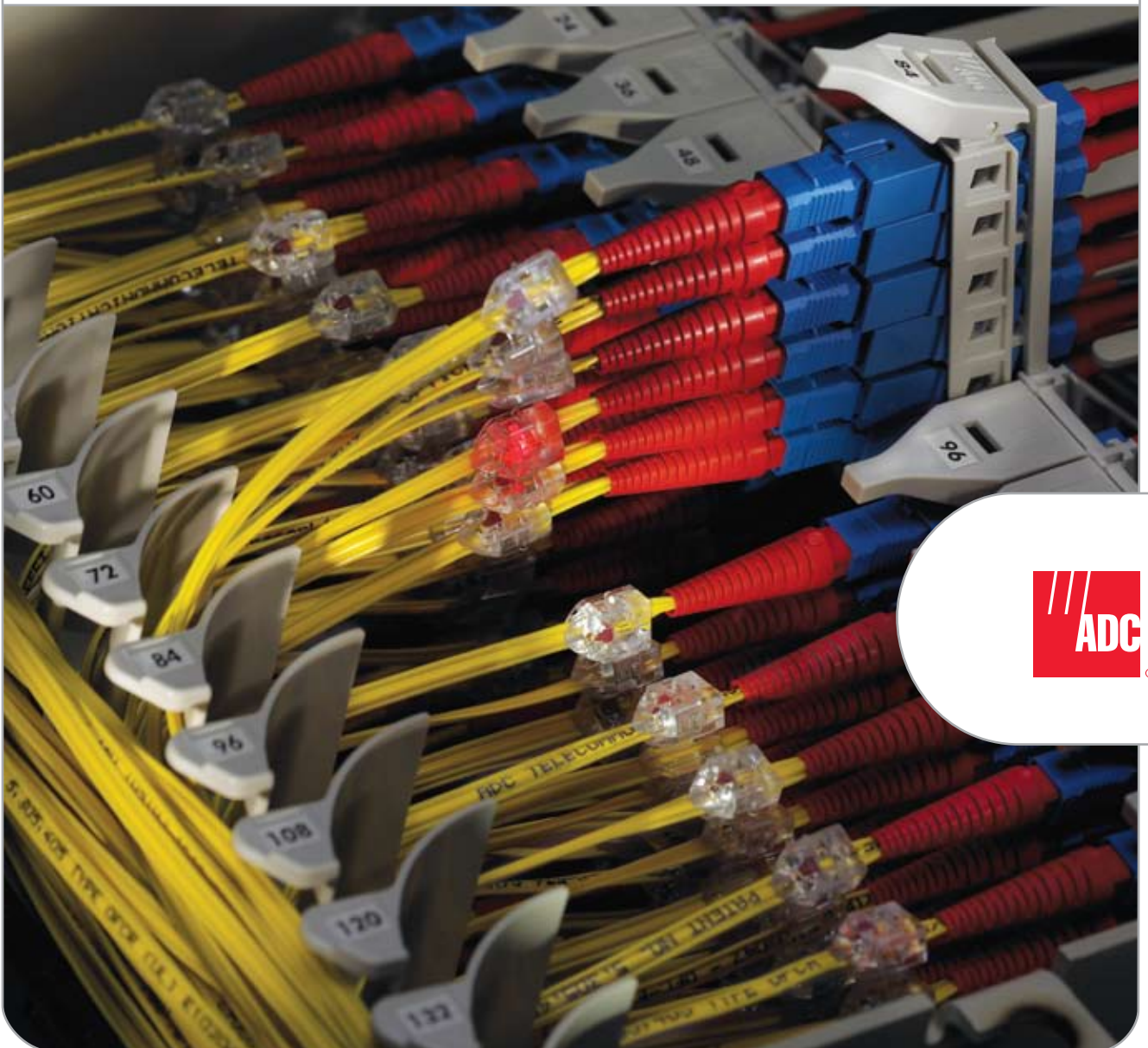


# Fiber Cable Assemblies and Accessories

Patch Cords, IFC Assemblies, Attenuators, FasTerm® Connectors and Adapters

2nd Edition



FIBER CONNECTIVITY SOLUTIONS





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10/07 • 102880AE Fiber Cable Assemblies and Accessories

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# Fiber Cable Assemblies and Accessories

## Introduction

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### Comprehensive Product Line

ADC produces a wide variety of fiber cable assemblies and accessories designed to meet the specific application needs of our customers. From patch cords, multifiber assemblies and connectors to adapters and attenuators, ADC is the choice for the essential products necessary to meet the requirements of today's high-speed networks.



ADC's patch cord manufacturing personnel are certified through ADC's rigorous internal fiber patch cord training processes.

### Advanced Manufacturing Processes

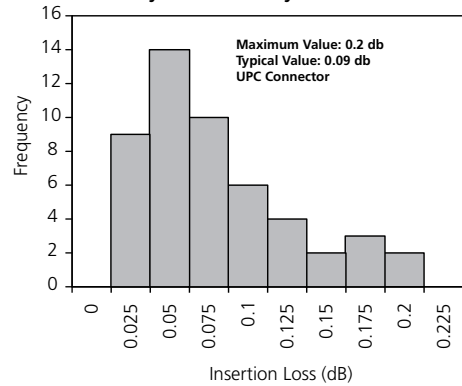
Advanced manufacturing processes allow us to meet some of the strictest specifications in the industry at prices comparable to those of less stringently produced components. ADC's innovative polishing techniques, rigorous evaluation of epoxies, serialized tracking and the strictest testing processes make us an industry leader in fiber components.

### Quality Assurance

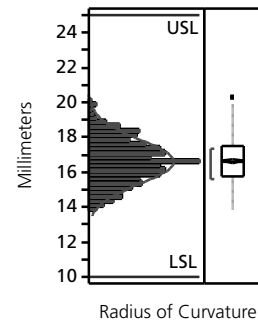
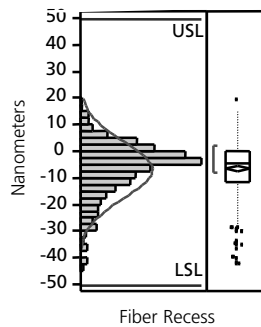
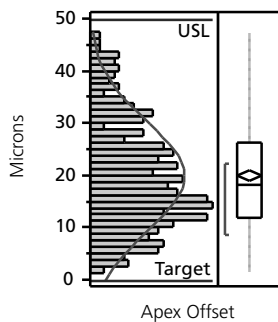
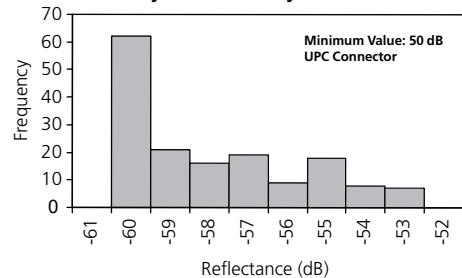
ADC tests every singlemode connector and applies a bar code traceable to the exact insertion loss and return loss for that termination. This aids in the documentation of the exact losses in the network. The bar code system also stores information about the materials used and the manufacturing process applied to produce the patch cord. These records are retained for your reference for over three years.

