Plastic Optical Fiber Cables, Patch Cords and Plugs

Data Sheet

DESCRIPTION

Firecomms offers a range of high quality POF cables, LC plugs, and pre-assembled patch cords in both LC and RedLink® styles, suitable for use with Firecomms' range of transceivers and other industry-standard products.

POF cable is delivered on reels for convenience when installing runs of cable into equipment or buildings, making harness assemblies, or making custom length patch cords in small quantities. Both simplex and duplex cables are available.

Firecomms LC plugs may be assembled easily onto a duplex cable to prepare it for use with Firecomms LC transceivers.

Firecomms patch cords are available in a convenient range of lengths for use with RedLink® or Versatile Link transmitters and receivers, and LC transceivers.

APPLICATIONS

- Control links within high voltage electrical control equipment
- Data communication where extreme immunity to EMI is required
- Links between equipment that requires electrical isolation to be maintained
- Rugged links in hostile environments
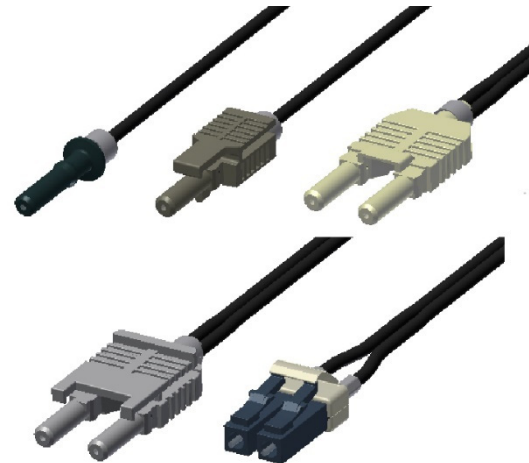
FEATURES

- Cost-effective, rugged optical links
- Compatible with IEC 60793-2-40 Class A4a standard
- Cable flameproof to UL grade VW-1
- Cable available in reels for on-site installation, or for making complex harnesses
- Cable suitable for use with Firecomms POF transceivers, including RedLink®, LC and OptoLock®.
- LC plugs available for easy cable termination
- Patch cords in a variety of convenient standard lengths
- Compatible with Versatile Link connectors and fiber optic transmitter and receivers

SPECIFICATIONS

Cable Specifications

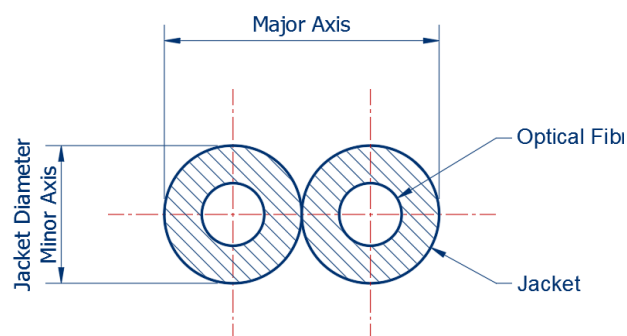| Parameter	Symbol	Min	Typical	Max	Unit
Storage Temperature	T_{stg}	-55		+85	°C
Operating Temperature	T_{op}	-55		+85	°C
Minimum Bend Radius	R_{min}	25			mm
Repeat Bending Endurance[1]		10,000			
Numerical Aperture	NA		0.5		
Attenuation at 650 nm	α			0.19	dB/m
Tensile Stress Simplex/Duplex		70/140			N
UL Flame Resistant Rating		VW-1			
Fiber Diameter, including Cladding	D_c	0.94	1	1.06	mm
Cable Diameter – Simplex	D_j	2.13	2.2	2.27	mm
Minor Axis – Duplex	D_j	2.13	2.2	2.27	mm
Major Axis – Duplex	D_m	4.3	4.4	4.5	mm
Jacket Material		Chlorinated Polyethylene			
Jacket Color		Black			

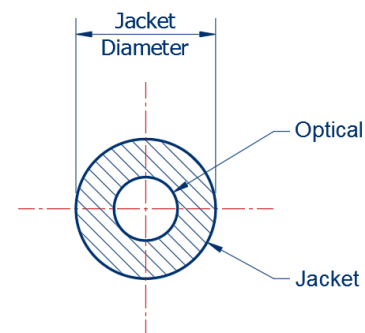Figure 1
Duplex POF Cross-ssection

Figure 2
Simplex POF Cross-section

Note:
Repeat bending loss increment ≤ 1 dB (90° bend in direction of minor axis, 25 mm radius, deadweight 500 g).

