0 ± 0.1 × 1.6 ± 0.1mm
Connector type	SC	SC, LC
Polishing	UPC polishing, APC polishing	
Insert loss	≤ 0.30dB	
Return loss	SM UPC: ≥ 55dB, SM APC: ≥ 65dB	

## Assembly Flow



1. fiber processing



2. fiber splicing



3. protection sleeve shrinking



4. assembled connector

## Ordering Information

Product Code

# FuseConnect - SC - X1 - X2

**Ferrule polishing:**  
 Null : SM UPC polishing  
 APC : SM APC polishing

**Cord type:**  
 DC : drop cable  
 LFC : low friction cable

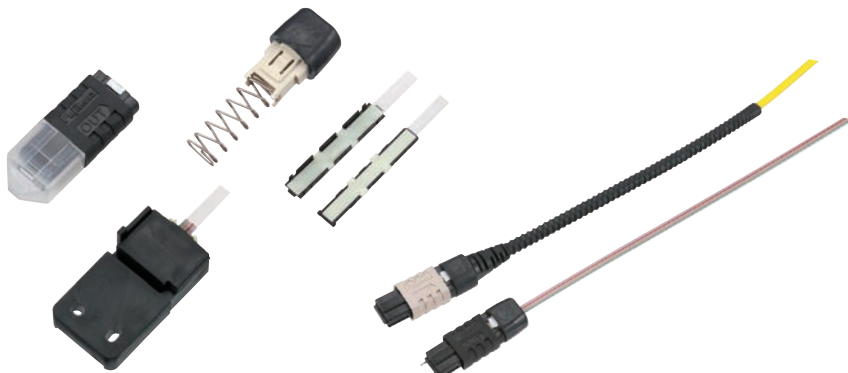
## Package Information

- Connector with necessary parts: 1set / box

## Option

Item	Description
Fusion splicer	single-fiber fusion splicer, such as 70S, 19S, FSM-60S, 12S
Assembly tools	900um fiber stripper (MS1-08S-40-FS), fiber cleaver (CT-06)

# FuseConnect™ (for MPO)



Before Assemble

After Assemble

## Features

- 12F fuse spliced by one time
- Factory pre-polished, easy assembly
- Mechanical protect mechanism, heat-free
- Applicable for 12F-ribbon and 3mm ribbon cord

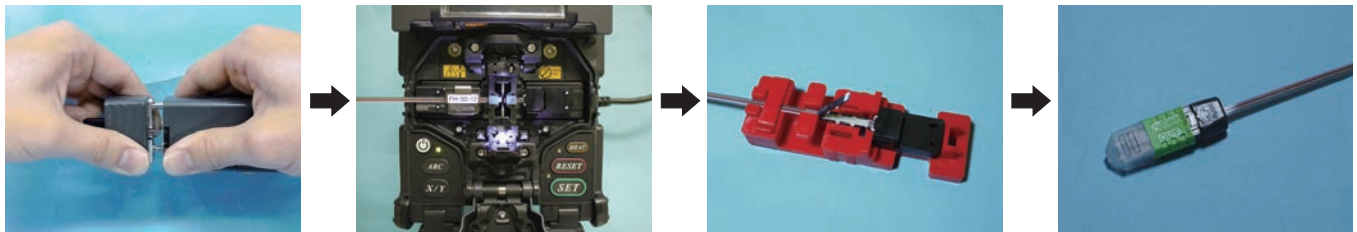
## Applications

- Data center installation and maintenance
- Central office cabling and replacement
- Patch cord customization in the field
- FTTx multi-fiber connection

## Specification

Item	Content			
Fiber type	SM	GI 50/125	GI 62.5/125	MM 10G
Fiber count	12F			
Housing color	Green	Black	Beige	Aqua
Insert loss (wrt master)	≤ 0.75dB		≤ 0.50dB	
Return loss	≥55dB		-	
Cord tension	≤ 50N			

