ELECTRICAL AND ELECTRONICS ENGINEERING DICTIONARY

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Lexicographer

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PREFACE AND NOTES ON THE USE OF THIS DICTIONARY

This dictionary has over 35,000 entries, each of which occupies a place in one or more of the many areas of expertise encompassed by electrical and electronics engineering. All available sources were consulted, seeking to ascertain the exact manners in which each term is currently utilized. Textbooks, handbooks, treatises, instruction manuals, theses, articles, reports, Usenet postings, and so on, were researched during the process of selecting the terms and writing their definitions, with a good number of entries having multiple provided connotations.

The Internet was used extensively throughout this project, and if one or more persons or entities used a given technical term in the areas covered by this dictionary, there is a decent chance it was taken into consideration. If any given words or phrases were used frequently by multiple people, in varied settings, and when referring to serious endeavors, there is a pretty good chance it can be found in this dictionary. Even so, some terms that continue to appear may not be found here. If a user feels that a given word or phrase not found in this dictionary should be added to a future edition, or wishes to otherwise comment on this book, an email may be sent to the author at: **correoaqui@gmail.com**

There are no special rules for the use of this dictionary. The user simply looks up the desired term to find its definition, plus other practical information when appropriate. When a word or phrase is the same as another, this is clearly stated so as to easily find the definition.

This dictionary has been prepared within the exquisite nature settings of Northwestern Austria. Mr. Wolfgang Gießer is the person who determined that I should be allowed to perform my work as an author in this wonderful country. I am tremendously grateful to him for kindly providing me with the opportunity to live here.

Steven M. Kaplan

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dealing with the reproduction of sound that produces as faithfully as possible a three-dimensional sound image.

AMC Abbreviation of **automatic modulation control**.

American National Standards Institute Same as **ANSI**.

American Standard Code for Information Interchange Same as **ASCII**.

American Wire Gage Same as **American Wire Gauge**.

American Wire Gauge A standard for designating the diameter of wires, or the thickness of sheets. Refers to nonferrous materials only. Also spelled **American Wire Gage**. Its abbreviation is **AWG**. Also called **Brown and Sharpe Gauge**.

americium A synthetic radioactive chemical element whose atomic number is 95, and which has about 20 identified isotopes. It is very malleable, nonmagnetic, and emits alpha and gamma radiation. It is used in many types of gauges, smoke detectors, and for dissipating static charges. Its chemical symbol is **Am**.

AMLCD Abbreviation of **active-matrix liquid-crystal display**.

ammeter Abbreviation of **am**pere **meter**. An instrument graduated in amperes, or fractions/multiples of amperes, which is utilized to measure and indicate the magnitude of electric currents. Different ammeters may be used for measuring DC and/or AC, and such instruments may employ any of various methods for detection, depending on the specific needs.

ammeter shunt A resistor connected in parallel to an ammeter, in order to increase the current range that can be measured. The majority of the current is carried by this shunted resistor.

ammonia maser A gas maser in which ammonia, a colorless gas whose structure is NH_3, is stimulated to amplify microwave radiation. The output of such a maser is characterized by great stability and may be used, for instance, as a frequency standard.

ammonium borate A colorless crystalline chemical compound used in electrolytic capacitors.

ammonium chloride White crystals whose chemical formula is NH_4Cl. Used as an electrolyte in dry cells, and for electroplating. Also known as **sal ammoniac**, or **salmiac**.

ammonium chloroplatinate A crystalline chemical compound used in electroplating.

ammonium dichromate An orange crystalline chemical compound used in the manufacturing of recording tape.

ammonium nickel sulfate A green crystalline chemical compound used in electroplating.

ammonium persulfate A white crystalline chemical compound used in electroplating, circuit board fabrication, and as a depolarizer of batteries.

ammonium sulfamate A white solid chemical compound used in electroplating.

ammonium thiocyanate A colorless crystalline chemical compound used in electroplating.

amorphous **1.** Not having a definite shape. For example, rubber. **2.** Not having a crystalline structure. For example, glass. Also called **non-crystalline**.

amorphous film A metallic film without a definite shape. May be used, for example, in the manufacturing of semiconductors.

amorphous semiconductor A semiconductor material which does not have a crystalline structure. Its fabrication is cheaper and simpler than those with crystalline structure, but it is less efficient and not as durable.

amortisseur winding A winding which serves to dampen any oscillations in a synchronous motor. Also called **damper winding**.

amp **1.** Abbreviation of **ampere**. **2.** Abbreviation of **amplifier**.

amp-hr Abbreviation of **ampere-hour**.

amp-turn Abbreviation of **ampere-turn**.

ampacity The current-carrying capacity of a conductor. Expressed in amperes.

amperage The intensity of a current flow. Expressed in amperes.

ampere The fundamental SI unit of electric current. Currently, it is defined as the constant current that produces a force of 0.2 micronewtons per meter between two infinitely long parallel conductors placed one meter apart in a vacuum. A current of one ampere equals one coulomb of charge per second. Its abbreviation is **amp**. Its symbol is **A**.