ADC's polishing process ensures consistently low insertion and return loss values. Insertion and return loss values are affected by the endface geometries of the fiber connector. ADC's fiber assemblies meet Telcordia® GR-326 industry requirements for quality and performance.

Insertion Loss at 1310/1550 nm  
Any Two Randomly Mixed Pairs



Return Loss at 1310/1550 nm  
Any Two Randomly Mixed Pairs



UPC Connector Measurements



# Patch Cords

## TracerLight® Connector Identification System

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**TracerLight Connector Identification System**

### Power Source and Patch Cords

ADC's innovative TracerLight® connector identification system offers a quick and accurate method of identifying the termination point of optical patch cords. Each end of a TracerLight patch cord features a flashing light allowing technicians to visually trace individual patch cords from one end to the other without pulling or affecting the patch cord. The TracerLight power source is easily attached to the TracerLight component on one end of the patch cord. This causes the LED on each end to begin flashing rapidly. As a result, the distant end of the patch cord can be quickly and easily identified without interruption of service or disturbance of the optical signal path.

Available in any standard length or connector style, TracerLight patch cords have the same functions, optical performance and stringent environmental requirements as our standard patch cords. TracerLight patch cords are installed in the same manner as standard patch cords and can be pulled through ADC's FiberGuide® fiber cable management system with ease.

The compact power source is comprised of a lightweight, plastic flashlight body featuring two AA batteries and a printed circuit board (PCB). It provides approximately 80 hours of continuous service and features 1-hour auto-off. The end of battery life is indicated by a slowing of the blink rate.



**TracerLight Power Source**  
FTL-PS

### Ordering Information

Description	Catalog Number
TracerLight power source	FTL-PS
TracerLight plus launch cable (for use with a tone generator)	FTL-TGLC



# Patch Cords

## TracerLight® Singlemode or Multimode Patch Cords

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### Simplex

**Catalog Number**  
FTL- / - - M

**Connector Style (first end)**

Singlemode	
7	SC ultra polish
E	SC angled polish
2	FC ultra polish
C	LC ultra polish
M	LC angled polish
Multimode	
9	SC
P	LC

**Connector Style (second end)**

Singlemode	
7	SC ultra polish
E	SC angled polish
2	FC ultra polish
C	LC ultra polish
M	LC angled polish
Multimode	
9	SC
P	LC

**Assembly Length**

001-020	1-20 meters in 1 meter increments
025-065	25-65 meters in 5 meter increments
070-150	70-150 meters in 10 meter increments

**Cable Type (1.7 mm)**

Singlemode	
D	Standard singlemode (yellow)
P	Reduced bend radius singlemode (blue)*
Multimode	
A	50/125 μm multimode (orange)
J	50/125 μm laser optimized to 300 m multimode (aqua)
G	62.5/125 μm multimode (orange)

**Ordering Examples**  
**FTL-7/7-D003M:** Singlemode simplex patch cord with SC connectors on both ends, 3 meters in length.  
**FTL-9/9-A005M:** Multimode simplex patch cord with SC connectors on both ends using 50/125 μm fiber, 5 meters in length.

### Duplex

**Catalog Number**  
FTL- - - M

**Connector Style (first end)**

Singlemode	
7	SC ultra polish
E	SC angled polish
2	FC ultra polish
C	LC ultra polish
M	LC angled polish
Multimode	
9	SC
P	LC

**Connector Style (second end)**

Singlemode	
7	SC ultra polish
E	SC angled polish
2	FC ultra polish
C	LC ultra polish
M	LC angled polish
Multimode	
9	SC
P	LC

**Assembly Length**

001-020	1-20 meters in 1 meter increments
025-065	25-65 meters in 5 meter increments
070-150	70-150 meters in 10 meter increments

**Cable Type (1.7 mm)**

Singlemode	
Z	Dual zip singlemode (yellow)
R	Reduced bend radius dual zip singlemode (blue)*
Multimode	
E	50/125 μm dual zip multimode (orange)
K	50/125 μm laser optimized to 300 m multimode (aqua)
H	62.5/125 μm dual zip multimode (orange)

**Ordering Examples**  
**FTL-7CZ010M:** Singlemode dual zip patch cord with SC to LC connectors, 10 meters in length.  
**FTL-PPE010M:** Multimode dual zip patch cord with LC connectors on both ends using 50/125 μm fiber, 10 meters in length.

\* Not a substitute for well-engineered cable management.

Other connector styles are available upon request. Please contact ADC Technical Assistance Center.



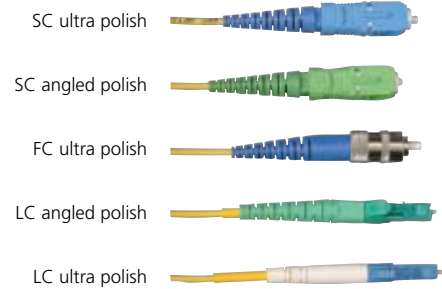
# Patch Cords

## Singlemode Patch Cords (Simplex and Duplex)

All patch cords undergo stringent testing for both insertion loss and return loss at the factory before shipment to ensure that only quality product is delivered to the customer.

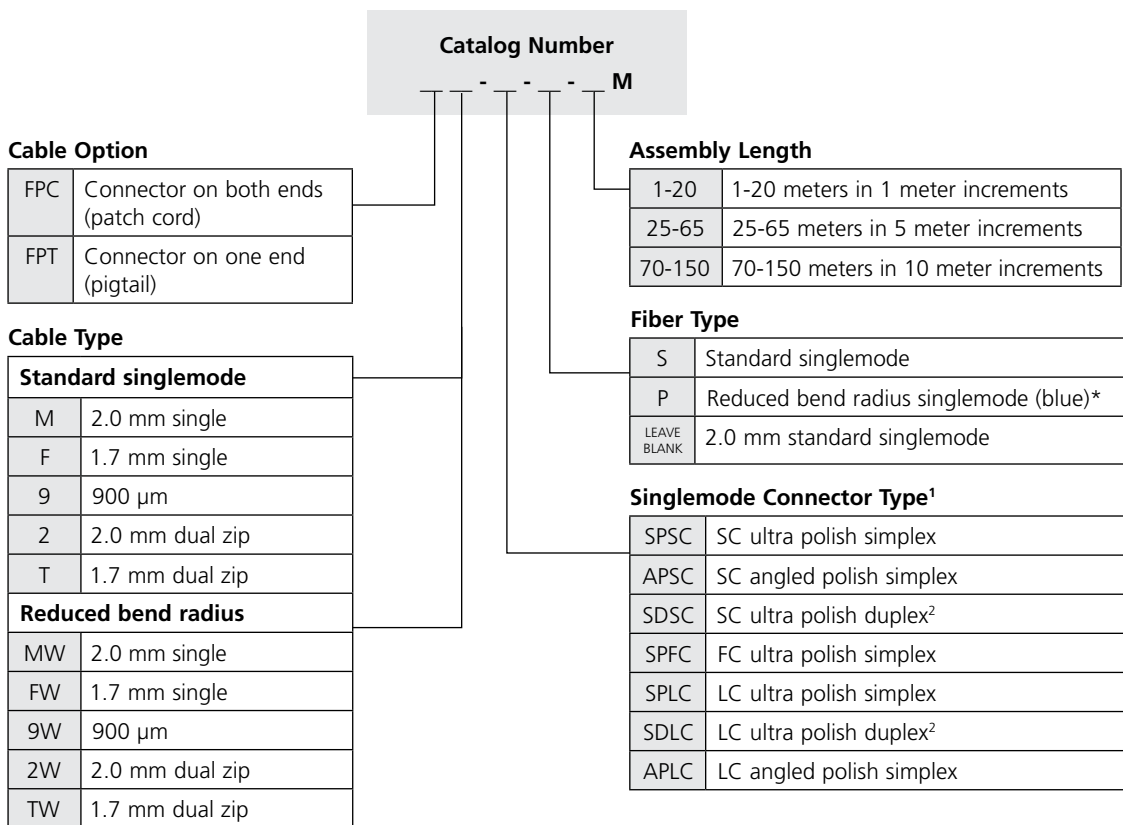
ADC offers ultra physical contact (UPC) polish on the SC, FC, and LC connector styles.

