

GLOSSARY**-A-**

Alloy: A combination of two or more metal elements.

Assembly: Consisting of detailed parts and subassemblies performing functions necessary to the operation of the device.

Attenuation: The decrease of a signal with the distance in the direction of propagation. Attenuation may be expressed as the scalar ratio of the input power to the output power, or as the ratio of the input signal voltage to the output signal voltage. (1) the ratio of the input to output power levels in a network (transmission line) when it is excited by a matched source and terminated in a matched load. (2) Power loss in an electrical system.

-B-

Backplane Connector: An interconnection assembly configuration having terminals on one side and usually having connector receptacles on the other side that will accept wither a mating connectors or PCB.

Back plane Panel: An interconnection panel into which PC cards or other panels can be plugged. These panels come in a variety of designs ranging from a PC motherboard to individual connectors mounted in a metal frame. Panels lend themselves to automated wiring.

Bandwidth: The range of frequencies for which performance falls within specified limits. Distance between two frequencies.

Bending Radius: Minimum static: The minimum permissible radius for fixed installation of the cable. This radius is mainly conductor. A weatherproof plastic covering is placed on top of the braid. Used for high-speed data communication and video signals used in climatic tests. Minimum dynamic: The minimum permissible radius for flexible applications of the cable.

Beryllium Copper (BeCu): Contact materials recommended for contact applications requiring repeated extraction/reinsertion and mating/unmating cycles due to its resistance to fatigue at high operating temperatures.

Between Series Adapter: An adaptor used to connect two different generic types of connectors.

Blindmate: Connectors which may be mated when out of view owing to their float mount facility.

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

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.

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-C-

Cable: A stranded conductor with or without insulation or other coverings (single-conductor cable) or a combination of conductors insulated from one another (multiple-conductor cable). Usually has an outer covering or jacket over other components such as braided shield, grounding tape, strengthening members, and extruded insulating jacket.

Cable Assembly: A completed cable and its associated hardware (e.g. connector).

Capacitance: The property of a system of conductors and dielectrics that permit the storage of electricity when potential difference exists between the conductors. Value is expressed as the ratio of quantity of electricity to a potential difference. A capacitance value is always positive. Capacitance plays a key role in the filter performance

Capacitor: A device consisting of two conducting surfaces separated by an insulating material such as air, paper, mica, ceramic, glass, metal, or plastic film. A capacitor stores electric energy and blocks flow of alternating current to a degree dependant on its capacitance and the frequency.

Captivation: A method of holding a center contact in place preventing in some cases both axial and radial movement. Different methods accommodate difference tolerances on axial and radial movement.

Cladding: Material that surrounds the core of an optical fiber. It's lower index of refraction, compared to that of the core, causes the transmitted light to travel down the core.

Coaxial Cable: A transmission line consisting of two concentric conductors with a common axis insulated from each other. In its flexible form it consists of either a solid or stranded center conductor surrounded by a dielectric. A braid is then woven over the dielectric to form an outer conductor. A weatherproof plastic covering is placed on top of the braid . Used for high speed data communication and video signals.

Coaxial Connector: An electric connector between a coaxial cable and the circuit of an electric or electronic component. Coaxial Contact: a contact having two conductors with a common axis, separated by a dielectric.

Conductivity: A measure of the ability of a material to conduct electric current under a given electric field. Resistivity is the reciprocal of conductivity.

Conductor: A material that is capable of carrying electric current, especially one that is highly suitable for this, such as copper wire, Beryllium Copper, and Gold.

Conformable Cable: (Handiform): A formable version of Semi-Rigid. This cable is designed so you may bend it more than once without damaging dielectric and center conductor.

Connector: Used generally to describe all devices used to provide rapid connect/disconnect service for electrical cable and wire terminations or pc boards.

Contact: The conducting part of an interconnect at the interface between the connector and the lead on the device being connected.

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Coupler: An optical device that combines or splits power from optical fibers

Coupling Nut: Outer threaded or grooved ring which holds mated pair together.

Coupling Ring: A device used on cylindrical connectors to lock plug and receptacle together. It may or may not give mechanical advantage to the operator during the mating operation.