Ampère balance An ammeter which operates by having a current pass through two nearby coils connected in series. One of the coils is fixed, while the other is attached to the arm of a balance. The attractive force between the coils is counterweighed by the force of gravity acting on a known weight on the arm of the balance, which in turn indicates the current strength on its scale. Also called **Kelvin balance**, or **current balance**.

ampere-hour A unit of quantity of electricity equivalent to the charge accumulated by a steady flow of one ampere for one hour. An ampere-hour is equal to exactly 3600 coulombs, and is often utilized to state the capacity of a storage battery. It has various abbreviations, depending on the standard used, the most prevalent being **Ah**. Others include **amp-hr**, **Ahr**, or **A-h**.

ampere-hour meter An instrument for measuring electric current flow per unit time, as expressed in ampere-hours.

ampere meter Same as **ammeter**.

ampere/meter Same as **ampere per meter**.

ampere-minute A unit of quantity of electricity equivalent to the charge accumulated by a steady flow of one ampere for one minute. An ampere-minute is equal to exactly 60 coulombs. Its abbreviation is **A min**.

ampere per meter Its abbreviation is **A/m**. **1.** The SI unit of magnetic field strength. **2.** The SI unit of magnetization.

ampere per square meter The SI unit of current density. Its abbreviation is A/m^2.

Ampère rule In a conductor that is carrying current away from an observer, the magnetic field lines will have a clockwise direction.

ampere square meter per joule second The SI unit of gyromagnetic ratio. Its abbreviation is Am^2/Js.

ampere-turn The unit of magnetomotive force in the MKS system. It is equal to 1 ampere flowing through 1 turn of a coil. One ampere-turn is also equal to about 1.257 gilberts. Its abbreviations are **amp-turn**, **At**, and **A-t**.

Ampère's law A law which describes the mathematical relationship between electric currents and magnetic fields. Also known as **Laplace's law**.

amperemeter Same as **ammeter**.

amplidyne A rotating magnetic amplifier in which a small increase in input power results in a large increase in output power. Also called **metadyne**.

amplification **1.** The process of producing an output which is greater than the input. This can refer to any of various electrical quantities, such as current, voltage, power, or signal strength. **2.** A quantitative measure of the increase in output versus input of an electrical quantity. This can be expressed as a ratio, a percentage, or in decibels.

amplification factor **1.** The increase in output versus input of an electrical quantity, such as current, voltage, power, or signal strength. This is expressed as a ratio, a percentage, or in decibels. **2.** In an electron tube, the factor by which the

plate voltage increases in proportion to an increase in the grid voltage, where all other voltages and the plate current are held constant. Also known as **mu factor**, or **μ factor**.

amplification noise The electrical noise generated by the components of an amplifier during the process of amplification.

amplifier A component, circuit, or device which produces an output signal that is greater than the input signal, ideally without altering the essential characteristics of said input signal. Amplifying devices and components include electron tubes, transistors, and distribution amplifiers. Its abbreviation is **amp**.

amplifier circuit A circuit which amplifies.

amplifier class Classifications of amplifiers based on the relationship between the input signal and the output current. For classification purposes, a simplified output stage consisting of two complementary tubes or transistors is assumed for most classes. Each class has its own linearity and efficiency characteristics. Examples include class A amplifiers, class AB amplifiers, class C amplifiers, and so on. Also called **class (3)**.

amplifier distortion A change in the waveform of a signal between the input and the output stages of an amplifier.

amplifier gain The increase in current, voltage, or power provided by an amplifier. For instance, the ratio of the output power to the input power of a power amplifier.

amplifier noise **1.** The electrical noise generated by an amplifier in the absence of an input signal. **2.** Any noise generated by an amplifier.

amplifier output **1.** The amplified signal an amplifier produces. **2.** The output devices and terminals of an amplifier.

amplifier power Also called **power output**, or **output power**. **1.** The extent to which an amplifier can amplify an input signal. Also called **power amplification (3)**. **2.** The delivering of the output of an amplifier to a load, such as a loudspeaker. Expressed in watts Also, the power so delivered.