Angled polish is available on the LC connector and the SC connector styles. Angled polish should be used in applications that require better control of return loss. ADC has tight tolerances regarding the rotation of the ferrule to maintain low insertion loss values.



**Connector Types**

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### Ordering Examples

**FPC2-SPSC-10M:** Singlemode 2.0 mm dual zip patch cord with SC ultra polish connectors on both ends, 10 meters in length with standard breakout length of 0.31 m (12") on both ends.

<sup>1</sup> For hybrid patch cords, enter both connector types in this field and separate them with a slash mark; remove 's' from the ultra polish option.

**FPCF-SPSC/PLC-S-10M:** Singlemode 1.7 mm simplex patch cord with SC ultra polish connector on one end and LC ultra polish connector on the other end, 10 meters in length.

<sup>2</sup> One connector per end; requires dual zip cable

\* Not a substitute for well-engineered cable management.

Other connector styles are available upon request. Please contact ADC Technical Assistance Center.





# Patch Cords

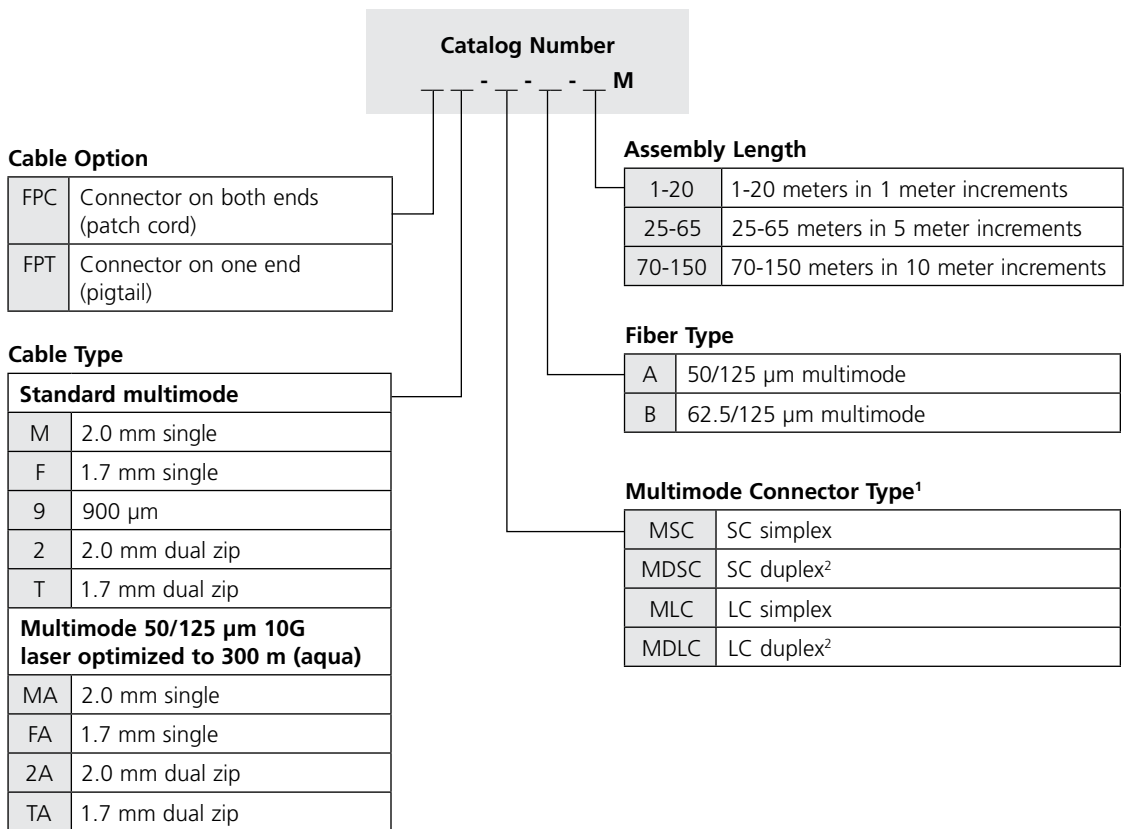
## Multimode Patch Cords (Simplex and Duplex)

Multimode patch cords are available with the LC small-form-factor connector and the SC connector.

These patch cords are assembled using the same advanced manufacturing processes as the singlemode, ensuring the highest quality standards.



LC-SC Multimode Patch Cord



### Ordering Examples

FPCM-MSC-B-7M: Multimode simplex 2.0 mm patch cord with SC connectors on both ends, 62.5/125  $\mu$ m fiber type, 7 meters in length.

<sup>1</sup> For hybrid patch cords, enter both connector types in this field and separate them with a slash mark.

FPCM-MSC/MLC-A-3M: Multimode simplex 2.0 mm patch cord with SC connector on one end and LC connector on the other end, 50/125  $\mu$ m fiber type, 3 meters in length.

<sup>2</sup> One connector per end; requires dual zip cable

Other connector styles are available upon request. Please contact ADC Technical Assistance Center.

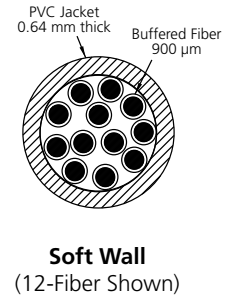
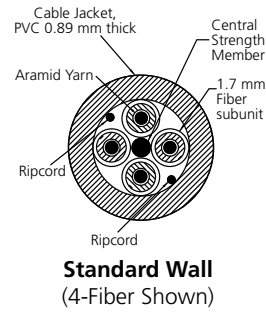


# Patch Cords

## Singlemode Multifiber Patch Cords (4- to 24-fibers)

Singlemode multifiber patch cords are available with 4, 6, 12 or 24 tight buffered 1.7 mm fibers enclosed in a standard wall outer jacket. Each 1.7 mm fiber is coded for easy identification of individual fibers. Central strength member, and aramid yarn; PVC jacket thickness 0.89 mm.

Patch cords are also available with 6, 8 or 12 tight buffered 900 μm fibers with a thin softwall outer jacket. No central strength member or aramid yarn; PVC jacket thickness 0.64 mm.