Core: The light conducting central portion of an optical fiber, composed of material with a higher index of refraction than the cladding. The portion of the fiber that transmits light.

Corona: Minimum voltage requirement for the connector at frequencies greater than 1 MHz. This requirement insures that the connector will not exhibit excessive leakage current or dielectric failure due to high RF voltages.

Crimp: Act of compressing (deforming) a connector ferrule around a cable in order to make an electrical connection.

Crimp Contact: A contact to which wire is joined by mechanical squeeze.

Crosstalk: (1) Undesired electrical currents in conductors caused by electromagnetic or electrostatic coupling from other conductors or from external sources. (2) Leakage of optical power from one optical conductor to another.

-D-

D-Subminiature Connector: Rectangular with a d-shaped polarized shroud on the engaging ends of metal shells. Contact types include crimp, solder tails, solder cups, removable.

Daughter Board: A printed wiring board on which components are assembled. Usually plugs into a backplane called a motherboard.

Decibel, dB: A relative, dimensionless unit calculated as ten times the logarithm to the base 10 of a power ratio or as twenty times the logarithm to the base 10 of a voltage ratio.

Detent: In the connector world this identifies the amount of force needed to make contact with the mating connector. Typical detents are Full, Limited, and Smooth Bore. Full detent requires the maximum amount of force needed to mate. Smooth Bore requires the least.

Dielectric: In a coaxial cable, the insulation between inner and outer conductor. It significantly influences the electrical characteristics such as impedance, capacitance, and velocity of propagation. (1) a material having electrical insulating properties; is a very poor conductor of electric current. (2) A material that does not generate any currents within itself when placed in an electrical field.

Dielectric Withstanding Voltage (DWV): The maximum voltage that a dielectric material can withstand without failure. Parameter generally defined as 75% of the specified breakdown voltage for connectors or coaxial contacts. DWV testing proves the device can operate safely at its rated voltage and withstand momentary over potentials.

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Differential Pair Twinax Contacts – Consist of an outer shield with two inner contacts spaced to form a 100 ohm or 150 ohm matched impedance differential pair.

Dimpling: A method of captivation in which dimples are embossed in order to hold internal components from moving.

Diode: A simple two-electrode semiconductor having a much greater resistance in one direction.

DSCC: Defense Supply Center Columbus, an agency of the department of defense that oversees the specifications, qualification testing and QPL's for military connectors.

Durability: The ability of a connector or contact to withstand repeated mating and unmating while remaining within its specified performance levels.

DVI: Short for **D**igital **V**isual **I**nterface, a digital interface standard created by the Digital Display Working Group (DDWG) to convert analog signals into digital signals to accommodate both analog and digital monitors. Data is transmitted using the transition minimized differential signaling (TMDS) protocol, providing a digital signal from the PC's graphics subsystem to the display. DVI handles bandwidths in excess of 160 MHz.

-E-

Electromagnetic Interference (EMI): Unwanted electrical or electromagnetic energy that causes undesirable responses, degrading performance or complete malfunctions in electronic equipment.

Electromagnetic Compatibility (EMC): The ability of systems, equipment and devices that utilize the electromagnetic spectrum to operate in their intended operational environments without suffering unacceptable degradation or causing unintentional degradation because of electromagnetic radiation or response.

Electroplating: A method of electrically depositing metals of very precise compositions and thickness onto a base metal.

Electroless plating: Plating from an aqueous solution on any surface, caused by an autocatalytic chemical reduction.

ESD: Short for *electrostatic discharge*, the rapid discharge of static electricity from one conductor to another of a different potential. An electrostatic discharge can damage integrated circuits found in computer and communications equipment.

Ethernet: A standard protocol (IEEE 802.3) for a 10-MB/s base-band local area network (LAN) bus using carrier sense multiple access with collision detection (CSMA/CD) as the access method. Ethernet is a standard for using various transmission media, such as coaxial cables, unshielded twisted pairs, and optical fibers.

