

Advanced Fiber Connectivity

EDITION 1.0

Make Connections Much Simpler

COMPANY PROFILE

SUN CONEC is a global leading supplier of optical communication components, specializing in the research, development, and manufacturing of ceramic ferrules, ceramic sleeves, fiber optic patch cords, MPO patch cords, and PLC splitters. Our products are widely used in FTTX and data center communications, as well as in the fields of lasers, medical equipment, aerospace, and quantum technology.

We have sales offices in Singapore and Japan, along with three major manufacturing bases located in Johor, Malaysia, and Zhejiang and Hunan in China, covering a total area of 450,000 square feet. With a well-established global supply chain, SUN CONEC serves key optical communication markets across East Asia, North America, Europe, and South Asia, offering one-stop optical connectivity solutions to customers worldwide.

Driven by continuous technological innovation and rigorous quality control, SUN CONEC has developed a range of industry-leading optical communication products and established a comprehensive global service system. We are committed to innovation-led growth and dedicated to delivering high-reliability, high-performance optical connectivity solutions to customers around the world.

We provide fiber optical solutions in your industry



FTTX systems



Data Center



Quantum



Medical



PON Network



Laser



Test Equipment

Why choose us

- ✓ Much shorter turnaround time
- ✓ More reliable quality assurance
- ✓ OEM/ODM services
- ✓ For competitive pricing
- ✓ One-stop solution to facilitate your procurement

About Us

Up to **250,000,000** ceramic ferrules per year

Close to **500,000,000** square feet operation area

Our products are **100%** tested and verified

More than **10 years** experience in optical communication industry

Nearly **30,000,000** fiber optic patch cords per year

More than **100 patents** acquired in innovative spirit

Certifications/Systemes



01 ZIRCONIACERAMIC FERRULE

- Standard SC/UPC and SC/APC
- Standard SC/APC(STEP),SC ferrule flange
- Standard LC and MU
- LC ferrule flange
- Premium ferrule series
- Customized ferrule
- Zirconia sleeves

02 SINGLE-FIBER PATCH CORD

- Single-Fiber connector performance
- Fiber optic connector patch cord
- Standard patch cable structures
- SC connectors
- FC connectors
- ST connectors
- LSH connectors
- LC connectors
- LC/UNIBOOT connectors
- MTRJ connectors
- SN connectors
- MDC connectors
- LC-WHOOSH connectors
- LC-ENT connectors
- Weatherproof connectors
- Indoor Rc Fan-Out kit
- Outdoor Fan-Out Kit

03 MULTI-FIBER PATCH CORD

- Dual-Fiber connector performance
- Fiber optic connector patch cord
- Standard patch cable structures
- MPO/MTP connectors
- MPO (PUSH-PULL) connectors
- SN-MT connectors
- MMC connectors
- MDC connectors
- MPO-LC (12-CORE) connectors
- MPO-LC/UNIBOOT (12-CORE) connectors

04 FAST FIBER CONNECTOR

- SC FAST FIBER CONNECTOR
- LC FAST FIBER CONNECTOR
- FC FAST FIBER CONNECTOR
- LC HOT MELT CONNECTOR
- SC HOT MELT CONNECTOR
- FC HOT MELT CONNECTOR
- OPTICAL FIBER COLD SPLICE
- WATERPROOF CONNECTOR SERIES

05 TERMINAL BOX

- FAB-HGT-16A
- FAT-8L
- FAT-16L
- FAT-16M/24M
- FAT-HGT-8SX
- FAT-HGT-16QX
- FAT-HGT-16SX
- FRB-4D
- FAB-HGT-8ZSX
- FAB-HGT-8ZT
- FAB-HGT-8ZT-3
- FAB-HGT-8ZX-4
- FAT-8T
- FAT-16T
- GFS-8QX
- GFS-16QX

Zirconiaceramic Ferrule

▪ Standard SC/UPC and SC/APC	pg.01
▪ Standard SC/APC (STEP) , SC Flange	pg.02
▪ Standard LC and MU	pg.03
▪ LC Flange	pg.04
▪ Premium, Super Premium , Ultra Premium	pg.05
▪ Customized Ferrule	pg.06
▪ Zirconia sleeves	pg.07

SC/UPC ZIRCONIA FERRULE

SPECIFICATION

DESCRIPTION	SM	MM
Material	Zirconia	
Outer Diameter(mm)	$\Phi 2.499 \pm 0.0005$	$\Phi 2.499 \pm 0.0010$
Concentricity(mm)	≤ 0.0010	≤ 0.0040
Ferrule Length(mm)	10.5 ± 0.05	

CODE STANDARDS

SP-5363-05-FP

TYPE	ID Range(μm)	Concentricity	Flange
SP SC/PC	5055 125.0-125.5	03 0.3 μm	FP SC/PC Flange
	5257 125.2-125.7	05 0.5 μm	<input checked="" type="checkbox"/> Without Flange
	5363 125.3-126.3	10 1.0 μm	
	5565 125.5-126.5	14 1.4 μm	
	6070 126.0-127.0	40 4.0 μm	
	6090 126.0-129.0		

Note: Customized flange slot width and length are available upon request.

Performance:

- The product complies with RoHS requirements.
- Salt mist resistance: $48\text{h} \leq \text{test duration} \leq 168\text{h}$ (IEC 61300-2-26)
- Ferrule hardness: $> 1200\text{HV}$
- Ferrule density $\geq 6.0 \text{ g/cm}^3$
- Ferrule bending strength: $> 1200 \text{ MPa}$
- Ferrule-to-tailstock retention $> 7\text{kgf}$
- The ferrule passed the $85^\circ\text{C}/85\% \text{ RH}$ test for 2000 hours
- The ferrule passed the aging test at 140°C for 24 hours

SC/UPC Ferrule With Flange



SC/UPC Ferrule



SC/APC ZIRCONIA FERRULE

SPECIFICATION

DESCRIPTION	SM	MM
Material	Zirconia	
Outer Diameter(mm)	$\Phi 2.499 \pm 0.0005$	$\Phi 2.499 \pm 0.0010$
Concentricity(mm)	≤ 0.0010	≤ 0.0040
Ferrule Length(mm)	10.5 ± 0.05	
Bevel angle degree($^\circ$)	$30^\circ/35^\circ/45^\circ$	

CODE STANDARDS

SA-5363-05-FA

TYPE	ID Range(μm)	Concentricity	Flange
SA SC/APC	5055 125.0-125.5	03 0.3 μm	FA SC/APC Flange
	5257 125.2-125.7	05 0.5 μm	<input checked="" type="checkbox"/> Without Flange
	5363 125.3-126.3	10 1.0 μm	
	5565 125.5-126.5	14 1.4 μm	
	6070 126.0-127.0	40 4.0 μm	
	6090 126.0-129.0		

Note: Customized flange slot width and length are available upon request.

Performance:

- The product complies with RoHS requirements.
- Salt mist resistance: $48\text{h} \leq \text{test duration} \leq 168\text{h}$ (IEC 61300-2-26)
- Ferrule hardness: $> 1200\text{HV}$
- Ferrule density $\geq 6.0 \text{ g/cm}^3$
- Ferrule bending strength: $> 1200 \text{ MPa}$
- Ferrule-to-tailstock retention $> 7\text{kgf}$
- The ferrule passed the $85^\circ\text{C}/85\% \text{ RH}$ test for 2000 hours
- The ferrule passed the aging test at 140°C for 24 hours

SC/APC Ferrule With Flange



SC/APC Ferrule



SC/APC (STEP) ZIRCONIA FERRULE

SPECIFICATION

DESCRIPTION	SM	MM
Material	Zirconia	
Outer Diameter(mm)	$\Phi 2.499 \pm 0.0005$	$\Phi 2.499 \pm 0.0010$
Concentricity(mm)	≤ 0.0010	≤ 0.00040
Ferrule Length(mm)	10.5 ± 0.05	

CODE STANDARDS

ST-5363-05-FA

SC/STEP Ferrule With Flange

TYPE	ID Range(μm)	Concentricity	Flange
ST SC/APC (STEP)	5055 125.0-125.5	03 0.3 μm	FA SC/APC Flange
	5257 125.2-125.7	05 0.5 μm	<input checked="" type="checkbox"/> Without Flange
	5363 125.3-126.3	10 1.0 μm	
	5565 125.5-126.5	14 1.4 μm	
	6070 126.0-127.0	40 4.0 μm	
	6090 126.0-129.0		

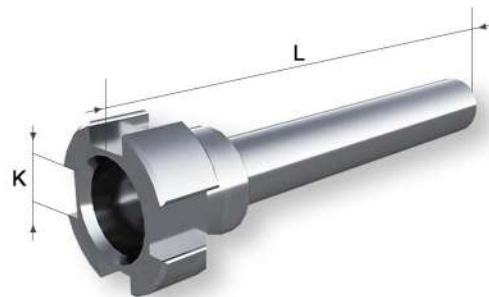
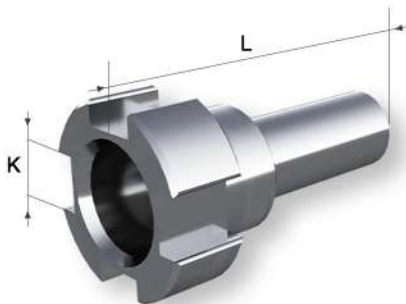
Note: Customized flange slot width and length are available upon request.

Performance:

- The product complies with RoHS requirements.
- Salt mist resistance: $48\text{h} \leq \text{test duration} \leq 168\text{h}$ (IEC 61300-2-26)
- Ferrule hardness: $> 1200\text{HV}$
- Ferrule density $\geq 6.0\text{ g/cm}^3$
- Ferrule bending strength: $> 1200\text{ MPa}$
- Ferrule-to-tailstock retention $> 7\text{kgf}$
- The ferrule passed the $85^\circ\text{C}/85\%\text{ RH}$ test for 2000 hours
- The ferrule passed the aging test at 140°C for 24 hours

SC/APC (STEP) Ferrule

SC FERRULE FLANGE



L=Length Parameter K=Aperture Parameter

SC Flange Dimensional Specifications

K	L	8.05 (mm)	15.4 (mm)
$1.27^{+0.05}_0$ (mm)		FS	FSL
$1.30^{+0.05}_0$ (mm)		FN	FNL
1.35 ± 0.05 (mm)		FA	FAL
$1.50^{+0.1}_0$ (mm)		FP	FPL

Notes:

- The Flange length and slot width can be customized according to customer requirements.
- The Flange material can be selected as nickel-plated Copper or SUS303Cu.
- Salt mist resistance: $48\text{h} \leq \text{test duration} \leq 168\text{h}$ (IEC 61300-2-26).

LC ZIRCONIA FERRULE

SPECIFICATION

DESCRIPTION	SM	MM
Material	Zirconia	
Outer Diameter(mm)	$\Phi 1.249 \pm 0.0005$	
Concentricity(mm)	≤ 0.0010	≤ 0.0040
Ferrule Length(mm)	$6.4^{+0.1}_0$	

CODE STANDARDS

LC-5363-03-FL

TYPE	ID Range(μm)	Concentricity	Flange
LC LC Ferrule	5055 125.0-125.5	03 0.3 μm	FL LC Ferrule With Flange
	5257 125.2-125.7	05 0.5 μm	FLK LC Ferrule With Slotted Flange
	5363 125.3-126.3	10 1.0 μm	<input checked="" type="checkbox"/> Without Flange
	5565 125.5-126.5	14 1.4 μm	
	6070 126.0-127.0	40 4.0 μm	
	6090 126.0-129.0		

Note: Customized flange slot width and length are available upon request.