LC Plug Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Storage Temperature	T_{stg}	-40		+85	°C
Operating Temperature	T_{op}	-40		+85	°C
Installation Temperature	T_I	0		+70	°C
Retention Force, Connector to Transceiver	F_R	100			N
Insertion Force, Connector to Transceiver	F_I		9	12	N
Durability, Mating Cycles		500			
Standards Compliance	IEC 61754-20 Edition 2				
Fixing Method	Crimp				
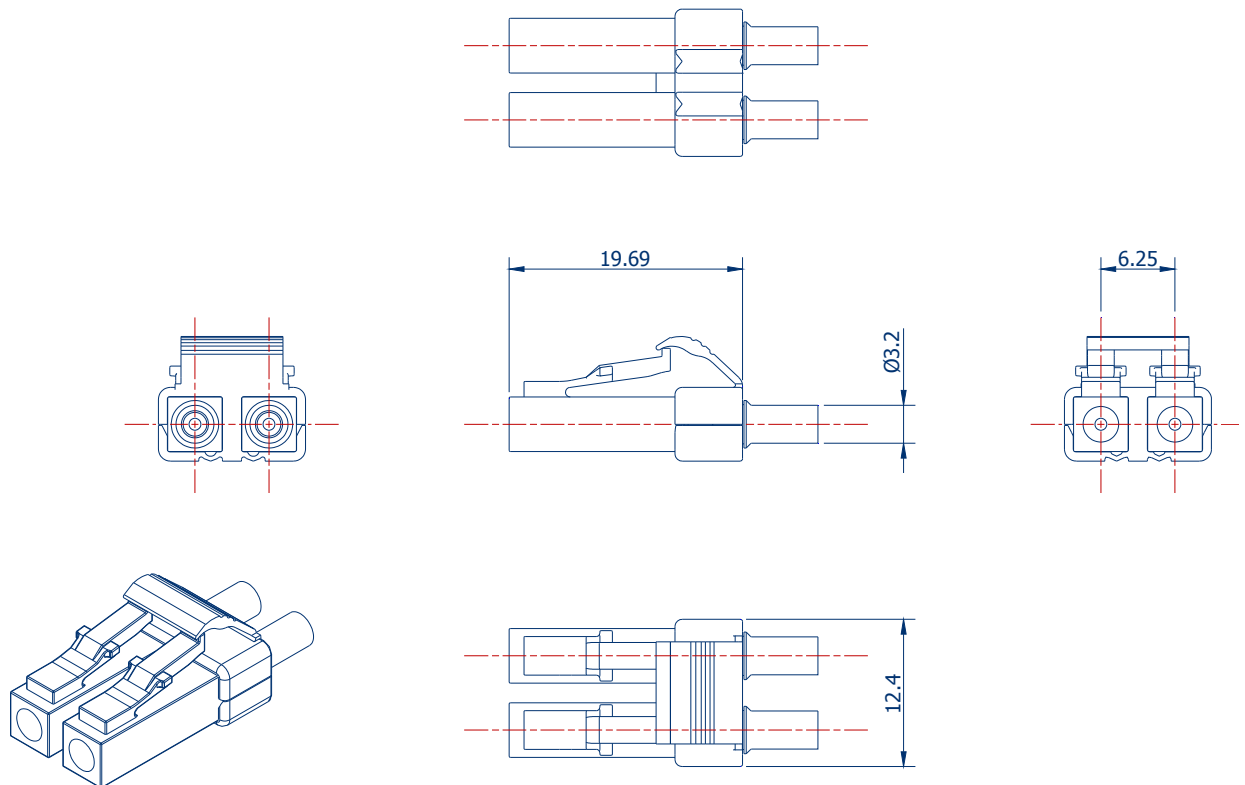
Figure 3
LC POF Plug
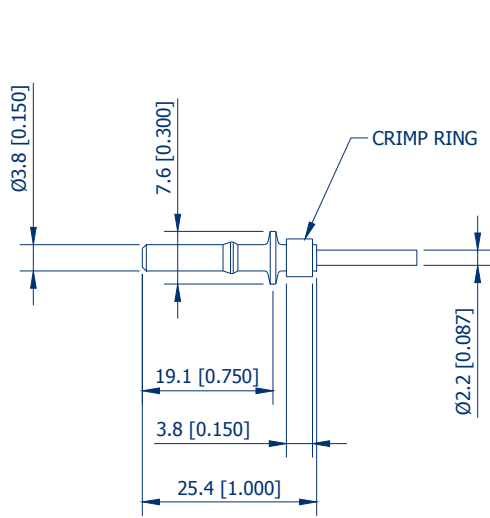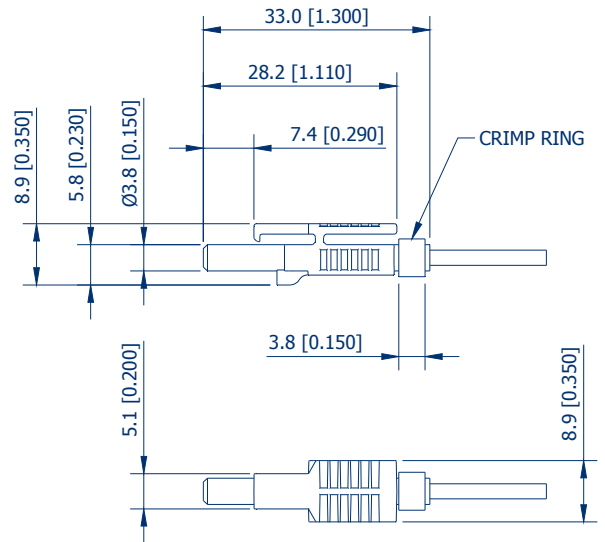
CRIMP RING

