A White Paper by TechLogix

Media over Fiber Optics™ Definitions & Acronyms

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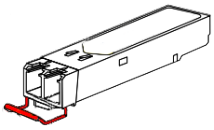
Aramid Fiber/Yarn The internal yarn-like fibers inside a fiber cable that provide strength and protection.

Bale Clasp The wire clasp on an SFP module or GBIC module used to remove the module from an electronic device.



Bale Clasp
(highlighted in red)

Breakout Cable Also known as a *fanout* cable; a fiber cable containing several individually jacketed simplex fibers packaged together inside an outer jacket.

Cladding The layer that protects the cable core and provides the necessary reflection for optic signals traveling through the cable.

Cleaver A tool used to score (cut) fiber optic cable.

Coating The layer of plastic that surrounds the cable cladding and helps protect the fiber core.

Core The physical center of the fiber optic cable that transports optical data signals; typically constructed of glass or a glass/plastic hybrid.

Duplex Fiber A cable with two strands of fiber; typically of a siamese construction.

GBIC Stands for *GigaBit Interface Converter*; a small transceiver that plugs in the GBIC port of a Media over Fiber Optic electronic device, such as a network switch or extender. GBICs convert the audio-visual electrical signals to serial optic signals and vice versa. Serves the same function as an SFP; however, it's larger in size.

Jacket Color	Fiber Type
Orange	OM1 or OM2 multimode
Yellow	OS1 or OS2 single mode
Aqua	OM3 or OM4 multimode (laser optimized)
Violet	OM4 multimode (laser optimized)
Red	OS1 or OS2 single mode

Quick Reference: Typical color codes for fiber optic cables

Jacket The outermost layer of the fiber cable.

LC Connector Stands for *Lucent Connector*; small-format connector style used on most Media over Fiber Optic electronics due to its compact size. Push-pull style of connection.

Loose Tube Fiber A multi-strand fiber optic cable where the individual fibers are loosely bundled (as opposed to tightly buffered); typically contains a waterproof layer and is used in outdoor applications where cables must expand and contract with temperature fluctuations without damaging the internal fibers.

Media over Fiber Optics Media over Fiber Optics, or MOFO, is the combination of fiber optic cabling, signal distribution electronics and accessories to create a fully functioning fiber-based audio-visual distribution system.

Micro Distribution Cable Also known as a *distribution* cable; a high-density fiber cable containing multiple strands of unjacketed fibers packaged together inside an outer jacket.

Common Fiber Connector Styles				
				
LC Style Connector	SC Style Connector	ST Style Connector	MTRJ Style Connector	MPO Style Connector

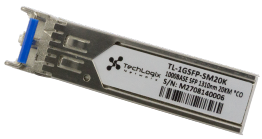
Multimode Fiber A type of optical fiber used for Media over Fiber Optic transmission over shorter distances (typically up to 300m / 1,000 ft.); features a larger core diameter and a lower price point than single mode fiber.

MPO Connector Stands for *Multi-Fiber Push On*; connector style used on some Media over Fiber electronics. Guide pin style of connection.

MTRJ Connector Stands for *Mechanical Transfer Registered Jack*; connector style used on some Media over Fiber electronics. Guide pin style of connection.

OM / OS Rating OM stands for *optical multimode* and OS stands for *optical single mode*. Fiber commonly comes in six different formats: OM1, OM2, OM3, OM4, OS1 and OS2. In general, the higher the OM/OS number the higher the supported bandwidth and transmission distance.

SFP / SFP+ Stands for *Small Form-Factor Pluggable*; a small transceiver that plugs in the SFP port of a Media over Fiber Optic electronic device, such as a network switch or extender. SFPs convert the audio-visual electrical signals to serial optic signals and vice versa. Serves the same function as a GBIC; however, it's smaller in size.



SFP Module

Single Mode Fiber A type of optical fiber used for Media over Fiber Optic transmission over longer distances (typically over 300m / 1,000 ft.); features a smaller core diameter and a higher price point than multimode fiber.

SC Connector Stands for *Subscriber Connector*; larger-format connector style used on some Media over Fiber Optic electronics and most network electronics. Push-pull style of connection.

Sheers A tool used to cut excess aramid fiber/yarn during fiber optic cable termination. Note: the sheers are not used to cut the fiber cable itself (see *Cleaver*), but only the aramid fiber/yarn.

Simplex Cable A cable with only a single strand of fiber.

ST Connector Stands for *Straight Tip*; bayonet connector style used on some Media over Fiber Optic electronics (more common in broadcast). Twist style of connection.

Strengthening Fibers Inner jacketed fibers that help protect the cable core against damage during installation and handling.

Position	Color Code
1	Blue
2	Orange
3	Green
4	Brown
5	Slate
6	White
7	Red
8	Black
9	Yellow
10	Violet
11	Rose
12	Aqua
13 - 24	Repeat colors 1 – 12 with black tracer

Quick Reference: Color scheme for terminating micro distribution breakout cables (TIA/EIA-598 standards)

Tight-Buffered Cable A multi-strand fiber optic cable where the individual fibers are tightly bundled (as opposed to *loose tube*) for a smaller diameter sized and more flexible cable.

µm (um) Stands for *microns or micrometers;* the unit of measure for fiber optic core size. Typically, cables with a lower µm diameter transmit signals further and at with higher bandwidth ratings.

Visual Fault Locator A tool used to find breaks in fiber optic cabling, as well as high loss areas around connectors and/or junction points. A visual fault locator emits a beam of light down the fiber cable and the light becomes visible through the cable jacket at a break or loss point.

Typical Signal Transmission Distances by Fiber Grade/Type						
Grade	**Type**	**Typical Core Size**	**1 Gb Distance**	**10 Gb Distance**	**40 Gb Distance**	**100 Gb Distance**
OM1	Multimode	62.5µm	300m / 1,000 ft.	36m / 118 ft.	NA	NA
OM2	Multimode	50µm	550m / 1,800 ft.	86m / 282 ft.	NA	NA
OM3	Multimode	50µm	1,000m / 3,280 ft.	300m / 1,000 ft.	100m / 330 ft.	100m / 330 ft.
OM4	Multimode	50µm	1,000m / 3,280 ft.	550m / 1,800 ft.	125m / 410 ft.	125m / 410 ft.
OS1	Single mode	8 – 10.5µm	2,000m / 6,560 ft.	2,000m / 6,560 ft.	NA	NA
OS2	Single mode	8 – 10.5µm	10km / 6.2 miles	10km / 6.2 miles	NA	NA