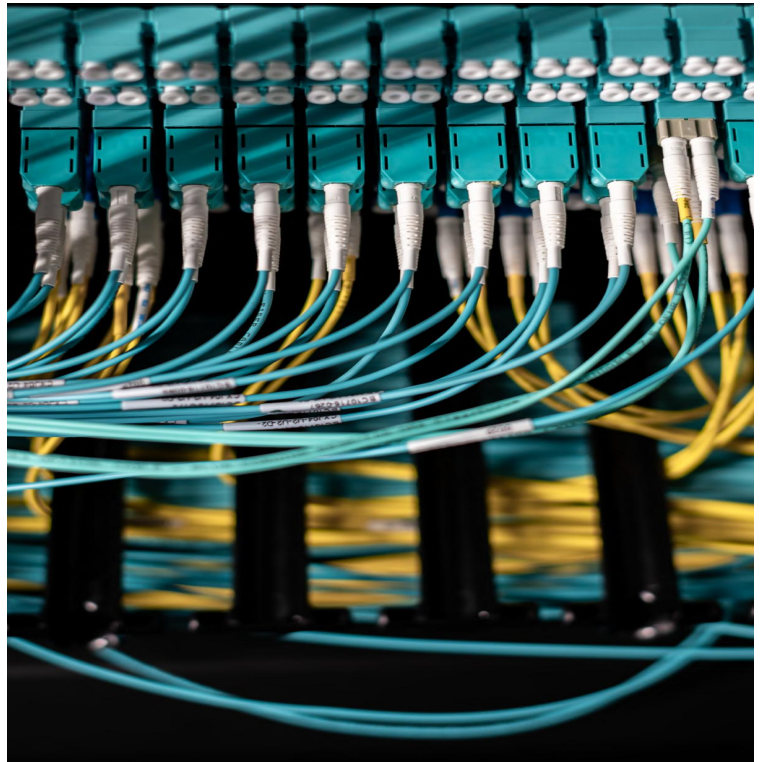


# Standard Fiber Patch Cables Datasheet

## Standard Fiber Patch Cables Applications

Optical Fiber Patch Cable is a combination of optical fiber cables and optical fiber connectors through a certain process. The types of connectors include LC, SC, FC, ST, MTRJ, MTP/MPO, MU and other forms. , single-mode and multi-mode transmission media can be used for 1G/10G/40G/100G and higher rate application scenarios. Fiber optic patch cords have passed various tests such as loss testing and environmental testing to meet the industry standards of TIA 604 (FOCIS), IEC 61754 and YD/T and are widely used in communication equipment rooms, fiber-to-the-home, local area networks, fiber optic sensors, fiber optic communication systems and optical fiber connection transmission equipment, etc.



## Features

- Low insertion loss, high return loss
- Good repeatability and interchangeability
- LC/SC/ST/FC/LSH/MTRJ/MU connectors with standard boots are available
- Flame-retardant, rugged and durable jacket
- OS2/OM5/OM4/OM3/OM2/OM1 are available

## Standards Compliance

- RoHS, ISO 9001, CE, REACH
- TIA 604 (FOCIS)
- TIA/EIA 492AAAE
- IEC 61754
- IEC 60793-2- 10
- IEC 61300-3-35
- IEC 61753-1 Category C (Controlled Environment) & ANSI/TIA-568.3
- YD/T1272. 1-2003

## Fiber Optic Guidance

### LC-LC

Rectangular structure and elastic clip locking mechanism are used to achieve precise positioning, half the size of the SC connector.



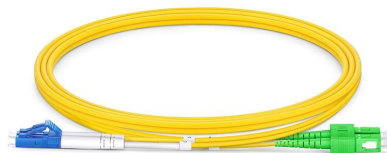
### LC-FC

FC connectors are secured by a threaded barrel housing, usually constructed of a metal shell and nickel plated



### LC-SC

Rectangular structure and elastic clip locking mechanism are used to achieve precise positioning.



### LC-ST

ST stands for Straight Tip- a quick release bayonet style connector. ST connectors are cylindrical with twist lock coupling. They are push-in and twist type.



## Technical Specification

Physical Characteristics	Description
Connector Types	LC/SC/ST/FC/LSH/MTRJ/MU with Standard Boots; LC 12mm/18mm with Short Boots; SC 25mm with Short Boots
Polish Type	SMF: UPC-UPC; UPC-APC; APC-APC; MMF: UPC-UPC
Connector Ferrule	Zirconia Ceramic
Cable Outside Diameter	Duplex: 1.6/2.0/3.0mm, Simplex: 0.9/2.0/3.0mm
Interchangeability	≤0.2dB
Vibration	≤0.2dB

## End face Geometry

Connector	Parameters	Limits	
		Minimum	Maximum
APC (LC/SC/FC)	ROC(mm)	5.0	12.0
	Fiber Height(nm)	-100.0	100.0
	Apex Offset(um)	0.0	70.0
	Angle(Deg)	7.7	8.3
	Key Error(Deg)	-0.3	0.3
UPC (LC/SC/FC/ST)	ROC(mm)	5.0	30.0
	Fiber Height(nm)	-100.0	100.0
	Apex Offset(um)	0.0	70.0

