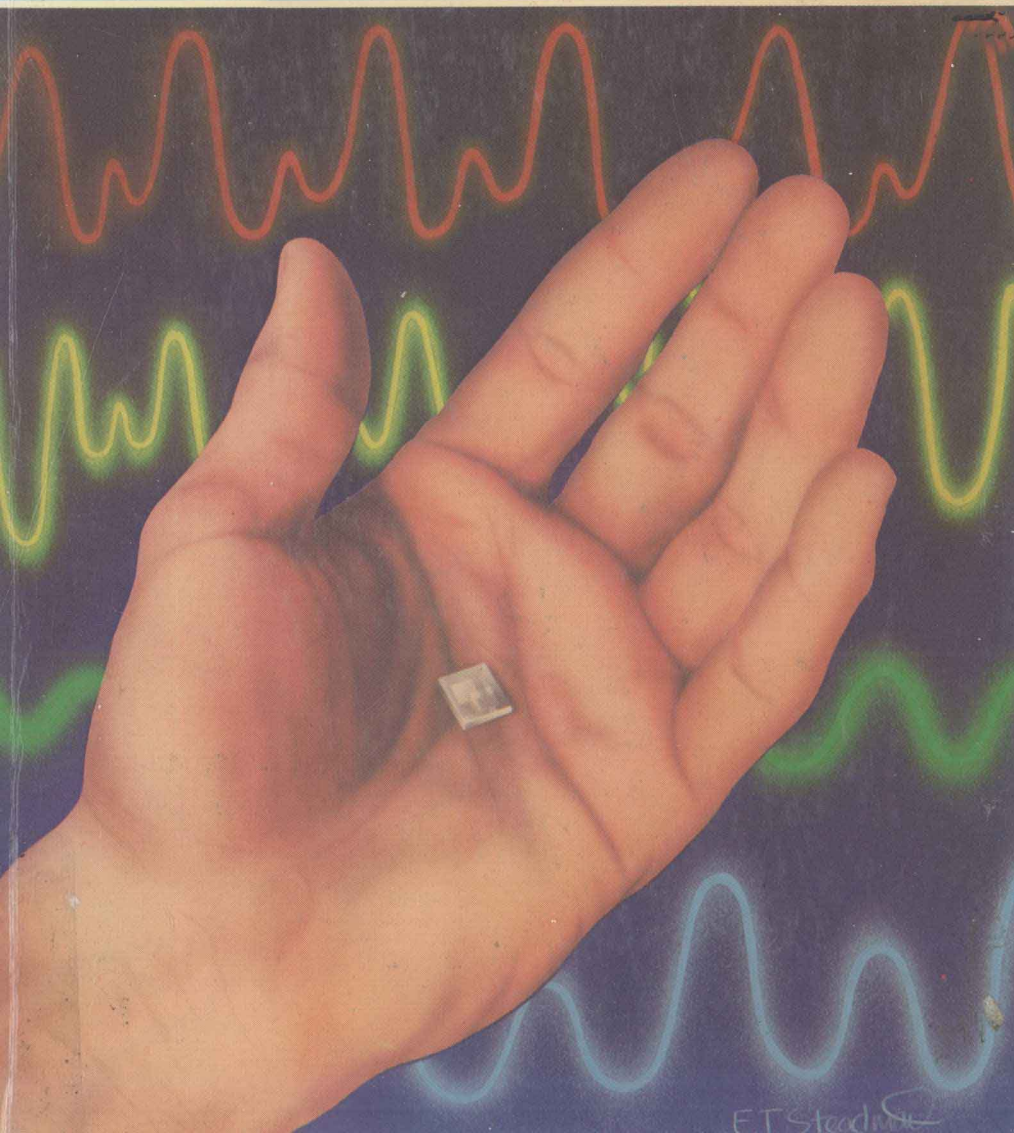
McGraw-Hill Dictionary of

ELECTRICAL AND ELECTRONIC ENGINEERING



McGraw-Hill Dictionary of ELECTRICAL AND ELECTRONIC ENGINEERING

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How to Use the Dictionary

ALPHABETIZATION

The terms in the *McGraw-Hill Dictionary of Electrical and Electronic Engineering* are alphabetized on a letter-by-letter basis; word spacing, hyphen, comma, solidus, and apostrophe in a term are ignored in the sequencing. For example, an ordering of terms would be:

alloy junction
all-wave receiver
AM field signature
AND/NOR gate
AND-OR circuit
A positive

CROSS-REFERENCING

A cross-reference entry directs the user to the defining entry. For example, the user looking up "arc" finds:

arc *See* electric arc.