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**Catalog Number**

FPM-0 / - / M- /

Connector Type (1st and 2nd end)		Breakout Length	
0	Stub (only on 2nd end)	X	Length in inches
7	SC ultra polish	LEAVE BLANK	Both ends 0.31 m (12")
E	SC angled polish		
2	FC ultra polish		
K	LC ultra polish		
M	LC angled polish		

Assembly Length	
001-020	1-20 meters in 1 meter increments
025-065	25-65 meters in 5 meter increments
070-150	70-150 meters in 10 meter increments

**Cable Type**

D	4-fiber standard wall with 1.7 mm subunits
R	4-fiber reduced bend radius with 1.7 mm subunits (blue)
E	6-fiber standard wall with 1.7 mm subunits
P	6-fiber soft wall with 900 μm buffered fiber
AH	8-fiber standard wall with 1.7 mm subunits
L	8-fiber soft wall with 900 μm buffered fiber
N	8-fiber reduced bend radius with 1.7 mm subunits (blue)
F	12-fiber standard wall with 1.7 mm subunits
M	12-fiber soft wall with 900 μm buffered fiber
FP	12-fiber reduced bend radius with 1.7 mm subunits (blue)
AD	24-fiber standard wall with 1.7 mm subunits
GP	24-fiber reduced bend radius with 1.7 mm subunits (blue)

### Ordering Example

**FPM-07/0-P005M:** Singlemode multifiber patch cord with SC ultra polish connectors on one end, no connectors on the other end (pigtail), 6-fiber soft wall, 5 meters long with standard breakout.

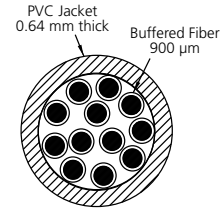
Other connector styles and breakout lengths are available upon request. Please contact ADC Technical Assistance Center.



# Patch Cords

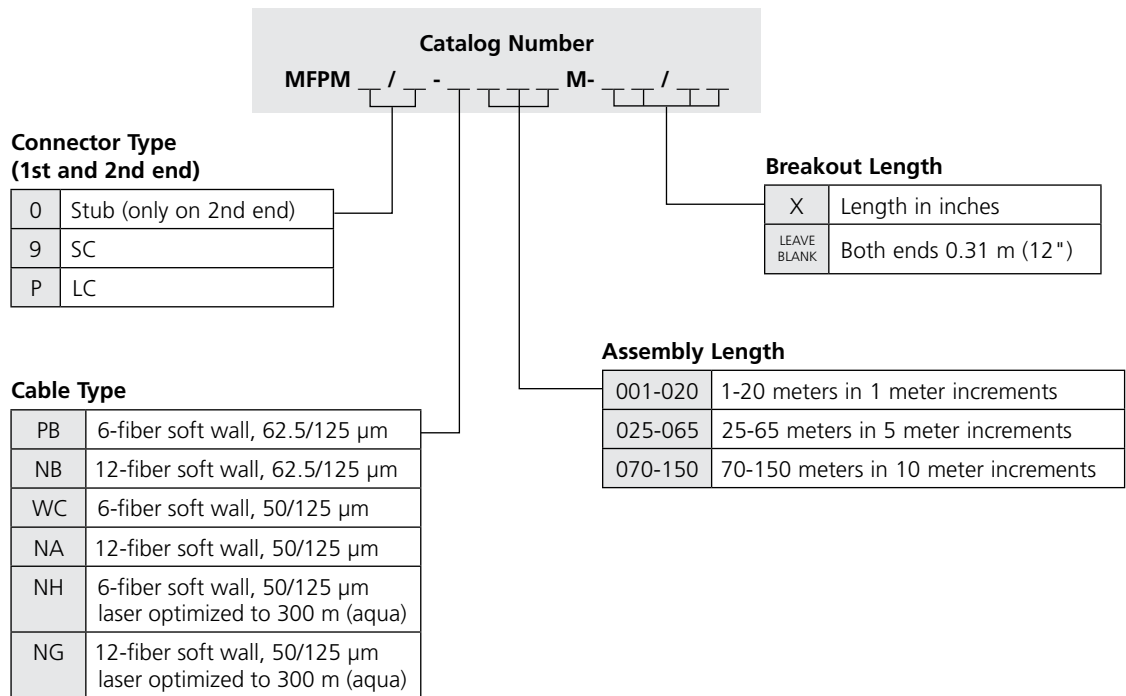
## Multimode Multifiber Patch Cords (6- and 12-fibers)

Multimode multifiber patch cords are available with 6 and 12 tight buffered 900  $\mu\text{m}$  fibers with a soft wall outer jacket. No central strength member or aramid yarn; PVC jacket thickness 0.64 mm.



**Soft Wall**  
(12-Fiber Shown)

10/07 • 102880AE Fiber Cable Assemblies and Accessories



### Ordering Example

**MFPM-9/P-PB008M:** Multimode multifiber patch cord with SC connectors on one end and LC ultra polish connectors on the other end, 6-fiber soft wall cable, 8 meters in length with standard breakout.

Other connector styles and breakout lengths are available upon request. Please contact ADC Technical Assistance Center.



# Intrafacility Fiber Cable (IFC) Assemblies

## Stranded IFC Assemblies

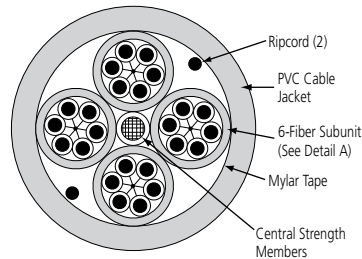
Intrafacility fiber cable (IFC) is a multifiber cable designed for use within a building. Generally, it will be constructed without metallic strength members and is designed to meet the fire resistant characteristics required in the central office. The number of fibers range from 12 to 144. Standard IFC assemblies are riser rated and meet UL-1666 OFNR. Two types of IFC are available: stranded and ribbon.

With stranded cable, individual 900  $\mu\text{m}$  fibers make up the construction of the cable. The fibers are bundled into subunits of 6- or 12-fibers each. Each subunit is identified and the individual fibers within the subunits are color-coded. Stranded IFC diameters increase in proportion with the fiber counts.