amplifier stage An amplifying unit within a device or system.

amplifying delay line A delay line which amplifies high-frequency signals. Used in pulse-compression techniques.

amplifying unit Within a device or system, a unit which produces an output signal that is greater than the input signal.

amplitron A microwave amplifier that uses cross-field interactions to provide high gain and phase stability throughout a wide bandwidth.

amplitude In a wave or other periodic phenomenon, the maximum absolute value of the displacement from a reference position, such as zero.

amplitude clipping The limiting of the amplitude of the output signal of a circuit or device to a predetermined maximum, regardless of the variations in its input.

amplitude comparison The comparing of two amplitudes, one of which is used as a reference.

amplitude discriminator A circuit that acts upon pulses whose amplitude exceed a determined value. Used in detectors. Also known as **pulse-height discriminator**.

amplitude distortion **1.** Same as **attenuation distortion**. **2.** In an amplifier, the component of the output signal which alters the essential characteristics of the input signal. This is due to a nonlinear response in the amplifier. Also called **nonlinear distortion (3)**.

amplitude excursion Also called or **peak-to-peak amplitude**, **peak-to-peak**, or **maximum amplitude excursion**. **1.** For a waveform of an alternating quantity, such as that of AC, the difference between the maximum positive peak and the maximum negative peak. It is the maximum combined range in the amplitude of a signal or other observed quantity. **2.** The difference between the maximum positive peak and the maximum negative peak of any varying quantity. It is the maximum combined range in the amplitude of a signal or other observed quantity.

amplitude factor In a periodically-varying function, such as that of AC, the ratio of the peak amplitude to the RMS amplitude. Also known as **crest factor**, or **peak factor**.

amplitude fading In the propagation of electromagnetic waves, decreases in amplitude that are uniform throughout all the frequency components of the signal. This contrasts with **selective fading**, in which different frequencies are affected to varying degrees.

amplitude-frequency distortion Same as **attenuation distortion**.

amplitude-frequency response A measure of the behavior of a component, circuit, device, piece of equipment, or system, as a function of its input signal frequencies. For example, it may refer to the efficiency of the amplification of a circuit or device as a function of frequency. Also known as **frequency response (1)**, **sine-wave response**, or **sine-wave frequency response**.

amplitude gate A circuit or device which passes only those portions of an input signal which lie between two fixed amplitude boundaries. These boundaries are usually close together. Also called **clipper-limiter**, **slicer**, or **slicer amplifier**.

amplitude limiter A circuit or device which limits the amplitude of its output signal to a predetermined maximum, regardless of the variations of its input. Used, for example, for preventing component, equipment, or media overloads. Also known by various other names, including **amplitude-limiting circuit**, **amplitude-limiter circuit**, **limiter**, **automatic peak limiter**, **clipping circuit**, **peak limiter**, **peak clipper**, and **clipper**.

amplitude-limiter circuit Same as **amplitude limiter**.

amplitude-limiting circuit Same as **amplitude limiter**.

amplitude-modulated Pertaining to, of having undergone **amplitude modulation**.

amplitude-modulated signal A signal whose carrier wave is **amplitude-modulated**.

amplitude-modulated transmission A transmission in which the carrier wave is **amplitude-modulated**.

amplitude-modulated transmitter A transmitter sending an **amplitude-modulated signal**.

amplitude-modulated wave A wave whose amplitude varies proportionally to the modulating signal.

amplitude modulation Same as **AM**.

amplitude-modulation broadcast band Same as **AM broadcast band**.

amplitude-modulation broadcasting Same as **AM broadcasting**.

amplitude-modulation/frequency-modulation radio Same as **AM/FM radio**.

amplitude-modulation/frequency-modulation radio receiver Same as **AM/FM radio receiver**.

amplitude-modulation/frequency-modulation receiver Same as **AM/FM receiver**.

amplitude-modulation/frequency-modulation transmitter Same as **AM/FM transmitter**.

amplitude-modulation/frequency-modulation tuner Same as **AM/FM tuner**.

amplitude-modulation noise Same as **AM noise**.

amplitude-modulation radio Same as **AM radio**.

amplitude-modulation radio receiver Same as **AM radio receiver**.

amplitude-modulation receiver Same as **AM receiver**.

cupric cyanide Same as **copper cyanide**.

cupric ferrocyanide Same as **copper ferrocyanide**.

cupric hydroxide Same as **copper hydroxide**.

cupric nitrate Same as **copper nitrate**.