Performance:

- The product complies with RoHS requirements.
- Salt mist resistance: 48h \leq test duration \leq 168h (IEC 61300-2-26)
- Ferrule hardness: $> 1200\text{HV}$
- Ferrule density $\geq 6.0 \text{ g/cm}^3$
- Ferrule bending strength: $> 1200 \text{ MPa}$
- Ferrule-to-tailstock retention $> 5\text{kgf}$
- The ferrule passed the 85°C/85% RH test for 2000 hours
- The ferrule passed the aging test at 140°C for 24 hours

LC Ferrule With Flange

LC Ferrule With Slotted Flange

LC Ferrule

MU ZIRCONIA FERRULE

SPECIFICATION

DESCRIPTION	SM	MM
Material	Zirconia	
Outer Diameter(mm)	$\Phi 2.499 \pm 0.0005$	$\Phi 2.499 \pm 0.001$
Concentricity(mm)	≤ 0.0010	≤ 0.0040
Ferrule Length(mm)	$6.4^{+0.1}_0$	

CODE STANDARDS

MU-5363-05-FM

TYPE	ID Range(μm)	Concentricity	Flange
MU MU Ferrule	5055 125.0-125.5	03 0.3 μm	FM MU Ferrule With Flange
	5257 125.2-125.7	05 0.5 μm	FML MU Ferrule With Slotted Flange
	5363 125.3-126.3	10 1.0 μm	
	5565 125.5-126.5	14 1.4 μm	
	6070 126.0-127.0	40 4.0 μm	
	6090 126.0-129.0		

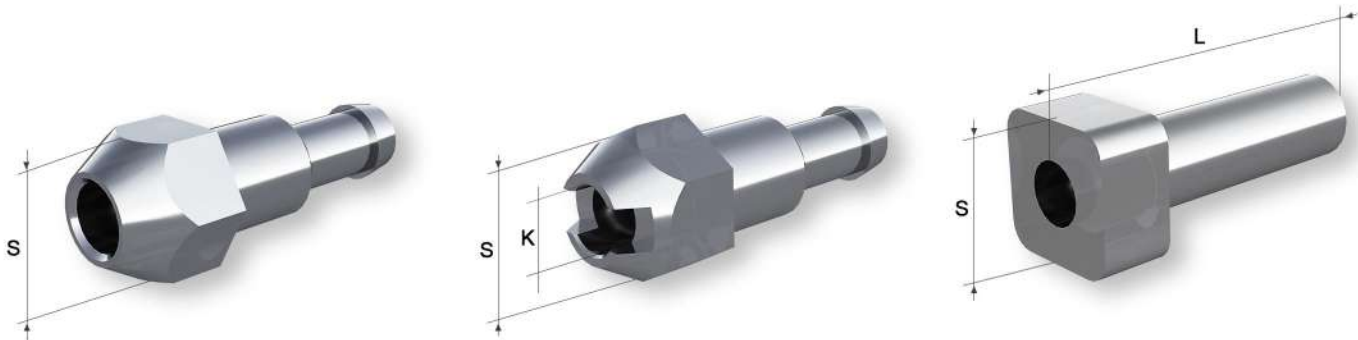
Note: Customized flange slot width and length are available upon request.

Performance:

- The product complies with RoHS requirements.
- Salt mist resistance: 48h \leq test duration \leq 168h (IEC 61300-2-26)
- Ferrule hardness: $> 1200\text{HV}$
- Ferrule density $\geq 6.0 \text{ g/cm}^3$
- Ferrule bending strength: $> 1200 \text{ MPa}$
- Ferrule-to-tailstock retention $> 5\text{kgf}$
- The ferrule passed the 85°C/85% RH test for 2000 hours
- The ferrule passed the aging test at 140°C for 24 hours

MU Ferrule With Flange

LC FERRULE FLANGE



L=Length Parameter S=Flat-to-flat dimension

LC Flange Dimensional Specifications		
S \ K	Non-Slotted	Slotted (K=0.79mm)
2.54±0.05 (mm)	FL	FLK
2.65±0.05 (mm)	FW	FWK

MU Flange Dimensional Specifications		
S \ L	5.5mm	7mm
2.78 ^{+0.1} _{0.05} (mm)	FM	FML
2.6 ^{+0.1} _{0.05} (mm)	FU	FUL

Notes:

- 1、 The tail handle length and slot width can be customized according to customer requirements.
- 2、 The tail handle material can be selected as nickel-plated Copper or SUS303Cu.
- 3、 Salt mist resistance: 48h ≤ test duration ≤ 168h(IEC 61300-2-26).

PREMIUM



Performance:

- Attenuation grade of GradeB (untuned): $\leq 0.12\text{dB}$ mean, $\leq 0.25\text{dB}$ max, for $\geq 97\%$ of the connections.

SPECIFICATION

DESCRIPTION	SC	LC
Material	Zirconia	
Outer Diameter(mm)	$\Phi 2.499 \pm 0.0003$	$\Phi 1.249 \pm 0.0003$
Concentricity(mm)	≤ 0.0005	
Ferrule Length(mm)	10.5 ± 0.05	$6.4^{+0.1}_0$

Note: 1. The premium ferrule maintains $\leq 0.3\mu\text{m}$ concentricity for $200\mu\text{m}$ fiber cores, achieving ultra-precision alignment standards.
 2. Grade B is defined in IEC 61753-1.

SUPER PREMIUM

Performance:

- Attenuation grade of GradeB : $\leq 0.07\text{dB}$ mean, $\leq 0.15\text{dB}$ max, for $\geq 97\%$ of the connections.

SPECIFICATION

DESCRIPTION	SC	LC
Material	Zirconia	
Outer Diameter(mm)	$\Phi 2.499 \pm 0.0002$	$\Phi 1.249 \pm 0.0002$
Concentricity(mm)	≤ 0.0003	
Ferrule Length(mm)	10.5 ± 0.05	$6.4^{+0.1}_0$

Note: 1. The super premium ferrule maintains $\leq 0.3\mu\text{m}$ concentricity for $200\mu\text{m}$ fiber cores, achieving ultra-precision alignment standards.
 2. GradeA* is not defined in IEC standards.

ULTRA PREMIUM

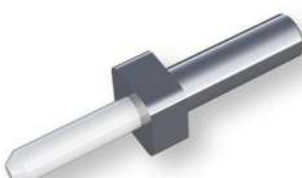
Performance:

- Attenuation grade of GradeB : $\leq 0.05\text{dB}$ mean, $\leq 0.10\text{dB}$ max, for $\geq 97\%$ of the connections.

SPECIFICATION

DESCRIPTION	SC	LC
Material	Zirconia	
Outer Diameter(mm)	$\Phi 2.499 \pm 0.0002$	$\Phi 1.249 \pm 0.0002$
Concentricity(mm)	≤ 0.00015	
Ferrule Length(mm)	10.5 ± 0.05	$6.4^{+0.1}_0$

Note: 1. The ultra premium ferrule maintains $\leq 0.15\mu\text{m}$ concentricity for $200\mu\text{m}$ fiber cores, achieving ultra-precision alignment standards.
 2. GradeA*+ is not defined in IEC standards.



CUSTOMIZED FERRULE



Concentricity at both ends



Special APC chamfer (45°)



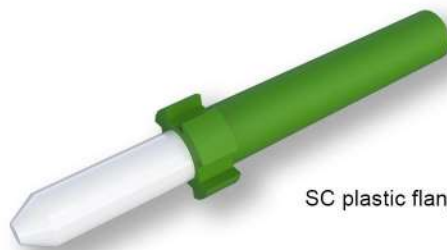
Slotted ferrule



SC ferrule with special length



ST special flange



SC plastic flange



Grooved ferrule



LC ferrule with special length



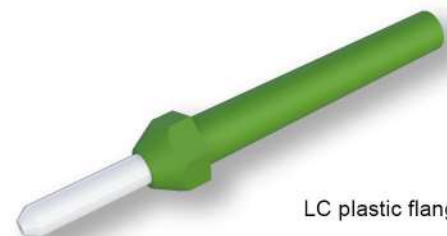
Black LC Ferrule



LC special flange



MU special flange



LC plastic flange

Outer diameter	0.18mm--3.0mm
Inner diameter	80μm--500μm
Concentricity	minimum 0.15μm
Slotting	a variety of customized sizes
Chamfering	a variety of customized sizes
Length	2.0mm—13mm

Note: Inner diameter tolerance: $\pm 0.5\mu\text{m}$ (default), customizable based on customer's fiber outer diameter.



Aerospace



Medical



Data Center



FTTX systems



Test Equipment

ZIRCONIA SLEEVES

SPECIFICATION

DESCRIPTION	ST	SC,FC	LC,MU
Material	Zirconia		
Withdrawal Force (gf)	200-600		100-250
Insertion Loss	Max 0.5dB, 0.1dB typical or better		
Durability	<0.02dB deviation after 1000 matings & temp cycling		
Outer Diameter (mm)	3.2±0.02		1.62±0.01
Inner Diameter (mm)	(2.49)		(1.246)
Length (mm)	10.1±0.1	11.4±0.1	6.8 ⁰ _{-0.1}
Slit Width (mm)	Max 0.5 ± 0.01		Max 0.2 ± 0.01
Chamfer	2 x R0.1		

Note: For Zirconia Sleeves ST, SC, FC, LC and MU.

Performance:

- Zirconia sleeves and tubes are precision manufactured according to strict quality and performance standards. They are available for singlemode and multimode applications. Reliable mating is assured with strictly controlled dimensions and withdrawal force. Standard styles for FC include SC, FC, ST, D4, LC and MU, with custom designs also available. Diagonal split sleeves are available for superior durability requirements. Tubes are also available.

CODE STANDARDS

ZRS-25-101

SLEEVE CODE	INNER DIAMETER	LENGTH
ZRS Straight Split Sleeve	25 (2.49)mm	101 10.1mm ST
		114 11.4mm SC & FC

- Note:** 1. Outer diameter and inner diameter dimensions are for reference only and should be adjusted to the required withdrawal force as specified.
 2. Custom configurations and dimensions are available upon request.

ZRS-12-680

SLEEVE CODE	INNER DIAMETER	LENGTH
ZRS Straight Split Sleeve	12 (1.25)mm	680 6.8mm for LC/MU

- Note:** 1. Outer diameter and inner diameter dimensions are for reference only and should be adjusted to the required withdrawal force as specified.
 2. Custom configurations and dimensions are available upon request.

