

**Amplitude**

The maximum absolute value reached by a voltage or current waveform.

**A/D**

Analog-to-digital.

**Analog**

The representation of information by means of continuously variable signal.

**Attenuation**

The loss of signal strength in a circuit expressed in decibels (dB).

**Attenuator**

Reduces the amplitude of a signal without appreciably distorting the waveform.

**AWG (American Wire Gauge)**

The standard system used for designating wire diameter. It is based on the circular mil system. 1 mil equals 0,0254 mm or 25,4 microns. The higher the gauge number, the smaller the diameter and the thinner the wire. Thicker wire is better for long distances due to its lower resistance per unit length.

**Baseband**

A transmission medium through which digital signals are sent without frequency shifting. In general, only one communication channel is available at any given time.

**Base Material**

Metal from which a connector or contact is made and on which one or more metals or coatings may be deposited.

**BNC (Bayonet Neill Concelman)**

A type of coaxial connector used in situations requiring shielded cable for signal connections and/or controlled impedance applications. Available in 50 Ohm and 75 Ohm versions. Frequency range DC - 4 GHz (50 Ohm) and DC-1 GHz (75 Ohm), respectively.

**Braid Shield**

A weave of metal fibers used to shield a group of insulated conductors or wires.

**Braid Coverage**

The percentage that a braid or shield covers the surface of the underlying conductors or wires.

**Bulkhead**

A term used to define a mounting style of connectors. Bulkhead connectors are designed to be inserted into a panel cutout from the rear (component side) or front side of the panel.

**Cable**

A single conductor with or without insulation, or a combination of conductors insulated from each other.

**Cable Assembly**

A cable that is terminated with connectors and ready for installation in specific applications.

**Capacitance (Capacity)**

That property of a system of conductors and dielectrics, which permits the storage of energy as a result of electrical displacement. The basic unit of capacitance is the farad.

**Coaxial cable (coax)**

A cable that has one conductor (shield) completely surrounding the other (center conductor), the two being coaxial and separated by a continuous uniform insulation or dielectric thickness. Standard industry types have a braided shield, or a semi-rigid copper or stainless steel shield material. Braided shield coaxial cable offers more physical flexibility but less shielding. Coaxial cables are used for RF applications.

**Concentric Stranding**

A method of stranding, wherein a single conductor is formed from a central wire surrounded by one or more layers of helically layed wires. Each layer is applied in opposite directions. The first layer has six wires, and each additional layer has six more wires than does the previous one.

**Concentricity**

Measures the location of the center of the cable's conductor with respect to the geometric center of the circular insulation.

**Conductance**

The ability of a conductor to carry an electric charge. The ratio of the current flow to the potential difference causing the flow. The reciprocal of resistance. (1/R).

**Conductivity**

The capability of a material to carry an electrical charge. Usually expressed as a percentage of copper conductivity (copper has 100% conductivity).

**Conductor**

The inner part of an insulated wire or combination of wires not insulated from one another, suitable for carrying an electric current. Usually consists of copper, aluminum, steel, nickel or silver.

**Conductibility**

A property of an element to transmit electricity.

**Connector**

A coupling device used to connect conductors (i.e. coaxial cable) to one circuit with those of another circuit.

**Connector Body**

Main, or largest, portion of a connector to which other portions are attached.

**Copper**

The basic metal for electrical conductors used either bare or silver, tin or nickel-plated.

**Crimp**

Act of compressing a connector ferrule around a cable in order to make an electrical connection.

**Crimping Termination**

Connection in which a metal sleeve is secured to a conductor (i.e. coaxial cable) by physical pressure.

**Crimping Tool**

A hand held mechanical device or table press that is used to crimp a connector to a cable.

**Decibel (dB)**

A unit expressing the ratio of two voltages, currents or powers. It is used to express power loss in cables.

**Dielectric**

In a coaxial cable, the insulation between inner and outer conductor. It significantly influences electrical characteristics such as impedance, capacitance, and velocity of propagation.

