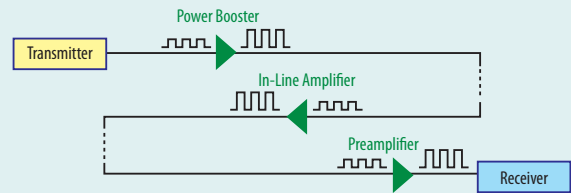


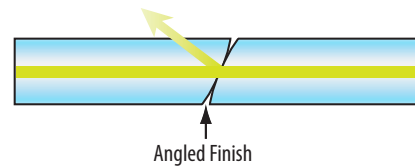
## Fiber Optic Illustrated Glossary

GLOSSARY

**Amplifier** A device inserted within a transmission path that boosts the strength of an optical signal. Amplifiers can be placed just after the transmitter (power booster), between the transmitter and the receiver (in-line amplifier), or just before the receiver (preamplifier).

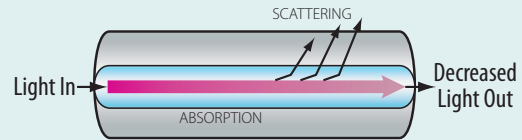


**APC** Abbreviation for Angled Physical Contact. A style of fiber optic connector with a 5°-15° angle on the connector tip for the minimum possible backreflection.



**Attenuation** Loss or decrease in power from one point to another in a fiber optic cable.

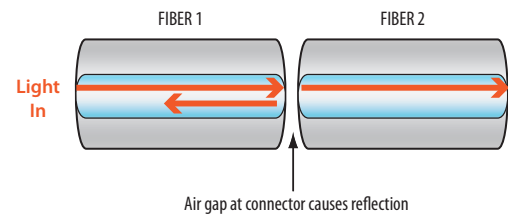
**Attenuation Limited Operation** The condition in a fiber optic link when operation is limited by the power of the received signal (rather than by bandwidth or by distortion). Attenuation is usually measured in decibels per kilometer (db/km) at a specific wavelength. The lower the number, the better the fiber.



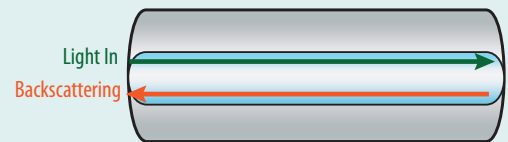
**Axis** The center of an optical fiber.



**Backreflection (BR)** A term applied to any process in the cable plant that causes light to change directions in a fiber and return to the source. Occurs most often at connector interfaces where a glass-air interface causes a reflection.

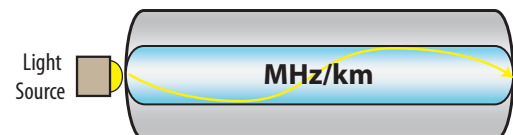


**Backscattering** The return of a portion of scattered light to the input end of a fiber; the scattering of light in the direction opposite to its original propagation.



**Bandwidth** The information carrying capacity of an optical fiber, expressed in MHz/km. The measure is dependent upon wavelength and type of light source.

**Bandwidth Limited Operation** The condition prevailing when the system bandwidth, rather than the amplitude of the signal, limits performance. The condition is reached when modal dispersion distorts the shape of the waveform beyond specified limits.

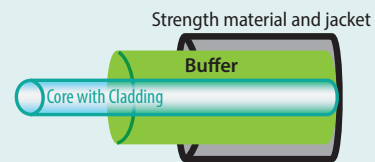


## Fiber Optic Illustrated Glossary

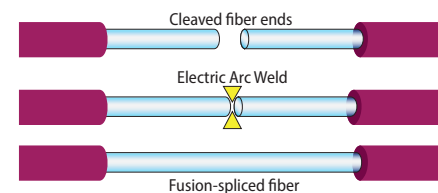
**Bend Radius** Radius a fiber or fiber optic cable can bend before breaking or suffering increased attenuation.



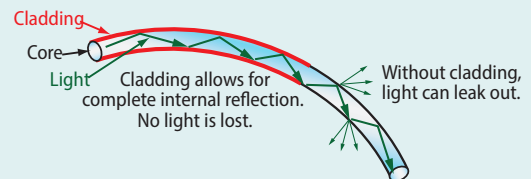
**Buffer** A protective coating applied directly to the fiber.



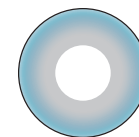
**Butt Splice** A joining of two fibers without optical connectors arranged end-to-end by means of a coupling. Fusion splicing is an example. Using an electric arc to weld two fiber optic cables together fusion splicing offers sophisticated, computer controlled alignment of fiber optic cables to achieve losses as low as 0.05 dB.



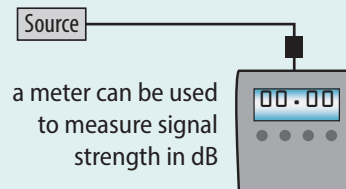
**Cladding** Material that surrounds the core of an optical fiber. Its lower index of refraction, compared to that of the core, causes the transmitted light to travel down the core.



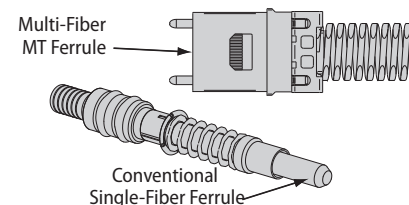
**Cleave** The process of separating an optical fiber by a controlled fracture of the glass, for the purpose of obtaining a fiber end, which is flat, smooth, and perpendicular to the fiber axis.