Eye Pattern: An oscilloscope display in which a pseudorandom digital data signal from a receiver is repetitively sampled and applied to the vertical input, while the data rate is used to trigger the horizontal sweep. An open eye pattern corresponds to minimal signal distortion. Distortion of the signal waveform due to interference and noise appears as closure of the eye pattern.

-F-

Faraday Cage: A conductive enclosure. May be solid in form such as a sheet-metal enclosure, or may be full of apertures such as a wire cloth box. Faraday cage is used to protect neutral objects in the cage from ESD external to the faraday cage.

Faraday Effect: A phenomenon that causes some materials to rotate the polarization of light in the presence of a magnetic field parallel to the direction of propagation. Also called magneto-optic effect.

Feed through: A conductor that connects patterns on both sides of a printed circuit board.

Female Connector: The half of a connector set that accepts the male connector, usually by the engaging end shroud surrounding the male shroud when mated.

Ferrule: A short tube used to make solderless connections to shielded or coaxial cable (e.g. as in crimping).

Fiber Optic Cable: A cable containing one or more optical fibers.

Fibre Channel: An industry standard which details computer channel communications over fiber optics at transmission speeds from 132 Mb/s to 1062.5 Mb/s at distances of up to 10 kilometers. Fibre Channel transceivers can either be driven with fiber optic signaling or true differential pair twinaxial signaling with 150 ohm impedance between conductors.

Filter: Electrical networks that transmit signals with frequencies within certain designated ranges and suppress signals of other frequencies.

Firewire: A very fast external bus standard that supports data transfer rates of up to 400Mbps (in 1394a) and 800Mbps (in 1394b). Products supporting the 1394 standard go under different names, depending on the company.

Flange: A projection extending from, or around the periphery of, a connector and provided with holes to permit mounting the connector to a panel, or to another mating connector half.

Float Mount: A mounting mechanism that allows the connector to move enabling compensation for axial and radial misalignment.

Footprint: The pattern on the printed circuit board to which the leads on a surface mount component are mated; also called a land or a pad.

Frequency: The number of cycles or events per unit of time, commonly having units of seconds (Hertz). An RF or microwave signal is an alternating current (AC) wave form, meaning it swings from a positive to negative value. Each positive to negative swing is called a cycle. Frequency is then the number of cycles occurring per second.

-G-

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Gigahertz (GHz): A measure of frequency representing 1 billion Hertz (cycles per sec).

Grommet: Resilient part at back of insert (attached or see rate); gives wire moisture seal the power received at the load before insertion of the apparatus, to the power received at the load after insertion.

Ground Plane: A conductor layer or portion of conductor layers used as a common reference point for circuit returns, shielding, or heat sinking.

Grounded Circular Connectors: Designed to ground the outer shield of a triax or coax contact directly to the shell of the connector.

-H-

Heat Treating: A process that uses precise heating and tooling of metals after stamping and forming in order to optimize internal stresses and spring properties.

Hertz (Hz): International standard term for cycles per second. Named after the German physicist Heinrich R. Hertz (e.g. 60 cycles per second is equal to 60 hertz or 60 Hz).

-I-

IEEE 1394- An IEEE designation for a high performance serial bus. This serial bus defines both a backplane physical layer and a point-to-point cable-connected virtual bus. The backplane version operates at 12.5, 25 or 50 Mbits/sec, whereas the cable version supports data rates of 100, 200 and 400 Mbits/sec across the cable medium supported in the current standard. Both versions are totally compatible at the link layer and above. The interface standard defines transmission method, media and protocol. More on IEEE 1394. Products supporting the 1394 standard go under different names, depending on the company

Impedance: The AC resistance of a circuit expressed in ohms. Determined by the connector geometry and insulating material parameters. Impedance varies with Frequency. For optimum performance connector impedance must be the same as the system impedance.

Impedance Match: A condition in which the impedance of a component or circuit is equal to the internal impedance of the source, or the surge impedance of a transmission line. This gives a maximum transfer of energy from the source to the load, as well as minimum reflection and distortion.