The user then turns to the "E" terms for the definition.

Cross-references are also made from variant spellings, acronyms, abbreviations, and symbols.

Alice *See* Alaska Integrated Communications Exchange.
i-f *See* intermediate frequency.
mG *See* milligauss.

The user turning directly to a defining entry will find the above type of information included, introduced by "Also known as . . . ," "Also spelled . . . ," "Abbreviated . . . ," "Symbolized . . . ," "Derived from . . . ."

McGraw-Hill Dictionary of ELECTRICAL AND ELECTRONIC ENGINEERING

A

a *See* ampere.

aΩ *See* abohm.

$(a\Omega)^{-1}$ *See* abmho.

A *See* ampere.

aA *See* abampere.

$aAcm^2$ *See* abampere centimeter squared.

aA/cm^2 *See* abampere per square centimeter.

A AND NOT B gate *See* AND NOT gate.

ab- A prefix used to identify centimeter-gram-second electromagnetic units, as in abampere, abcoulomb, abfarad, abhenry, abmho, abohm, and abvolt.

abampere The unit of electric current in the electromagnetic centimeter-gram-second system; 1 abampere equals 10 amperes in the absolute meter-kilogram-second-ampere system. Abbreviated aA. Also known as Bi; biot.

abampere centimeter squared The unit of magnetic moment in the electromagnetic centimeter-gram-second system. Abbreviated $aAcm^2$.

abampere per square centimeter The unit of current density in the electromagnetic centimeter-gram-second system. Abbreviated aA/cm^2.

A battery The battery that supplies power for filaments or heaters of electron tubes in battery-operated equipment.

ABC *See* automatic brightness control.

abcoulomb The unit of electric charge in the electromagnetic centimeter-gram-second system, equal to 10 coulombs. Abbreviated aC.

abcoulomb centimeter In the electromagnetic centimeter-gram-second system of units, the unit of electric dipole moment. Abbreviated aCcm.

abcoulomb per cubic centimeter The electromagnetic centimeter-gram-second unit of volume density of charge. Abbreviated aC/cm^3.

abcoulomb per square centimeter The electromagnetic centimeter-gram-second unit of surface density of charge, electric polarization, and displacement. Abbreviated aC/cm^2.

abfarad A unit of capacitance in the electromagnetic centimeter-gram-second system equal to 10^9 farads. Abbreviated aF.

abhenry A unit of inductance in the electromagnetic centimeter-gram-second system of units which is equal to 10^{-9} henry. Abbreviated aH. Also known as centimeter.

abmho A unit of conductance in the electromagnetic centimeter-gram-second system of units equal to 10^9 mhos. Abbreviated $(a\Omega)^{-1}$. Also known as absiemens (aS).

abnormal glow discharge A discharge of electricity in a gas tube at currents somewhat higher than those of an ordinary glow discharge, at which point the glow covers the entire cathode and the voltage drop decreases with increasing current.

abnormal reflections Sharply defined reflections of substantial intensity at frequencies greater than the critical frequency of the ionized layer of the ionosphere.

abohm The unit of electrical resistance in the centimeter-gram-second system; 1 abohm equals 10^{-9} ohm in the meter-kilogram-second system. Abbreviated aΩ.

abohm centimeter The centimeter-gram-second unit of resistivity. Abbreviated aΩcm.

