

Glossary

AC – Alternating current.

Accelerated Aging – A test that simulates long-time environmental conditions in a relatively short time.

Ambient – Conditions existing at a test or operating (e.g. ambient temperature).

Ampere – The unit of current. Defined as the amount of current that flows when one volt of emf is applied across one ohm of resistance.

Analog – Representation of data by continuously variable quantities.

Anneal – To soften and relieve strains in any solid material, such as metal or glass, by heating it just below its melting point and then slowly cooling it. Annealing generally lowers the tensile strength of the material, while improving its flex life and flexibility.

ANSI – American National Standards Institute. Publishes nationally recognized standards.

ASTM – American Society for Testing and Materials. Writes standards for testing materials as well as specifications for materials.

AWG – American Wire Gauge. A wire diameter specification. The smaller the AWG number, the larger the wire diameter.

Bend Radius – Radius of curvature that a cable can bend without any adverse effects.

Binder – A tape or thread used for holding assembled cable components in place.

Braid – A group of textile or metallic filaments interwoven to form a tubular structure which may be applied over one or more wires.

BS – British Standards.

Cabling – The method by which a group of insulated conductors is mechanically assembled or twisted.

Capacitance – The ability of a dielectric material between conductors to store electricity when a difference of potential exists between the conductors. The unit of measurement is the farad.

CMA – Circular mil area.

Concentric Stranding – A group of wires twisted together and containing a center core with subsequent layers spirally wrapped around the core.

Conductivity – The ability of a material to allow electrons to flow, measured by the current per unit of voltage applied. It is the reciprocal of resistivity.

Conductor – A material that offers little resistance to the flow of electrical current.

CPE – Chlorinated polyethylene.

Crosstalk – A type of interference caused by audio frequencies from one line being coupled into adjacent lines. The term is loosely used to also include coupling at higher frequencies.

CSA[®] – Canadian Standards Association.

Cut-through Resistance – The ability of a material to withstand mechanical pressure without damage.

Dielectric – An insulating (nonconductive) medium.

Dielectric Constant – Also called permittivity. That property of a dielectric which determines the amount of electrostatic energy that can be stored by the material when a given voltage is applied to it. Actually, the ratio of the capacitance of a capacitor using the dielectric to the capacitance of an identical capacitor using a vacuum as a dielectric.

Digital – Representation of data by discrete characters.

Drain Wire – An uninsulated wire in contact with a metallic shield throughout the length of a cable. Used for terminating the shield.

Electrostatic – Pertaining to static electricity, or electricity at rest. An electric charge for example.

Emf – Electromotive force.

Energy – The capability of doing work.

EPDM – Ethylene-propylene-diene monomer rubber. A material with good electrical insulating properties.

EPR – Ethylene-propylene rubber.

Farad (F) – A unit of capacitance.

FEP – Fluorinated ethylene-propylene. A thermoplastic material with good electrical insulating properties and chemical and heat resistance.

Ferrous – Composed of and/or containing iron. A ferrous metal exhibits magnetic characteristics.

Frequency (f) – The number of times a periodic action occurs in a unit of time.

Ground (GND) – An electrical connection to earth, generally through a ground rod. Also a common return to a point of zero potential, such as the metal chassis in radio equipment.

HDPE – High density polyethylene.

Henry (H) – The unit of inductance.

Hertz (Hz) – The unit of frequency, one cycle per second.

HL – Hazardous locations.

Hypalon[®] – A DuPont trade name for a synthetic rubber (chlorosulfonated polyethylene) used as insulating and jacketing material for wire and cable.

ICEA – Insulated Cable Engineers Association. Publishes nationally recognized specifications and tests for cables.

IEC – International Electrotechnical Commission.

IEEE – Institute of Electrical and Electronic Engineers. Publishes its own standards and is a member of ANSI and ISO.

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Inductance (L) – The property of a circuit or circuit element that opposes a change in current flow. Inductance causes current changes to lag behind voltage changes. Inductance is measured in Henrys.

Insulation – A material having good dielectric properties which is used to separate close electrical components, such as cable conductors and circuit components.

Insulation Resistance – That property of an insulating material that resists electrical flow through the insulating material when a potential difference is applied.

Isolation – The ability of a circuit or component to reject interference, usually expressed in decibels (dB).

ISA – Instrumentation Society.

ISO – International Standards Organization.

Jacket – Pertaining to wire and cable, the outer protective covering. Also known as sheath.

LDPE – Low density polyethylene.

MC – Metal Clad cable, a UL classification indicating a metal clad cable. An assembly of insulated conductors with a metal cladding applied over the core and with grounding conductor(s) if the cladding is interlocked armor.

Mega – Prefix meaning million (10^6).

Megahertz (MHz) – Unit of frequency equal to one million hertz (one million cycles per second).

Micro – Prefix meaning one-millionth (10^{-6}).

Microfarad (μf) – One-millionth of a farad.

Micron (μm) – One-millionth of a meter.

Mil – A unit of length equal to one-thousandth (10^{-3}) of an inch (.001”).

Milli – Prefix meaning one-thousandth (10^{-3}).

Mutual Capacitance (Cm) – Capacitance between two conductors when all other conductors including ground are connected together and then regarded as an ignored ground. Measured at 10000 Hz frequency.

Nano – Prefix meaning one-billionth (10^{-9}).

Nanometer (nm) – One-billionth of a meter.

Nanosecond – One-billionth of a second.

NEC – National Electric Code.

NEMA – National Electric Manufacturers Association.

Noise – In a cable or circuit, any extraneous signal which tends to interfere with the signal normally present in or passing through the system.

Nomex[®] – DuPont trademark for a temperature-resistant flame-retardant nylon.

Nylon – An abrasion-resistant thermoplastic with good chemical resistance.

O.D. – Outside diameter.

Ohm (Ω) – The electrical unit of resistance.

Ohm's Law – Stated $E=IR$, $I=E/R$, or $R=E/I$, the current I in a circuit is directly proportional to the voltage E , and inversely proportional to the resistance R .

Pico – Prefix meaning one-millionth of one-millionth (10^{-12}).

Picofarad (pF) – One-millionth of one-millionth of a farad.

Plastic – High polymeric substances, including both natural and synthetic products, but excluding the rubbers that are capable of flowing under heat and pressure.

PLTC – Power Limited Tray Cable, 300 volt UL designation.

Polyethylene (PE) – A thermoplastic material having good electrical properties.

Polypropylene (PP) – A thermoplastic similar to polyethylene but stiffer and having a higher softening point (temperature).

Polyurethane (PU) – Broad class of polymers noted for good abrasion and solvent resistance.

Polyvinyl Chloride (PVC) – A general purpose thermoplastic used for wire and cable insulation and jackets.

R – The symbol for resistance.

Shield – A tape or braid of metal, usually copper, aluminum or other conductive material, placed around or between electric cables or their components, to prevent signal leakage or interference.

TC – Tray Cable, UL designation 600 volt.

Teck 90 – CSA designation for a single or multiconductor cable.

TPE – Thermoplastic elastomer.

TPN – Dekoron designation for a non-halogenated thermoplastic jacket material.

UL – Underwriters Laboratory.

XLPE – Crosslinked polyethylene.

XLPO – Crosslinked polyolefin.