**Dielectric Constant (K)**

Electrical property of a material that describes its behavior in an electric field. The dielectric constant of the dielectric is the most important design parameter for coaxial cables and determines dimensions, losses and propagation characteristics.

**Dielectric Loss**

In a coaxial cable, the losses caused by transformation of electromagnetic energy into heat within the dielectric material.

**Dielectric Strength**

The voltage which an insulating material can withstand before breakdown occurs.

**Duplex**

A transmission facility in which the transmission goes in both directions, sometimes referred to as full duplex to differentiate it from half duplex, which alternates transmission in one direction, then in the other.

**EMI**

Abbreviation for Electromagnetic Interference. The unwanted electromagnetic radiation from a device which could interfere with desired signals in test or communication equipment. RFI (Radio Frequency Interference) and EMI are often used interchangeably.

**F-Type Coaxial Connector**

A threaded medium performance coaxial signal connector typically used in consumer applications (TV's and VCR's). This connector is typically usable as high as 1GHz.

**Fiber Optic Cable**

A cable, consisting of a center glass core surrounded by layers of plastic, that transmits data using light rather than electricity. It has the ability to carry more information over much longer distances.

**Impedance (Z)**

The resistance a circuit offers to the flow of alternating current. Expressed in ohms (Volts per ampere).

**Impedance Match**

A condition whereby the impedance of a particular circuit cable or component is the same as the impedance of the circuit, cable or devices to which it is connected. Provides the maximum transfer of energy from the source to the load, as well as minimum reflection and distortion.

**Inductance**

The property of an electric circuit that opposes a change in current flow, thus causing current changes to lag behind voltage changes. The basic unit for inductance is the henry.

**Insertion Loss**

Also called "feed thru loss." This is the loss that occurs as signals pass through a passive device. Insertion loss occurs in all devices, which do not amplify the signal.

**Insulation**

A material having high resistance to the flow of electric current. Often called a dielectric in a coaxial cable.

**Insulation Resistance**

The ohmic resistance of insulation. It degrades quickly as humidity increases.

**K-Type Connector**

A small type of threaded coaxial signal connector typically used in higher frequency applications. This connector is typically usable as high as 40GHz; it may be mated by an SMA connector with much lower performance.

**Jack**

A connecting device into which a plug can be inserted to make circuit connections.

**Jacket**

An outer non-metallic protective cover or sheath applied over an insulated wire or cable to provide mechanical and environmental protections.

**Line Impedance**

Impedance as measured across the terminals of a transmission line.

**Low Noise Cable**

A semi-conductive coating is applied on the dielectric of a core to reduce to a minimum any signals generated by the motion of the cable components in respect to each other.

**Low Voltage**

Voltage inferior or equal to 600 V AC.

**MCX (Micro coaxial)**

Micro coaxial connector. Available in 50 ohm and 75 ohm versions. Frequency range DC - 6 GHz.

**MHV (Miniature High Voltage)**

Coaxial connector with bayonet coupling mechanism. Working voltage 2.2 kV DC.

**Microwave**

That portion of the electromagnetic spectrum lying between the far infrared and conventional radio frequency range. The microwave frequency range extends from 1 GHz to 300 GHz.

**MIL Specification**

American military specification for various materials. The demand imposed upon a system to meet a military operational need.

**MMCX**

Miniature Microcoax connector with. Available in 50 ohm and 75 ohm versions. Frequency range DC - 6 GHz.

**N-Type Coaxial Connector**

A larger threaded coaxial connector with high power handling and good high frequency characteristics. Typically usable to 12.5GHz, possibly up to 18GHz.

**Noise**

Any unwanted electronic signal

**Ohm**

The unit of measurement for electrical resistance. A circuit is said to have a resistance of one ohm when an applied emf of one volt causes a current of one ampere to flow. See Impedance.

**Propagation**

The motion of waves through or along a coaxial cable.

**Pulse**

A change in the level of an electrical signal, over a relatively short period of time, whose value is normally constant.