For SC and FC Adapters Straight Split

For LC and MU Adapters Straight Split

Single-Fiber Patch Cord

▪ Connector performance	pg.08
▪ Product naming, Standard Patch cable structure	pg.09
▪ Standard Optical fibre structure	pg.10
▪ SC connectors and SC ordering information(simplex/duplex)	pg.11-12
▪ FC connectors and product selection	pg.13
▪ ST connectors and product selection	pg.14
▪ LSH connectors and product selection	pg.15
▪ LC connectors and LC ordering information(simplex/duplex)	pg.16-17
▪ LC/UNIBOOT connectors and product selection	pg.18
▪ MTRJ connectors and product selection	pg.19
▪ SN connectors and product selection	pg.20
▪ MDC connectors and product selection	pg.21
▪ LC-WHOOSH connectors and product selection	pg.22
▪ LC-ENT connectors and product selection	pg.23
▪ Weatherproof connectors and product selection	pg.24
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▪ Outdoor Fan-Out kit connectors and product selection	pg.26

Insertion Loss (IL) and Return Loss (RL)

	Optical Performance	APC	UPC
Standard	IL (dB)	0.25	0.25
Low Insertion Loss		0.15	0.15
Standard	RL (dB)	60	50
High Return Loss		65	55

Random Mated

Attenuation Grades	Description	Test method
Grade A*+ (Undefined in IEC)	≤0.05dB mean,≤0.10dB max,for ≥97% of connections	IEC 61300-3-34 method1
Grade A* (Undefined in IEC)	≤0.07dB mean,≤0.15dB max,for ≥97% of connections	IEC 61300-3-34 method1
Grade B	≤0.12dB mean,≤0.25dB max,for ≥97% of connections	IEC 61300-3-34 method1

Fiber Endface Geometry Comparison

Parameter	APC	UPC
Radius (mm)	5~12	10~25
Apex Offset (μm)	0~50	0~50
Fiber Height (mm)	-100~+50	-100~+50
Angle Deviation (°)	7.7~8.3	N/A
Key Angle (°)	±0.3	N/A

OPTICAL PATCHCORD

SCU-SCA-S-09-Z-B

A-SIDE CONNECTOR TYPE		B-SIDE CONNECTOR TYPE		CORE COUNT		OUTER DIAMETER		MATERIALS		OPTICAL FIBER TYPE	
SCU	SC/UPC	SCU	SC/UPC	S	simplex	09	0.9	Z	LSZH	A	G652D
SCA	SC/APC	SCA	SC/APC	D	duplex	12	1.2	V	PVC	B	G657A1
SCT	SC/APC(step)	SCT	SC/APC(step)			16	1.6	O	OFNP	C	G657A2
FCU	FC/UPC	FCU	FC/UPC			18	1.8			D	G657B3
FCA	FC/APC	FCA	FC/APC			20	2.0			E	G655
STU	ST/UPC	STU	ST/UPC			30	3.0			F	OM1
STA	ST/APC	STA	ST/APC							G	OM2
LCU	LC/UPC	LCU	LC/UPC							H	OM3-150
LCA	LC/APC	LCA	LC/APC							J	OM3-300
UN	UNIBOOT	UN	UNIBOOT							K	OM4
LSH	LSH	LSH	LSH							L	OM5

Note: Custom lengths available to meet your requirements.

STANDARD PATCH CORD STRUCTURE

LC-TYPE FIBRE OPTIC CONNECTOR PATCH CORD



SC-TYPE FIBRE OPTIC CONNECTOR PATCH CORD



FC-TYPE FIBRE OPTIC CONNECTOR PATCH CORD



ST-TYPE FIBRE OPTIC CONNECTOR PATCH CORD



STANDARD PATCHCORD STRUCTURE

LSH-TYPE FIBRE OPTIC CONNECTOR PATCH CORD



LSH-LSH



LSH-LC



LSH-SC



LSH-ST

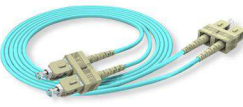


LSH-LSH

DUPLEX FIBER OPTIC PATCH CORD



LC-LC



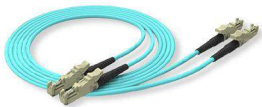
LSH-LC



LSH-SC



LSH-ST



LSH-LSH

FIBER TYPE



SM
recommended Yellow



OM1/OM2
recommended Orange



OM3
recommended Aqua



OM4
recommended Violet



OM5
recommended Lime Green

COMMON CABLE STRUCTURES

SINGLE-CORE CABLE SERIES



2.0/3.0mm simplex cable

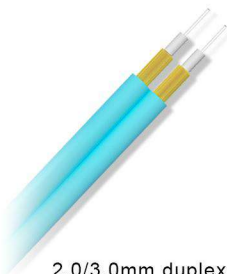


2.0/3.0mm simplex
armoured optical cable



2.0/3.0mm min cable
(2 fibers)

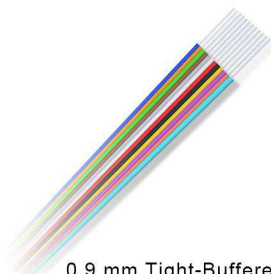
DUAL-CORE CABLE SERIES



2.0/3.0mm duplex
optical cable



2.0/3.0mm duplex
armoured fibre optic cable



0.9 mm Tight-Buffered
Fiber Cable with 12-color code

SC CONNECTOR

CODE STANDARDS

SCU-BU-D20-GN



SC/UPC Connector



SC/APC Connector

CONNECTOR	ENCLOSURE COLOR	BOOT TYPE(mm)	BOOT COLOR
SCU SC/UPC Simplex Connector	BU BLUE	D09 0.9 standard	GN GREEN
SCA SC/APC Simplex Connector	GN GREEN	D20 2.0 standard	BU BLUE
DSCU SC/APC Duplex Connector	BG BEGI	S20 2.0 Short Tail Boot	BG BEGI
DSCA SC/UPC Duplex Connector	AQ AQUA	D30 3.0 standard	AQ AQUA
	VT VIOLET	S30 3.0 Short Tail Boot	VT VIOLET
	LM LIME GREEN	D16 1.6 standard	LM LIME GREEN
		D12 1.2 standard	


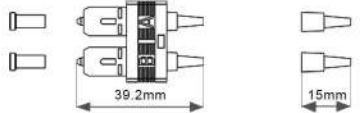

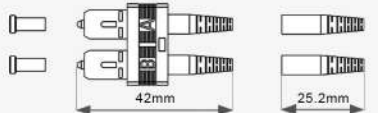
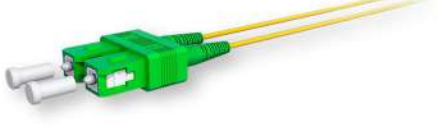
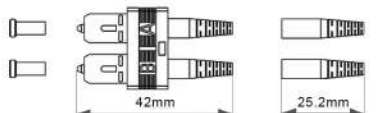

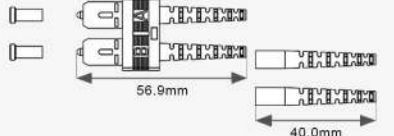

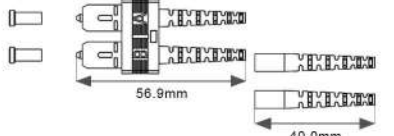

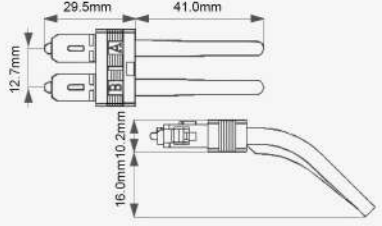

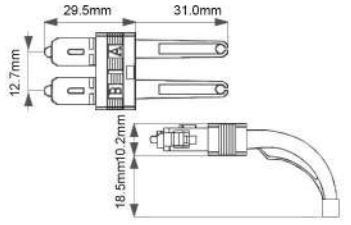
Performance:

- Sun Conec's connectors strictly follow the test standards of Telcordia GR-326-CORE.
- Designed to exceed the requirement of Verizon FOCTPR 9409 requirements.
- The dimensional design complies with IEC 61754-4.
- Can be selected according to the material to meet the UL94 flame retardant standards.
- The use of our different ferrule types (Premium, Super premium, Ultra premium) enables performance matching from standard to high and ultra-high performance interconnection requirements.
- Insertion/return loss performance not only exceeds the top 10% of industry benchmarks, but also far exceeds the performance requirements of the Grade B interchange test in the IEC 61753-1 standard.

PRODUCT SELECTION (SIMPLEX)

ADAPTED CABLE OD	BOOT TYPE	PICTURE	ENGINEERING DRAWING
0.9mm Simplex	Standard Boot		
1.2mm Simplex	Standard Boot		
1.6mm Simplex	Standard Boot		
2.0mm Simplex	Standard Boot		
3.0mm Simplex	Standard Boot		
2.0/3.0mm Simplex	45° Angle		

PRODUCT SELECTION (DUPLEX)

ADAPTED CABLE OD	BOOT TYPE	PICTURE	ENGINEERING DRAWING
0.9mm Simplex	Standard Boot		
1.2mm Simplex	Standard Boot		
1.6mm Simplex	Standard Boot		
2.0mm Simplex	Standard Boot		
3.0mm Simplex	Standard Boot		
2.0/3.0mm Duplex	45° Angle		
2.0/3.0mm Duplex	90° Angle		

COLOR RECOMMENDATION


 SM
UPC

 SM
APC

 MM
OM1/2

 MM
OM3/4

 MM
OM4

FC CONNECTOR

CODE STANDARDS

FC/UPC-MT-D09-GN

CONNECTOR		ENCLOSURE COLOR		BOOT TYPE(mm)		BOOT COLOR	
FC/UPC	FC/UPC Connector	ZA	ZINC ALLOY	D09	0.9 standard	GN	GREEN
FC/APC	FC/APC Connector	CO	COPPER	D12	1.2 standard	BU	BLUE
				D16	1.6 standard	BG	BEGI
				D20	2.0 standard	AQ	AQUA
				D30	3.0 standard	BK	BLACK
				D46	4.6 standard		

Performance:

- Sun Conec's connectors strictly follow the test standards of Telcordia GR-326-CORE.
- Designed to exceed the requirement of Verizon FOCTPR 9409 requirements.
- The dimensional design complies with IEC 61754-13.
- Can be selected according to the material to meet the UL94 flame retardant standards.
- The use of our different ferrule types (Premium, Super premium, Ultra premium) enables performance matching from standard to high and ultra-high performance interconnection requirements.
- Insertion/return loss performance not only exceeds the top 10% of industry benchmarks, but also far exceeds the performance requirements of the Grade B interchange test in the IEC 61753-1 standard.



FC-APC Connector



FC-UPC Connector



2.0mm Standard Boot

PRODUCT SELECTION

ADAPTED CABLE OD	BOOT TYPE	PICTURE	ENGINEERING DRAWING
0.9mm Simplex	Standard Boot		
2.0mm Simplex	Standard Boot		
3.0mm Simplex	Standard Boot		

ST CONNECTOR

CODE STANDARDS

ST/UPC-MT-D09-GN

CONNECTOR		ENCLOSURE COLOR		BOOT TYPE(mm)		BOOT COLOR	
ST/UPC	ST/UPC Connector	ZA	ZINC ALLOY	D09	0.9 standard	GN	GREEN
ST/APC	ST/APC Connector	CO	COPPER	D12	1.2 standard	BU	BLUE
				D16	1.6 standard	BG	BEGI
				D20	2.0 standard	AQ	AQUA
				D30	3.0 standard	BK	BLACK
				D46	4.6 standard		

Performance:

- Sun Conec's connectors strictly follow the test standards of Telcordia GR-326-CORE.
- Designed to exceed the requirement of Verizon FOCTPR 9409 requirements.
- The dimensional design complies with IEC 61754-2.
- Can be selected according to the material to meet the UL94 flame retardant standards.
- The use of our different ferrule types (Premium, Super premium, Ultra premium) enables performance matching from standard to high and ultra-high performance interconnection requirements.
- Insertion/return loss performance not only exceeds the top 10% of industry benchmarks, but also far exceeds the performance requirements of the Grade B interchange test in the IEC 61753-1 standard.



ST-APC Connector



ST-UPC Connector

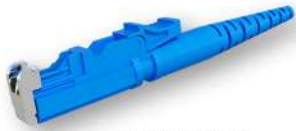


2.0mm Standard Boot

PRODUCT SELECTION

ADAPTED CABLE OD	BOOT TYPE	PICTURE	ENGINEERING DRAWING
0.9mm Simplex	Standard Boot		
2.0mm Simplex	Standard Boot		
3.0mm Simplex	Standard Boot		

LSH CONNECTOR



LSH/UPC Connector



LSH/APC Connector



LSH/APC Connector

CODE STANDARDS

CONNECTOR		ENCLOSURE COLOR		BOOT TYPE(mm)		BOOT COLOR	
E2U	LSH/UPC Connector	BU	BLUE	D09	0.9 standard	GN	GREEN
E2A	LSH/APC Connector	GN	GREEN	D20	2.0 standard	BU	BLUE
		BG	BEIGE	D30	3.0 standard	BG	BEIGE

Performance:

- Insertion Loss: ≤ 0.3 dB typical for single mode.
- Repeatability: ≤ 0.2 dB.
- Widely used in telecom networks, test equipment, fiber-optic CATV, and LANs (Local Area Networks).
- Return loss: Single-mode:UPC ≥ 50 dB, APC ≥ 60 dB
Multi-mode: ≥ 25 dB
- The dimensional design complies with IEC 61754, GR-326, TIA/EIA 568-B, and YDT 1272.