Ø3.8 [0.150]

7.6 [0.300]

Ø2.2 [0.087]

19.1 [0.750]

3.8 [0.150]

25.4 [1.000]

SIMPLEX FRICTION CONNECTOR

33.0 [1.300]

28.2 [1.110]

7.4 [0.290]

CRIMP RING

8.9 [0.350]

5.8 [0.230]

Ø3.8 [0.150]

5.1 [0.200]

3.8 [0.150]

8.9 [0.350]

SIMPLEX LATCHING CONNECTOR

5.8 [0.230]

Ø3.8 [0.150]

DUPLEX CRIMP RING

7.1 [0.280]

3.8 [0.150]

28.2 [1.110]

7.4 [0.290]

DUPLEX CRIMP RING

10.2 [0.400]

4.57 [0.180]

12.2 [0.480]

32.0 [1.260]

38.1 [1.500]

DUPLEX FRICTION CONNECTOR

10.2 [0.400]

4.57 [0.180]

11.0 [0.434]

32.0 [1.260]

38.1 [1.500]
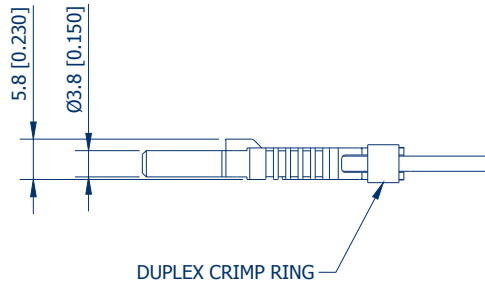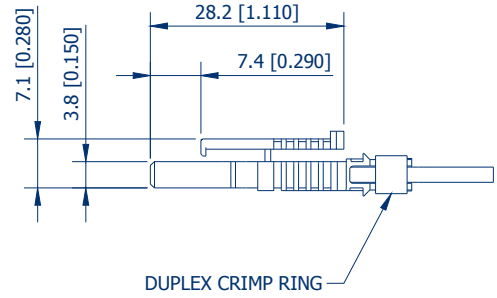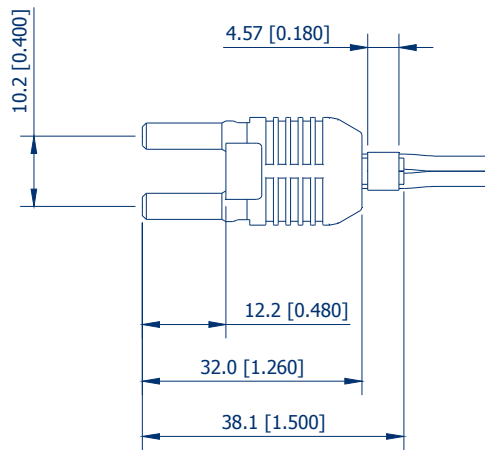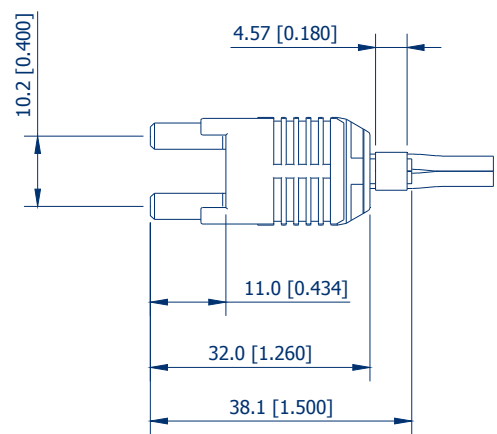
DUPLEX LATCHING CONNECTOR

Figure 4
RedLink Plugs

REDLINK CRIMPLESS PLUGS

Firecomms FP-00C-*S0 series of connectors are crimpless plugs for use with standard 1mm core, 2.2 mm plastic optical fiber. The FP-00C-*S0 series are compatible with RedLink® or Versatile Link transmitters and receivers. The design allows for fast, easy and reliable cable assembly.
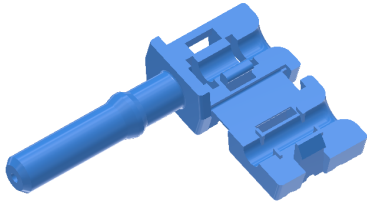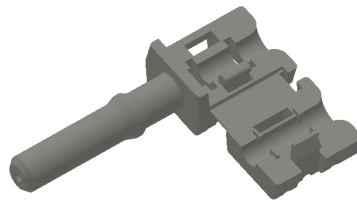