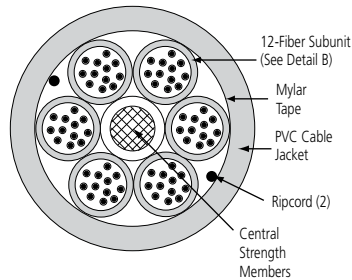


IFC Assembly

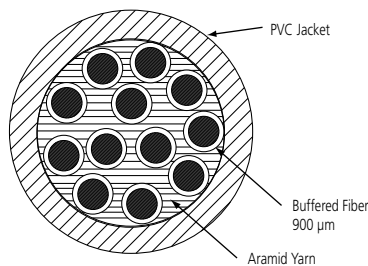
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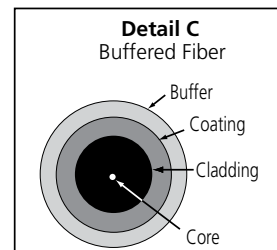
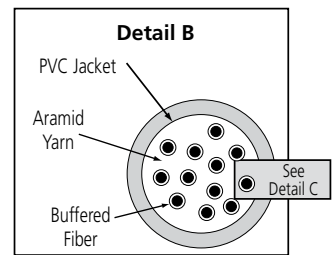
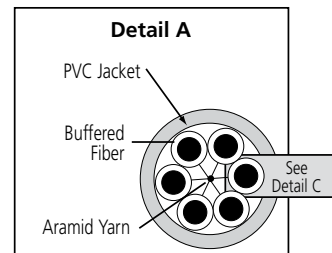
24-Fibers with 4-Fiber Subunits



72-Fibers with 12-Fiber Subunits



12-Fibers Shown



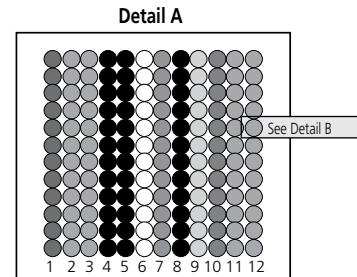
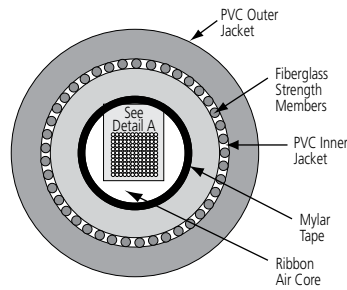


# Intrafacility Fiber Cable (IFC) Assemblies

## Ribbon IFC Assemblies

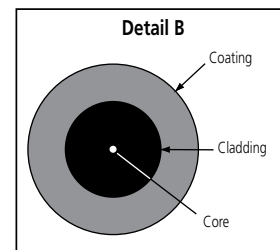
Ribbon cable consists of multi-fibers arranged in ribbons. Each ribbon contains 12-fibers and is identified as a subunit. The fibers which comprise the ribbons are color-coded for identification. With the construction of ribbon cable, the fibers are located in the center of the cable and the outer jacket provides the strength and protection of the cable. Three benefits are derived from the construction: the outer jacket is more robust than stranded cable; the outer diameter of the cable remains constant over the range of fiber counts available; and ribbon cable may be used with mass fusion type splicing.

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- |            |           |            |             |
|------------|-----------|------------|-------------|
| 1 - Blue   | 4 - Brown | 7 - Red    | 10 - Violet |
| 2 - Orange | 5 - Slate | 8 - Black  | 11 - Rose   |
| 3 - Green  | 6 - White | 9 - Yellow | 12 - Aqua   |

Fiber Color-Code Chart					
1	Blue	5	Slate	9	Yellow
2	Orange	6	White	10	Violet
3	Green	7	Red	11	Rose
4	Brown	8	Black	12	Aqua

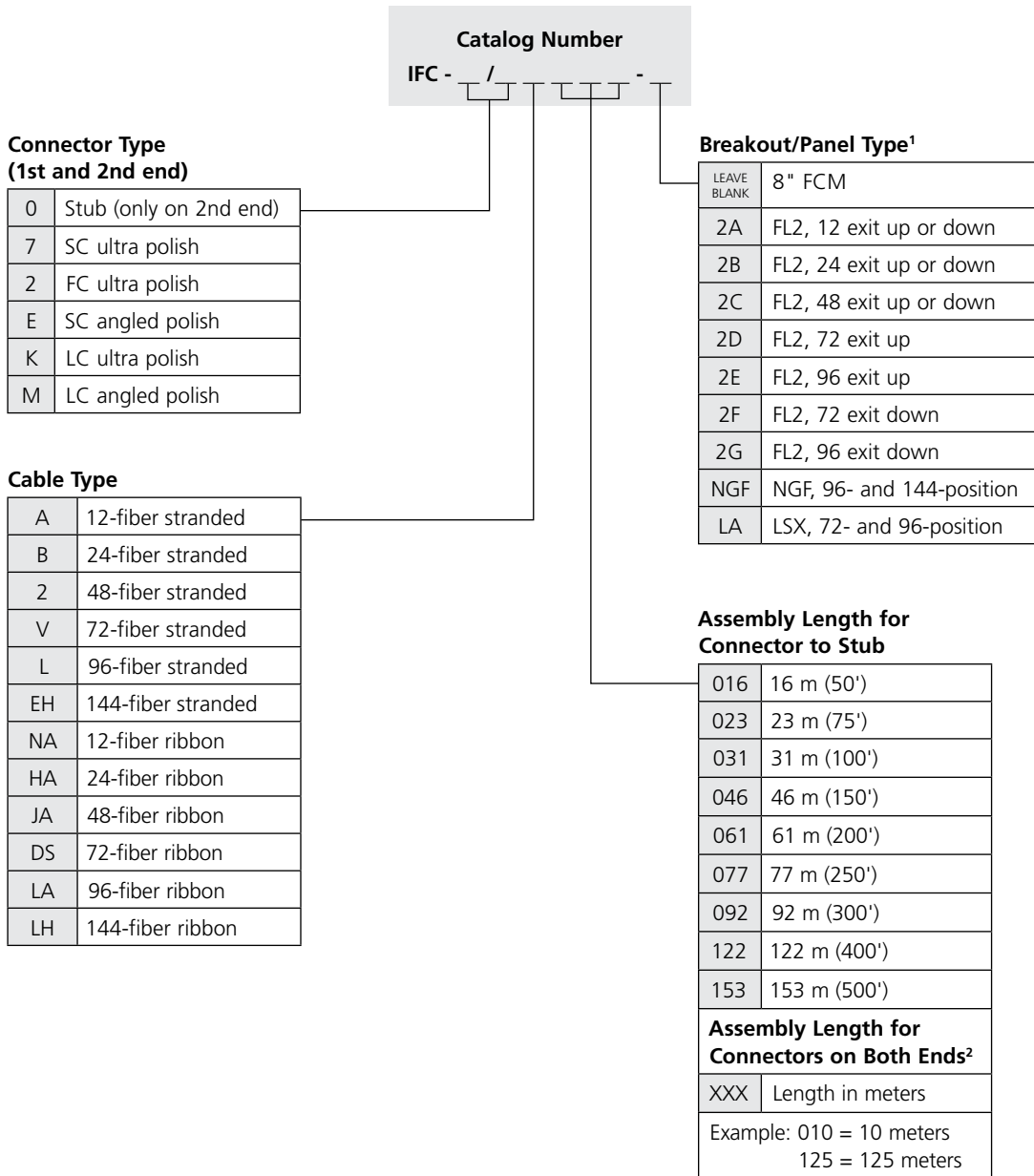




# Intrafacility Fiber Cable (IFC) Assemblies

## Singlemode IFC Assemblies

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<sup>1</sup> For competitors' panel products, ADC recommends using the FCM breakout length (1.8 m = 6').

<sup>2</sup> Standard lengths for connectors on both ends up to 150 meters.

For information on ADC's FL2000 (FL2) FCM or LSX panel products and Next Generation Frame (NGF) Fiber Termination Blocks, call ADC Technical Assistance Center.