**Decibel (dB)** Unit for measuring the relative strength of a signal.



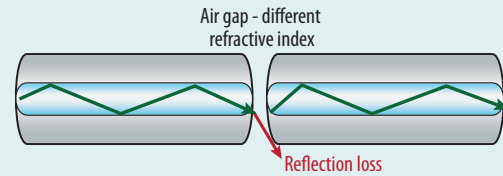
**Ferrule** A small tube or block designed to house and align optical fibers within the interconnect terminus. Generally made of stainless steel, ceramics, or polymer, the ferrule is used to confine and align the stripped fiber ends for efficient light transmission between connected fibers. MT ferrules are uniquely capable of housing multiple fiber lines in ultra high-density arrangements.



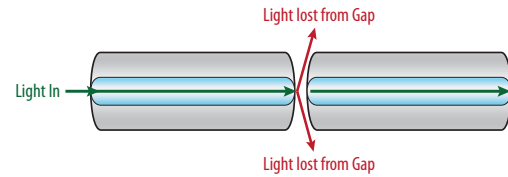
## Fiber Optic Illustrated Glossary

GLOSSARY

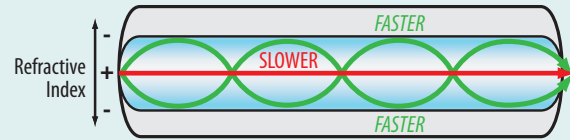
**Fresnel Reflection Loss** Reflection losses incurred at the input and output points of optical fibers due to the difference in refractive index between core glass and immersion media.



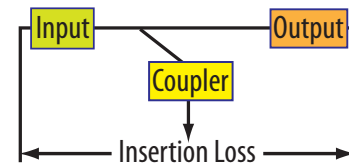
**Gap Loss** Loss resulting from the end separation of two axially aligned fibers.



**GRIN** Abbreviation for GRAdient INdex. This type of multimode fiber uses a core in which the refractive index gradually decreases from the center of the fiber out toward the cladding. Light rays moving down the center axis advance more slowly than those near the edge, which take a helical curved path, shortening their travel distance. The faster rays at the edge of the fiber arrive closer together with the slower rays from the center, allowing for a signal with less dispersion.



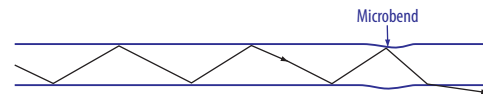
**Insertion Loss** Attenuation caused by the insertion of an optical component; in other words, a connector terminus or coupler in an optical transmission system.



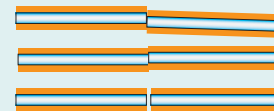
**Interferometer** An instrument that uses the principle of interference of electromagnetic waves for purposes of measurement. Used to measure a variety of physical variables, such as displacement (distance), temperature, pressure, and strain.



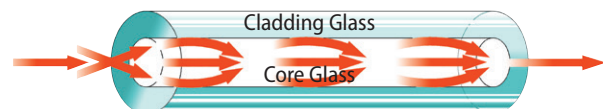
**Microbending** Mechanical stress on a fiber that introduces local discontinuities, which results in light leaking from the core to the cladding by a process called mode coupling.



**Misalignment Loss** The loss of power resulting from axial misalignment, lateral displacement, and end separation.



**Multimode (MM) Fiber** An optical fiber that has a core large enough to propagate more than one mode of light. The typical diameter is 62.5 micrometers.

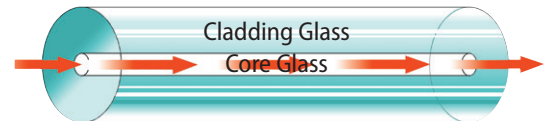


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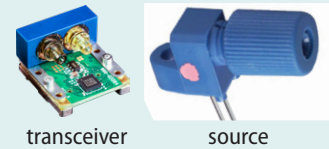
**Optical Time Domain Reflectometer (OTDR)** Testing system for fiber strands in which an optical pulse is transmitted through the fiber and the resulting backscatter and reflections are used to estimate attenuation and identify defects and the sources of localized losses.



**Single-mode (SM) Fiber** A small-core optical fiber through which only one mode will propagate. The typical diameter is 8-9 microns.



**Source** The means used to convert an electrical information-carrying signal to a corresponding optical signal for transmission by fiber. The source is usually a Light Emitting Diode (LED) or Laser housed inside an optical-to-electrical **transceiver** device (see Transmitter)



**Tools** Fiber optic tools or tooling are essential to termination, assembly, inspection, and cleaning. Low-volume operations may use hand polishing, but higher-volumes require the use of automated polishing equipment. Other essential tools (supplied by Glenair) include inspection probes as well as dry and wet cleaning apparatus.



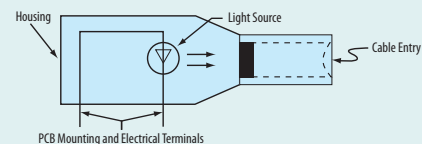
**Transducer** A device for converting energy from one form to another, such as optical energy to electrical energy.



**Transmission Loss** Total loss encountered in transmission through a system.



**Transmitter** An electronic package that converts an electrical signal to an optical signal.



**Wavelength** The distance between successive peaks (or troughs) of a light wave as it travels through a fiber optic cable. Varying wavelengths are employed for transmitting optical data. Higher wavelengths such as 1550 nm are less susceptible to attenuation and can travel longer distances before experiencing significant signal loss.