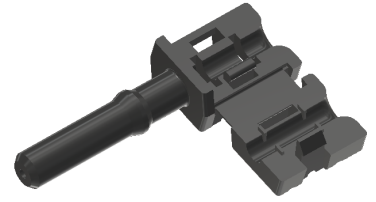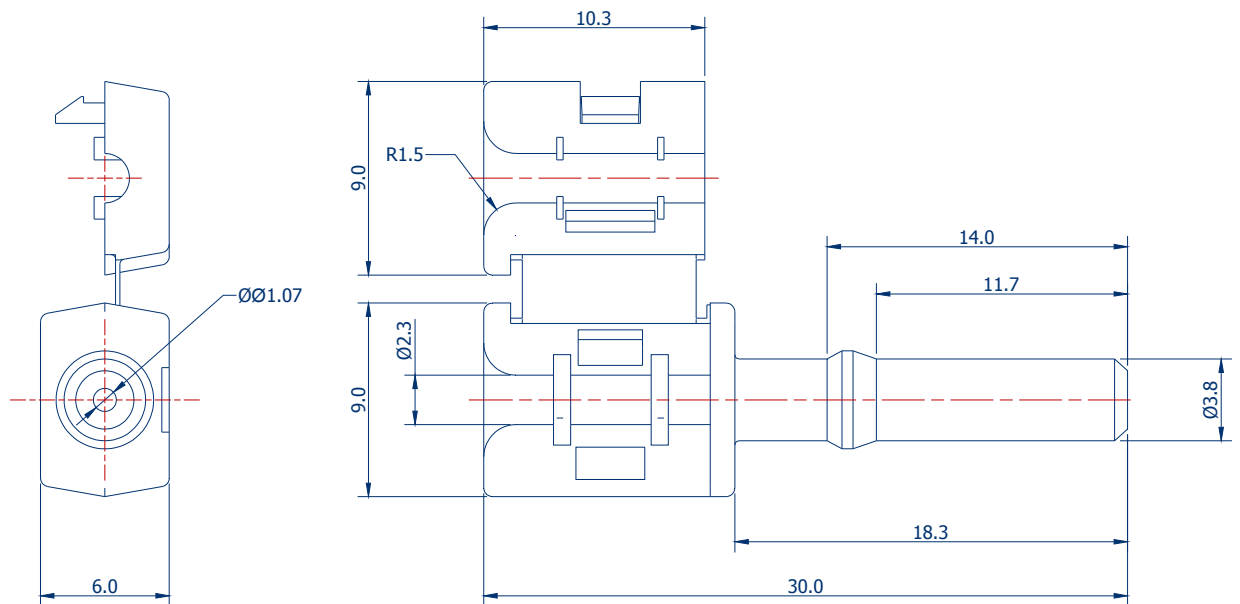Figure 5 FP-00C-GS0

Figure 6 FP-00C-HS0

Figure 7 FP-00C-TS0

Figure 8 Physical Dimensions

PASSIVE INTERCONNECT

The Firecomms passive interconnect is a low profile in-line connector designed for use with either 2.2 mm or 1.5 mm jacket plastic optical fiber (POF). The connector has been designed to be used in restricted and cramped spaces. The design allows for installation in the field without the use of adhesives and with minimal insertion loss. The assembly mechanism ensures that the two fiber facets are securely abutted prior to clamping in position.
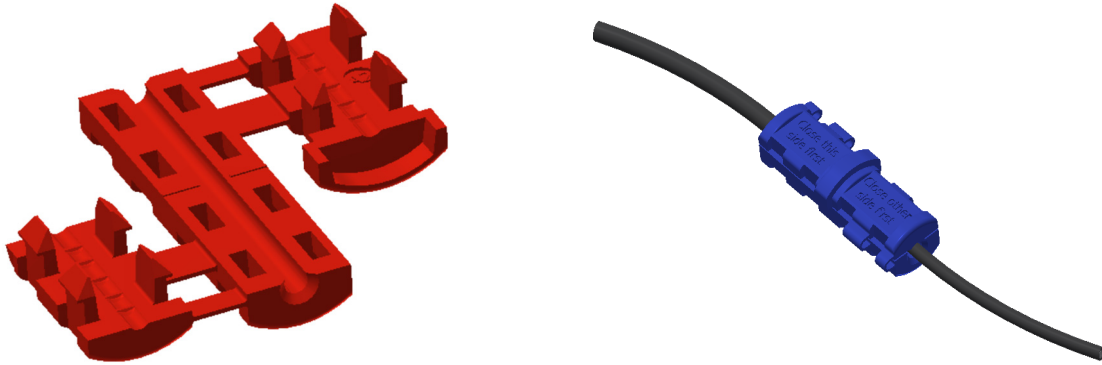
Figure 9
Passive Interconnect

Passive Interconnect Specifications

Parameter	Symbol	Minimum	Maximum	Unit
Storage Temperature	T_{stg}	-20	+60	°C
Operating Temperature	T_{op}	-20	+60	°C
Insertion Loss (with polished facets)	L_{Pol}		-3	dB
Insertion Loss (with blade cut facets)	L_{cut}		-4	dB
POF Retention Force	F	10		N