AB power pack 1. Assembly in a single unit of the A battery and B battery for a battery-operated vacuum-tube circuit. 2. Unit that supplies the necessary A and B direct-current voltages from an alternating-current source of power.

abrupt junction A *pn* junction in which the concentration of impurities changes suddenly from acceptors to donors.

absiemens *See* abmho.

absolute electrometer A very precise type of attracted disk electrometer in which the attraction between two disks is balanced against the force of gravity.

absolute gain of an antenna Gain in a given direction when the reference antenna is an isotropic antenna isolated in space. Also known as isotropic gain of an antenna.

absolute permeability The ratio of the magnetic flux density to the intensity of the magnetic field in a medium; measurement is in webers per square meter in the meter-kilogram-second system. Also known as induced capacity.

absolute wavemeter A type of wavemeter in which the frequency of an injected radio-frequency voltage is determined by measuring the length of a resonant line.

absorb To take up energy from radiation.

absorber A material or device that takes up and dissipates radiated energy; may be used to shield an object from the energy, prevent reflection of the energy, determine the nature of the radiation, or selectively transmit one or more components of the radiation.

absorption 1. The property of a dielectric in a capacitor which causes a small charging current to flow after the plates have been brought up to the final potential, and a small discharging current to flow after the plates have been short-circuited, allowed to stand for a few minutes, and short-circuited again. Also known as dielectric soak. 2. The taking up of energy from radiation by the medium through which the radiation is passing.

absorption circuit A series-resonant circuit used to absorb power at an unwanted signal frequency by providing a low impedance to ground at this frequency.

absorption control *See* absorption modulation.

absorption cross section In radar, the ratio of the amount of power removed from a beam by absorption of radio energy by a target to the power in the beam incident upon the target.

absorption current The component of a dielectric current that is proportional to the rate of accumulation of electric charges within the dielectric.

absorption modulation A system of amplitude modulation in which a variable-impedance device is inserted in or coupled to the output circuit of the transmitter. Also known as absorption control; loss modulation.

absorption wavemeter A frequency- or wavelength-measuring instrument consisting of a calibrated tunable circuit and a resonance indicator.

abvolt The unit of electromotive force in the electromagnetic centimeter-gram-second system; 1 abvolt equals 10^{-8} volt in the absolute meter-kilogram-second system. Abbreviated aV.

abvolt per centimeter In the electromagnetic centimeter-gram-second system of units, the unit of electric field strength. Abbreviated aV/cm.

abwatt The unit of electrical power in the centimeter-gram-second system; 1 abwatt equals 1 watt in the absolute meter-kilogram-second system.

abWb *See* maxwell.

abweber *See* maxwell.

ac *See* alternating current.

aC *See* abcoulomb.

accelerated test A test of the serviceability of an electric cable in use for some time by applying twice the voltage normally carried.

accelerating electrode An electrode used in cathode-ray tubes and other electron tubes to increase the velocity of the electrons that contribute the space current or form a beam.

accelerating potential The energy potential in electron-beam equipment that imparts additional speed and energy to the electrons.

acceleration voltage The voltage between a cathode and accelerating electrode of an electron tube.

accentuation The enhancement of signal amplitudes in selected frequency bands with respect to other signals.

accentuator A circuit that provides for the first part of a process for increasing the strength of certain audio frequencies with respect to others, to help these frequencies override noise or to reduce distortion. Also known as accentuator circuit.

accentuator circuit *See* accentuator.

acceptor An impurity element that increases the number of holes in a semiconductor crystal such as germanium or silicon; aluminum, gallium, and indium are examples. Also known as acceptor impurity; acceptor material.

acceptor atom An atom of a substance added to a semiconductor crystal to increase the number of holes in the conduction band.

acceptor circuit A series-resonant circuit that has a low impedance at the frequency to which it is tuned and a higher impedance at all other frequencies.

acceptor impurity *See* acceptor.

acceptor material *See* acceptor.

aCcm *See* abcoulomb centimeter.

aC/cm^2 *See* abcoulomb per square centimeter.

aC/cm^3 *See* abcoulomb per cubic centimeter.