PRODUCT SELECTION

ADAPTED CABLE OD	BOOT TYPE	PICTURE	ENGINEERING DRAWING
0.9mm Simplex	Standard Boot		
2.0mm Simplex	Standard Boot		
3.0mm Simplex	Standard Boot		

LC CONNECTOR

CODE STANDARDS

LCU-BU-D20-GN

CONNECTOR	ENCLOSURE COLOR	BOOT TYPE(mm)	BOOT COLOR
LCU LC/UPC Simplex Connector	BU BLUE	D09 0.9 standard	GN GREEN
LCA LC/APC Simplex Connector	GN GREEN	D20 2.0 standard	BU BLUE
DLCU LC/APC Duplex Connector	BG BEGI	S20 2.0 Short Tail Boot	BG BEIGE
DLCA LC/UPC Duplex Connector	AQ AQUA	D30 3.0 standard	AQ AQUA
	VT VIOLET	S30 3.0 Short Tail Boot	VT VIOLET
	LM LIME GREEN	D16 1.6 standard	LM LIME GREEN
		D12 1.2 standard	

LC/UPC Connector



LC/APC Connector




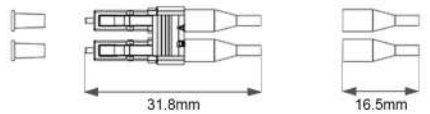

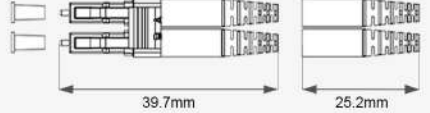

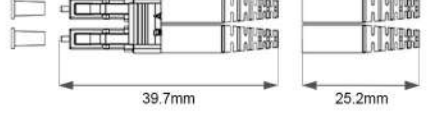



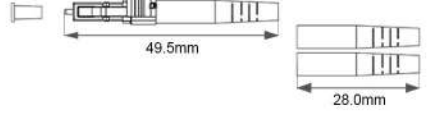

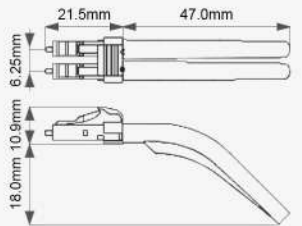

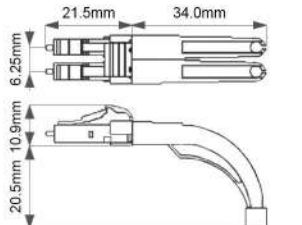
Performance:

- Sun Conec's connectors strictly follow the test standards of Telcordia GR-326-CORE.
- Designed to exceed the requirement of Verizon FOCTPR 9409 requirements.
- The dimensional design complies with IEC 61754-20.
- Can be selected according to the material to meet the UL94 flame retardant standards.
- The use of our different ferrule types (Premium, Super premium, Ultra premium) enables performance matching from standard to high and ultra-high performance interconnection requirements.
- Insertion/return loss performance not only exceeds the top 10% of industry benchmarks, but also far exceeds the performance requirements of the Grade B interchange test in the IEC 61753-1 standard.

PRODUCT SELECTION (SIMPLEX)

ADAPTED CABLE OD	BOOT TYPE	PICTURE	ENGINEERING DRAWING
0.9mm Simplex	Standard Boot		
1.2mm Simplex	Standard Boot		
1.6mm Simplex	Standard Boot		
2.0mm Simplex	Standard Boot		
3.0mm Simplex	Standard Boot		
2.0/3.0mm Simplex	45° Angle		

PRODUCT SELECTION (DUPLEX)

ADAPTED CABLE OD	BOOT TYPE	PICTURE	ENGINEERING DRAWING
0.9mm Duplex	Standard Boot		
1.2mm Duplex	Standard Boot		
1.6mm Duplex	Standard Boot		
2.0mm Duplex	Standard Boot		
3.0mm Duplex	Standard Boot		
2.0/3.0mm Duplex	45° Angle		
2.0/3.0mm Duplex	90° Angle		

COLOR RECOMMENDATION



LC/UNIBOOT CONNECTOR

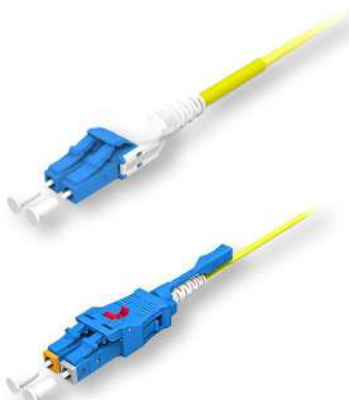
CODE STANDARDS

LCU-BU-D20-GN

CONNECTOR	ENCLOSURE COLOR	BOOT TYPE(mm)	BOOT COLOR
LCU UNIBOOT Connector	BU BLUE	D20 2.0 standard	WH WHITE
	GN GREEN	D30 3.0 standard	
	BG BEIGE		
	AQ AQUA		


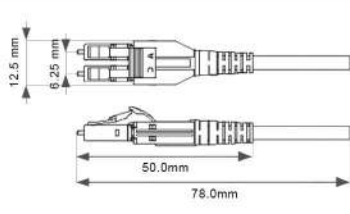
Performance:


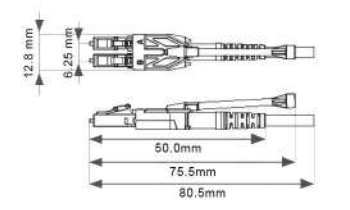
- The Uniboot connector utilises single-tube dual-core optical cables, facilitating cable management and enhancing thermal dissipation within cabling systems.
- Available in push-pull variants, the pull rod enables straightforward insertion or removal of patch cords.
- Its structural design permits effortless interchangeability of fibre polarity.

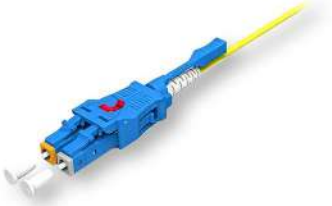
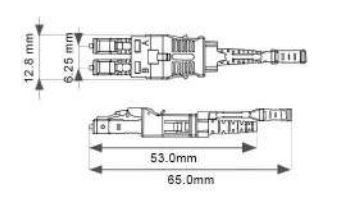



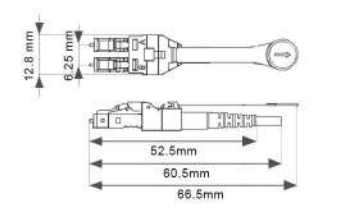
LC/UNIBOOT Connector

ORDERING INFORMATION

Function		Push-Pull	Changeable polarity
Type	Matching the cable OD	Picture	Engineering Drawing
Style 1	2.0/3.0mm		

Function		Push-Pull	Changeable polarity
Type	Matching the cable OD	Picture	Engineering Drawing
Style 2	2.0/3.0mm		

Function		Push-Pull	Changeable polarity
Type	Matching the cable OD	Picture	Engineering Drawing
Style 3	2.0mm		

Function		Push-Pull	Changeable polarity
Type	Matching the cable OD	Picture	Engineering Drawing
Style 4	3.0mm		

MTRJ CONNECTOR

CODE STANDARDS

MT2-BK-D09-BK

CONNECTOR		ENCLOSURE COLOR		BOOT TYPE(mm)		BOOT COLOR	
MT2	2-fibre MTRJ connector	BK	BLACK	B18	Flat-tailed 1.8 × 3.6	BK	BLACK
MT4	4-fibre MTRJ connector			Y30	3.0 Round Tail		

Performance:

- Sun Conec's connectors strictly follow the test standards of Telcordia GR-326-CORE.
- Designed to exceed the requirement of Verizon FOCTPR 9409 requirements.
- The dimensional design complies with IEC 61754-24.
- Can be selected according to the material to meet the UL94 flame retardant standards.
- The use of our different ferrule types (Premium, Super premium, Ultra premium) enables performance matching from standard to high and ultra-high performance interconnection requirements.
- Insertion/return loss performance not only exceeds the top 10% of industry benchmarks, but also far exceeds the performance requirements of the Grade B interchange test in the IEC 61753-1 standard.

MTRJ Connector

PRODUCT SELECTION

STRUCTURE



2-core



4-core

ADAPTED CABLE OD	BOOT TYPE	PICTURE	ENGINEERING DRAWING
1.8x3.6mm	Flat Terminal for 2x1.8mm Tight-Buffered Fiber Optic Cable		
3.0mm	Round Terminal for 3.0mm Tight-Buffered Fiber Optic Cable (Single Tube, 2 or 4 Fiber)		

SN CONNECTOR

CODE STANDARDS

SNA-BU-D20-WH

CONNECTOR		ENCLOSURE COLOR		BOOT TYPE(mm)		BOOT COLOR	
SNA	SN/APC connector	BU	BLUE	D20	1.6-2.0 Push-Pull Standard	WH	WHITE
SNU	SN/UPC connector	GN	GREEN				
		AQ	AQUA				



SN Connector
UPC with Flex Angle Boot



SN Connector
APC for 1.6mm/2.0mm Cable

Performance:

- Sun Conec's connectors strictly follow the test standards of Telcordia GR-326-CORE.
- Designed to exceed the requirement of Verizon FOCTPR 9409 requirements.
- The dimensional design complies with IEC 61754-13.
- Unique push-pull boot for simple installation and removal.
- The use of our different ferrule types (Premium, Super premium, Ultra premium) enables performance matching from standard to high and ultra-high performance interconnection requirements.
- IEC random mating Grade B.
- Effective size reduction compared to LC Duplex.

OPTICAL DATA

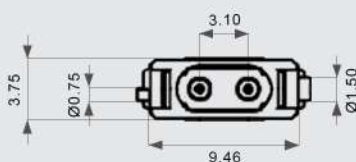
	Singlemode				Multimode
	UPC		APC		MM
	SM Premium Low Loss	SM Premium	SM Premium Low Loss	SM Premium	Premium
Typical Insertion Loss (dB)	0.05	0.08	0.07	0.12	0.05
Max.Insertion Loss (dB)	0.15	0.20	0.15	0.25	0.15
Typical Return Loss (dB)	≥55		≥65		≥25
Ferrule Diameter (μm)	125.5				127

Note: Based on master grade jumper to low loss random mating test.

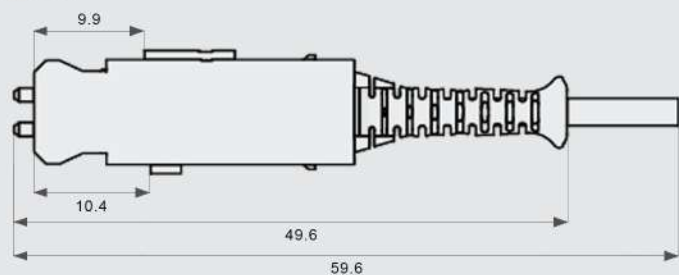
	Value
Operating Temperature	-40°C to + 75°C
RoHS Compliance	Yes
REACH Compliance	Yes
Free of Halogen	Yes
Humidity Resistance	95%

1-CHANNEL CONNECTOR DRAWING

Front View



Side View



Note: All dimensions are in mm

MDC CONNECTOR

CODE STANDARDS

MD/APC-BU-D20-BK

CONNECTOR		ENCLOSURE COLOR		BOOT TYPE(mm)		BOOT COLOR	
MD/UPC	MD/UPC connector	BU	BLUE	D20	2.0 End Standard	BK	BLACK
MD/APC	MD/APC connector	GN	GREEN				
		AQ	AQUA				

Performance:

- 3x fiber cabling density over LC connectors, providing 216 duplex connectors (432 fibers) within 1 RU.
- DirectConec™ push-pull boot for effortless connector insertion and extraction.
- Simple polarity reversal with no exposed fibers.
- Meets IEC Attenuation Grade B random mating requirements (0.12 dB mean, 0.25 dB maximum for $\geq 97\%$ of the connectors).
- Telcordia GR-326 and TIA-568 compliant.
- Designed for cables up to 2.0mm OD.
- Multi-mode, Singlemode and Singlemode APC available.