## Assembly Flow (MPO)



1. fiber ribbon processing

2. fiber ribbon splicing

3. protection part housing

4. assembled connector

## Ordering Information

Product Code

**FuseConnect-MPO- X1 - X2 - X3**

**Type of connector:**  
**Male** : with guide pin  
**Female** : without guide pin

**Type of fibers:**  
**SM** : SM fiber  
**GI5** : 50/125 MM fiber  
**GI6** : 62.5/125 MM fiber  
**MM10G** : MM 10G fiber

**Type of cable:**  
**Cordage** : 3mm cord  
**Ribbon** : 12F ribbon tape

## Package Information

- Connector with necessary parts: 1set / box
- Assembly tool: 1pc / 10pcs connectors

## Option

Item	Description
Fusion splicer	12F multi-fiber fusion splicer, such as 70R, 19R, FSM-60R
Assembly tools	Jacket split tool (FUSE-ST), ribbon tape cleaver, ribbon-form tool

# One-Click™ Cleaner

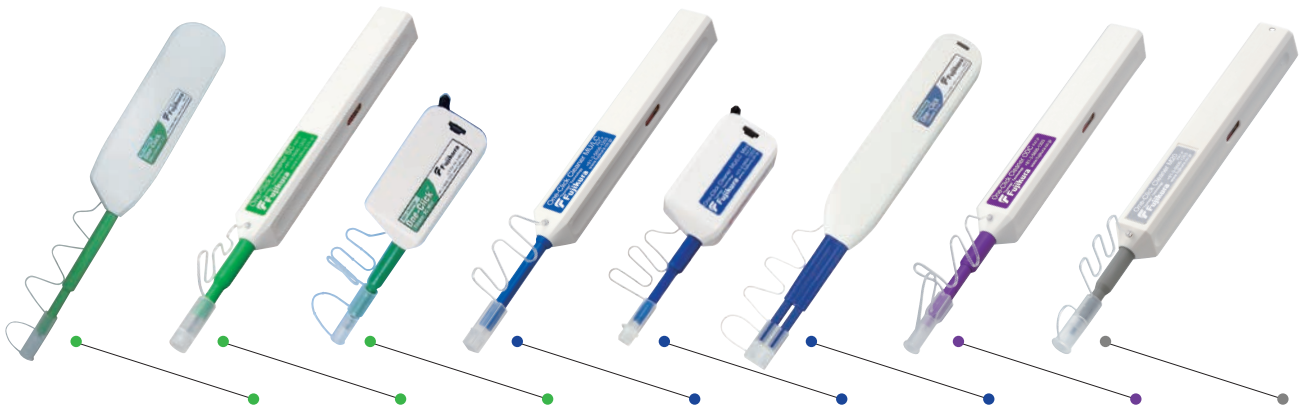
Covered by US Patent No. 8,087,118

## Features

- Removes dust and oil adhering to the ferrule endface of fiber optic connector with one push mechanical action.
- Cleans the ferrule endface inside an adapter or connectors on jumpers by making full use of guide cap.
- Refrains from transmission error or endface damage by dirty endface.
- Comfortable and user friendly design with one click cleaning.
- Complies with EU/95/2002/EC directive (RoHS).

## Applications

- Cleans the ferrule endface inside an adapter or connectors on jumpers and builds reliable networks for Datacom, FTTH, etc. with faster installation of patchcords, pigtailed and field assembly connectors.