accordion cable A flat, multiconductor cable prefolded into a zigzag shape and used to make connections to movable equipment such as a chassis mounted on pullout slides.

accumulator *See* storage battery.

accumulator battery *See* storage battery.

ac/dc motor *See* universal motor.

ac/dc receiver A radio receiver designed to operate from either an alternating- or direct-current power line. Also known as universal receiver.

aΩcm *See* abohm centimeter.

acorn tube An ultra-high-frequency electron tube resembling an acorn in shape and size.

acoustic amplifier A device that amplifies mechanical vibrations directly at audio and ultrasonic frequencies. Also known as acoustoelectric amplifier.

acoustic branch One of the parts of the dispersion relation, frequency as a function of wave number, for crystal lattice vibrations, representing vibration at low (acoustic) frequencies.

acoustic bridge A device, based on the principle of the electrical Wheatstone bridge, used for analysis of deafness.

acoustic convolver *See* convolver.

acoustic delay line A device in which acoustic signals are propagated in a medium to make use of the sonic propagation time to obtain a time delay for the signals. Also known as sonic delay line.

acoustic detector The stage in a receiver at which demodulation of a modulated radio wave into its audio component takes place.

acoustic mode The type of crystal lattice vibrations which for long wavelengths act like an acoustic wave in a continuous medium, but which for shorter wavelengths approach the Debye frequency, showing a dispersive decrease in phase velocity.

acoustic phonon A quantum of excitation of an acoustic mode of vibration.

acoustic receiver The complete equipment required for receiving modulated radio waves and converting them into sound.

acoustic-wave amplifier An amplifier in which the charge carriers in a semiconductor are coupled to an acoustic wave that is propagated in a piezoelectric material, to produce amplification.

acoustoelectric amplifier *See* acoustic amplifier.

acoustoelectric effect The development of a direct-current voltage in a semiconductor or metal by an acoustic wave traveling parallel to the surface of the material. Also known as electroacoustic effect.

acoustooptical cell An electric-to-optical transducer in which an acoustic or ultrasonic electric input signal modulates or otherwise acts on a beam of light.

acquire **1.** Of acquisition radars, the process of detecting the presence and location of a target in sufficient detail to permit identification. **2.** Of tracking radars, the process of positioning a radar beam so that a target is in that beam to permit the effective employment of weapons. Also known as target acquisition.

ACSR *See* aluminum cable steel-reinforced.

actinodielectric Of a substance, exhibiting an increase in electrical conductivity when electromagnetic radiation is incident upon it.

actinoelectricity The electromotive force produced in a substance by electromagnetic radiation incident upon it.

action period The period of time during which data in a Williams tube storage device can be read or new data can be written into this storage.

activate **1.** To make a cell or battery operative by addition of a liquid. **2.** To treat the filament, cathode, or target of a vacuum tube to increase electron emission.

activated cathode A thermionic cathode consisting of a tungsten filament to which thorium has been added, and then brought to the surface, by a process such as heating in the absence of an electric field in order to increase thermionic emission.

activation 1. The process of adding liquid to a manufactured cell or battery to make it operative. 2. The process of treating the cathode or target of an electron tube to increase its emission. Also known as sensitization.

active area The area of a metallic rectifier that acts as the rectifying junction and conducts current in the forward direction.

active component 1. In the phasor representation of quantities in an alternating-current circuit, the component of current, voltage, or apparent power which contributes power, namely, the active current, active voltage, or active power. Also known as power component. 2. *See* active element.

active current The component of an electric current in a branch of an alternating-current circuit that is in phase with the voltage. Also known as watt current.

active device A component, such as an electron tube or transistor, that is capable of amplifying the current or voltage in a circuit.

active electric network Electric network containing one or more sources of energy.

active electronic countermeasures The major subdivision of electronic countermeasures concerning electronic jamming and electronic deceptions.

active element Any generator of voltage or current in an impedance network. Also known as active component.

active filter A filter that uses an amplifier with conventional passive filter elements to provide a desired fixed or tunable pass or rejection characteristic.

active jamming *See* jamming.