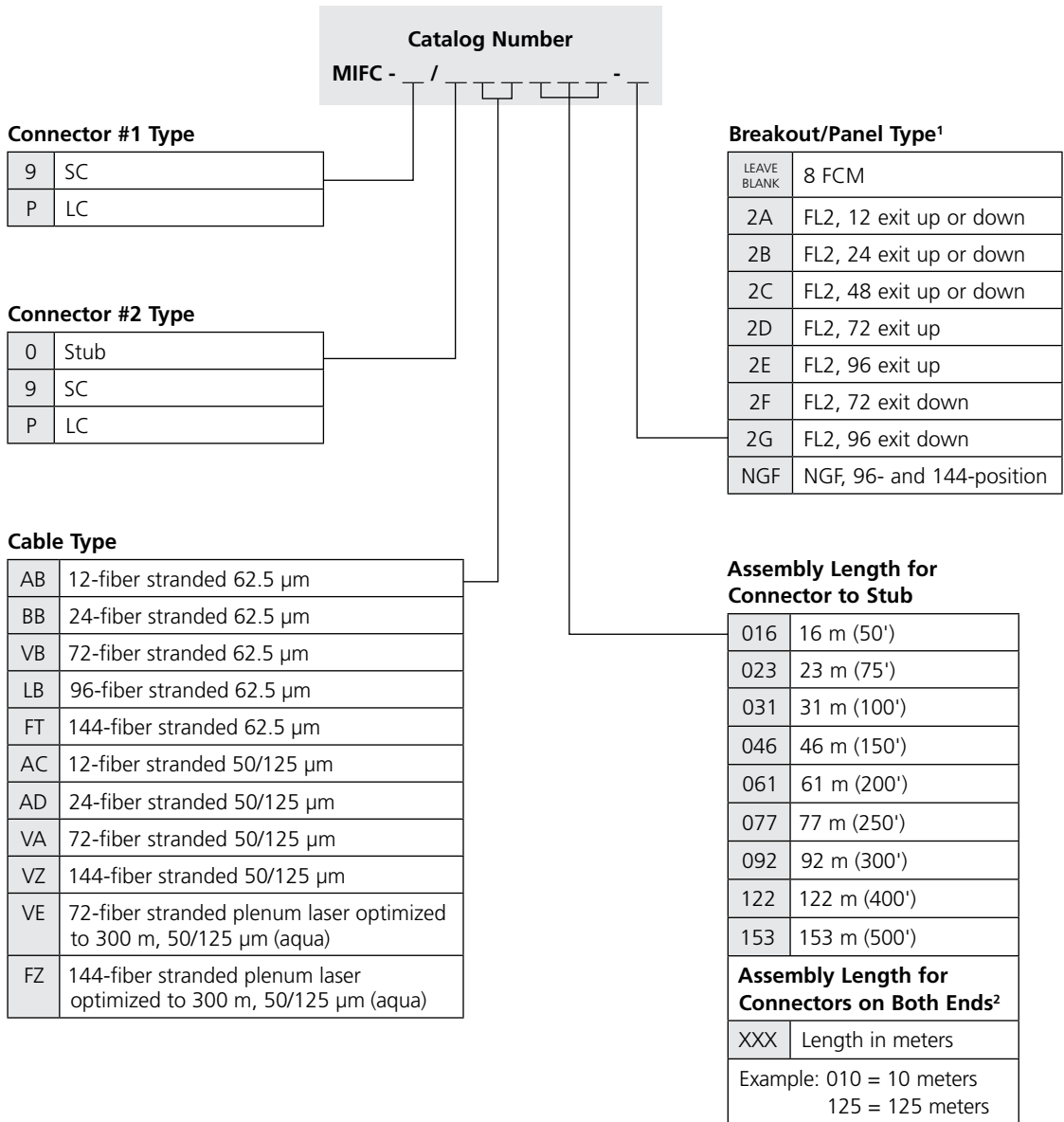
Additional fiber counts, lengths and connector styles are available upon request. Please contact ADC Technical Assistance Center.



# Intrafacility Fiber Cable (IFC) Assemblies

## Multimode IFC Assemblies

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<sup>1</sup> For competitors' panel products, ADC recommends using the FCM breakout length (1.8 m = 6').

<sup>2</sup> Standard lengths for connectors on both ends up to 150 meters.

For information on ADC's FL2000 (FL2) panel products and Next Generation Frame (NGF) Fiber Termination Blocks, call ADC Technical Assistance Center.

Additional fiber counts, lengths and connector styles are available upon request. Please contact ADC Technical Assistance Center.

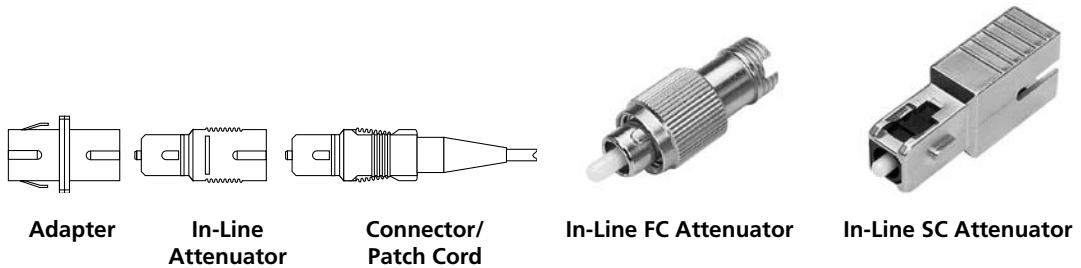


# Attenuators

## In-Line Attenuators

A fiber optic attenuator is an optical device that induces a calibrated fixed loss between two connectors, which dampens, or attenuates the fiber optic signal. Attenuation is required if an optical signal has too much power, exceeding the operating range of the equipment, which causes saturation at the receiver and induces system errors or failures.

ADC's full line of attenuators is manufactured to meet the demands of your network. In-line attenuators are installed between an adapter and a connector; they are fused attenuators, providing exceptional optical performance.



Attenuation	Tolerance
≤5 dB	±0.75 dB
>5 dB	±10%

### Ordering Information

Description	Catalog Number*
<b>LC ultra polish</b>	
05 dB	FOA-INLC05
10 dB	FOA-INLC10
15 dB	FOA-INLC15
20 dB	FOA-INLC20
<b>SC ultra polish</b>	
05 dB	FOA-INSC05
10 dB	FOA-INSC10
15 dB	FOA-INSC15
20 dB	FOA-INSC20
<b>SC angled polish</b>	
05 dB	FOA-INASC05
10 dB	FOA-INASC10
15 dB	FOA-INASC15
20 dB	FOA-INASC20
<b>FC ultra polish</b>	
05 dB	FOA-INFC05
10 dB	FOA-INFC10
15 dB	FOA-INFC15
20 dB	FOA-INFC20

\* Other attenuation values and connector styles are available upon request. Please contact ADC Technical Assistance Center.





# FasTerm® Connectors

Singlemode and Multimode FasTerm Connectors, Tool Kits and Accessories

FasTerm® connectors are available with 62.5/125 µm or 50/125 µm multimode fiber and 9/125 µm singlemode fiber. They come equipped with a pre-radiused zirconia ceramic ferrule and can be installed in less than three minutes with standard fiber optic tools (per Bellcore specifications). FasTerm connectors offer all of the advantages of epoxy-based connectors, without the need for access to electricity and curing ovens, the mixing of epoxies or use of syringes. The kit comes complete and self-contained. Each connector kit will accommodate 3.0 mm, 1.7 mm or 900 µm cable.