Infiniband: InfiniBand is a specification to connect I/O among many servers in a data center. It is positioned as a way to link storage, server clusters and networks. The specification, spearheaded by the InfiniBand Trade Association, is inspired by the channel-based I/O that has long been used in the mainframe world. Each device is connected to the InfiniBand fabric with host channel adapters or target channel adapters, depending on whether they are servers or devices used by servers, such as storage and network devices. The devices can be interconnected through an InfiniBand switch at rates of 2.5 Gbit/sec up to 30 Gbit/sec typically.

Insert: The dielectric or insulating inner core holds contacts.

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Insertion Loss: The loss in load power due to the insertion of a component, connector or device at some point in a transmissions system. Generally expressed in decibels as the ratio of the power received at the load before insertion of the apparatus, to the power received at the load after insertion.

Insulation Resistance: The electrical resistance between two conductors separated by an insulating medium.

ISO: Abbreviation for International Standards Organization.

-J-

Jacket: An outer non-metallic protective cover applied over an insulated wire or cable. Also called a sheath.

Jitter: deviation from the ideal timing of an event. The reference event is the differential zero crossing for electrical signals. Jitter is composed of both deterministic and Gaussian (random) content.

-K-

Kilohertz: One thousand cycles per second.

-L-

Life Cycle: A controlled test that indicates the time span before failure.

Lightwave: The path of a point on a wavefront. The direction of the lightwave is generally normal (perpendicular) to the wavefront.

-M-

Male Connector: The half of a connector set that goes into the female connector, usually by the engaging end shroud being inserted into the female shroud when mated.

Mating/Unmating Forces: Torque required to couple/uncouple a mating pair of connectors or contacts.

Mating Pair: Two connectors that couple together. Shell size insert arrangement and rotation must be compatible.

Megahertz (MHz): One million cycles per second
Micro D Coax Connector: Low VSWR of 1:25:1 up to 20 GHz in a low profile design. Featuring multipin assemblies with Micro D-Housing.

Micro Twinax: connectors with matched impedance that provide the user with controlled impedance and tightly spaced footprint spacing in a miniaturized connector. Applicable for High Speed Ethernet (100 Base-T) and Fibre Channel (2 GBit/sec min) applications.

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Microwave: That portion of the electromagnetic spectrum lying between the far infrared and conventional radio frequency range. The microwaves are usually used in point to point communications because they are easily concentrated into a beam.

Microporous: Meaning to have microscopic pores within a material. In Coaxial Cable Microporous cable is known for having lower loss vs. a solid or wrapped dielectric.

Microporosity: The porosity occurring on a microscopic scale.

Microwave Frequency: The frequency of a microwave, usually above 1 gigahertz.

Microwave Transmission: Communication systems using very high-frequency RF to carry the signal information.

Microminiature Connector: Rectangular with a D shaped polarized shroud on the engaging end of metal shells and all plastic body designs. Contacts are all non removable.

MIL-SPEC: Abbreviation for military specification. Performance specifications issued by the Department of Defense that must be met in order to pass MIL-STD.

MIL-STD: Abbreviation for military standard. Standards issued by Department of Defense.

Minimum Bend Radius: The smallest radius an optical fiber or fiber cable can bend before increased attenuation or breakage occurs.

Modular Block Connectors: Dual twinax blindmate assemblies permitting the transmit and receive signaling of high speed Ethernet data rates in one connector. Capable of 100 ohm differential pair matched impedance.

Monolithic Capacitor Array: Single flat piece of ceramic with multiple capacitors or lines that have a hole pattern of match the connector interface.

Multimode Fiber: An optical fiber that has a core large enough to propagate more than one mode of light.

-O-

OEM: Original equipment manufacturer. The manufacturer of any device that is designed and built to be distributed under the label of another company.

Ohm: A measure of DC resistance or RF impedance represented by O.

Optical Fiber: A glass or plastic fiber that has the ability to guide light along its axis. The three parts of an optical fiber are the core, the cladding, and the coating or buffer.

OTDR: Optical Time Domain Reflectometer. An instrument that locates faults in optical fibers or infers attenuation by backscattered light measurements.

-P-

Passband: The region of usable frequency in electronics or wavelength in optics.

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Passivation: The practice of growing a thin oxide film on the surface of a semiconductor to protect exposed elements from environmental contaminants, thus ensuring the electrical stability of the device.