active leg An electrical element within a transducer which changes its electrical characteristics as a function of the application of a stimulus.

active logic Logic that incorporates active components which provide such functions as level restoration, pulse shaping, pulse inversion, and power gain.

active material 1. A fluorescent material used in screens for cathode-ray tubes. 2. An energy-storing material, such as lead oxide, used in the plates of a storage battery. 3. A material, such as the iron of a core or the copper of a winding, that is involved in energy conversion in a circuit. 4. The material of the cathode of an electron tube that emits electrons when heated.

active power The product of the voltage across a branch of an alternating-current circuit and the component of the electric current that is in phase with the voltage.

active region The region in which amplifying, rectifying, light emitting, or other dynamic action occurs in a semiconductor device.

active substrate A semiconductor or ferrite material in which active elements are formed; also a mechanical support for the other elements of a semiconductor device or integrated circuit.

active transducer A transducer whose output is dependent upon sources of power, apart from that supplied by any of the actuating signals, which power is controlled by one or more of these signals.

active voltage In an alternating-current circuit, the component of voltage which is in phase with the current.

actual height Highest altitude at which refraction of radio waves actually occurs.

acyclic machine *See* homopolar generator.

adapter transformer A transformer designed to supply a single electric lamp; its primary terminals are designed to fit into an ordinary lampholder, its secondary terminals into a lampholder of a low-voltage lamp.

Adcock antenna A pair of vertical antennas separated by a distance of one-half wavelength or less and connected in phase opposition to produce a radiation pattern having the shape of a figure eight.

adconductor cathode A cathode in which adsorbed alkali metal atoms provide electron emission in a glow or arc discharge.

adder A circuit in which two or more signals are combined to give an output-signal amplitude that is proportional to the sum of the input-signal amplitudes. Also known as adder circuit.

adder circuit *See* adder.

adding circuit A circuit that performs the mathematical operation of addition.

ADF *See* automatic direction finder.

adhesion Any mutually attractive force holding together two magnetic bodies, or two oppositely charged nonconducting bodies.

A display A radar oscilloscope display in cartesian coordinates; the targets appear as vertical deflection lines; their Y coordinates are proportional to signal intensity; their X coordinates are proportional to distance to targets.

adjacent-channel selectivity The ability of a radio receiver to respond to the desired signal and to reject signals in adjacent frequency channels.

adjustable resistor A resistor having one or more sliding contacts whose position may be changed.

adjustable transformer *See* variable transformer.

adjusted decibel A unit used to show the relationship between the interfering effect of a noise frequency, or band of noise frequencies, and a reference noise power level of −85 dBm. Abbreviated dBa. Also known as decibel adjusted.

admittance A measure of how readily alternating current will flow in a circuit; the reciprocal of impedance, it is expressed in mhos.

admittance matrix A matrix Y whose elements are the mutual admittances between the various meshes of an electrical network; it satisfies the matrix equation $I = YV$, where I and V are column vectors whose elements are the currents and voltages in the meshes.

advanced potential Any electromagnetic potential arising as a solution of the classical Maxwell field equations, analogous to a retarded potential solution, but lying on the future light cone of space-time; the potential appears, at present, to have no physical interpretation.

aerial *See* antenna.

aerodiscone antenna Electrically small antenna for airborne applications in the very-high-frequency and ultra-high-frequency bands; it is derived from, and preserves, the desirable electrical characteristics of the discone antenna and can be designed in various physical shapes.

aerogenerator A generator that is driven by the wind, designed to utilize wind power on a commercial scale.

aerospace electronics The field of electronics as applied to aircraft and spacecraft.

aF *See* abfarad.

AFC *See* automatic frequency control.

AGC *See* automatic gain control.

age coating The black deposit that is formed on the inner surface of an electric lamp by material evaporated from the filament.

aging **1.** Allowing a permanent magnet, capacitor, meter, or other device to remain in storage for a period of time, sometimes with a voltage applied, until the characteristics of the device become essentially constant. **2.** Change in the magnetic properties of iron with passage of time, for example, increase in the hysteresis.

aH *See* abhenry.