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## Ordering Information

Description	Catalog Number*
<b>Multimode FasTerm connector</b>	
SC connector	FTC-SCM111
<b>Singlemode FasTerm connector</b>	
SC connector	FTC-SCS111
FC connector	FTC-FCS111

\* Includes strain relief boots.



FasTerm Connector

## Tool Kit

### Ordering Information

Description	Catalog Number
<b>FasTerm tool kit</b>	
Multimode tool kit	FTC-KIT001
Singlemode SC tool kit*	FTC-KIT002-SC
Singlemode FC tool kit*	FTC-KIT002-FC

\*Each tool kit is identical except for the polishing puck. Additional polishing pucks may be purchased to expand the capabilities of a singlemode kit.



FasTerm Tool Kit

## Accessories

### Ordering Information

Description	Catalog Number
<b>Multimode consumables kit (100 terminations);</b> connectors not included	FTC-CNSM01
<b>Singlemode consumables kit*;</b> connectors not included	FTC-CNSM02
<b>Crimp tool</b>	FTC-CRIMP2
<b>Inspection scope (200x)</b>	FTC-SCOPE-200X

\*ADC recommends that one consumable kit be used for every 25 singlemode connector terminations.



# Adapters

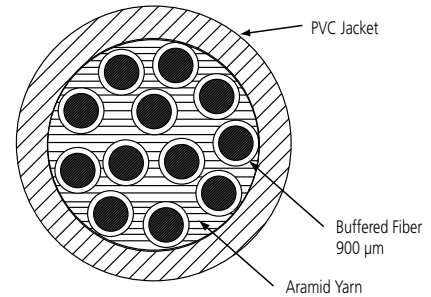
## Simplex and Duplex Adapters

ADC's bulkhead adapters are available for all standard connector types in both singlemode and multimode. The adapters are color coded allowing easy identification of the adapter type.

The adapter sleeve aligns the ferrules and holds them in place. Singlemode adapters are available with either zirconia or phosphor bronze sleeves. Zirconia sleeves provide tighter tolerances, generally required for angled physical contact (APC) connectors.

Multimode adapters are available with phosphor bronze sleeves, which provide good performance for spherical polished connectors.

LC small-form-factor adapters are available as duplex, enabling two connectors to be used in the same footprint as the SC connector.



Adapters

### Ordering Information

Description	Catalog Number*
<b>Simplex adapters</b>	
With phosphor bronze sleeve	
Singlemode LC	FBA-LC
Singlemode SC	FBA-SC
Singlemode SC - no flange	FBA-SCNF
Singlemode FC - round adapter	FBA-FR
Multimode SC	FBA-MSC
Multimode SC- no flange	FBA-MSCNF
With zirconia sleeve	
Singlemode LC	FBA-LC-Z-NF
Singlemode LC - angled polish	FBA-ALCZ
Singlemode SC	FBA-SCZ
Singlemode SC - no flange	FBA-SCZNF
Singlemode SC - angled polish	FBA-ASCZ
Singlemode FC - round adapter	FBA-FRZ-AR
<b>Duplex adapters</b>	
With phosphor bronze sleeve	
Singlemode SC	FBA-DSCNF
Multimode SC	FBA-DMSCNF
Singlemode LC	FBA-DLCNF
Multimode LC	FBA-DMLCNF
With zirconia sleeve	
Singlemode SC	FBA-DSCZNF
Singlemode SC - angled polish	FBA-DASCZNF
Singlemode LC	FBA-DLC-Z-NF
Singlemode LC - angled polish	FBA-DALC-Z

\* Other connector styles are available upon request. Please contact ADC Technical Assistance Center.



# Accessories

## Fiber Connector/Adapter Cleaning Kit

The fiber connector/adapter cleaning kit contains all the items required to adequately clean fiber connectors and adapters. The performance of an optical fiber system is largely dependent on the fiber connector cleaning procedures followed prior to installation. It is suggested that all the connectors and adapters be cleaned before making any connections. The kit cleans approximately 500 connectors or adapters.



Cleaning Kit

### Ordering Information

Description	Catalog Number
<b>Fiber connector/adapter cleaning kit</b>	FPC-CLNKIT
Includes: <ul style="list-style-type: none"> <li>• Instruction sheet</li> <li>• Lint-free wipes</li> <li>• Isopropyl alcohol</li> <li>• Cotton swabs</li> <li>• Lint-free pipe cleaners</li> <li>• Oil-free compressed air</li> </ul>	

This kit contains flammable alcohol and compressed air. For this reason, it can be shipped by surface method only.



# Fiber Optic Specifications

## Optical Performance

Singlemode Ultra			
Polish Connectors (UPC)	SC	FC	LC
<b>Insertion Loss</b> (1310 and 1550 nm)	0.2 dB max. 0.09 dB typical	0.2 dB max. 0.09 dB typical	0.3 dB max. 0.1 dB typical
<b>Return Loss</b> (1310 and 1550 nm)	-57 dB min.	-57 dB min.	-55 dB min.
<b>Fiber Recess</b>	± 50 nm	± 50 nm	-100 to +50 nm
<b>Apex Offset</b>	50 µm max.	50 µm max.	50 µm max.
<b>Radius of Curvature</b>	10-25 mm	10-25 mm	10-25 mm
Singlemode Angled			
Polish Connectors (APC)	SC		LC
<b>Insertion Loss</b> (1310 and 1550 nm)	0.35 dB max. 0.15 dB typical		0.35 dB max. 0.15 dB typical
<b>Return Loss</b> (1310 and 1550 nm)	-65 dB min.		-65 dB
<b>Polished Endface Radius</b>	5 - 15 mm		5 - 12 mm
<b>Fiber Recess</b>	-100 to +50 nm		±50 nm
<b>Apex Offset</b>	50 µm		±50 µm
<b>Endface Angle</b>	8° ± 0.5		8° ± 0.5
Multimode Ultra			
Polish Connectors	SC		LC
<b>Insertion Loss</b> (1300 nm)	0.3 dB max.		0.3 dB max.
<b>Return Loss</b> (1300 nm)	-20 dB min.		-20 dB max.

## Mechanical and Environmental Characteristics

Every patch cord manufactured by ADC is designed to pass rigorous qualification testing that includes: EIA/TIA Industry Standards according to Fiber Optic Test Procedures (FOTP).