Passive Device: Any device that does not require a source of energy for its operation. Examples include electrical resistors or capacitors, diodes, optical fiber, Cable, wires, glass, lenses, and filters.

Permittivity: That property of dielectric that determines the electrostatic energy stored per unit volume for a unit potential gradient braided, or taped (longitudinally or spirally). (2) In cables, a metallic layer placed around a conductor or group of conductors to prevent electrostatic or electromagnetic interference between the enclosed wires and external fields.

Phase: The relative angular displacement of one sinusoidal quantity with respect to a reference angle or to another sinusoidal varying quantity of the same frequency. The relative angular displacement of one sinusoidal quantity with respect to a reference angle or to another sinusoidally varying quantity of the same frequency.

Pin Contact: Male half of a mated pair of contacts*

Planar Array: Most common form of Filter components utilised in Connectors within our Market Areas. They provide high performance Filters, are rugged enough to withstand High environmental Vibration Levels and can be manufactured with Working Voltages up to 1000VDC with relative ease

Plated Through-Hole: A hole through a Printed Circuit Board that has been electroplated and into which a lead is placed and soldered for electrical and mechanical connection.

Polarization: The arrangement of connector inserts, jackscrews, polarizing pins/socket, keys/keyways or housing configurations to prevent the mismatching or crossmating of connectors.

PPM: Abbreviation for pulse-position modulation. A method of encoding data.

Precision PCB Terminators: Cable terminators available for direct terminations of the cable to the PCB eliminating the need for Pigtail configurations.

Propagation delay: Time required for an electronic digital device, or transmission network to transfer information from its input to its output.

-Q-

Quadrax: System where four conductors are located within a single conducting enclosure. The connection to two separate twinax cables is accomplished without disturbing the differential or signal to shield impedances.

Quadrax Contact: Consist of an outer contact with four strategically spaced inner contacts forming two 100 ohm or 150 ohm matched impedance differential pairs.

Quick disconnect: A type of connector shell that permits rapid locking and unlocking of two mating connectors.

-R-

SABRITEC

Rack and Panel Connectors: Connects the inside back end of the cabinet (rack) with the drawer containing the equipment when it is fully inserted. The drawer permits convenient removal of portions of the equipment for repair or examination.

Radio Frequency: The range in which radio waves are transmitted from about 10 kilocycles/second to about 300,000 megacycles/second

Rated Voltage: The maximum temperature at which an electric component can operate for extended periods without undue degradation of safety hazard.

Refraction: The changing of direction of a lightwave in passing through a boundary between two dissimilar media, or in a graded-index medium where refractive index is a continuous function of position.

RF: (Abbreviation for radio frequency)

RF High Potential: Minimum voltage requirement for the connector at frequencies greater than 1 MHz. This requirement insures that the connector will not exhibit excessive leakage current or dielectric failure due to high RF voltages.

RF Leakage: Amount of signal which radiates from the connector with respect to frequency. Sources for signal leakage can come from slots or holes in a connector body, from poorly mated connectors or through the braid in a coaxial cable.

RF Shielding: The process of shielding radio-frequency energy by means of conductive enclosures that isolate a particular component.

RFI: (Radio Frequency Interference)

RG/U: Symbol used to designate coaxial cables that are made to Government Specification (e.g., 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.

-S-

SC Connector: A push-pull type of optical connector that features high packaging density, low loss, low back reflection, and low cost.

SCX – Features a .145" maximum overall diameter with a .375" overall length for mated connector pair. Air dielectric interface for exceptional performance

Semi-Rigid: A cable containing a flexible inner core and a relatively inflexible sheathing.

Shell: Houses insert and contacts.

Shield: (1) A conducting housing or screen that substantially reduces the effect of electric or magnetic fields on one side thereof, upon devices or circuits on the other side. Cable shields may be solid, braided or taped (longitudinally or spirally). (2) In cables, a metallic layer placed around a conductor or group of conductors to prevent electrostatic or electromagnetic interference between the enclosed wires and external fields.

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Shielding: The metal surrounding one or more of the conductors, in a wire circuit to prevent interference, interaction or current leakage.