Ah *See* ampere-hour.

A/in.^{2} *See* ampere per square inch.

A indicator *See* A scope.

air battery A connected group of two or more air cells; also, a single air cell.

airblast circuit breaker An electric switch which, on opening, utilizes a high-pressure gas blast (air or sulfur hexafluoride) to break the arc.

air capacitor A capacitor having only air as the dielectric material between its plates. Also known as air condenser.

air cell A cell in which depolarization at the positive electrode is accomplished chemically by reduction of the oxygen in the air.

air condenser *See* air capacitor.

air-core coil An inductor without a magnetic core.

air-core transformer Transformer (usually radio-frequency) having a nonmetallic core.

aircraft antenna An airborne device used to detect or radiate electromagnetic waves.

aircraft decibel rating The ratio of the radar reflectivity of a specific type of aircraft to that of a selected reference aircraft, measured in decibels.

air depolarized battery A primary battery which is kept depolarized by atmospheric oxygen rather than chemical compounds. Also known as metal-air battery.

air gap **1.** A gap or an equivalent filler of nonmagnetic material across the core of a choke, transformer, or other magnetic device. **2.** A spark gap consisting of two electrodes separated by air.

air-insulated substation An electric power substation that has the busbars and equipment terminations generally open to air and utilizes insulation properties of ambient air for insulation to ground.

air-spaced coax Coaxial cable in which air is basically the dielectric material; the conductor may be centered by means of a spirally wound synthetic filament, beads, or braided filaments.

air switch A switch in which the breaking of the electric circuit takes place in air. Also known as air-break switch.

airwave A radio wave used in radio and television broadcasting.

alarm signal The international radiotelegraph alarm signal transmitted to actuate automatic devices that sound an alarm indicating that a distress message is about to be broadcast.

Alaska Integrated Communications Exchange A network of radio stations, generally using scatter-propagation equipment, that links early-warning radar stations. Also known as Alice; White Alice.

Alford loop An antenna utilizing multielements which usually are contained in the same horizontal plane and adjusted so that the antenna has approximately equal and in-

phase currents uniformly distributed along each of its peripheral elements and produces a substantially circular radiation pattern in the plane of polarization; it is known for its purity of polarization.

Alice *See* Alaska Integrated Communications Exchange.

alignment The process of adjusting components of a system for proper interrelationship, including the adjustment of tuned circuits for proper frequency response and the time synchronization of the components of a system.

alive *See* energized.

alkaline cell A primary cell that uses an alkaline electrolyte, usually potassium hydroxide, and delivers about 1.5 volts at much higher current rates than the common carbon-zinc cell. Also known as alkaline-manganese cell.

alkaline storage battery A storage battery in which the electrolyte consists of an alkaline solution, usually potassium hydroxide.

all-diffused monolithic integrated circuit Microcircuit consisting of a silicon substrate into which all of the circuit parts (both active and passive elements) are fabricated by diffusion and related processes.

alligator clip A long, narrow spring clip with meshing jaws; used with test leads to make temporary connections quickly. Also known as crocodile clip.

allowed energy bands The restricted regions of possible electron energy levels in a solid.

alloy junction A junction produced by alloying one or more impurity metals to a semiconductor to form a *p* or *n* region, depending on the impurity used. Also known as fused junction.

alloy junction diode A junction diode made by placing a pill of doped alloying material on a semiconductor material and heating until the molten alloy melts a portion of the semiconductor, resulting in a *pn* junction when the dissolved semiconductor recrystallizes. Also known as fused-junction diode.

alloy-junction transistor A junction transistor made by placing pellets of a *p*-type impurity such as indium above and below an *n*-type wafer of germanium, then heating until the impurity alloys with the germanium to give a *pnp* transistor. Also known as fused-junction transistor.

all-pass network A network designed to introduce a phase shift in a signal without introducing an appreciable reduction in energy of the signal at any frequency.