Notes:

- [1] End face geometry is controlled base on SPC, the yield exceed 95%.
- [2] The minimum Fiber Height(minus maximum fiber undercut) is calculated per below equation; B is the ROC,C is Apex Offset.  
for 2.5mm ferrule:  $-(1988*B^{(-0.795)} - B*10^6 + \sqrt{(B^2*10^6 - C^2)})*10^3 - 60$   
for 1.25mm ferrule:  $-(1798*B^{(-0.795)} - B*10^6 + \sqrt{(B^2*10^6 - C^2)})*10^3 - 60$

Mechanical Characteristics	Description
Fiber Type	Standard Boots: OS2/OM5/OM4/OM3/OM2/OM1; Short Boots: OS2/OM4/OM3
Fiber Count	Duplex/ Simplex
Cable Jacket	PVC (Riser/OFNR)/LSZH/Plenum (OFNP)
Fiber Grade	SMF: G.657.A1/G.657.A2; OM5/OM4/OM3/OM2: Bend Insensitive; OM1: G.651

Connector	Housing Color	Boot Color	Fiber Type	Jacket Color	
LC	APC	Green	Green	SMF	Yellow
	UPC	Blue	White	SMF	Yellow
	UPC	Beige	White	OM1 / OM2	Orange
	UPC	Aqua	White	OM3 / OM4	Aqua
	UPC	Beige	White	OM5	Lime Green
SC	APC	Green	Green	SMF	Yellow
	UPC	Blue	Blue	SMF	Yellow
	UPC	Beige	Beige	OM1 / OM2	Orange
	UPC	Aqua	Aqua	OM3 / OM4	Aqua
FC	APC	Silver	Green	SMF	Yellow
	UPC	Silver	Blue	SMF	Yellow
	UPC	Silver	Black	OM1 / OM2	Orange
	UPC	Silver	Aqua	OM3 / OM4	Aqua
ST	UPC	Silver	Blue	G.652/G.657	Yellow
	UPC	Silver	Black	OM1 / OM2	Orange
	UPC	Silver	Aqua	OM3 / OM4	Aqua

Minimum Bend Radius		SMF	MMF
Fiber Cable (Dynamic/Static)	OD 2.0/3.0mm	10/5D	20/10D
	OD 1.6mm	10/5D	
	OD 0.9mm	10mm	OM1: 15mm Others: 7.5mm
Fiber Core	D 0.9/2.0/3.0mm	G.657.A1: 10mm	OM1: 15mm
	OD 1.6mm	G.657.A2: 7.5mm	Others: 7.5mm

Tensile Strength (Long Term/Short Term)	Duplex	Simplex
OD 3.0mm	120/225N	80/150N
OD 2.0mm	90/150N	60/100N
OD 1.6mm	90/150N	
OD 0.9mm		3/6N

Optical Characteristics	Description
Connector Insertion Loss	LC/SC/ST/FC/LSH/MU/MTRJ ≤ 0.3dB
Connector Return Loss	SMF: UPC > 50, APC > 60 (LC/SC/ST/FC/MU/MTRJ), UPC > 55, APC > 75 (LSH) MMF: UPC > 30 (LC/SC/ST/FC/LSH/MU), UPC > 35 (MTRJ)
Attenuation at 1310nm	G.657.A1: 0.36dB/km G.657.A2: 0.4dB/km
Attenuation at 1550nm	G.657.A1: 0.22dB/km G.657.A2: 0.25dB/km
Attenuation at 850nm	3.0dB/km
Attenuation at 1300nm	1.0dB/km

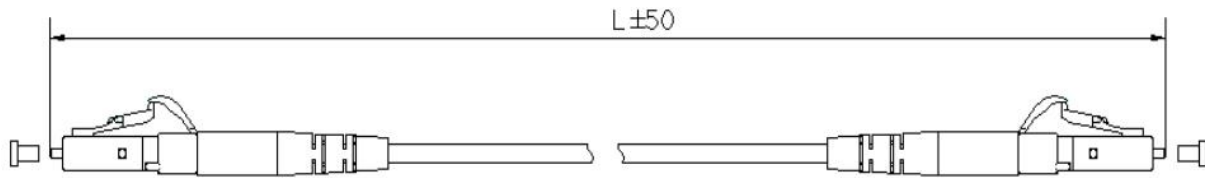
Environmental Characteristics	Description
Operating Temperature	-20~70°C
Storage Temperature	-40~80°C