cupric oxide A brownish black powder whose chemical formula is **CuO**. It is used in batteries, electrodes, and in electroplating. Also called **copper monoxide**, or **copper oxide black**.

cupric selenide Same as **copper selenide**.

cupric sulfate Same as **copper sulfate**.

cupric tungstate Same as **copper tungstate**.

cuprous cyanide A chemical compound whose formula is **CuCN**. It is used in electroplating.

cuprous oxide Reddish-brown crystals whose chemical formula is Cu_2O. Used in electroplating, ceramics, rectifiers, and photocells. Also called **copper oxide red**, or **copper suboxide**.

cuprous selenide Dark blue to black crystals whose chemical formula is Cu_2Se. Used in semiconductors.

cuprous sulfide A blue to black powder whose chemical formula is Cu_2S. Used in solar cells, rectifiers, and electrodes.

curie A unit of radioactivity defined as exactly 3.7×10^{10} atomic disintegrations per second, which is the approximate decay rate of one gram of pure radium. Its abbreviation is **Ci**.

Curie law A law stating that the susceptibility of certain paramagnetic materials is inversely proportional to its absolute temperature. It doesn't always hold true, especially for liquids or solids.

Curie point Same as **Curie temperature**.

Curie temperature The temperature at which the ferromagnetic properties of a material become paramagnetic. At or above this temperature, the thermal energy in the material is too great to exhibit ferromagnetism. Also called **Curie point**, **ferromagnetic Curie temperature**, or **magnetic transition temperature**.

Curie-Weiss law A variation of the **Curie law** which takes into account the mutual interactions between particles, especially in a liquid or solid. Only holds true at temperatures above the **Curie temperature**.

curium A synthetic element whose atomic number is 96. It is a reactive silvery-white metal, and has about 20 known isotopes, all of which are unstable. It is used, for instance, for compact thermionic or thermoelectric power generation, especially for use in remote areas such as outer space. Its chemical symbol is **Cm**.

current Its symbol is *I*, and it is expressed in amperes. Also called **electric current**. **1.** A flow of an electric charge through a conductor. Electrons, electron holes, or ions may transport an electric charge. **2.** The rate of flow of electric charge through a conductor.

current amplification Also called **current gain**. **1.** For an amplifying device such as a transistor, electron tube, or photomultiplier tube, the ratio of the output current to the input current. Also called **current ratio**. **2.** The production of an output current which is greater than the input current.

current amplifier A device, such as a transistor or electron tube, whose output current is greater than its input current.

current antinode For a medium having standing waves, such as a transmission line or antenna, the point at which there is a maximum of current. Also called **current loop**.

current attenuation **1.** For an amplifying device such as a transistor, electron tube, or photomultiplier tube, the ratio of the input current to the output current. **2.** The production of an output current which is lesser than the input current.

current balance An ammeter which operates by having a current pass through two nearby coils connected in series. One of the coils is fixed, while the other is attached to the arm of a balance. The attractive force between the coils is counterweighed by the force of gravity acting on a known weight on the arm of the balance, which in turn indicates the current strength on its scale. Also called **Ampère balance**, or **Kelvin balance**.

current calibrator A source whose steady current level serves as a basis for calibrating instruments.

current-carrying capacity The maximum amount of current that a conductor can handle safely.

current coefficient **1.** A coefficient depicting a current change resulting from a variation in another electrical parameter, such as voltage or resistance. **2.** A coefficient depicting a variation in another electrical parameter, such as voltage or resistance, resulting from a current change.

current consumption Same as **current drain**.

current-controlled current source A dependent source whose level of output current depends on its input current. An example is a current amplifier. Its abbreviation is **CCCS**.

current-controlled device A device, such as a switch, whose function is controlled by an input current.

current-controlled switch A switch, such as a semiconductor device, whose switching action is determined by an input current.

current-controlled voltage source A dependent source whose level of output voltage depends on its input current. An example is a transresistance amplifier. Its abbreviation is **CCVS**.

current crest Same as **current peak**.

current density The current flowing per unit of cross-sectional area of a conductor. Its SI unit is amperes per square meter. Its symbol is *J*. Also called **electric current density**.

current detector A component, circuit, or device which indicates the presence of a current.

current divider A device which serves to deliver a given proportion of the total current to one or more circuits or branches.

current drain The current a circuit or load draws from a power source. Also called **current consumption**, or **drain (1)**.

current feed The feeding of an antenna by connecting its transmission line at a **current antinode**.

current feedback Feedback in which a proportion of the current output to the load is fed back to the input circuit in series.