OPTICAL DATA

	Singlemode				Multimode
	UPC		APC		MM
	SM Premium Low Loss	SM Premium	SM Premium Low Loss	SM Premium	Premium
Typical Insertion Loss (dB)	0.10	0.12	0.10	0.12	0.12
Max.Insertion Loss (dB)	0.15	0.25	0.15	0.25	0.15
Typical Return Loss (dB)	≥55		≥65		≥25
Ferrule Diameter (μm)	125.5				127

Note: Based on master grade jumper to low loss random mating test.

POLARITY REVERSAL PROCESS



Separate connector housing from boot



Rotate 180°

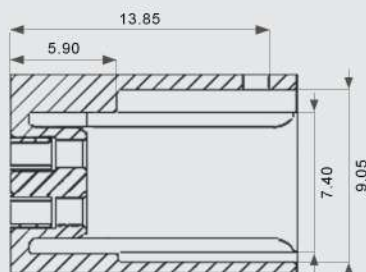


Re-attach boot to connector housing

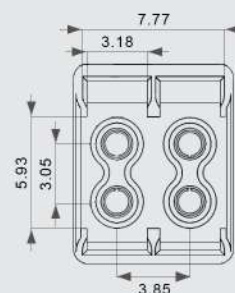
Quick and Simple Polarity Reversal

The polarity reversal of the MDC connector is effortless and does not expose or twist delicate fibers during the process. To change polarity, pull the boot from the connector housing, rotate the boot 180 degrees, and reassemble the boot assembly back onto the connector housing. Polarity marks on the top and side of the connector and the MDC logo provide notification of reversed connector polarity.

Front View



Side View



Note: All dimensions are in mm

LC-WHOOSH CONNECTOR

SUN CONEC's LC-WHOOSH Connector is designed to be air-blown through micro-ducts for fast pre-connectorised FTTH drop applications. The connector's ferrule is blown through the duct before the outer housing and boot are assembled.

Performance:

- **Fast Installation**
Connector housing can be assembled in less than 15s.
- **Tensile strength**
400N
- **High Performance**
Unique design achieves and maintains Grade B optical performance.
- **User-Friendly**
reel packaging is convenient to access and install.
- All products can meet random mated grade B. (IEC 61300-3-34)

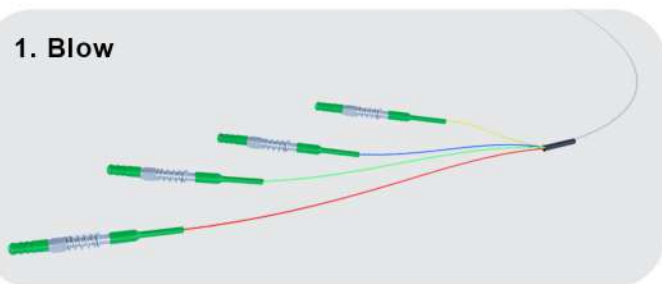
Easy
assembly

OPTICAL DATA

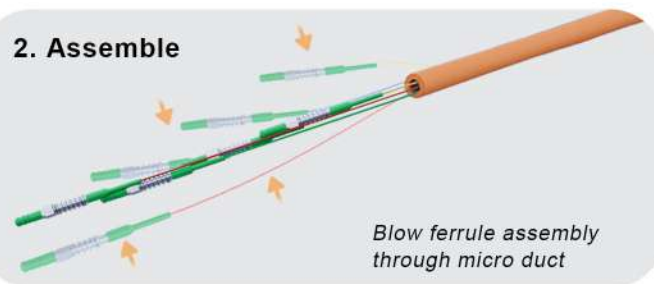
	Value
Single-core Outer Diameter	$\leq 2.5\text{mm}$
Combined Outer Diameter Of 4 LC Connectors	$\leq 3.0\text{mm}$
Pass Through A Minimum Inner Diameter	$\geq 4.0\text{mm}$
REACH Compliance	Yes
Free of Halogen	Yes
Humidity Resistance	95%

HOW TO INSTALL

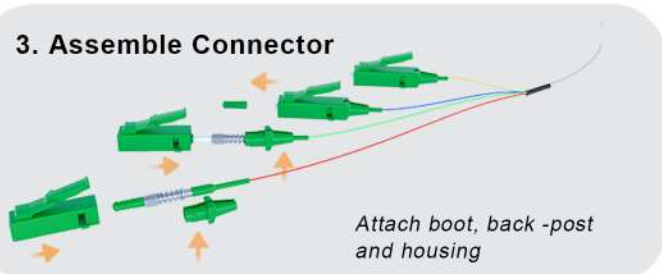
1. Blow



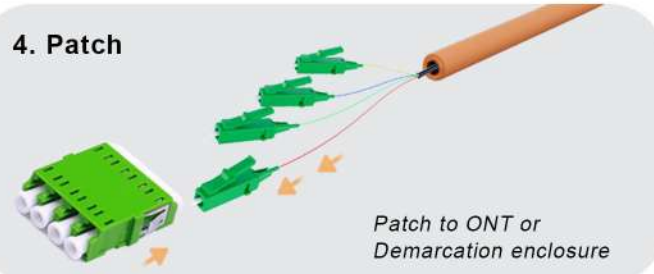
2. Assemble



3. Assemble Connector



4. Patch



Super fast, high performance connector for FTTH DUCT and DROP applications.

LC-ENT CONNECTOR



air connector
OD:4mm

pulling
connector
OD:5mm

Performance:

- **Fast Installation**
Easy and fast assembly without special tool.
- **High Performance**
Unique design achieves and maintains Grade B optical performance.
- **User-Friendly**
reel packaging is convenient to access and install.
- Cost effective.
- Easy handling after termination due to connectorization directly to cable.
- All products can meet random mated grade B.
(IEC 61300-3-34)

Compatible with tubes of ID: 5mm



Fast Installation

connector housing can be assembled in less than **10s**



Tensile Strength

100N
(with pulling connector)



High Performance

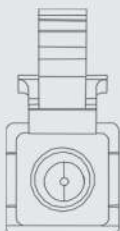
Unique design achieves **Grade B** optical performance

OPTICAL DATA

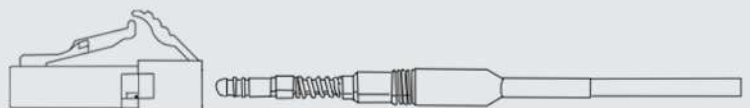
	Value
Outer Diameter	$\leq 2.5\text{mm}$
Inner Diameter	$\leq 3.0\text{mm}$
Insertion Loss dB	Typical ≤ 0.3
Return Loss	Typical ≥ 45
Operating Temperature	$-40 \sim +75^\circ\text{C}$
Humidity Resistance	95%
REACH Compliance	Yes
Qualification	TIA/EIA 568-B.3

1-CHANNEL CONNECTOR DRAWING

Front View



Side View



Note: All dimensions are in mm

WEATHERPROOF CONNECTOR



The Weatherproof Connector is SUN CONEC's flagship connectivity solution designed for outdoor applications and harsh environments. The high optical performance is paired with ergonomic mechanics for quick and easy installations.

Performance:

- IP water immersion and dust protection for harsh environment.
- Cost effective solution for in house termination.
- Chemical Resistance.
- Easily adapts to both wall-penetration and butt-joint applications.
- The spiral bayonet design provides a lasting and reliable connection.

OPTICAL DATA

TYPICAL CHARACTERISTICS	LC		SC		MPO		MPO(PUSH-PULL)	
	SM	MM	SM	MM	SM	MM	SM	MM
Insertion Loss(Max)	0.2dB	0.2dB	0.2dB	0.2dB	0.35dB	0.3dB	0.7dB	0.5dB
Insertion Loss(Average)	0.08dB	0.1dB	0.08dB	0.1dB	0.1dB	0.08dB	0.2dB	0.1dB
Return Loss	55dB	NA	55dB	NA	60dB(Angle)	25dB(Flat)	60dB(Angle)	25dB(Flat)
Durability	50matings							
Operating Temperature	-40°~+75°							
IP Rating	IP-68							
Pull Force	100lbs							
Material	UV resistant							

	PICTURE	ENGINEERING DRAWING
Docking Status		
State Switching Process		
Wall-Penetration Status		

INDOOR RC FAN-OUT KIT



Indoor/outdoor applications



Compact Size



Easy assembly

The SUN CONEC Indoor fan-out range offer a variety of different layout options for most indoor applications. They are cost effective, time saving solution that eliminates the need for splicing on-site.

Performance:

- For indoor breakout application.
- Light Weight, Snap-together Molded Construction.
- Maximum Fan-Outs According to Media Type(x48).
- High performance low loss.
- Chemical Resistance.

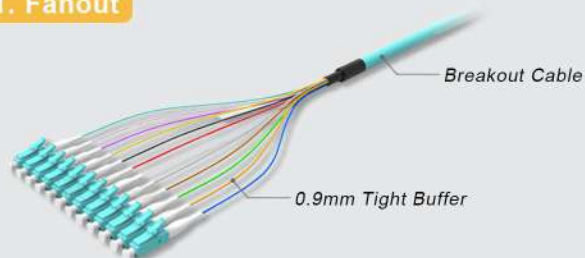
OPTICAL DATA

SPECIFICATIONS

Mounting	Hose Clip / Cable Tie
Number of Fibers	12 to 228 (Note: According to Media Type 2.0mm or 900um)
Suitable for Connector Types	LC, SC, FC, ST, MU
Dimensions	56mm x 15mm (Excluding cable gland)
Feeder Cable OD range	2-6mm
Operating Temperature (°C)	-40 to +85
Fan-out cable Retention	>15lbs (>66N)
Feeder Cable Retention	100lbs (450N)

BRANCH STRUCTURE DISPLAY

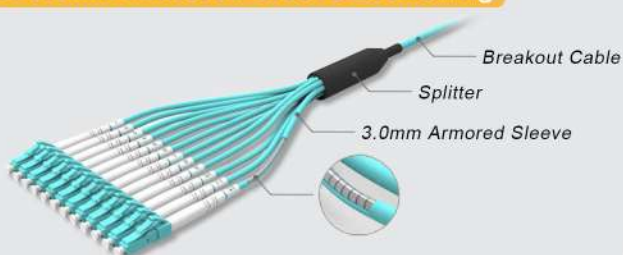
1. Fanout



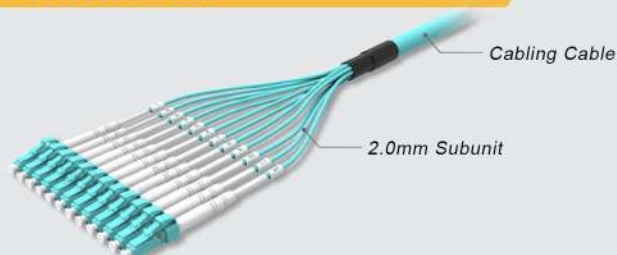
2. 2.0/3.0mm Sleeve Branching



3. 3.0mm Armored Sleeve Branching



4. Direct Fanout



OUTDOOR FAN-OUT KIT



Indoor/outdoor applications



Dust protection



Easy assembly

The SUN CONEC Outdoor fan-out range offer a variety of different layout options for most indoor applications. They enable less cabling and lower costs, allowing for quick and cost-effective installation.