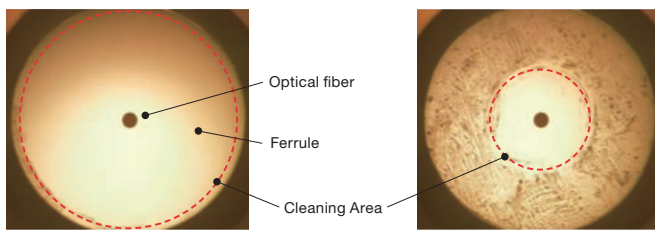


Product Name	One-Click Ultra Cleaner 2.5	One-Click Cleaner SC	One-Click Cleaner SC Mini	One-Click Cleaner MU/LC	One-Click Cleaner MU/LC Mini	One-Click Cleaner D-LC	One-Click Cleaner ODC	One-Click Cleaner M20
Model Number <sup>*3</sup>	M250-E-CLK-A	SC-CLK-B	SC-MINI-CLK-A	MU/LC-CLK-C	MU/LC-MINI-CLK-A	DLC-CLK-A	ODC-CLK-A	M20-CLK-A
Applicable Fiber Optic Connector & Adapter <sup>*1</sup>	SC	•	•	•				
	FC	•	•	•				
	ST	•	•	•				
	MU				•	•	•	
	LC				•	•	• (only for Duplex)	•
	φ 1.25 mm Multi-connector (ODC®)							•
φ 2.0 mm Multi-connector (SMPTE 304M, etc.)								•
Applicable Polish Type	PC, UPC, APC			PC, UPC, APC		PC, UPC, APC		PC, UPC
Type	Enlarged Area	Standard	Mini	Standard	Mini	Duplex	Standard	Standard
Nozzle Extendability		•		•			•	•
No. of Cleanings	≥ 500 times					≥ 500 times		≥ 500 times
Cleaning Method	Dry (Cleaning the ferrule endface with cleaning cloth, with no chemical or solvent.)							
Dimensions (mm) <sup>*2</sup>	22.5 W x 33.4 H x 193 L	17.5 W x 17.5 H x 165 L (200 L)	17.5 W x 30.5 H x 104 L	17.5 W x 17.5 W x 173 L (208 L)	17.5 W x 30.5 H x 104 L	18.0 W x 30.0 H x 195 L	17.5 W x 17.5 H x 178 L (213 L)	17.5 W x 17.5 H x 164 L (199 L)

\*1: Limited to the connector endface inside an adapter. \*2: Guide cap dimensions and prongs are not included. \*3: Last letter indicates model version. This is subjected to change.

### Cleaning Example (UPC Polish) with Enlarged Area Type

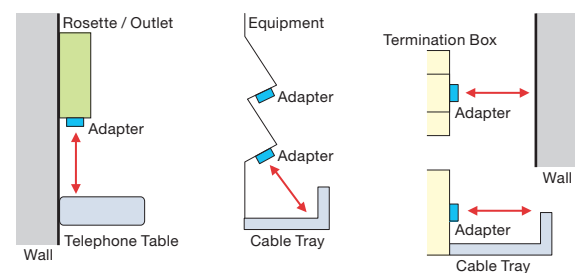
M250 type can clean wider area of the connector endface.



\* The above is an example only.

### Applications of Mini Type

Mini type is useful when the work space is limited and it is difficult for workers to access to adapters.

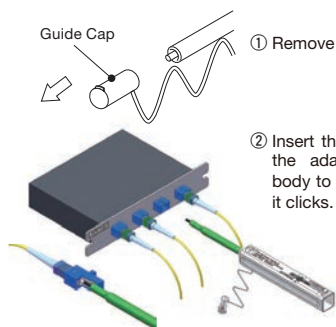




# One-Click™ Cleaner

## How to use\*1

### To clean the ferrule endface inside an adapter\*2



① Remove the guide cap.

② Insert the nozzle tip into the adapter. Push the body to the adapter until it clicks.

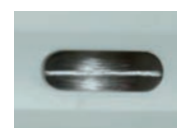


① Open the lid of guide cap.

② Insert the ferrule into a hole on the guide cap and push the body to the adapter until it clicks.

\*1 Do not use the cleaner except for the endface cleaning.  
\*2 Limited to the connector endface inside an adapter.