current flow The flow of an electric charge through a conducting medium. Electrons, electron holes, or ions may transport an electric charge.

current gain Same as **current amplification**.

current generator **1.** A device which generates DC. For instance, a rotating electric machine which converts mechanical power into DC power. **2.** A device which generates AC. For example, a rotating electric machine which converts mechanical power into AC power.

current hogging The undesired condition in which one out of multiple components operated in parallel draws more current than it should. This can lead to a malfunction or failure of the component.

current-instruction register Same as **control register**.

current intensity The magnitude of a current flow. Also called **current strength**, or **current magnitude**. When expressed in amperes it is called **amperage**.

current lag Within a circuit, a change in current which lags behind a change in voltage. For example, in an inductive circuit the current lags behind an applied voltage. This contrasts with **current lead**.

current lead Within a circuit, a change in current which leads a change in voltage. For instance, in a capacitive circuit the current leads an applied voltage. This contrasts with **current lag**.

current leakage Also called **leakage current**. **1.** Current which flows through unwanted paths of a circuit, such as from the output to the input when not intended. **2.** Current which flows between electrodes of an electron tube by any route except the interelectrode space. **3.** Current which flows along the surface or through the body of a dielectric or insulator. **4.** DC which flows through the dielectric of a capacitor. **5.** AC which flows through a rectifier without being rectified. **6.** Current which flows through a component, circuit, or device which is in the off state. Also called **off-state leakage current**.

current limit **1.** The maximum output current a **current limiter** allows. **2.** The maximum current a device can handle without damage.

current limiter A device which limits its output current to a given maximum value, regardless of the applied voltage. Used, for instance, to protect equipment from surges. It may or may not provide protection for lesser fluctuations in current or voltage, which may also be destructive. Also called **current-limiting device**.

current limiting The limiting of an output current to a given maximum value, through the use of a **current limiter**.

current-limiting device Same as **current limiter**.

current-limiting fuse A fuse which interrupts a current that exceeds a given value. Used to protect components and equipment.

current-limiting resistor A resistor that limits the flow of a current to a given maximum value. Used to protect components and equipment. Also called **limiting resistor**.

current loop Same as **current antinode**.

current magnitude Same as **current intensity**.

current maximum Same as **current peak**.

current meter A device which measures and indicates current. For instance, an ammeter or a galvanometer.

current mirror A circuit in which the current on one side is forced to be a replica of that of the other side. Accomplished, for instance, by the bases and emitters of two bipolar junction transistors being connected together.

current-mode logic A logic circuit in which the transistors operate in an unsaturated mode, which provides faster switching. Its abbreviation is **CML**.

current node For a medium having standing waves, such as a transmission line or antenna, the point at which there is a minimum of current, or zero current.

current noise Also called **excess noise**. **1.** Electrical noise produced by current flowing through an electrical component, especially a resistor. **2.** Electrical noise produced by current flowing through a semiconductor material.

current peak Also called **current maximum**, **current peak value**, or **current crest**. **1.** The maximum value of a current. **2.** The maximum value of the displacement from a reference position, such as zero, for a current. **3.** The **current peak (1)**, or **current peak (2)** for a given time interval.

current peak value Same as **current peak**.

current rating **1.** The maximum amount of current that a conductor or device can handle safely. **2.** The maximum amount of continuous current that a conductor or device can handle safely, or within a prescribed operating temperature range.

current ratio Same as **current amplification (1)**.

current-regulated power supply Same as **constant-current source**.

current-regulated supply Same as **constant-current source**.

current regulation The maintenance of the current flowing through a circuit essentially constant utilizing a **current regulator**.

current regulator A device which maintains the current flowing through a circuit essentially constant, despite variations in variables such as load resistance, line voltage, and temperature, so long as they are within a prescribed range.

current relay A relay which is actuated at a specific current value, as opposed to a given voltage or power value.

current saturation In an electron tube, the condition in which the anode current can not be further increased, regardless of any additional voltage applied to it, since essentially all available electrons are already being drawn to said anode. Also called **plate saturation**, **anode saturation**, **voltage saturation**, or **saturation (3)**.

current source A source from which current flows. For example, a power outlet.

current standing-wave ratio For a given transmission line, such as a coaxial cable or waveguide, the ratio of the maximum current to the minimum current. It is a measure of the impedance matching of the line. This ratio is equal to 1 when there is complete impedance matching, in which case the maximum possible RF power reaches the load, such as an antenna. Its abbreviation is **CSWR**. Also called **standing-wave ratio (2)**.

current strength Same as **current intensity**.