## Transmission Distance Comparison

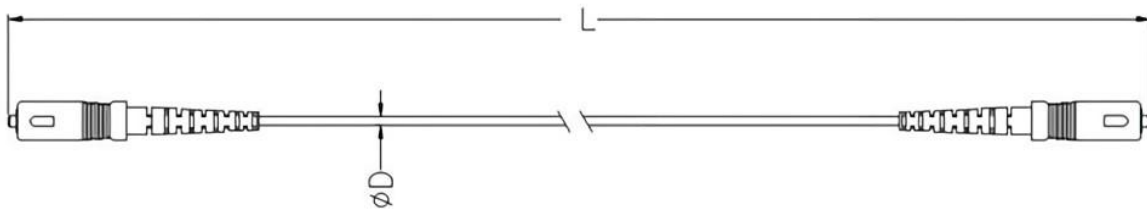
Data Rate	Interface Type	Fiber Mode	Wavelength	Maximum Distance
1G	1000BASE-LX	OM5	850nm	550m
		OM4	1300nm	550m
		OM3	1300nm	550m
		OM2	1300nm	550m
		OM1	1300nm	550m
	1000BASE-SX	SMF	1300nm	10km
		OM4	850nm	550m
		OM3	850nm	550m
OM2		850nm	550m	
10G	10GBASE-SR	OM1	850nm	275m
		OM4	850nm	400m
		OM3	850nm	300m
		OM2	850nm	82m
	10GBASE-LR	SMF	1300nm	10km
	10GBASE-ER	SMF	1300nm	40km
	10GBASE-ZR	SMF	1300nm	80-100km
40G	40GBASE-LX4	SMF	1300nm	2km
		OM3	1300nm	150m
		OM4	1300nm	150m
		OM5	1300nm	150m
	40GBASE-LR4	SMF	1300nm	10km
	40GBASE-ER4	SMF	1300nm	40km
100G	100GBASE-CWDM4	SMF	1300nm	2km
	100GBASE-LR4	SMF	1300nm	10km
	100GBASE-ER4	SMF	1300nm	40km
	100GBASE-ZR4	SMF	1300nm	80km
200G	200GBASE-FR4	SMF	1300nm	2km
	200GBASE-LR4	SMF	1300nm	10km
400G	400GBASE-FR4	SMF	1300nm	2km
	400GBASE-LR4/LR8	SMF	1300nm	10km
	400GBASE-ER4/ER8	SMF	1300nm	40km

## Technical Drawing

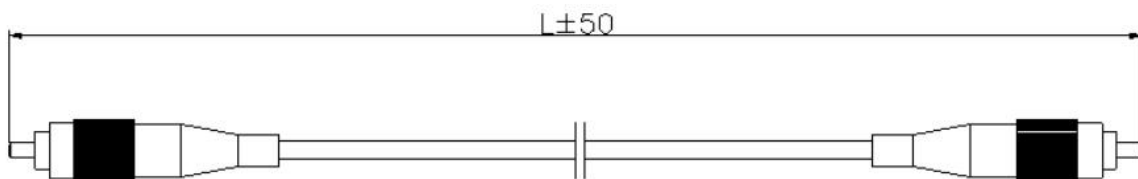
LC



SC



FC



## Cable Length Tolerances

Cable Length	Duplex/Simplex	Multi-fiber
$L < 0.5\text{m}$	+5cm/-0cm	+8cm/-0cm
$0.5\text{m} < L < 5\text{m}$	+10cm/-0cm	+12cm/-0cm
$5\text{m} < L < 10\text{m}$	+15cm/-0cm	+15cm/-0cm
$10\text{m} < L < 30\text{m}$	+20cm/-0cm	+20cm/-0cm
$30\text{m} < L < 100$	+1%/ -0cm	+1%/ -0cm
$L > 100\text{m}$	+1.5%/ -0cm	+1.5%/ -0cm



## Ordering Information

Product number	Description
S2LCUD	LC UPC to LC UPC Duplex OS2 Single Mode PVC (OFNR) 2.0mm Fiber Optic Patch Cable
S2LCUS	LC UPC to LC UPC Simplex OS2 Single Mode PVC (OFNR) 2.0mm Fiber Optic Patch Cable
S2SCUD	SC UPC to SC UPC Duplex OS2 Single Mode PVC (OFNR) 2.0mm Fiber Optic Patch Cable
S2SCUS	SC UPC to SC UPC Simplex OS2 Single Mode PVC (OFNR) 2.0mm Fiber Optic Patch Cable
M5LCUD	LC UPC to LC UPC Duplex OM5 Multi-mode Wide-band PVC (OFNR) 2.0mm Fiber Optic Patch Cable
M4LCUD	LC UPC to LC UPC Duplex OM4 Multi-mode PVC (OFNR) 2.0mm Fiber Optic Patch Cable
M3LCUDLZ	LC UPC to LC UPC Duplex OM3 Multi-mode LSZH 2.0mm Fiber Optic Patch Cable
S2xxxD	Customized Duplex OS2 Single Mode LC/SC/FC/ST/LSH/MU Fiber Optic Patch Cable
M4xxxD	Customized Duplex OM4 Multi-mode LC/SC/FC/ST/LSH/MU Fiber Optic Patch Cable
M3xxxD	Customized Duplex OM3 Multi-mode LC/SC/FC/ST/LSH/MU Fiber Optic Patch Cable

## Further Information:

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