

Glossary

Adapter

A device that enables different sizes or types of plugs to mate with one another, provides for the rearrangement of leads, allows large cables with numerous wires to fan out into smaller groups of wires, or makes interconnections between cables.

Administration Subsystem

The part of a Premises Distribution System that includes the distribution hardware and components for adding or rearranging circuits. These components include cross connects, interconnects, information outlets, and their associated patch cords and plugs.

ALPETH

Aluminum-polyethylene, the primary sheath for aerial cable.

ALVYN

Aluminum-polyvinyl-chloride, the preferred sheath for riser cable where a flame-retardant sheath is required to meet NEC standards.

American Wire Gauge (AWG)

The standard gauge for measuring the diameter of copper, aluminum, and other conductors.

Ampere

A standard unit of current. One ampere of current is produced by one coulomb of charge passing a point in one second.

Annealing

A process of controlled heating followed by gradual cooling to relieve mechanical stresses. Annealing copper makes it less brittle.

Array Connector

A connector that aligns and protects the 12 fibers from a ribbon fiber cable. A fanout array design can be used to connect ribbon fiber cables to nonribbon cables.

ASP

Aluminum-steel-polyethylene, the preferred sheath for filled cable.

Attenuation

Power loss in an electrical system. In cables, it is generally expressed in decibels per unit length (usually 1000 feet).

AWG

See American Wire Gauge.

Backboard

A wooden or metal panel used for mounting miscellaneous apparatus.

Bandwidth

The range of frequencies that can be used for transmitting information on a channel, equal to the difference in Hertz (Hz) between the highest and the lowest frequencies available on that channel. Bandwidth indicates the transmission capacity of a channel; the larger the bandwidth, the greater the amount of information that can pass through a circuit.

Bend Radius

The radius of curvature that a fiber can bend without breaking or causing excessive loss.

Bonding

The connecting together of all building and equipment electrical grounds to eliminate differences in electrical ground potentials.

Building Entrance Area

The area inside a building where cables enter and are connected to riser cables and where electrical protection is provided. The network interface, as well as the protectors and other distribution components for the campus subsystem, may be located here.

Campus Subsystem

The part of a Premises Distribution System that includes the cable, interbuilding distribution facilities, protectors, and connectors that enable communications among multiple buildings on a premises.

Capacitance

The property in a system of conductors and dielectrics that permits the storage of electrically separated charges whenever a difference in potential exists between the conductors. Capacitance is undesirable in wire cable because it interferes with signals traveling on the wire by opposing the desired flow of current.

Carbon Block

A surge-limiting device that is grounded by arcing across the air gap when the voltage of a conductor exceeds a predetermined level. If the current flow across the gap is large or persists for a length of time, the protector mechanism will operate and the protector will become permanently grounded.

Characteristic Impedance

A frequency dependent resistance that quantifies the complex opposition to current flow offered by a transmission line.

Cladding

The low refractive index material that surrounds the core of an optical fiber.

Conduit

A pipe, usually metal, that runs either from floor to floor, or along a floor or ceiling, to protect cables. In the riser subsystem, when riser closets are not aligned, conduit is used to protect cable and provide the means for pulling cable from floor to floor. In the horizontal subsystem, conduit may be used between a riser closet and an information outlet in an office or other room. Conduit is also used for in-conduit campus distribution, where it is run underground between buildings and intermediate manholes and encased in concrete. Multiduct, clay-tile conduit may also be used.

Connecting Block

A flame-retardant plastic block containing metal wiring terminals (quick clips) that establish an electrically tight connection between the cable and the cross-connect wire.

Connector

A device that allows you to physically connect and disconnect wire or fibers in cable, cable to equipment, or other wires or fibers. Wire and optical fiber connectors most often join transmission media to equipment or cross connects.

Core

The central transmission area of a fiber. The core always has a refractive index higher than that of the cladding.

Cross Connect

Distribution system equipment used to terminate and administer communications circuits. In a wire cross connect, jumper wires or patch cords are used to make circuit connections. In an optical cross connect, fiber patch cords are used.

Cross-Connect Field

Wire terminations grouped to provide cross-connect capability. The groups are identified by color-coded sections of backboards mounted on the wall in equipment rooms or riser closets, or by designation strips placed on the wiring block or unit. The color coding identifies the type of circuit that terminates at the field.