Item Specifications	EIA/TIA Test	Item Specifications	EIA/TIA Test
Temperature shock	FOTP-3	Cable flex	FOTP-1A
Humidity	FOTP-5	Cable retention	FOTP-6
Temperature life	FOTP-4	Cable twist	FOTP-36
Mating durability	FOTP-21	Impact	FOTP-2
Vibration	FOTP-11		

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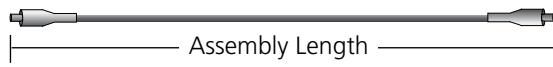


# Fiber Optic Specifications

## Assembly Length Guide

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### Patch Cords



**Length**  
1 to 15 m  
+15 m

**Tolerance**  
+16 cm/-0 cm  
+1%/-0 cm

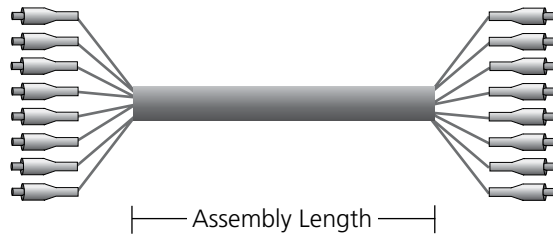
### Multifiber Patch Cords



**Length**  
1 to 15 m  
+15 m

**Tolerance**  
+16 cm/-0 cm  
+1%/-0 cm

### IFC Assemblies



**Stranded Length**  
1 to 15 m  
+15 m

**Tolerance**  
+16 cm/-0 cm  
+1%/-0 cm

**Ribbon Length**  
1 to 20 m  
+20 m

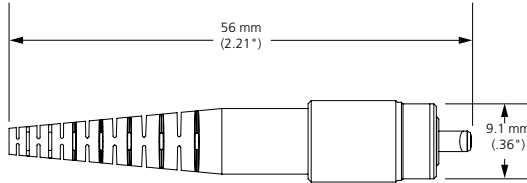
**Tolerance**  
+15 cm/-0 cm  
+90 cm/-0 cm



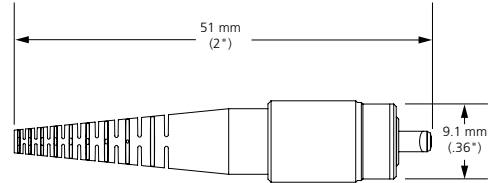
# Fiber Optic Specifications

## Connector Dimensions

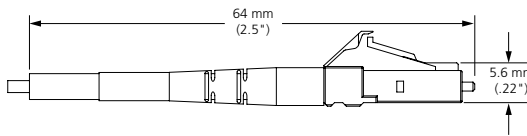
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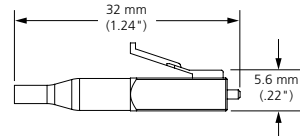
**FC 2.0 mm Connector**



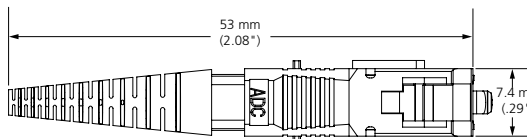
**FC 900 μm Connector**



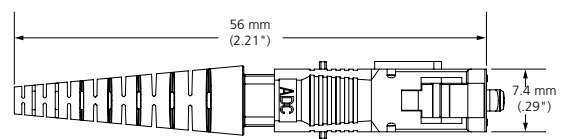
**LC 2.0 mm Connector**



**LC 900 μm Connector**



**SC 2.0 mm Connector**



**SC 900 μm Connector**

Other connector styles are available upon request. All connectors available in 2.0 mm, 1.7 mm and 900 μm cable. Please contact ADC Technical Assistance Center.



# Fiber Optic Glossary

## Adapter

A device used for joining two fiber optic connectors together.

## Angled Polish

Angled Physical Contact (APC) is a term used to refer to a connector polished at a slight angle, which typically provides back reflections (return loss) greater than 65 dB.

## Attenuation

The decrease of power from one point to another. It is caused by absorption, fiber imperfection, scattering and bending loss. In optical fibers, the power loss per unit length is expressed logarithmically in decibels per kilometer (dB/km) at a specific wavelength.

## Attenuator

Optical device that induces a calibrated fixed loss in the fiber optic system.

## Bend Radius

Minimum radius a fiber can bend before the risk of breakage or increase in attenuation.

## Breakout

The point on a multifiber cable where the outer jacket is cut to expose the cable subunits.

## Buffer

Material used to protect optical fiber from physical damage.

## Bundle

Many individual fibers contained within a single jacket. Also a group of buffered fibers distinguished in some fashion from another group in the same cable core.

## Cable Assembly

Fiber optic cable that has connectors installed on one or both ends.

## Cladding

The material surrounding the core of an optical fiber which promotes total internal reflection.

## Coating

A material that is put over the core and cladding of an optical fiber to protect it from the environment.

## Color Coded Cable

Cable having color coded insulation on the conductors to aid identification.

## Connector

Hardware installed on cable ends to provide physical and optical cable attachment to a transmitter, receiver or another cable. A junction which allows an optical fiber or cable to be repeatedly connected or disconnected to a device such as a source or detector.

## Core

The light-conducting portion of a fiber defined by its high refractive index. The core is normally in the center of a fiber bounded by concentric cladding of lower refractive index.

## Fan-Out

Used to provide a transition from ribbon fibers to individual fiber connection ports.

## Ferrule

The alignment sleeve portion of an optical connector; aligns the end of the fiber. Standard connectors have a 2.5 mm ferrule diameter; small-form-factor connectors use 1.25 mm.

## In-line Attenuator

Installed between an adapter and a connector. It adds attenuation to optical signals.

## Insertion Loss

The total optical power loss caused by the insertion of an optical component such as a connector, splice or coupler.



# Fiber Optic Glossary

## **Intrafacility Fiber Cable (IFC)**

A generic term referring to a multifiber cable designed with properties required in a central office, including the requirement that the cable be fire retardant. Cables are available in ribbon or stranded fiber configuration with varied fiber counts.

## **Jacket**

A layer of material, generally plastic, that surrounds an optical fiber to protect it from physical damage. Unlike the cladding, the jacket is physically distinct from the fiber core.

## **Modes**

Individual paths in optical waveguides. Singlemode fiber has only one mode, the fundamental mode, while multimode fiber has several hundred modes. The upper limit to the number of modes is determined by the core diameter of the waveguide.

## **Multimode Fiber**

An optical fiber whose core diameter is large compared with the optical wavelength - contains more than one mode.

## **Patch Cord**

An optical fiber with a connector on each end. Also referred to as a jumper.

## **Pigtail**

An optical fiber cable with a connector on one end.

## **Plenum Cable**

Cable made from flame-retardant material that generates little smoke. Generally installed in plenum air ducts.

## **Return Loss**

A measurement of the light reflected back to the source at an optical interface.

## **Riser Cable**

Cable made from flame-retardant material intended for use in riser shafts without the use of conduit. Cable material will prevent the carrying of fire from floor to floor.

## **Singlemode Fiber**

An optical waveguide in which only one mode propagates due to its small core diameter of approximately 8 microns.

## **Ultra Polish**

Ultra Physical Contact (UPC) is a term used to refer to connectors with a flat polish which provide back reflections (also referred to as Return Loss) of greater than 50 dB and typical insertion losses of 0.2 dB.

## **Wavelength**

A parameter of the light used in a fiber optic system. Because the attenuation of a fiber is highly dependent on the wavelength of the light traveling through it, optimum performance (i.e. minimum attenuation) can be achieved only by operating at one or two specific wavelengths. The specific wavelength at which the light is most transparent is called a "window."





# Fiber Optic

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# Fiber Cable Assemblies and Accessories



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