Shroud: A mechanical feature of a connector shell or body that surrounds and protects a particular part of the device made of metal or plastic.

Simplex: Single element (e.g. a simplex connector is a single fiber connector)

Single-Mode Fiber: A small core optical fiber through which only one mode will propagate.

Sleeve: Covering over the terminal barrel can be insulated or metallic.

SMP: Coaxial connectors/contacts that feature snap in vibration proof connection, suitable for high shock mobile applications and space level connector requirements of vibration, thermal shock and outgassing. Frequency range is DC-40 GHz with low VSWR and insertion loss (dB) parameters of 0.10 dB max.

SMPM: Miniature SMP connectors/contacts that are 30% smaller than SMP. Frequency ranges capabilities of 60 GHz.

SMT: Abbreviation for surface mount technology.

Snap On: Used to describe the easy removal or assembly of one part to another.

Socket Contact: Female half of a mated pair of Contacts.

Solder: To join metal objects without melting them by fusing a metal alloy that has been applied to the joint between them. To join metal objects without melting them by fusing a metal alloy that has been applied to the joint between them. Any of several alloys used in this process.

Solder Contact: A contact or terminal having a cup, hollow cylinder, eyelet or hook to accept a wire for a conventional soldered termination.

Solder Cup: Cup shaped end of terminal or contact in which a conductor is inserted before being soldered in place.

Splice: A permanent connection of two optical fibers through fusion or mechanical means.

ST Connector: Single tip connector.

Strike Plating: The process of applying a thin electro deposit prior to final coating.

Stripline: A type of transmission line configuration, which consists of a single narrow conductor parallel and equidistant to two parallel ground planes.

SUCOPLATE: A plating material made out of a combination of copper, tin and zinc. Good corrosion and abrasion resistance. Non-magnetic. Registered mark of HUBER + SUHNER AG.

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Surface Mount Connector: A connector designed to be soldered to pads instead of through holes on a PCB.

-T-

Teflon: A trade name for a polymer of polytetrafluoroethylene, characterized by extreme chemical inertness, withstanding the attack of all reagents except molten alkali metals; a tough, heat-resistant fluorocarbon resin used in packing, bearings, filters, electrical insulation, cooking utensils, and plumbing sealants.

Thermal Shock: The effect of heat or cold applied at such a rate that non-uniform thermal expansion or contraction occurs within a given material or combination materials. The effect can cause inserts and other insulation materials to pull away from metal parts.

Triax connectors: Two isolated concentric contacts that protect signals from noise.

Torque: The tendency of a force applied to an object to cause the object to rotate about a given point. The tendency of a force applied to an object to cause the object to rotate about a given point.

Transceiver: A device that performs, within one chassis, both telecommunication transmitting and receiving functions.

Transient: A voltage or current surge that occurs in an electrical system following a sudden change in the dynamic conditions of the system and is usually short lived. A transient may be caused by the application of an input voltage or current to the system or by the application or removal of a driving force.

Transmission Line: A signal carrying composed of conductors and dielectric material with controlled electrical characteristics used for the transmission of high frequency or narrow-pulse type signals.

Twisted Pair: A cable made up of one or more separately insulated twisted wire pairs, none of which is arranged with another to form quads.

-U-

Umbilical Connector: A connector used to connect cables to a rocket or missile prior to launching, and which is removed from the missile at the time of launching.

Unmate: The disengagement, disconnecting or uncoupling of mated connectors.

USB: Short for *Universal Serial Bus*, an external bus standard that supports data transfer rates of 12 Mbps. A single USB port can be used to connect up to 127 peripheral devices, such as mice, modems, and keyboards.

-V-

Voltage Rating: The highest voltage that may be continually applied to a conductor in conformance with standards or specifications.

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VSWR: Abbreviation for Voltage Standing Wave Ratio. The ratio of the maximum to minimum voltage set up along a transmission line by reflections.

-W-

Wavelength: In a periodic wave, the distance between points of corresponding phase of two consecutive cycles.

Working Voltage: The working or 'operational' Voltage is the maximum voltage that can be continuously sustained.