### Check the remainder of cleaning cloth through window.



Many



Few



Nil

- Points
  1. Insert the cleaner tip into the adapter or connector on jumpers straight and vertically, and then push it.
  2. Push it slowly and gently.
  3. Do not push it after hearing the click sound. Take it out gently and backward.
  4. Do not squeeze it into the adapter or connector.

## Cleaning Example (UPC Polish)

### Enlarged image of endface before and after cleaning

#### • Cleaning of Oil



Ferrule Optical fiber

#### • Cleaning of Dust

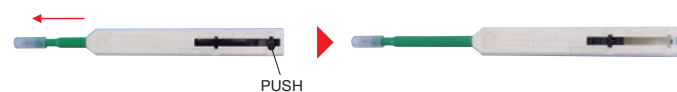


Ferrule Optical fiber

\* The above is an example only.

## Extension Features of Nozzle (Standard type only)

Nozzle length can be extended if the adapter or connector is not reachable.



Gently pull the nozzle by pressing the unlock button, and then extended.

## Multi-fiber Connector Cleaner

# One-Click™ Cleaner MPO

MPO-CLK-D



Product Name	MPO Cleaner
Item / Model No	MPO-CLK-D
Applicable Connector	MPO, MTP®
Applicable Polish Type	PC, APC
No. of cleanings	≥ 500 times

MTP is a registered trademark of US Conec Ltd.

## Multi-fiber Connector Cleaner

# One-Click™ Cleaner MT-RJ

MTRJ-CLK-A



Product Name	One-Click cleaner MT-RJ
Item / Model No.	MTRJ-CLK-A
Applicable Connector	MTRJ
Applicable Polish Type	PC
No. of Cleanings	≥ 500 times

## Multi-fiber Connector Cleaner

# One-Click™ Cleaner BNC

BNC-CLK-A



Product Name	One-Click cleaner BNC
Item / Model No	BNC-CLK-A
Applicable Connector	Multiplex optical BNC connector (ARIB STD-B58 compliant)
Applicable Polishing Type	PC
No. of cleanings	≥ 500 times

# FiMO: Fiber Monitoring System



Fiber Monitoring system (FiMO) provides trouble shooting and preventive maintenance monitoring fiber network 24 hours a day constantly.

Fujikura releases new Optical Test Unit(OTU) suitable for limited area/in premise such as Datacenter. New OTU can operate without Management Server and User can install system easily by minimum settings.

## Hardware Image



## Features

- Standalone Operation without Server
- Embedded Optical Switch (SC Type : 48 Ports)
- One Click Test Starting
- Easy Installation and Configuration
- Mail Sending function
- WEB browser Operation
- Rack Mount (2U Size)
- SSD storage embedded (No Hard Disk)

## Easy Installation and Configuration

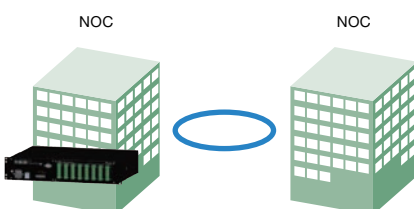
User can install OTU and configure by themselves because installation and configuration are very easy and user friendly. Automatic Test for testing fiber routes is able to start by one-click operation

## Low Initial Introduction Cost

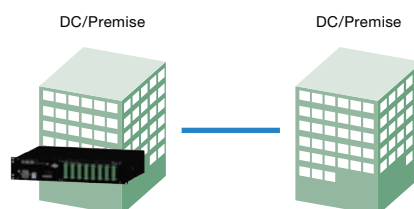
FiMO Server managing OTUs is not required. The initial introduction cost is drastically decreased because User does not need to purchase FiMO Software Licenses and prepare Server hardware/ related software.

