



GLOSSARY OF TERMS

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-A-

Acceptance Angle: The angle of light that can be accepted into an optical fiber from the light source. The wider the angle of acceptance, the more light can be accepted and transmitted through the fiber.

Acrylic Fiber: Consists of an inner acrylic plastic core coated with a thin cladding of a fluorinated resin. This material is more durable, lighter in weight, can be bent to a tighter radius than other fiber, and can be easily terminated in the field.

Ambient Lighting: A question as to the competing light from other sources.

Amperage Draw: The strength of electrical current being used by the illuminator.

Aperture: The opening of the illuminator through which light passes into the optical fiber.

Axial Mode: Allows the highest light output for fiber optic systems. In this mode (sometimes referred to as "end light"), the end of the fiber is exposed and delivers all of the available light.

- B -

Beam Spread: The angle of light that exits the output end of the optical fiber.

Bend Radius: The minimum radius to which a given fiber optic may be bent without damaging the fiber or disrupting the continuity of the cables core diameter.

Burial Box: Housing for underground burial of an illuminator.

- C -

Candela (CD): International unit (SI) of luminous intensity; term evolved from considering a standard candle similar to a plumber's candle, as the basis of evaluating the intensity of other light to describe the relative intensity of a source (see Lumen).

Candlepower: See Candela.

CE Mark: The accepted European electrical standard certification placed on electrical fixtures. It is based upon safety standards accepted by the European electrical community.

Clad: The fluoropolymer material surrounding the active light transmitting core of optical fiber that has been designed to enhance the total internal reflection (T.I.R.) of light as it travels through the core. The cladding also adds a protective barrier for the core.

Color Rendering Index: The method that indicates how colors will look under a given source. A color rendering index (CRI) number is assigned to a light source based in its ability to make pigments look as they would under certain test sources when compared to the sources having the same color temperature.

Color Shift: The color change of light as it transmits along the length of a fiber. As the light attenuates, the inherent color of the optical fiber will change.

Color Temperature: This refers to the color of light we get from natural or white. The higher the number, the bluer the color temperature is. The lower the number the warmer the color temperature.

Color Wheel & Motor: Typically it is 4 or 8 individual dichroic glass pieces assembled together and mounted in front of the lamp in a fiber optic illuminator. Driven by a small motor, it can rotate and change the color of the optic, or remain stationary on one color.

Conduit: Typically a metal or PVC pipe which provides shielding and protection of electrical wires. In some installations, optics are inserted inside the conduit, as a method of hiding or protecting the optic and to meet certain building or electrical standards.

Core Diameter: The outer measurement of the inner most portion of the fiber optic cable.

Core: The inner most portion of the fiber optic cable.

- D -

Daisy Chain: When you connector illuminators in a serial fashion. (i.e. running one cable from one unit to the next, to the next, etc)

Dichroic Filter: Generally glass or molded plastic, a dichroic filter is attached as a lens to a lamp for filtering out certain lightwaves. Use of Dichroic filters is another way to transmit colored light through optical fiber.

DMX512: A high speed digital data system that is capable of transmitting all of the information required for light dimmers, intelligent lights, scrollers etc. down three wires in a single cable. DMX is capable of sending 512 different channels through it. DMX512 was developed by USITT (United States Institute of Theatre Technicians).

Dowser: A part of a color wheel that blacks out the light.

Driver: Fiber optic connection that comes out of the illuminator and splices onto another piece of optic.

- E -

End Glow: The light that comes out the end of a fiber.

End Light: A type of optic that acts as a point source of light.

End Seal: A cap applied to the very end of the optical fiber to protect it from liquids and dirt, dust etc.

Extrusion: A fixture made of plastic or metal used to mount a linear fiber to a surface. It is manufactured by forcing a particular material through a die to give it a special shape.

- F -

Fiber Bundle: Refers to the collection of individual fibers that supply light to the fixture. These fibers are held together and protected by the sheathing.

Fiber Optic: Refers to the conduction of light waves through materials of exceptional clarity and across long distances. Fiber optics demonstrates total internal reflection by combining like materials of differing indices of refraction.