all-wave receiver A radio receiver capable of being tuned from about 535 kilohertz to at least 20 megahertz; some go above 100 megahertz and thus cover the FM band also.

alnico magnet A permanent magnet made of alnico.

alpha cutoff frequency The frequency at the high end of a transistor's range at which current amplification drops 3 decibels below its low-frequency value.

alphanumeric display device A device which visibly represents alphanumeric output information from some signal source.

alphanumeric reader A device capable of reading alphabetic, numeric, and special characters and punctuation marks.

alternating current Electric current that reverses direction periodically, usually many times per second. Abbreviated ac.

alternating-current circuit theory The mathematical description of conditions in an electric circuit driven by an alternating source or sources.

alternating-current coupling A coupling which passes alternating-current signals but blocks direct-current signals.

alternating-current/direct-current Pertaining to electronic equipment capable of operation from either an alternating-current or direct-current primary power source.

alternating-current dump The removal of all alternating-current power from a computer intentionally, accidentally, or conditionally.

alternating-current erase The use of an alternating current to energize a tape recorder erase head in order to remove previously recorded signals from a tape.

alternating-current erasing head In magnetic recording, an erasing head which uses alternating current to produce the magnetic field necessary for erasing.

alternating-current generator A machine, usually rotary, which converts mechanical power into alternating-current electric power.

alternating-current magnetic biasing Biasing with alternating current, usually well above the signal frequency range, in magnetic tape recording.

alternating-current motor A machine that converts alternating-current electrical energy into mechanical energy by utilizing forces exerted by magnetic fields produced by the current flow through conductors.

alternating-current power supply A power supply that provides one or more alternating-current output voltages, such as an ac generator, dynamotor, inverter, or transformer.

alternating-current resistance *See* high-frequency resistance.

alternating-current transmission In television, that form of transmission in which a fixed setting of the controls makes any instantaneous value of signal correspond to the same value of brightness for only a short time.

alternating gradient A magnetic field in which successive magnets have gradients of opposite sign, so that the field increases with radius in one magnet and decreases with radius in the next; used in synchrotrons and cyclotrons.

alternating voltage Periodic voltage, the average value of which over a period is zero.

alternator A mechanical, electrical, or electromechanical device which supplies alternating current.

altitude circle A bright circle which surrounds the central dark portion of a plan position indicator display or photograph, and which results from ground clutter.

altitude delay Synchronization delay introduced between the time of transmission of the radar pulse and the start of the trace on the indicator to eliminate the altitude/height hole on the plan position indicator–type display.

altitude hole The blank area in the center of a plan position indicator–type radarscope display caused by the time interval between transmission of a pulse and the receipt of the first ground return.

altitude signal The radio signals returned to an airborne electronics device by the ground or sea surface directly beneath the aircraft.

aluminum arrester *See* aluminum-cell arrester.

aluminum cable steel-reinforced A type of power transmission line made of an aluminum conductor provided with a core of steel. Abbreviated ACSR.

aluminum-cell arrester A lightning arrester consisting of a number of electrolytic cells in series formed from aluminum trays containing electrolyte. Also known as aluminum arrester; electrolytic arrester.

aluminum conductor Any of several aluminum alloys employed for conducting electric current; because its weight is one-half that of copper for the same conductance, it is used in high-voltage transmission lines.

AM *See* amplitude modulation.

A/m *See* ampere per meter.

Am² *See* ampere meter squared.

A/m² *See* ampere per square meter.

amateur radio A radio used for two-way radio communications by private individuals as leisure-time activity. Also known as ham radio.

ambiguity The condition in which a synchro system or servosystem seeks more than one null position.

AM field signature The characteristic pattern of an alternating magnetic field, as displayed by detection and classification equipment.

A min *See* ampere-minute.

Am²/Js *See* ampere square meter per joule second.

amorphous semiconductor A semiconductor material which is not entirely crystalline, having only short-range order in its structure.

amortisseur winding *See* damper winding.

amp *See* amperage; ampere.

ampacity Current-carrying capacity in amperes; used as a rating for power cables.

amperage The amount of electric current in amperes. Abbreviated amp.

ampere The unit of electric current in the rationalized meter-kilogram-second system of units; defined in terms of the force of attraction between two parallel current-carrying conductors. Abbreviated a; A; amp.