## Application

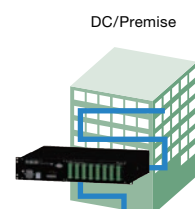
- Example1) Monitoring between NOC



- Example2) Monitoring between DC/Premise



- Example3) Monitoring in DC/Premise



# FiMO: Fiber Monitoring System

## Configuration Materials

Items	Remarks
Optical Test Unit (IOTU Series)	Including 1 Software License for OTU Control

## Specification

Items	Dark Fiber Monitoring Type	Active Fiber Monitoring Type
Wavelength Type	1550+/-25nm	1650+/-5nm
Pulse Width	3ns to 20μs	
Dynamic Range (Pulse Width: 20μs Typical)	50dB (Excluding Optical Switch Loss)	40dB (Excluding Optical Switch Loss)
Optical output port number	48Ports (SC/APC Type)	
Interface	LAN : 2 VGA : 1 USB 2.0 : 2 Optical Output : 48 External OFS Connector : 1	
Power supply	AC100-240V Type or DC-48V Type	
Power consumptions (Typical)	30W	
Size	2U Size (Rack Mount)	

## Option

Items	Remarks
FiMO Server Software	Management server installed FiMO Server Software is required for large volume monitoring case.
External Optical Fiber Selector	100ports (SC/APC) 2U Size Connected to External OFS terminal of IOTU
Optical Component for Active Fiber Monitoring	WDM Filter Module or Chassis Cut Filter

Specifications and descriptions are subject to change without prior notice.

## Software Screen

**Red color indicating Alarm generation**

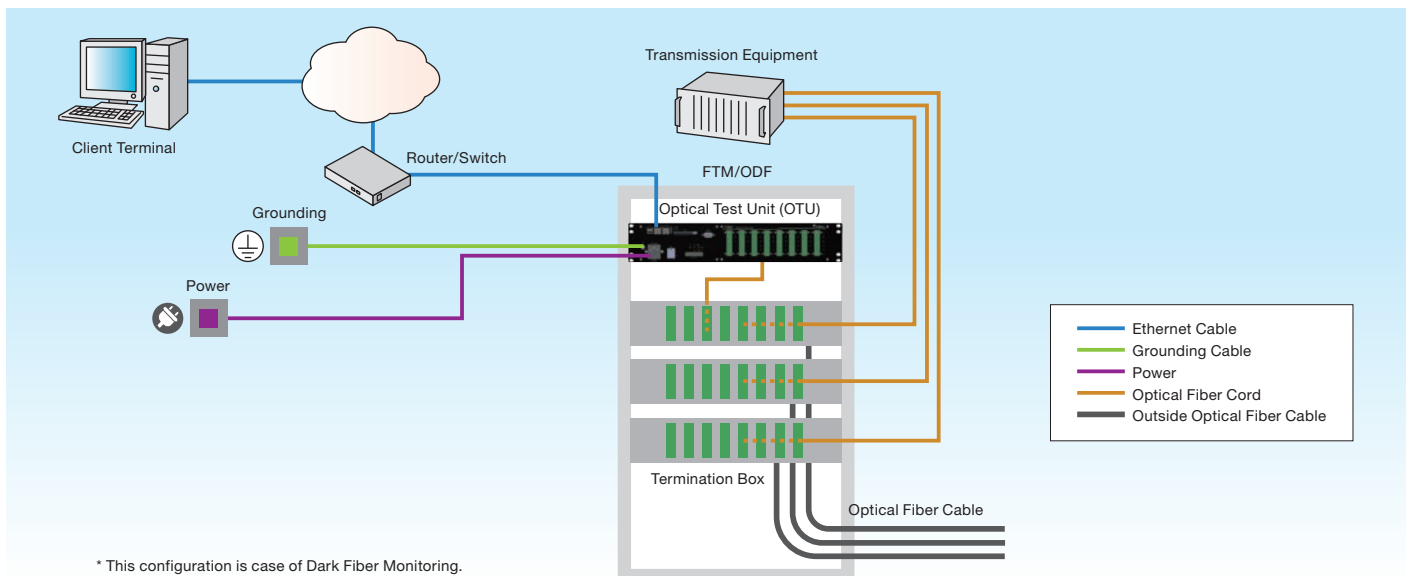
**Alarm Message is displayed after alarm detection**