Filter: A device for changing, by transmission or reflection, the magnitude or spectral composition of the flux incidence upon it. They can be colored or neutral, depending on whether they alter the light distribution

Fixture: The component that attaches to the output end of the fiber to focus or control the beam pattern of light.

Focal Point: The point where optical fiber is positioned in the illuminator to optimally transmit the maximum amount of light.

Foot-Candle: A measurement of light on a surface.

- G -

Glare: Visual discomfort caused by excessive brightness; can be direct or indirect (Reflected).

Glass Fiber: Original fiber optic material, and still the standard in communications technology. Glass fiber requires a large bend radius and is not easily field-terminated.

- H -

Harness: The device by which fiber is connected to an illuminator.

H.I.D.: High intensity discharge lamps can either be mercury, metal halide, or high-pressure sodium.

Housing: Outer casing or box for the fiber optic illuminator.

- I -

Illuminance (E): The "quantity" of light (footcandles, lux) at a point on a surface.

Illuminator: An electrical box that contains a lamp, transformer, cooling fan and optional color wheel or colored dichroic filter. Illuminators can be manufactured either 120 VAC or 240 VAC (50 or 60 Hz). Many different lamps, and housings are designed to meet specific application requirements.

IR: Light transmitting in the Infrared wavelength, IR is generated as heat and must be filtered in plastic optical fiber lighting systems.

- J -

Jacket: The outer most portion of the fiber optic cable.

- L -

Lamp Life: The approximate time for which a particular lamp will continue to operate without failure. Several variables affect lamp life; however, two of these variables are the most significant: voltage and the number of times the lamp is powered on and off.

Lamp Wattage: Amount of electrical power in a lamp developed in a circuit by a current of one ampere flowing through a potential difference of one volt.

LCPOF: Large core plastic optical fiber.

Lens Coupler: A transparent or translucent aperture that directs and/or focuses the light from an end-lit fiber optics cable.

Light Loss Factor: The product of all considered factors that contribute to a lighting system's depreciated light output over a period of time including dirt and lamp lumen depreciation.

Light Source: The source of the light, i.e. the illuminator.

Looped: When both ends of the optic are lit by one light source.

Lumens: A unit of continuous light (flux) equal to the light emitted in a unit solid angle by a uniform point of one candle intensity.

Luminance: Measured on a point of a surface in a direction, is interpreted as the quotient of the luminous intensity in the given direction produced by an element of the surface surrounding the point.

Luminous Flux: The radiant power of a source of light; the time rate of flow of radiant energy.

Lux (LX): A unit of illumination equal to the direct illumination on a surface that is equal to one lumen per square meter. One lux is equal to 0.0926 foot-candles.

- M -

Transmission Distance: Refers to the maximum length that optical fiber may be configured. Several factors affect this length: diameter size, optic style, color of light, and lamp voltage. No formula exists for determining which size diameter might be appropriate for a particular application.

Metal Halide: A type of H.I.D. lamp technology commonly used in a fiber optic light source. Provides a very bright, high efficiency lamp with a high color temperature and a long lamp life.

MH/HID: Industry abbreviation for Metal Halide Intensity Discharge lamp, as in our LP150Mh and LP150MHS.

Minimum Bend Radius: The tightest bend recommended for fiber optics to avoid a bright spot at the bend and poor light transmission after the bend.

Mounting: The affixing of a fiber to a surface.

- N -

Numerical Aperture (NA): The mathematical relationship ratio of the refractive indices of the core and the clad of an optical fiber.

- O -

Operating Temperature: The range of ambient temperatures that optical fiber will function without damage or significant loss of light transmission.

Optic Clips: Clips that hold the optic for mounting purposes.

Optical Fiber (Fiber Optics): Any fiber that transmits light for the purpose of illumination or communication.

Outer Diameter (OD): Designates the total diameter of the optical fiber. Optics are ordered by inner diameter core. The outer diameter varies with the inner diameter.

Output Angle: The angle of light as it exits the optical fiber.

- P -

Paver: A type of decorative glass or plastic fixture attached to the output end of an optical fiber. It is typically a landscape fixture.