Performance:

- For outdoor breakout application.
- Helps to make installation simple, quick, and cost effective.
- UV resistance for outdoor applications.
- High performance low loss.
- Chemical Resistance.

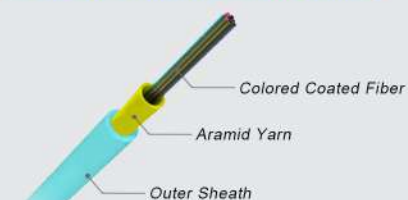
OPTICAL DATA

SPECIFICATIONS

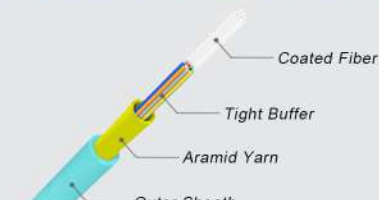
Mounting	Hose Clip / Cable Tie
Number of Fibers	12 to 228 (Note: According to Media Type 2.0mm or 900um)
Suitable for Connector Types	LC, SC, FC, ST, MU
Dimensions	56mm x 15mm (Excluding cable gland)
Feeder Cable OD range	2-6mm
Operating Temperature (°C)	-40 to +85
Fan-out cable Retention	>15lbs (>66N)
Feeder Cable Retention	100lbs (450N)

BRANCHING METHOD

Stripped Structure of Mini Cable



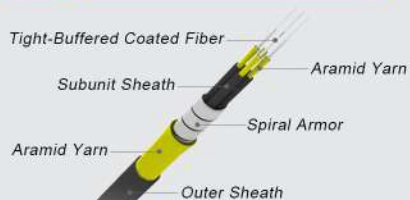
Stripped Structure of Breakout Cable



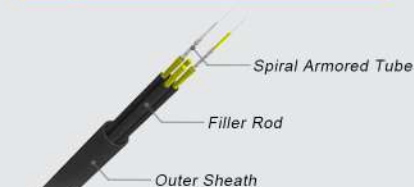
Stripped Structure of Cabling Cable



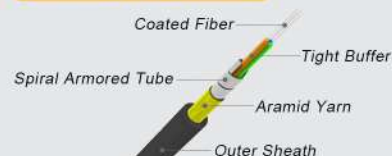
Stripped Structure of RRH Cable



Stripped Structure of RRH Cable



Stripped Structure of Tactical Fiber Cable



MPO/MTP

Connector



▪ Connector performance	pg.27
▪ Product naming, Standard Patch cable structure	pg.28
▪ MPO connectors and product selection	pg.29
▪ MPO (PUSH-PULL) connectors and product selection	pg.30
▪ SN-MT connectors	pg.32
▪ MMC connectors	pg.33
▪ MPO-LC (12-core) connectors	pg.34
▪ MPO-LC/UNIBOOT (12-core) connectors	pg.35

Insertion Loss (IL) and Return Loss (RL)

Optical Performance		SM/APC	MM/APC	SM/UPC	MM/UPC
IL (dB)	Standard	0.7	0.7	0.7	0.7
	Low Insertion Loss	0.35	0.35	0.35	0.35
RL (dB)	Standard	60	40	50	20
	High Return Loss	65	45	55	25

Fiber Endface Geometry Comparison

MTP Single Mode/Multimode					
Measurements Parameters			Limits		
			Minimum		Maximum
ROC	X-ROC		2000mm(Convex) -10000mm(Concave)		N/A
	Y-ROC		50mm		N/A
Angle	X-Axis		-0.15°		0.15°
	Y-Axis	APC	7.8°		8.2°
		Flat	-0.2°		0.2°
Fiber Height			1100nm		3000nm
Diff.Height			N/A		500nm
Adj.Height			N/A		300nm
Ferrule Length		PC	7.8mm		N/A
		APC	7.9mm		N/A
Core Dip			/		120mm
Geometry Limit(N)		APC(SM)	N/A		22.6(4 Fiber)
					17.9(8 Fiber)
					17.4(12 Fiber)
Minus Side Coplanarity (nm)		APC/PC	N/A		400
Fiber Tip Spherical Radius (mm)		APC/PC	1		∞

OPTICAL PATCHCORD

CODE STANDARDS

MP-SCA-S-09-Z-A

A-SIDE CONNECTOR TYPE		B-SIDE CONNECTOR TYPE		CORE COUNT		OUTER DIAMETER		MATERIALS		OPTICAL FIBER TYPE	
MP	MPO	MP	MPO	S	single-core	09	0.9	Z	LSZH	A	G652D
MT	MTP	MT	MTP	D	dual-core	12	1.2	V	PVC	B	G657A1
MJ	MTRJ	MJ	MTRJ	M	multi-core	20	2.0	O	OFNP	C	G657A2
						30	3.0			D	G657B3
										E	G655
										F	OM1
										G	OM2
										H	OM3-150
										J	OM3-300
										K	OM4
										L	OM5

Note: Custom lengths available to meet your requirements.

STANDARD PATCH CORD STRUCTURE

MPO POLARITY & CABLE TYPES REFERENCE CHART

Feature	Type A (straight-Through)	Type B (Cross-Over / Reversed)	Type C (Pair-Flipped)
Core Definition	Fiber positions are identical on both ends.	Fiber positions are completely reversedend-to-end.	Adjacent fiber pairs are crossed within the cable.
Key/Keyway Orientation	One end key up, the other key down (Pinnedto Unpinned).	Same key orientation on both ends (e.g.. KeyUp to Key Up).	One end key up, the other key down (Pinnedto Unpinned).
Pin-Polish Illustration	1→1,2→2,... 12→12	1-12,2→11... 12-1	1→2,2→1,3→4,4→3,...
Typical Application	Trunk Cables	Trunk Cables	Fanout / Breakout Cables
Common Jacket Color	Black or Grey	Aqua	Yellow
Usage Guide	Connects equipment/modules of the same type.	Connects equipment/modules of the same type.	Breaks out a trunk cable to individual deviceports.

CONNECTOR BOOT COLOR



MPO CONNECTOR

CODE STANDARDS



MPO Connector

MO12-GN-20-BU

CONNECTOR		ENCLOSURE COLOR		BOOT TYPE(mm)		BOOT COLOR	
MO12	12-fibre MPO connector	BU	BLUE	20	2.0 Standard	GN	GREEN
MO16	16-fibre MPO connector	GN	GREEN	30	3.0 Standard	BU	BLUE
MO24	24-fibre MPO connector	BG	BEGI			BG	BEGI
		AQ	AQUA GREEN			AQ	AQUA
						BK	BLACK

Performance:

- Sun Conec's connectors strictly follow the test standards of Telcordia GR-326-CORE.
- The use of our different ferrule types (Premium, Super premium, Ultra premium) enables performance matching from standard to high and ultra-high performance interconnection requirements.
- The dimensional design complies with IEC 61754-7.
- Can be selected according to the material to meet the UL94 flame retardant standards.
- Insertion/return loss performance not only exceeds the top 10% of industry benchmarks, but also far exceeds the performance requirements of the Grade B interchange test in the IEC 61753-1 standard.

OPTICAL DATA

Ferrule Performance

Entry	Parameter			
Ferrule Type	End-face Type	Insertion Loss		Return Loss
		Typical Value	Maximum	
Single-mode Low-loss	APC 8° Angle	0.10dB	≤0.35dB	≥60dB
Single-mode Standard Loss		0.25dB	≤0.75dB	
Multimode Low-loss	PC	0.10dB	≤0.35dB	≥20dB
Multimode Standard Loss		0.20dB	≤0.60dB	
Mating Cycles	Insertion loss change < 0.2 dB over 50 mating cycles.			
Operating Temperature	-40~75°C			

ADAPTED CABLE OD	BOOT TYPE	PICTURE	ENGINEERING DRAWING
0.9 mm Simplex	Standard Boot		
3.0 mm Simplex	Standard Boot		
4.0 mm Simplex	Flat Boot		

MPO(PUSH-PULL) CONNECTOR

CODE STANDARDS

MO12-GN-20-BU

CONNECTOR		ENCLOSURE COLOR		BOOT TYPE(mm)		BOOT COLOR	
MO12	12-fibre MPO connector	BU	BLUE	20	2.0 Ferrule	GN	GREEN
MO16	16-fibre MPO connector	GN	GREEN	30	3.0 Ferrule	BU	BLUE
MO24	24-fibre MPO connector	BG	BEGI			BG	BEGI
		AQ	AQUA GREEN			AQ	AQUA GREEN
						BK	BLACK

Performance:

- High precision guide pins for exact alignment.
- Compact design, up to 24 fiber ribbons.
- IEC 61754-7 Compliant.
- Telcordia GR-1435-CORE compliant.
- Polishing does not require diamond film.
- Removable Housing.
- Flex angle boot and other boot styles.
- Spring Push with Slit for easier assembly.


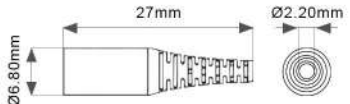

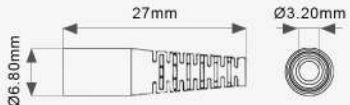

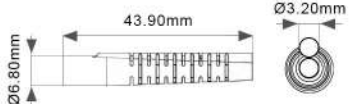

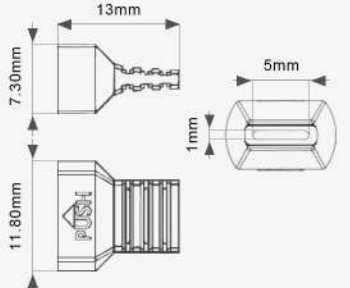

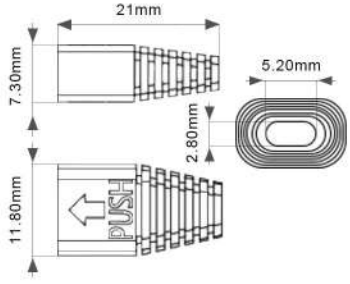
MPO(PUSH-PULL) Connector

OPTICAL DATA

PARAMETERS	SINGLE-MODE		MULTIMODE	
	APC		MM	
	LOW LOSS	STANDARD	LOW LOSS	STANDARD
Typical Insertion Loss (dB) 12-fber	0.10	0.20	0.08	0.15
Max Insertion Loss (dB) 12-fber	0.25	0.70	0.25	0.50
Typical Insertion Loss (dB) 24-fber	0.15	0.25	0.15	0.20
Max Insertion Loss (dB) 24-fber	0.35	1.00	0.35	0.50
Typical Insertion Loss (dB) 16-fber	0.15	N/A	0.15	0.20
Max Insertion Loss (dB) 16-fber	0.35	N/A	0.35	0.60
Typical Insertion Loss (dB) 32-fber	N/A	N/A	N/A	0.25
Max Insertion Loss (dB) 32-fber	N/A	N/A	N/A	0.60
Typical Return Loss (dB)	≥60		≥25	
Operating Temperature (°C)	-40 to +75			
Durability	500 matings per TIA-568.3			

- Note:**
1. All insertion loss values are based on the performance of a single fiber.
 2. 95% of the single-mode low-loss and multimode low-loss fibers shall have a maximum insertion loss of 0.25 dB.
 3. For 24-fiber Single-Mode, standard 10N spring force is used.
 4. For 16-fiber Multimode, standard 10N spring force is used.
 5. For 32-fiber Multimode, standard 20N spring force is used.