Decibel (dB)

A standard unit for expressing transmission gain or loss and relative power levels.

Dielectric

A nonconducting or insulating material that resists passage of electric current.

Dielectric Constant

The ratio of the capacitance of an insulated wire with that of the same wire uninsulated in air.

Dielectric Strength

A measure of the maximum voltage that the insulation of a particular cable can withstand without breakdown.

Dual Fiber Cable

A type of optical fiber cable that has two single fiber cables enclosed in a jacket of extruded PVC, with a rip cord for pulling back the jacket to access the fibers.

DUCTPIC

DUCTPIC is a trademark of AT&T, designating a type of cable ideally suited for running through ducts.

Equipment Room

The room in which voice and data common equipment are housed, protected, and maintained, and where circuit administration is performed using the trunk and distribution cross connects.

Equipment Wiring Subsystem

The part of a Premises Distribution System that includes the cable and distribution components in an equipment room and that interconnects system-common equipment, other associated equipment, and cross connects.

Farad (F)

The standard unit of capacitance.

Fiber Optics

The technique of conveying light or images through glass or plastic fibers. Incoherent fiber optics will transmit light but not an image; coherent fiber optics will transmit both and should actually be called "aligned fiber optics" because the fibers are all the same length and are held in a constant spatial relationship.

Frequency

The number of cycles completed by a signal in one second; measured in Hertz (Hz).

Fuse

A device used for protection against excessive currents. It consists of a short length of fusible metal wire that melts when the current through it exceeds the rated amount for a definite time.

Fusible Links

Short lengths of fine-gauge wire pairs inside metallic sheath cable that melt to interrupt an electrical circuit and to prevent overheating in building wiring and equipment.

Gas Tube

A surge-limiting device similar in operation to a carbon block except that it has specially configured electronics with a more precise narrow gap and a sealed gas composition. The gas tube results in a more accurate and precise operating voltage range and extended service life under conditions of repeated operation.

Graded Index Fiber

An optical fiber with a refractive index that gets progressively lower away from the axis. This causes the light rays to be continually refocused by refraction in the core. It bends the rays inward and allows them to travel faster in the lower index of refraction region. This type of fiber provides high bandwidth capabilities.

Ground

A conducting connection, intentional or accidental, between a circuit or equipment and the earth.

Henry (H)

The standard unit of inductance. The inductance of a current is one Henry when a current variation of one ampere per second induces one volt.

Hertz (Hz)

Standard unit of frequency; equal to one cycle per second.

Horizontal Subsystem

The part of a Premises Distribution System installed on one floor that includes the cables and distribution components connecting the riser subsystem and equipment wiring subsystem to the information outlet via cross connects.

Impedance

The total opposition that a circuit offers to the flow of alternating current at a particular frequency. It is a combination of resistance R and reactance X and is measured in Ohms.

Inductance

The property of a circuit that opposes any change in the existing current during periods of changing current.

Information Outlet (IO)

A connecting device designed for a fixed location (usually a wall in an office) in which horizontal subsystem cable pairs terminate and which receives an inserted plug; it is an administration point located between the horizontal subsystem and the work location wiring subsystem. Although such devices are also referred to as "jacks," the term "information outlet" encompasses the integration of voice, data, and other communications services that can be supported by a Premises Distribution System.

Insulation

A material having high resistance to the flow of electric current.

Insulation Resistance

An insulation's ability to resist the flow of current through it; usually measured in megohm-feet.

IO

See Information Outlet.

Jack

A receptacle used with a plug to make electrical contact between communications circuits. Jacks and their associated plugs are used in a variety of connecting hardware applications including adapters, information outlets, and equipment connections.

Jumper Wire

A short length of wire to route a circuit by linking two cross-connect termination points.

Microfarad (μF)

One-millionth of a farad. This is the common unit for designating capacitance in electronics and communications.

Micron (μm)

One-millionth of a meter.

Mil

One-thousandth of an inch.

Modem

A modulator/demodulator unit used for data transmission on conventional voice-grade data lines. It converts digital data into voice-grade analog signals when transmitting and reverses this process when receiving.

Multimode Fibers

Optical fibers that have a large core (25 to 300 μm) and that permit nonaxial rays or modes to propagate through the core.