Type	Date	Unit Name	Port Name	Port	Distance	Result	Message			
Loss	07/12/15 16:50	HBRNR-STU01	P39	GFSP16	D7E	BRNR	39	01.630 km	CR	Critical High Loss

**OTDR Trace display**

Item	Name	Length (km)	Total Length (km)	Total Loss (dB)	Splice Loss (dB)	Return Loss (dB)	Result
1	NOC	0.41623	1.03162	0.16	0.37		
2	CL1	3.02421	6.05529	3.80	39.28		Critical
3	CL2	5.04257	11.09580	8.47	0.63	17.81	END

## Installation Image





## ATTENTION

- Please read the instruction manual carefully before use.
  - Should any problem related to the industrial property of a third party occur due to the use of the products in this catalog, we will not be liable for any responsibility if our design structure or manufacturing method is not directly involved. Seeking your kind understanding.
  - If any of the products indicated in this catalog fall under the foreign exchange or foreign trade regulations, export permission based on the law stipulated by the Japanese government is imperative.
- Changes to the specifications of the products indicated in this catalog is done without prior notice.

### Где купить:

ООО "КОМПАНИЯ ОПТУЛС"

г.Москва, ул.Иловайская, д.3, стр.2

Tel.: +7 (495) 646-00-96

E-Mail: sale@opttools.ru

Internet: www.opttools.ru

Specifications and descriptions are subject to change without prior notice.

## Fujikura Ltd.

1-5-1, Kiba, Koto-ku, Tokyo 135-8512, Japan

Tel : +81-3-5606-1164 Fax : +81-3-5606-1534

<http://www.fujikura.co.jp>

## Fujikura Asia Ltd.

438A Alexandra Road, #08-03 Blk A Alexandra TechnoPark, SINGAPORE, 119967

Tel : +65-6-271-1312 Fax : +65-6-278-0965

<http://www.fujikura.com.sg>

## Fujikura Europe Ltd.

C51 Barwell Buisness Park, Leatherhead Road, Chessington, Surrey KT9 2NY, UK

Tel : +44-20-8240-2000 Fax : +44-20-8240-2010

<http://www.fujikura.co.uk>

## AFL Telecommunications LLC.

170 Ridgeview Circle, Duncan, SC 29334 USA

Tel : +1-864-486-7291 Fax : +1-864-486-7272

<http://www.aflglobal.com>

## Fujikura (China) Co., Ltd.

16th Floor, Hang Seng Bank Tower, 1000, Lujiazui Ring Road, Pudong New Area, Shanghai, CHINA

Tel : +86(21)6841-3636 Fax : +86(21)6841-2070

<http://www.fujikura.com.cn/>

### Fujikura (China) Co., Ltd. Beijing Office

Room 1005, BeiJing Fortune Building, No5, Dong San Huan BeiLu Chao Yang District. Beijing 100004, China  
Tel : +86-10-65544520

### Middle East

Fujikura Ltd. Middle East Representative Office  
NO. 6EB-337, Dubai Airport Free Zone, Dubai, United Arab Emirates

### Russia

Fujikura Ltd. Representative Office in Moscow  
Leninskiy pr-t, 45, office 450,  
Moscow, Russian 119334  
Tel : +7(495)980-7045 Fax : +7(495)980-7046

### Indonesia

PT Fujikura Indonesia  
EQUITY TOWER, 40th Floor, Suite A Sudirman Central Business District (SCBD) Lot 9 Jl. Jend. Sudirman Kav. 52-53, Jakarta Selatan, 12190, INDONESIA  
Tel : +62-21-5151-592 Fax : +62-21-5151-591