ORDERING INFORMATION

BOOT TYPE	CABLE BOOT TYPE	PICTURE	ENGINEERING DRAWING
2.0mm Round Boot	2.0mm Mini Round Cable		
3.0mm Round Boot	3.0mm Mini Round Cable		
3.0mm Flexible Boot	3.0mm Mini Round Cable		
Bare Ribbon Boot	Bare Fiber Ribbon		
Ribbon Cable Boot	Ribbon Cable		

SN-MT CONNECTOR



SN-MT16 SM Connector
APC for up to 2 mm Cable



SN-MT16 SM Connector
APC with 44 mm Boot

SUN CONEC's SN-MT is an extension of the SN range and incorporates a single, compact SN-MT ferrule with 16 x 200 μm fibers in a single row. Subsequently, the SN-MT ferrule can achieve 2.7 times the density of MPO16 whilst leveraging the same proven alignment methods. This combination ensures low-loss performance for singlemode and multimode APC applications whilst delivering optimized patch-panel density required in today's Hyperscale data centers.

Performance:

- Sun Conec's connectors strictly follow the test standards of Telcordia GR-326-CORE.
- Same connector footprint as SN duplex.
- Insertion loss targeted 0.35dB max for SM.
- High-density trunks and patching.
- Push-pull boot.
- Hyperscale, edge, enterprise and colocation data centers.
- Effective size reduction compared to LC Duplex.
- Wide range of connector and adapter types for legacy upgrades or greenfield applications

OPTICAL DATA

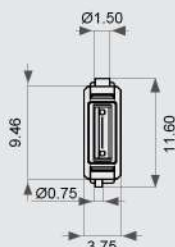
	Singlemode	Multimode
	APC	MM
	SM Premium Low Loss	Premium
Typical Insertion Loss (dB)	0.15	0.15
Max.Insertion Loss (dB)	0.35	0.35
Typical Return Loss (dB)	≥ 60	≥ 45
Ferrule Diameter (μm)	SN-MT ferrule 16-fiber, 200 μm in a single row	

Note: Specifications provided are target only based on master grade jumper to low loss random mating test.

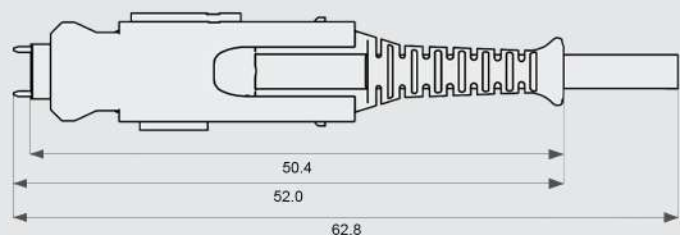
	Value
Operating Temperature	-40°C to + 75°C
RoHS Compliance	2015/863 RoHS
REACH Compliance	Yes
Free of Halogen	Yes
Humidity Resistance	95%

SN-MT STANDARD DRAWING

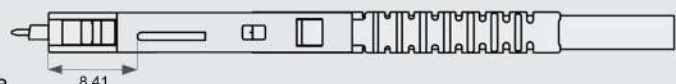
Front View



Side View

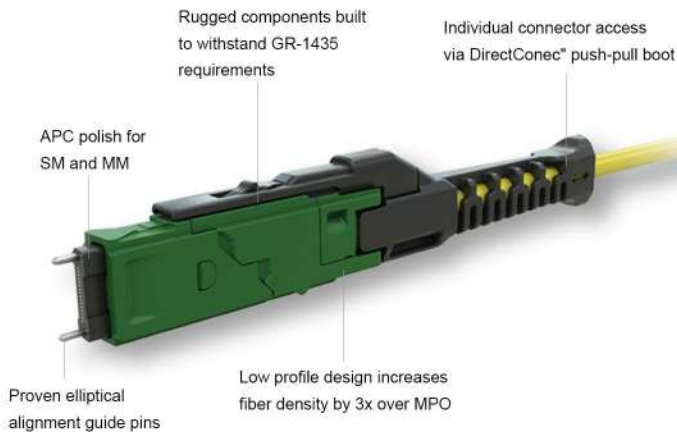


Top View



Note: 1. All dimensions are in mm
2. Specifications subject to change without notice

MMC CONNECTOR



SUN CONEC's MMC connector is a Very Small Form Factor (VSFF) multi-fiber optical connector designed for termination of single-mode and multimode fiber cables up to 2.5mm in diameter. The MMC connector employs novel TMT ferrule technology harmonized with the MT or MT-16 alignment structure. Individual connector access in the most extremely dense connector environments is easily accomplished using revolutionary DirectConec™ push-pull boot technology.

Performance:

- 3x cabling port density over the MPO format
- TMT Elite™ low-loss, IEC Grade B insertion loss performance (0.25dB 97% random intermate)
- Tested to Telcordia GR-1435
- 250 μ m pitch for compatibility with standard 250 μ m and smaller OD optical fibers
- APC for both SM and MM applications
- Cables up to 2.5mm OD

OPTICAL DATA

PARAMETERS	SINGLE-MODE
	APC
	LOW LOSS
Typical Insertion Loss (dB)	0.20
Max Insertion Loss (dB)	0.50
Typical Return Loss (dB)	≥ 55
Operating Temperature	-40°C to +75°C
Durability	500 matings

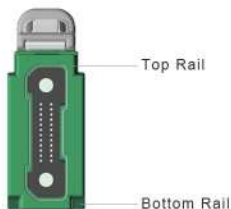
Note: 1. Parameters listed for Multimode are target values.

2. AirMT technology is licensed by Sumitomo Electric Industries, LTD.

3. Trademark of AirMT is jointly owned by Senko Advanced Components, inc, and Sumitomo Electric industries, LTD.

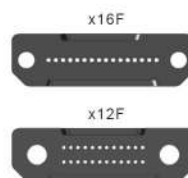
FEATURES

Simplified Polarity Management



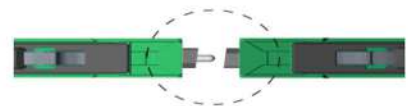
- Bottom rail features ensure connector is installed in correct polarity orientation.

Proven Alignment Structure



- The TMT ferrule format is compliant with the IEC 61755 and 61754 precision alignment structure for MT Ferrules.

Angle End-FaceMating



- MMC solutions enable Low Loss, IEC Grade B insertion loss performance and are APC for superior return loss.

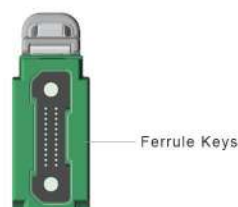
High Density Footprint



1U Panel Max Density with (66) 4-port MMC Adapters	
16F MMC	4224 Fibers
24F MMC	6336 Fibers

- The MMC connector with DirectConec™ Push-Pull Boot enables functional high density applications.

Error-Free Assembly



- The TMT ferrule is keyed to the MMC housing for error-free assembly

MMC Engagement Length



- Long engagement length of precision features ensures mated ferrule stability, allowing a single latch design for maintaining industry standard 250 μ m pitch optical interface.

MPO-LC (12-CORE)

CODE STANDARDS

MP-SCA-S-09-Z-A

A-SIDE CONNECTOR TYPE		B-SIDE CONNECTOR TYPE		CORE COUNT		FANOUT DIAMETER		MATERIALS		OPTICAL FIBER TYPE	
MP	MPO	LCU	LC/UPC	S	simplex	09	0.9	Z	LSZH	A	G652D
MT	MTP	LCA	LC/APC	D	duplex	12	1.2	V	PVC	B	G657A1
MJ	MTRJ					16	1.6	O	OFNP	C	G657A2
						20	2.0			D	G657B3
						30	3.0			E	G655
										F	OM1
										G	OM2
										H	OM3-150
										J	OM3-300

Note: Custom lengths available to meet your requirements.

MPO-TYPE FIBRE OPTIC CONNECTOR PATCH CORD



Mini-Cable / Ribbon Cable with
(Breakout Cable) 2.0/3.0mm Furcation



Mini-Cable / Ribbon Cable with
(Breakout Cable) 0.9mm Furcation



MPO/MTP-0.9mm Furcation

OPTICAL DATA

Connector A	MPO	Connector B	LC
Patch Cord Type	Trunk/Branch Patch Cord	Fiber Count	2-72 Core
MPO Loss Grade	Standard Loss / Low Loss	Ferrule End-Face Type	Single-Mode APC / Multimode PC
IL (Typical Value)	0.1/0.2dB	RL (return loss)	≥20dB (MM) ; ≥60dB
RL (return loss)	≥20dB (MM) ; ≥60dB (SM)	IL (Max.)	0.35/0.6dB
Cable OD	3.0/3.5/4.5/5.0mm	Fiber Type	G657A1/OM3/OM4/OM5
Cable Material	LSZH/PVC	Durability	≥ 500 cycles
Operating Temperature	-10~70°C (14to158°C)	Storage Temperature	-40~852°C (-40to185°C)

BRANCH TYPE	PICTURE	ENGINEERING DRAWING
Even Length		
Staggered Length		

MPO-LC/UNIBOOT (12-CORE)

CODE STANDARDS

MP-SCA-S-09-Z-A

A-SIDE CONNECTOR TYPE		B-SIDE CONNECTOR TYPE		CORE COUNT		OUTER DIAMETER		MATERIALS		OPTICAL FIBER TYPE	
MP	MPO	UN	UNIBOOT	S	simplex	20	2.0	Z	LSZH	A	G652D
MT	MTP			D	duplex	30	3.0	V	PVC	B	G657A1
MJ	MTRJ							O	OFNP	C	G657A2
										D	G657B3
										E	G655
										F	OM1
										G	OM2
										H	OM3-150
										J	OM3-300

Note: Custom lengths available to meet your requirements.

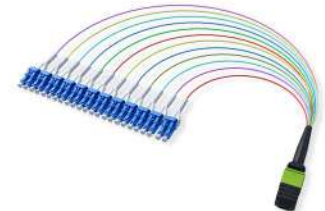
MPO-TYPE FIBRE OPTIC CONNECTOR PATCH CORD



Ribbon Cable to MPO-LC/UNIBOOT
2.0-3.0mm Sleeve Fanout



Ribbon Cable to MPO-LC/UNIBOOT
0.9mm Sleeve Fanout



MPO-LC/UNIBOOT 0.9mm Furcation

OPTICAL DATA

Connector A	MPO	Connector B	LC-UNIBOOT
Patch Cord Type	Trunk/Branch Patch Cord	Fiber Count	2-72 Core
MPO Loss Grade	Standard Loss / Low Loss	Ferrule End-Face Type	Single-Mode APC / Multimode PC
IL (Typical Value)	0.1/0.2dB	RL (return loss)	≥20dB (MM) ; ≥60dB
RL (return loss)	≥20dB (MM) ; ≥60dB (SM)	IL (Max.)	0.35/0.6dB
Cable OD	3.0/3.5/4.5/5.0mm	Fiber Type	G657A1/OM3/OM4/OM5
Cable Material	LSZH/PVC	Durability	≥ 500 cycles
Operating Temperature	-10~70°C (14to158°C)	Storage Temperature	-40~852°C (-40to185°C)

BRANCH TYPE	PICTURE	ENGINEERING DRAWING
Even Length		
Staggered Length		

FAST FIBER CONNECTOR

▪ SC fast fiber connector	pg.39
▪ SC fast fiber connector-drawer	pg.40
▪ SC fast fiber connector- routine series	pg.41-42
▪ SC fast fiber connector-LX	pg.43
▪ LC fast fiber connector	pg.44
▪ FC fast fiber connector	pg.44
▪ LC hot melt connector	pg.44
▪ SC hot melt connector	pg.45
▪ FC hot melt connector	pg.45
▪ Optical fiber cold splice	pg.45
▪ Waterproof connector series: optitap SC fast connector type	pg.46-48

SC FAST FIBER CONNECTOR-W (Series)