**Pulse Width**

The length of time that the pulse voltage is at the transient level. Electronic pulse widths are usually in the millisecond ( $10^{-3}$ ), microsecond ( $10^{-6}$ ) or nanosecond ( $10^{-9}$ ) range.

**PVC**

Polyvinyl Chloride. The material most commonly used for the insulation and jacketing of a coaxial cable.

**Reflection Loss**

The part of a signal which is lost due to reflection of power at a line discontinuity.

**RF (rf)**

Abbreviation for radio frequency. Pertains to any frequency within the electromagnetic spectrum normally associated with radio wave propagation.

**RG/U**

Symbol used to designate coaxial cables that are made to Government Specification (i.e. RG-58U; in this designation the "R" means radio frequency, the "G" means Government, the "58" is the number assigned to the government approval, and the "U" means it is a universal specification).

**RG6 Coaxial Cable**

A coaxial cable used for broadband video applications.

**RG59 Coaxial Cable**

A coaxial cable that is commonly used for cable TV.

**Semi-Rigid**

A cable containing a flexible inner core and a relatively inflexible sheathing.

**Signal-To-Noise Ratio (S/N)**

The ratio of desired signal level to the undesired noise level, expressed in dB.

**Signal Strength**

The intensity of an RF signal measured in volts (V), millivolts (mV), microvolts ( $\mu$ V), or dBmV.

**Sheath**

The outer covering of a jacket over the insulated conductors to provide mechanical protection for the conductors. Also known as the external conduction surface of a shielded transmission line.

**Shield**

A conducting envelope, composed of metal strands, which enclose a wire, group of wires (coaxial or triaxial cable) to lessen interference, interaction, or current leakage. The shield is usually grounded.

**Simplex**

A transmission facility in which the transmission is restricted to only one direction at a time.

**SMA (Subminiature A) Coaxial Connector**

Subminiature threaded coaxial signal connector typically used in higher frequency applications. This connector is typically usable to 26GHz.

**SMB (Subminiature B) Coaxial Connector**

Subminiature coaxial connector with snap-on coupling mechanism. Frequency range DC - 4 GHz.

**SMC (Subminiature C) Coaxial Connector**

Subminiature coaxial connector with screw type coupling mechanism. Frequency range DC - 10 GHz.

**Terminator**

A resistive device used to terminate a transmission line. Proper termination is required to prevent unused outputs from causing reflections back down the line.

**TNC Coaxial Connector**

An improved, threaded version of the BNC coaxial connector.

**Triaxial Cable**

A cable with three concentric conductors: the inner conductor surrounded by an inner shield and an isolated outer shield. Generally, the inner shield is connected to a guard potential and the outer shield to signal ground.

**Twinaxial Cable**

A cable with three conductors consisting of two center conductors surrounded by an insulating spacer which in turn is surrounded by a tubular outer conductor (usually a braid, foil or both).

**Twisted Pair**

Two wires twisted together to reduce susceptibility to RF noise.

**UHF Coaxial Connector**

A general-purpose connector developed for use in low frequency systems from 0.6 - 300 MHz. These connectors feature a threaded coupling. Impedance is variable.

**UTP**

Unshielded Twisted Pair. Twisted pair cable without either individual or overall shielding.

**Volt (V)**

The unit of measurement for electromotive force (emf). It is equivalent to the force required to produce 1 ampere through a resistance of 1 ohm.

**Voltage (E)**

The term most often used to designate electrical pressure that exists between two points and is capable of producing a flow of current when a closed circuit is connected between the two points. Voltage is measured in volts, millivolts, microvolts and kilovolts.

**Voltage Standing Wave Ratio (VSWR)**

A measure of the reflection, resulting from a ratio of the input signal to the reflected signal.  $VSWR = (1+L) / (1-L)$

**Wavelength**

The distance an electromagnetic wave travels during the time it takes to oscillate through one complete cycle. The wavelengths of light used in fiber communications are usually measured in nanometers (nm).

**7-16 DIN Coaxial Connector**

This connector series was primarily designed for high power applications where low intermodulation is important.