Perimeter Lighting System: A fiber optic lighting system that details a decorative edge around a feature, such as a pool or a building.

Peripherals: A term describing the components of a fiber optic lighting system, such as fixtures, fittings, lenses, and tracking.

PMMA: Thermoplastic acrylic stranded fibers used in bundles for illumination fiber optics.

POF: Plastic Optical Fiber is the generic term for optical fibers composed of various types of plastic as distinguished from glass fibers.

Point Source: Refers to the type of optical fiber that transmits a spot or floodlight.

Polymerization: A chemical process of forming a polymer indicative in large core optical fiber.

POP: Point of Purchase, as in POP signage.

Port: An opening in a fiber optic illuminator designed to accept the fiber optic cable.

- Q -

Quartz Halogen: A gas-filled tungsten incandescent lamp containing a certain proportion of halogens in an inert gas.

- R -

Re-strike: The period of time in which it takes for a lamp to re-light after being turned off.

Refractive Index: The numerical designation for a particular surface which denotes the angle or direction of a ray of light changing as it passes obliquely off of the surface.

Remote Source Lighting: The new industry name for "Fiber Optic Lighting"

- S -

Side Light: A type of optical fiber designed to transmit light primarily along its sides, thus achieving a neon-like look.

Series: Fiber cable leaving one light source and going to another.

Sheathing: The plastic tube that protects the fiber bundle. Sheathing is available in many different materials.

Solid Core: A monofilament type of optical fiber made of a thermoset organic polymer.

Splicing: Joining two pieces of optics, of the same nominal diameter size, together to form a longer length. Splicing is normally performed in the factory, however, field splices can be achieved.

Storage Temperature: The range of ambient temperature which optical fiber may be stored. It is highly recommended that optical fiber be stored in a dry, environment with a temperature range from 20 to 40 degrees C (68 to 104 degrees F).

Stranded: A type of illumination fiber optic comprised of PMMA acrylic material. The thermoplastic material is bundled to make either point or linear fiber optics.

- T -

Task Lighting: Engineering term for light that provides the ability to "see" to perform tasks.

Teflon*: A special non-stick fluoropolymer made and patented by E.I. du Pont de Nemour and Company. *DENOTES TEFLON AS A TRADEMARK OF E.I. DU PONT DE NEMOUR AND COMPANY.

Terminate: In order to maximize the transmission of light between the illuminator and the end of the fiber bundle, the fibers must be properly terminated. This involves cutting the ends of the individual fibers all at once so that the finished surfaces of the bundle is uniform.

Thermal Overload: A device built-in to an illuminator which turns off the power, when temperature becomes warm enough, in order to protect the illuminator from overheating and burning out the lamp.

Thermoplastic: Plastic in the presence of, or under the application of heat.

Thermoset: type of plastic used in the manufacture of large core fiber optics. It is comprised of an organic polymer with a superior high temperature resistance to thermoplastic optical fiber.

TIR: Total Internal Reflection is the process by which light is transmitted through a fiber optic.

Tracking: A linear mounting device, made of plastic or metal, which is used to support linear fiber optics for mounting.

Transformers: An electrical winding which steps down the incoming alternating current
The transformer is an integral part of the quartz halogen type illuminator.

- U -

U.L.: A certified testing laboratory, Underwriters Laboratories, Inc. that publishes minimum safety standards for electrical and associated products, which are in conformance with the electrical code of the country.

UL 94HB: An Underwriter's Laboratory rating which indicates a high degree of flame retardant, some optical fiber has this high standard rating.

UV: Any radiant energies within the wavelength range 10-380 nm.

- V -

Ventilation: To allow free circulation of air.

Visible Light Spectrum: Denotes those light rays within a wave length range 390 to 710 nm. All known visible colors fall into this range.

Volt: The unit of electromotive force.

- W -

Watt: The practical unit of electric power or one volt-ampere.

Wavelength: The distance between two successive points of a periodic wave, in the direction of propagation, at which the oscillation has the same phase.

- X -

Xenon Metal Halide: A 60 watt H.I.D. light source originally designed and manufactured by GE Lighting for use in fiber optic lighting systems.