Multiplexing

The process of combining multiple signals, usually by time-division multiplexing (TDM) on a high-frequency carrier, to optimize the use of available transmission media.

Mutual Capacitance

The capacitance between two conducts when all other conductors, including the shield, are short-circuited to ground.

National Electrical Code (NEC)

A nationally recognized safety standard for the design, construction, and maintenance of electrical circuits. The NEC, sponsored by the National Fire Protection Association, generally covers electrical power wiring in buildings.

NEC

See National Electrical Code.

Network

The local and long-distance telecommunications capability provided by common carriers for switched and private line telecommunications services.

Network Interface

The point of interconnection between building communications wiring and outside communications lines, that is, telephone company facilities.

Ohm

The standard unit of electrical resistance. One volt will cause one ampere of current to flow through one Ohm of resistance.

110-Type Connecting Block

The part of a 110-type cross connect that terminates twisted-pair wiring and can be used with either jumper wires or patch cords to establish circuit connections.

110-Type Cross Connect

A compact cross connect, developed by AT&T, that can be arranged for use with either jumper wires or patch cords. Jumper wires, used for more permanent circuits, must be cut down to make circuit connections. Patch cords allow ease of circuit administration for frequently rearranged circuits. The 110-type cross connect also provides a straightforward labeling method to identify circuits.

Optical Connectors

Connectors designed to connect and disconnect either single or multiple optical fibers repeatedly. Optical connectors are used to connect fiber cable to equipment and interconnect cables.

Optical Cross-Connect

A cross-connect unit used for circuit administration and built from modular cabinets. It provides for the connection of individual optical fibers with optical fiber patch cords.

Optical Fiber Cable

A transmission medium consisting of a core of glass or plastic surrounded by a protective cladding, strengthening material, and an outer jacket. Signals are transmitted as light pulses, introduced into the fiber by a light transmitter (either a laser or a light-emitting diode). Low data loss, high-speed transmission, large bandwidth, small physical size, light weight, and freedom from electromagnetic interference and grounding problems are some of the advantages offered by this type of cable.

Optical Interconnect

An interconnection unit used for circuit administration and built from modular cabinets. It provides interconnection for individual optical fibers but, unlike the optical cross-connect panel, it does not use patch cords. The optical interconnect provides some capability for routing and rerouting circuits, but is usually used where circuit rearrangements are infrequent.

Optical Splice

A fiber optic cable splice provides the means by which two or twenty-four fiber optic cable ends are permanently joined together. Two types of optical splices are supported by PDS—an array splice, which joins twenty-four optical cable ends, and a rotary mechanical splice, which joins two optical cable ends.

PAP

Polyethylene-aluminum-polyethylene, the preferred sheath for protection against lightning damage.

PASP

Polyethylene-aluminum-steel-polyethylene, the preferred sheath for protection against lightning, mechanical damage, or damage from rodents.

Patch Cord

A short length of wire or fiber cable with connectors on each end used to join communications circuits at a cross connect.

PBX

See Private Branch Exchange.

PDS

See Premises Distribution System.

Picofarad (pF)

One-trillionth of a farad. A unit of capacitance used to designate capacitance unbalance between pairs or capacitance unbalance of the two wires of a pair to ground.

Plenum Cable

Cable specifically designed for use in a plenum, the space above a suspended ceiling used to circulate air back to the heating or cooling system in a building. Plenum cable has insulated conductors often jacketed with TEFLON or HALAR to give them low flame- and low smoke-producing properties.

Plug

A device used for connecting wires to a jack. It is typically used on one or both ends of equipment cords or on wiring for interconnects or cross connects.

Polyvinyl Chloride (PVC)

A flame-retardant thermoplastic insulation material that is commonly used in jacks or building cables.

Premises Distribution System (PDS)

The transmission network inside a building or group of buildings that connects various types of voice and data communications devices, switching equipment, and other information management systems together, as well as to outside communications networks. It includes the cables and distribution hardware components and facilities between the point where building wiring connects to the outside network lines back to the voice and data terminals in an office or other work location. The system consists of all the transmission media and electronics, administration points, connectors, adapters, plugs, and support hardware between the building's side of the network interface and the terminal equipment required to make the system operational.