current surge A sudden and momentary increase in current. May be caused, for instance, by lightning, or faults in circuits. If protective measures are not employed, such a surge may bring about a failure, or significant damage. Also called **surge current**, or **transient current**.

current transformer A transformer utilized for increasing or decreasing current. For example, an arrangement in which the primary winding of such a transformer is connected in series with the main circuit, with the secondary winding to a measuring instrument, can help avoid exposing said instrument to a current whose magnitude is too great.

current-voltage characteristic For a component, circuit, or device, a curve plotting current as a function of voltage. Also called **current-voltage curve**.

current-voltage curve Same as **current-voltage characteristic**.

cursor **1.** On a display, especially that of a computer screen, an indicator such as a blinking underline or a solid rectangle which indicates the location where a keystroke will appear on screen. Also called **insertion point (1)**. **2.** On a computer screen, an indicator, such as a small hand, arrow, or I-beam, that moves as the mouse is moved. It serves to select text, menus, and the area of the screen where the next text input or other action will occur, by clicking the mouse there. Also called **pointer (1)**, **mouse pointer**, or **mouse cursor**. **3.** A **cursor (2)** indicated by a pointing device, such as a trackball, other than a mouse. **4.** The pointing device of a digitizing tablet. It is similar to a mouse, but is much more accurate, because its location is determined by touching an active surface with an absolute reference. Also called **pen (1)**, **puck**, or **stylus (1)**.

cursor control The control of the movement or placement of a **cursor (2)** or **cursor (3)**. A cursor may be moved or placed in various manners, including the use of keyboard keys, pointing devices such as a mouse, or a system in which a camera detects head motions.

cursor control device A device used for **cursor control**.

infrared scanner A scanner which responds to infrared radiation. Used, for instance, for exploring areas where visibility is reduced. Its abbreviation is **IR scanner**.

infrared scanning Scanning using an **infrared scanner**. Its abbreviation is **IR scanning**

infrared sensor Same as **infrared detector**. Its abbreviation is **IR sensor**.

infrared signal A signal, such as that used by an infrared port or infrared remote control, in which infrared radiation is utilized to convey information. Its abbreviation is **IR signal**.

infrared soldering Soldering in which the heat is generated by infrared radiation. Used, for instance, for soldering semiconductor chips. Its abbreviation is **IR soldering**.

infrared spectrometer A spectrometer which detects and measures radiant intensities in the infrared region. Used, for instance, for the analysis of organic compounds in a sample. Its abbreviation is **IR spectrometer**.

infrared spectrometry The science and utilization of **infrared spectrometers** for analysis. Its abbreviation is **IR spectrometry**.

infrared spectrophotometer A spectrophotometer operating in the infrared region. Usually utilized to identify organic compounds by detecting molecular vibrational and rotational activity. Its abbreviation is **IR spectrophotometer**.

infrared spectrophotometry The science and utilization of **infrared spectrophotometers** for analysis. Its abbreviation is **IR spectrophotometry**.

infrared spectroscopy An analytical technique in which the wavelengths and corresponding intensities of infrared radiation absorbed by a sample are analyzed. An example is infrared absorption spectroscopy. Such techniques are well suited, for instance, for identification of organic compounds. A light source commonly utilized is a tungsten lamp, and the displayed or graphed output is called **infrared spectrum (2)**. Its abbreviation is **IR spectroscopy**.

infrared spectrum Its abbreviation is **IR spectrum**. **1.** The interval of wavelengths encompassing the **infrared region**. Also called **infrared band**. **2.** A display or graph obtained through **infrared spectroscopy**.

infrared thermometer An instrument or device which measures the emitted infrared radiation of a body, to determine its temperature. Used, for instance, when contact with the body is unadvisable or unduly difficult. Its abbreviation is **IR thermometer**.

infrared transmitter A transmitter which sends infrared signals which carry information.

infrared waves Electromagnetic waves whose wavelengths are in the **infrared region**. Its abbreviation is **IR waves**.

infrared welding Welding in which the heat is generated by infrared radiation. Used, for instance, for welding thermoplastics. Its abbreviation is **IR welding**.

infrasonic Pertaining to, generating, sensitive to, or utilizing **infrasonic frequencies**. Also called **subsonic**.

infrasonic frequency A frequency below the range that humans can hear. That is, below about 20 Hz. Also called **subsonic frequency**.

infrasonic phenomena Phenomena occurring within, or pertaining to **infrasonic frequencies**. Also called **subsonic phenomena**.

infrasonics The science dealing with the study and applications of infrasonic phenomena.