Ampère currents Postulated "molecular-ring" currents to explain the phenomena of magnetism as well as the apparent nonexistence of isolated magnetic poles.

ampere-hour A unit for the quantity of electricity, obtained by integrating current flow in amperes over the time in hours for its flow; used as a measure of battery capacity. Abbreviated Ah; amp-hr.

ampere-hour capacity The charge, measured in ampere-hours, that can be delivered by a storage battery up to the limit to which the battery may be safely discharged.

Ampère law 1. A law giving the magnetic induction at a point due to given currents in terms of the current elements and their positions relative to the point. Also known as Laplace law. 2. A law giving the line integral over a closed path of the magnetic induction due to given currents in terms of the total current linking the path.

ampere meter squared The SI unit of electromagnetic moment. Abbreviated Am^2.

ampere-minute A unit of electrical charge, equal to the charge transported in 1 minute by a current of 1 ampere, or to 60 coulombs. Abbreviated A min.

ampere per meter The SI unit of magnetic field strength and magnetization. Abbreviated A/m.

ampere per square inch A unit of current density, equal to the uniform current density of a current of 1 ampere flowing through an area of 1 square inch. Abbreviated A/in^2.

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

Ampère rule The rule which states that the direction of the magnetic field surrounding a conductor will be clockwise when viewed from the conductor if the direction of current flow is away from the observer.

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

Ampère theorem The theorem which states that an electric current flowing in a circuit produces a magnetic field at external points equivalent to that due to a magnetic shell whose bounding edge is the conductor and whose strength is equal to the strength of the current.

ampere-turn A unit of magnetomotive force in the meter-kilogram-second system defined as the force of a closed loop of one turn when there is a current of 1 ampere flowing in the loop. Abbreviated amp-turn.

amp-hr *See* ampere-hour.

amplidyne A rotating magnetic amplifier having special windings and brush connections so that small changes in power input to the field coils produce large changes in power output.

amplification factor In a vacuum tube, the ratio of the incremental change in plate voltage to a given small change in grid voltage, under the conditions that the plate current and all other electrode voltages are held constant.

amplified back bias Degenerative voltage developed across a fast time-constant circuit within a stage of an amplifier and fed back into a preceding stage.

amplifying delay line Delay line used in pulse-compression systems to amplify delayed signals in the super-high-frequency region.

amplitron Crossed-field continuous cathode reentrant beam backward-wave amplifier for microwave frequencies.

amplitude discriminator *See* pulse-height discriminator.

amplitude distortion *See* frequency distortion.

amplitude-frequency distortion *See* frequency distortion.

amplitude gate A circuit which transmits only those portions of an input signal which lie between two amplitude boundary level values. Also known as slicer; slicer amplifier.

amplitude limiter *See* limiter.

amplitude-limiting circuit *See* limiter.

amplitude modulation Abbreviated AM. **1.** Modulation in which the amplitude of a wave is the characteristic varied in accordance with the intelligence to be transmitted. **2.** In telemetry, those systems of modulation in which each component frequency f of the transmitted intelligence produces a pair of sideband frequencies at carrier frequency plus f and carrier minus f.

amplitude noise Effect on radar accuracy of the fluctuations in the amplitude of the signal returned by the target; these fluctuations are caused by any change in aspect if the target is not a point source.

amplitude response The maximum output amplitude obtainable at various points over the frequency range of an instrument operating under rated conditions.

amplitude separator A circuit used to isolate the portion of a waveform with amplitudes above or below a given value or between two given values.

amplitude suppression ratio Ratio, in frequency modulation, of the undesired output to the desired output of a frequency-modulated receiver when the applied signal has simultaneous amplitude and frequency modulation.

amplitude versus frequency distortion The distortion caused by the nonuniform attenuation or gain of the system, with respect to frequency under specified terminal conditions.