Private Branch Exchange (PBX)

A private switching system usually serving an organization, such as a business or government agency, and located on the customer's premises. It switches calls both inside a building or premises and outside to the telephone network, and can sometimes also provide access to a computer from a data terminal.

PVC

See Polyvinyl Chloride.

Quad Fiber Cable

A type of optical fiber cable that has four single fiber cables enclosed in an extruded jacket of PVC, with a rip cord for pulling back the jacket to access the fibers.

Rack

The vertical or horizontal open support, usually made of aluminum or steel, that is attached to a ceiling or wall. Cables are laid in and fastened to the rack.

Resistance

The property of a conductor that determines the current produced by a given potential difference. It impedes the flow of current and results in the dissipation of power as heat. Measured in Ohms.

Ribbon Fiber Cable

A cable that accommodates 1 to 12 ribbons, each ribbon having 12 fibers for a cable size range of 12 to 144 fibers. Ribbon cables are designed for use in large distribution systems where small cable size and high pulling strength are important.

Riser Closet

The closet where riser cable is terminated and cross connected to either horizontal distribution cable or other riser cable. The riser closet houses cross-connect facilities, and may contain auxiliary power supplies for terminal equipment located at the user work location.

Riser Subsystem

The part of a Premises Distribution System that includes the main cable route and the facilities for supporting the cable. The riser subsystem usually extends from an equipment room (often in a building's basement) to the upper floors in a multistory building, or along the same floor in a single-story building. It is terminated on a cross connect in a riser closet, at the network interface, or on the distribution components of the campus subsystem.

Service Entrance

The point at which network communications lines (telephone company lines) enter a building.

Shield

The metallic layer that surrounds insulated conductors in shielded cable. The shield may be the metallic sheath of the cable or the metallic layer inside a nonmetallic sheath.

Single Fiber Cable

A plastic-coated fiber surrounded by an extruded layer of PVC, encased in a synthetic strengthening material and enclosed in a PVC sheath.

Sneak Current

A low-level current that is insufficient to trigger electrical surge protectors and, therefore, able to pass them undetected. These currents may result from contact between communications lines and AC power circuits or from power induction, and may cause equipment damage due to overheating.

STALPETH

Steel-aluminum-polyethylene, the primary sheath for underground air core cable.

STEAMPETH

A medium-density polyethylene sheath that is recommended for working environments up to 170° F.

Straight-Tip (ST) Connector

An optical fiber connector used to join single fibers together at interconnects or to connect them to optical cross connects.

Stub Cable

A short cable (usually 25 feet or less) that extends from a cable terminal, protector, or block and is used to make connections to such devices.

Support Hardware

The racks, clamps, cabinets, brackets, trays, tools, and other equipment that provide the physical means to attach the transmission media and connecting hardware to walls or ceilings.

Surge

A sudden voltage rise and fall in an electrical circuit.

Telecommunications

The transmission and reception of electrical or optical signals by wire, fiber, or electromagnetic means.

Terminal Block

A protected or unprotected unit of wiring blocks, connecting blocks, and troughs that serves as a transition point between cable conductors.

Thermoplastic

A plastic material that softens and flows when heated and becomes firm when cooled. This process can be repeated.

Thermoset

A plastic material that is crosslinked by a heating process known as curing. Once cured, thermosets cannot be reshaped.

Transmission Electronics

Any of the various devices used with different transmission media to convert from one transmission method to another. Transmission electronics devices typically include multiplexing equipment and Asynchronous Data Units (ADUs).

Transmission Media

The various types of wire and optical fiber cable used for transmitting voice, data, or video signals.

Twisted Pair

Two insulated copper wires twisted together. The twists, or lays, are varied in length to reduce the potential for signal interference between pairs. In cables greater than 25 pairs, the twisted pairs are grouped and bound together in a common sheath. Twisted pair cable is the most common type of transmission media.

Underwriter's Laboratories (UL)

A private testing laboratory concerned with electrical and fire hazards of equipment.

Volt

The standard unit of electromotive force or electrical pressure. One volt is the amount of pressure that will cause one ampere of current to flow through one Ohm of resistance.

Wiring Block

A molded plastic block that is designed in various pair configurations to terminate cable pairs and establish pair location on a 100-type cross connect.

Work Location Wiring Subsystem

The part of a Premises Distribution System that includes the equipment and extension cords from the information outlet to the terminal device.

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