LX-W01 (60mm) - APC



LX-W01(60mm)-UPC



LX-W02(53mm) - APC



LX-W02(53mm)-UPC



JIG FUNCTION



Fixed Length



Fixed Length



Optical Fiber Coating Can Be Peeled Off



SC FAST FIBER CONNECTOR-R (Series)

LX-R03(53mm)-APC



LX-R03(53mm)-UPC



JIG FUNCTION



Fixed Length



Fixed Length



Optical Fiber Coating Can Be Peeled Off

SC FAST FIBER CONNECTOR-R (Series)

LX-R04(50mm)-APC



LX-R04(50mm)-UPC



Fixed Length

LX-R05(50mm)-APC



LX-R05(50mm)-UPC



Fixed Length

LX-R06(50mm)-APC



LX-R06(50mm)-UPC



Optical Fiber Coating Can Be Peeled Off

LX-R19(45mm)-APC



LX-R19(45mm)-UPC



Optical Fiber Coating Can Be Peeled Off

LX-R20(51mm)-APC



LX-R20(51mm)-UPC



LX-R21(53mm)-APC

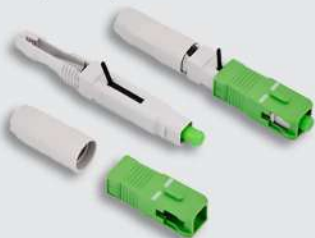


LX-R21(53mm)-UPC



SC FAST FIBER CONNECTOR-Z (Series)

LX-Z31(53mm)-APC



LX-Z31(53mm)-UPC



Fixed Length

LX-Z32(53mm)-APC



LX-Z32(53mm)-UPC



Optical Fiber Coating Can Be Peeled Off

LX-Z33(53mm)-APC



LX-Z33(53mm)-UPC



LX-Z34(53mm)-APC



LX-Z34(53mm)-UPC



LX-Z35(53mm)-APC



LX-Z35(53mm)-UPC



LX-Z36(53mm)-APC



LX-Z36(53mm)-UPC



SC FAST FIBER CONNECTOR-T (Series)

LX-T13(53mm)(Gland type)-APC



LX-T13(53mm)(Gland type)-UPC



LX-T18(58mm)(Nut type)-APC



LX-T18(58mm)(Nut type)-UPC



Fixed Length

Use the sharp comers to open the flap

SC FAST FIBER CONNECTOR-G (Series)

LX-G55(55mm)-APC



LX-G55(55mm)-UPC



LX-G56(50mm)-APC



LX-G56(50mm)-UPC



JIG FUNCTION



Fixed Length



Fixed Length



Optical Fiber Coating Can Be Peeled Of



SC FAST FIBER CONNECTOR-Drawer (Series)

LX-DR12-A(52mm)-APC

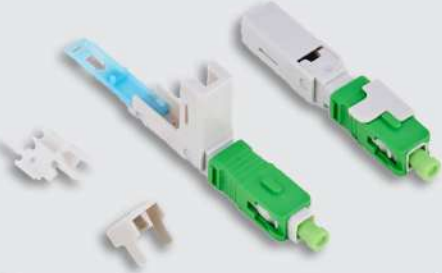


LX-DR12-A(52mm)-UPC



Optical Fiber Coating Can Be
Peeled Of
(Use the sharp corners to open
the flap)

LX-DR12-B(52mm)-APC



LX-DR12-B(52mm)-UPC



Optical Fiber Coating Can Be
Peeled Of
(Use the sharp corners to open
the flap)

LX-DR15(52mm)-APC



LX-DR15(52mm)-UPC



Optical Fiber Coating Can Be
Peeled Of
(Use the sharp corners to open
the flap)

LX-DR16(52mm)-APC



LX-DR16(52mm)-UPC



Optical Fiber Coating Can Be
Peeled Of
(Use the sharp corners to open
the flap)

LX-DR17(52mm)-APC



LX-DR17(52mm)-UPC



Optical Fiber Coating Can Be
Peeled Of
(Use the sharp corners to open
the flap)

SC FAST FIBER CONNECTOR- Routine Series

LX-01-A(60mm)-APC



LX-01-A(60mm)-UPC



LX-01-B(60mm)-APC



LX-01-B(60mm)-UPC



Fixed Length

LX-01-C(55mm)-APC



LX-01-C(55mm)-UPC



LX-02-A(53mm)-APC



LX-02-A(53mm)-UPC



LX-02-B(53mm)-APC



LX-02-B(53mm)-UPC



LX-04-A(50mm)-APC



LX-04-A(50mm)-UPC



Optical Fiber Coating Can Be Peeled Off

LX-04-B(50mm)-APC



LX-04-B(50mm)-UPC



SC FAST FIBER CONNECTOR- Routine Series

LX-07-A(50mm)-APC



LX-07-A(50mm)-UPC



LX-09-A(52mm)-APC



LX-09-A(52mm)-UPC



Fixed Length

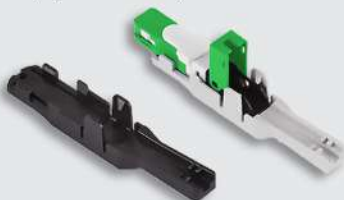
LX-09-B(52mm)-APC



LX-09-B(52mm)-UPC



LX-09 (Operator Aids)



LX-09 (Operator Aids)



LX-10(50mm)-APC



LX-10(50mm)-UPC



LX-11-A(53mm)-APC



LX-11-A(53mm)-UPC



Optical Fiber Coating Can Be Peeled Off

SC FAST FIBER CONNECTOR-LX-14

LX-14(52mm)-APC



LX-14(52mm)-UPC



JIG FUNCTION



Fixed Length

SC FAST FIBER CONNECTOR-LX-11-B

LX-11-B(52mm)-APC



LX-11-B(52mm)-UPC



JIG FUNCTION



Use the sharp corners to open the flap

LC FAST FIBER CONNECTOR-LC (Series)

LX-LC-A(44mm)-(DROP CABLE)-APC



LX-LC-A(44mm)-(DROP CABLE)-UPC



Fixed Length

LX-LC-D(45mm)-(GENERAL TYPE)-APC



LX-LC-D(45mm)-(GENERAL TYPE)-UPC



Optical Fiber Coating Can Be Peeled Off

LX-LC-E(47mm)-(ROUND CABLE)-APC



LX-LC-E(47mm)-(ROUND CABLE)-UPC



Optical Fiber Coating Can Be Peeled Off

LX-LC-F(44mm)-0.9MM (CABLE)-APC



LX-LC-F(44mm)-0.9MM (CABLE)-UPC



FC FAST FIBER CONNECTOR-FC (Series)

LX-FC(55mm)-(Crocodile mouth type)-APC



LX-FC(55mm)-(Crocodile mouth type)-UPC



LC HOT MELT CONNECTOR

RL09(0.9mm)-APC



RL09(0.9mm)-UPC



SC HOT MELT CONNECTOR

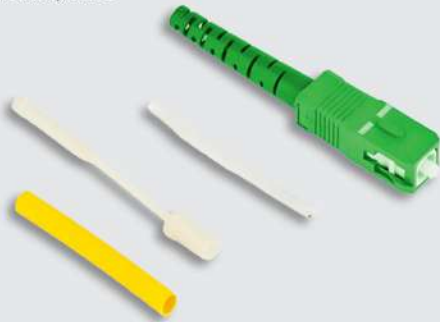
RS58(58mm)-APC



RS58(58mm)-UPC



RS09(0.9mm)-APC



RS09(0.9mm)-UPC



FC HOT MELT CONNECTOR

FC(55mm)-APC



FC(55mm)-UPC



OPTICAL FIBER COLD SPLICE

90mm-Optical fiber cold splice-Ceramic



90mm-Optical fiber cold splice-Metal



WATERPROOF CONNECTOR SERIES: OPTITAP SC FAST CONNECTOR TYPE

MINI SC-L02/APC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0,2*3,2*1.6,2*5mm



MINI SC-L02/UPC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0,2*3,2*1.6,2*5mm



MINI SC-L04/APC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0,2*3,2*1.6,2*5mm



MINI SC-L04/UPC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0,2*3,2*1.6,2*5mm



MINI SC-L09/APC (Field Installable Fast Waterproof Connector) 2*1.6,2*3,2*5mm



MINI SC-L09/UPC (Field Installable Fast Waterproof Connector) 2*1.6,2*3,2*5mm



MINI SC-L21/APC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0,2*3,2*1.6,2*5mm



MINI SC-L21/UPC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0,2*3,2*1.6,2*5mm



MINI SC-G55/APC (Field Installable Fast Waterproof connector) 5.0mm



MINI SC-G55/UPC (Field Installable Fast Waterproof connector) 5.0mm



MINI SC-(Hot Melt)/APC 2.0,3.0,5.0,2*3,2*1.6,2*5mm connector 5.0mm



MINI SC-(Hot Melt)/UPC 2.0,3.0,5.0,2*3,2*1.6,2*5mm



WATERPROOF CONNECTOR SERIES: OPTITAP SC FAST CONNECTOR TYPE

OPTITAP SC-L02/APC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0,2*3,2*1.6,2*5mm



OPTITAP SC-L02/UPC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0,2*3,2*1.6,2*5mm



OPTITAP SC-L04/APC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0,2*3,2*1.6,2*5mm



OPTITAP SC-L04/UPC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0, 2*3, 2*1.6,2*5mm


WATERPROOF CONNECTOR SERIES: MINI SC FAST CONNECTOR TYPE

OPTITAP SC-L09/APC (Field Installable Fast Waterproof Connector) 2*1.6,2*3,2*5mm



OPTITAP SC-L09/UPC (Field Installable Fast Waterproof Connector) 2*1.6,2*3,2*5mm



OPTITAP SC-L21/APC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0,2*3,2*1.6,2*5mm



OPTITAP SC-L21/UPC (Field Installable Fast Waterproof Connector) 2.0,3.0,5.0,2*3,2*1.6,2*5mm



OPTITAP SC-G55/APC Field Installable Fast Waterproof connector 5.0mm



OPTITAP SC-G55/UPC (Field Installable Fast Waterproof Connector) 5.0mm



OPTITAP SC-(Hot Melt)/APC 2.0,3.0,5.0,2*3,2*1.6,2*5mm



OPTITAP SC-(Hot Melt)/UPC 2.0,3.0,5.0,2*3,2*1.6,2*5mm



MINI SC (Prefabricated End Waterproof Connector-Efficient Type) 2*3, 2*5mm



OPTITAP SC (Prefabricated End Waterproof Connector-Efficient Type) 2*3, 2*5mm



MINI SC (Prefabricated End Waterproof Connector-Normal Type) 5.0mm



MINI SC (Prefabricated End Watertight Connector-Normal Type) 2*3,2*5mm



TERMINAL BOX

▪ Terminal Box

pg.49-51

TERMINAL BOX

NAME	PICTURE	COLOR: STANDARD ALLOY
FAB-HGT-16A		Black Alloy
FAT-8L		Gray-White Alloy
FAT-16L		Gray-White Alloy
FAT-16M/24M		Gray-White Alloy
FAT-HGT-8SX		Black / Light Gray Alloy
FAT-HGT-16QX		Black / Light Gray Alloy

TERMINAL BOX

NAME	PICTURE	COLOR: STANDARD ALLOY
FAT-HGT-16SX		Black / Light Gray Alloy
FRB-4D		White Alloy
FAB-HGT-8ZSX		Gray-White Alloy
FAB-HGT-8ZT		Gray-White Alloy
FAB-HGT-8ZT-3		Gray-White Alloy
FAB-HGT-8ZX-4		Gray-White Alloy

TERMINAL BOX

NAME	PICTURE	COLOR: STANDARD ALLOY
FAT-8T		White Alloy
FAT-16T		Gray-White Alloy
GFS-8QX		Black PP/GF
GFS-16QX		Black PP/GF