infrasound An acoustic-type disturbance whose frequency is below the range that humans can hear. That is, below about 20 Hz.

inharmonic distortion Distortion occurring at an **inharmonic frequency**.

inharmonic frequency A frequency which is not a whole-number multiple of a fundamental frequency.

inherent Same as **intrinsic**.

inherent error Same as **intrinsic error**.

inherent interference Same as **intrinsic interference**.

inherent noise Same as **intrinsic noise**.

inherent properties Same as **intrinsic properties**.

inherent regulation Same as **intrinsic regulation**.

inheritance In object-oriented programming, the ability of a class to confer properties to a class derived from it.

inherited error In a given sequence, an error which is carried forward from a previous step.

inhibit To stop, block, restrain, or impede from occurring.

inhibit input An input which stops or impedes an event from occurring. For example, an input which disables a gate circuit in a computer. Also called **inhibiting input**.

inhibit pulse A pulse which stops or impedes an event from occurring. For example, a pulse which serves as an inhibiting signal. Also called **inhibiting pulse**.

inhibit signal A signal which stops or impedes an event from occurring. For example, a signal which disables a gate circuit in a computer. Also called **inhibiting signal**.

inhibiting input Same as **inhibit input**.

inhibiting pulse Same as **inhibit pulse**.

inhibiting signal Same as **inhibit signal**.

inhibition The act or process of stopping, blocking, restraining, or impeding from occurring. Also, that which stops, blocks, restrains, or impedes.

inhibitor That which **inhibits**. For example, a substance which impedes, retards, or stops a reaction.

initial charge The charge given to a new battery before placing it in service, or when it is first installed.

initial failure The first instance in which a component, circuit, device, piece of equipment, or system in use fails.

Initial Graphics Exchange Specification An ANSI graphics file format especially suited for describing CAD-created models. Its abbreviation is **IGES**.

initial instructions Computer instructions which aid in the loading of programs into memory.

initial ionizing event In an instrument or device which detects and quantifies ionizing radiation, such as a Geiger counter, the ionizing event which starts the chain of events leading to a count. Also called **primary ionizing event**.

initial permeability The permeability of a material with zero initial magnetization, at small flux densities, such as those under 10 gauss.

initial program load Its abbreviation is **IPL**. **1.** To start up or reset a computer. During this process the computer accesses instructions from its ROM chip, performs self-checks, loads the operating system, and prepares for use by an operator. Such a process may be initiated by turning on the power, pressing a button or switch, by hitting a specific key sequence, or through a program or routine that gives this command. Also called by various other names, including **bootstrap (1)**, **booting**, **boot (1)**, **booting up**, and **bootstrapping (1)**. **2.** To load the operating system into memory during an **initial program load (1)**.

initial surge **1.** A current surge occurring when power is first applied to a circuit, device, piece of equipment, or system. A manifestation is the momentary dimming of the lights in a house when an air conditioner starts. **2.** Same as **initial surge voltage**.

initial surge voltage A voltage surge occurring when electrical power is restored after a power failure. Such a surge may damage connected equipment. Also called **initial surge (2)**.

initial time delay At a given location, the time difference between the arrival of a direct sound wave, and that of the first reflected sound wave.

signal path The path along which a **signal** travels. For example, the route an electromagnetic wave travels between a transmitter and a receiver.

signal peak **1.** The maximum instantaneous value of a signal. **2.** The maximum instantaneous absolute value of the displacement from a reference position, such as zero, for a signal. **3.** The **signal peak (1)**, or **signal peak (2)** for a given time interval.

signal phase The phase, such as that of a chrominance signal with respect to a burst signal, of a **signal**.

signal power The power, usually expressed in dBs or watts, of a **signal**.

signal processing The processing, such as demodulation, amplification, or conversion, of a **signal**.

signal processor A component, circuit, device, piece of equipment, system, or process which performs **signal processing**.

signal pulse **1.** A pulse, such as that within a pulse train, which conveys a signal. **2.** A signal, such as that which starts a device, consisting of a single pulse.

signal quality **1.** A quality, such as intelligibility, of a signal. Also, a combination of such qualities. **2.** A quality, such as brightness, associated with an audio or visual signal.

signal receiver A device, such as a radio receiver, suitable for **signal reception**.

signal reception Also called **reception**. **1.** The conversion of information-bearing signals, such as those conveyed via electromagnetic waves, into the signals of interest, such as music, images, or data. For example, the use of a receiver to demodulate of an FM signal, so as to recover the original music. **2.** The quality or fidelity attained during **signal reception (1)**.