Patch Cord Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Storage Temperature	T_{stg}	-40		+85	°C
Operating Temperature	T_{op}	-40		+85	°C
Installation Temperature	T_I	0		+70	°C
Tensile Force, LC Connector to Cable	F_T	16			N
Tensile Force, Simplex RedLink Connector to Cable	F_T	8.5			N
Tensile Force, Duplex RedLink Connector to Cable	F_T	14			N

(6.25)

Duplex - with Latch

L

Figure 10
LC Plug Patch Cord

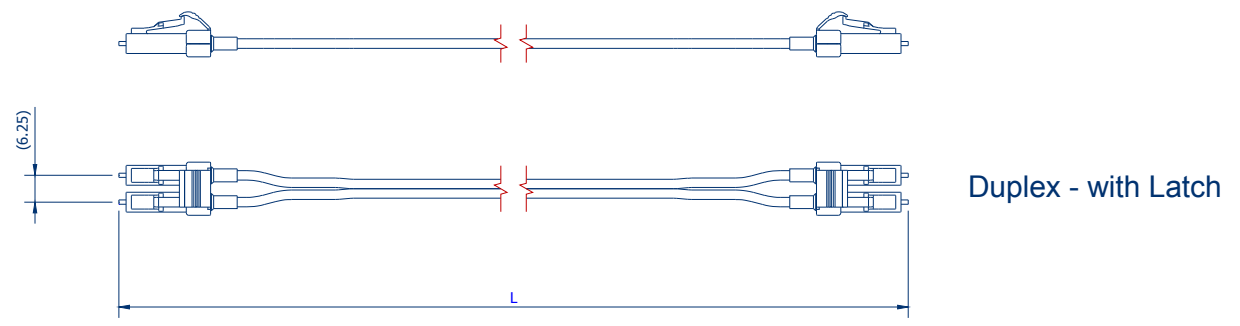Simplex - No Latch

Simplex - with Latch

Duplex - No Latch

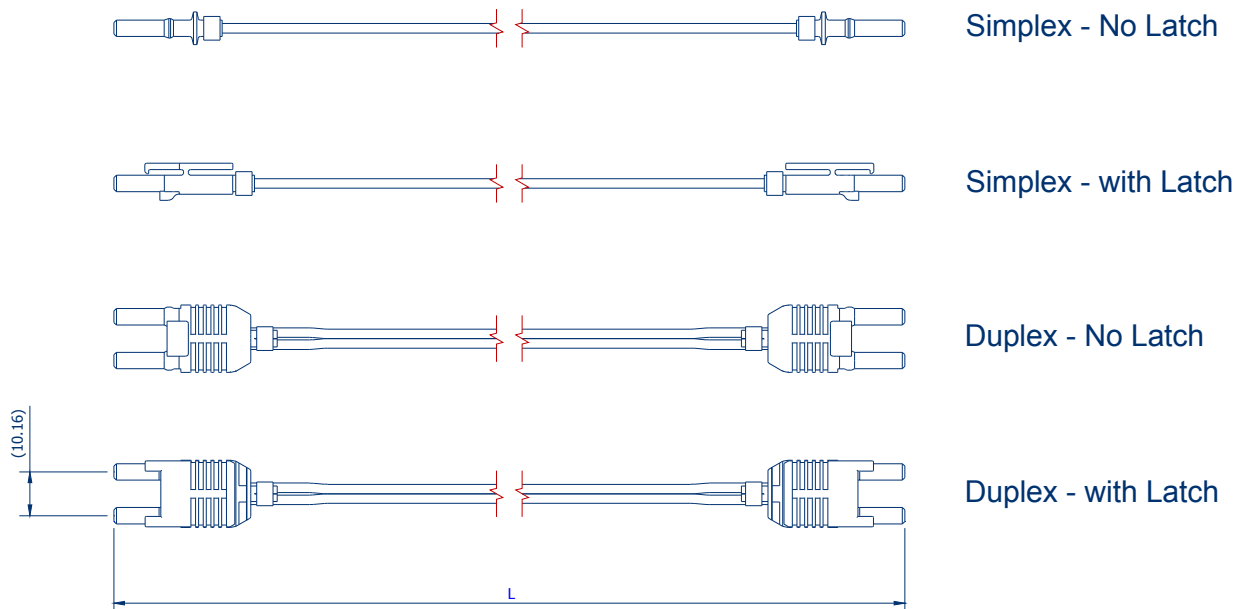(10.16)