signal rectification The process of converting an AC signal into a DC signal. Also, the result of such a process.

signal regeneration The process of again generating, or of restoring a signal to its original shape or form.

signal regenerator A circuit or device which is utilized for **signal regeneration**.

signal return The return of a signal back to its source. This occurs in radars, for instance, when a scanned object reflects microwave energy.

signal selector A control or switch that allows the selection of a signal reception and/or transmission mode when there are multiple options. Used, for instance, to transmit at a given frequency or within a specified band.

signal separation The separation of one or more components from a complex signal. An example is demultiplexing.

signal separator A circuit, device, or system, utilized for **signal separation**.

signal shaper A circuit or device which is utilized for **signal shaping**.

signal shaping The altering of one or more characteristics of a signal. For instance, changing a characteristic of a pulse train, so as to convey meaningful information. Also called **signal forming**.

signal-shaping circuit A circuit utilized for **signal shaping**. Also called **signal-shaping network**.

signal-shaping network Same as **signal-shaping circuit**.

signal source Same as **signal generator**.

signal speed The speed, such as that of a modem, at which a signal is received and/or transmitted.

signal station A station, such as a radio beacon, which sends and/or receives signals.

signal strength The intensity of a **signal**. For example, the voltage amplitude of a signal, or the output, in watts, of a radio transmitter. Also called **signal intensity**, or **signal level (3)**.

signal-strength indicator A device or instrument which indicates **signal strength**. Also called **signal-strength meter**, or **S-meter (1)**.

signal-strength meter Same as **signal-strength indicator**.

signal system A system, such as pulse-code modulation, utilized to code or send signals.

signal time delay Same as **signal delay**.

signal-to-distortion ratio The ratio of the magnitude of a given parameter of the desired signal, to that of the same parameter for any distortion present. It is usually the ratio of their respective amplitudes, and is expressed in decibels. Its abbreviation is **SDR**.

signal-to-interference ratio The ratio of the magnitude of a given parameter of the desired signal, to that of the same parameter for any interference present. It is usually the ratio of their respective amplitudes, and is expressed in decibels. Its abbreviation is **SIR**.

signal-to-noise Same as **signal-to-noise ratio**.

signal-to-noise-and-distortion ratio The ratio of the magnitude of a given parameter of the desired signal, to that of the same parameter for all undesired energy present combined, including noise and distortion. It is usually the ratio of their respective amplitudes, and is expressed in decibels. Its abbreviation is **SINAD**.

signal-to-noise ratio Its abbreviations are **S/N**, **S/N ratio**, **SNR**, **signal-to-noise**, or **signal/noise ratio**. For a given signal, the ratio of the magnitude of a parameter of the useful or desired signal, to that of the same parameter for any noise present. An S/N ratio may be expressed in many ways, such as the ratio of the signal power of the desired signal, to the noise power, expressed in decibels. The ratio of peak voltages is usually utilized for pulse noise, and RMS values for broadband or random noise. An S/N ratio may be stated for a given point in a circuit or transmission medium, for a given bandwidth, and so on. A higher S/N ratio provides for a better-quality signal, in addition to affording greater noise immunity. Digital recordings and transmissions tend to have higher S/N ratios than equivalent analog recordings or transmissions.

signal tracer A component, circuit, device, or instrument which is utilized to follow a signal through a component, circuit, device, or system, such as a receiver or amplifier. Used, for instance, for testing and troubleshooting.

signal tracing The use of a **signal tracer**.

signal transfer point Within a communications network, such as a telephone network, a point or location, such as a central office, where transfers are made from one signaling link to another. Its abbreviation is **STP**.

signal transmission The conversion of information-bearing signals, such as audio, video, or other content, into electromagnetic waves, or another form, which is transmitted in a form suitable for subsequent **signal reception (1)**.

signal transmitter A device, such as a radio transmitter, which serves for **signal transmission**.

signal unit A unit, such as a group of bits of a given size, which serves to convey information signals. Its abbreviation is **SU**.

signal voltage The voltage of a **signal**. Unless otherwise specified, it is the RMS voltage value of a given signal.

signal wave A wave, such as an electromagnetic wave emitted by an antenna, which conveys a **signal**.

signal wire A wire, such as that in a twisted pair, through which a **signal** is transmitted.

signaling **1.** The transmission or emission of **signals**, using electrical signals, tones, flashing lights, and so on. **2.** A specific method, technique, or technology for **signaling (1)**, such as binary signaling, bit robbing, carrier signaling, common-channel signaling, or multi-frequency signaling.