Duplex - with Latch

L

Figure 11
RedLink Patch Cord

Note:
Simplex RedLink patch cords have a blue plug at one end and a grey plug at the other end.

Ordering Information

Part Number	Name	Description
FC-500-0SB	500m Reel Simplex POF Cable	Reel 0.5NA SI-POF simplex
FC-500-0DB	500m Reel Duplex POF Cable	Reel 0.5NA SI-POF duplex
FP-00C-LD0	LC Plug for POF	LC plug for POF
FG-00C-LZ0	LC Dust Cap	White dust cap to fit LC plug
FP-00C-VS0	RedLink Simplex Friction Plug, Grey	Grey simplex plug with crimp ring, no latch
FP-00C-US0	RedLink Simplex Friction Plug, Blue	Blue simplex plug with crimp ring, no latch
FP-00C-GS0	RedLink Simplex Friction Plug Crimpless, Blue	Blue simplex plug without crimp ring, no latch
FP-00C-HS0	RedLink Simplex Friction Plug Crimpless, Grey	Grey simplex plug without crimp ring, no latch
FP-00C-TS0	RedLink Simplex Friction Plug Crimpless, Black	Black simplex plug without crimp ring, no latch
FP-00C-YS0	RedLink Simplex Latching Plug, Grey	Grey latching simplex plug with crimp ring
FP-00C-XS0	RedLink Simplex Latching Plug, Blue	Blue latching simplex plug with crimp ring
FP-00C-RD0	RedLink Duplex Friction Plug	Duplex plug with crimp ring, no latch
FP-00C-SD0	RedLink Duplex Latching Plug	Duplex latching plug with crimp ring
FD-xxx-LDB	LC Duplex Patch Cord	XXX m LC duplex patch cable 0.5NA SI-POF
FD-xxx-BSB	RedLink Simplex Patch Cord, Friction Plugs	XXX m RedLink simplex patch cable with friction plug 0.5NA SI-POF
FD-xxx-CSB	RedLink Simplex Patch Cord, Latching Plugs	XXX m RedLink simplex patch cable with latch plug 0.5NA SI-POF
FD-xxx-RDB	RedLink Duplex Patch Cord, Friction Plugs	XXX m RedLink duplex patch cable with duplex friction plug 0.5NA SI-POF
FD-xxx-SDB	RedLink Duplex Patch Cord, Latching Plugs	XXX m RedLink duplex patch cable with duplex latch plug 0.5NA SI-POF
FA-025-FPB	1.5 mm Simplex Passive Interconnect	Passive Interconnector for use with 1.5 mm Simplex POF
FA-025-FPC	2.2 mm Simplex Passive Interconnect	Passive Interconnector for use with 2.2 mm Simplex POF
FA-025-FPE	1.5 mm Duplex Passive Interconnect	Passive Interconnector for use with 1.5 mm Duplex POF
FA-025-FPD	2.2 mm Duplex Passive Interconnect	Passive Interconnector for use with 2.2 mm Duplex POF

The sequence-xxx in each part number should be replaced by one of the following standard lengths:

Part Number Length Code

Code	Length	Max Length
xxC	xx cm patch cord	99 cm
xxM	xx m patch cord	50 m

Note: For example
A 30 cm patch cord would have the code 30C
A 5 m patch cord would have the code 05M