

Dictionary of Electrical and Computer Engineering

McGraw-Hill

**Dictionary of
Electrical and
Computer
Engineering**

McGraw-Hill

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central-battery system

- central-battery system** [COMMUN] A telephone or telegraph system which obtains all the energy for signaling (and for speaking, in the case of the telephone) from a single battery of secondary cells located at the main exchange. { 'sen-trəl 'bəd-ə-rē ,sis-təm }
- central control** [SYS ENG] Control exercised over an extensive and complicated system from a single center. { 'sen-trəl kən'trōl }
- centralized configuration** See star network. { 'sen-trə,līzd kən,fig-yə'rā-shən }
- centralized database** [COMPUT SCI] A database at a single physical location, usually employed in conjunction with centralized data processing. { 'sen-trə,līzd 'dad-ə ,bās }
- centralized data processing** [COMPUT SCI] The processing of all the data concerned with a given activity at one place, usually with fixed equipment within one building. { 'sen-trə,līzd 'dad-ə 'präs,əs-iŋ }
- central office** [COMMUN] A switching unit, installed in a telephone system serving the general public, having the necessary equipment and operating arrangements for terminating and interconnecting lines and trunks. Also known as telephone central office. { 'sen-trəl 'ō-fəs }
- central office line** See subscriber line. { 'sen-trəl 'ō-fəs ,līn }
- central processing unit** [COMPUT SCI] The part of a computer containing the circuits required to interpret and execute the instructions. Abbreviated CPU. { 'sen-trəl 'präs,əs-iŋ ,yü-nət }
- central-processing-unit time** [COMPUT SCI] The time actually required to process a set of instructions in the logic unit of a computer. { 'sen-trəl 'präs,əs-iŋ ,yü-nət ,tīm }
- central terminal** [COMPUT SCI] A communication device which queues tellers' requests for processing and which channels answers to the consoles originating the transactions. { 'sen-trəl 'tər-mən-əl }
- centrifugal cutout** [ELEC] A switch that is opened by centrifugal force and is usually closed by a spring when the centrifugal force is reduced. { sen'trif-ə-gəl 'kəd,əut }
- centroid** [NAV] In radar, the estimate of a contact's position as a single point, whereas the echoes may have occupied adjacent beam positions and-or range cells on successive pulses; the result of a centroiding algorithm in a radar contact generator. { 'sen,trōid }
- centroid of asymptotes** [CONT SYS] The intersection of asymptotes in a root-locus diagram. { 'sen,trōid əv 'as-əm,tōd-ēz }
- cepstrum vocoder** [ENG ACOUS] A digital device for reproducing speech in which samples of the cepstrum of speech, together with pitch information, are transmitted to the receiver, and are then converted into an impulse response that is convolved with an impulse train generated from the pitch information. { 'sep-trəm 'vō 'kōd-ər }
- ceramic amplifier** [ELECTR] An amplifier that utilizes the piezoelectric properties of semiconductors such as silicon. { sə'ram-ik 'am-plə,fī-ər }
- ceramic-based microcircuit** [ELECTR] A micro-miniature circuit printed on a ceramic substrate. { sə'ram-ik,bāst 'mī-krō,sər-kət }
- ceramic capacitor** [ELEC] A capacitor whose dielectric is a ceramic material such as steatite or barium titanate, the composition of which can be varied to give a wide range of temperature coefficients. { sə'ram-ik kə'pas-əd-ər }
- ceramic cartridge** [ENG ACOUS] A device containing a piezoelectric ceramic element, used in phonograph pickups and microphones. { sə'ram-ik 'kär-trij }
- ceramic earphones** See crystal headphones. { sə'ram-ik 'ir,fōnz }
- ceramic filter** [ELECTR] A type of mechanical filter that uses a series of resonant ceramic disks to obtain a band-pass response. { sə'ram-ik 'fil-tər }
- ceramic microphone** [ENG ACOUS] A microphone using a ceramic cartridge. { sə'ram-ik 'mī-krə,fōn }
- ceramic pickup** [ENG ACOUS] A phonograph pickup using a ceramic cartridge. { sə'ram-ik 'pik-əp }
- ceramic transducer** See electrostriction transducer. { sə'ram-ik tranz'dü-sər }
- ceramic tube** [ELECTR] An electron tube having a ceramic envelope capable of withstanding operating temperatures over 500°C, as required during reentry of guided missiles. { sə'ram-ik 'tüb }
- ceraunograph** [ENG] An instrument that detects radio waves generated by lightning discharges and records their occurrence. { sə'rōn-ə,gräf }
- Cerenkov rebatron radiator** [ELECTR] Device in which a tightly bunched, velocity-modulated electron beam is passed through a hole in a dielectric; the reaction between the higher velocity of the electrons passing through the hole and the slower velocity of the electromagnetic energy passing through the dielectric results in radiation at some frequency higher than the frequency of modulation of the electron beam. { chə'reŋ-kəf 'rē-bə,trän 'rād-ē,ād-ər }
- cermet resistor** [ELEC] A metal-glaze resistor, consisting of a mixture of finely powdered precious metals and insulating materials fired onto a ceramic substrate. { 'sər,met ri'zis-tər }
- certainty equivalence control** [CONT SYS] An optimal control law for a stochastic adaptive control system which is obtained by solving the control problem in the case of known parameters and substituting the known parameters with their estimates. { 'sərt-ən-tē i'kwiv-ə-ləns kən'trōl }
- certificate** [COMMUN] A data record containing an identification, a digital signature from a third party who is believed to be trustworthy, attesting to the authenticity of the identity, and an encryption key which provides a basis for two unknown entities to establish a shared encryption. { sərt'if-i-kət }
- cesium-antimonide photocathode** [ELECTR] A photocathode obtained by exposing a thin layer of antimony to cesium vapor at elevated temperatures; has a maximum sensitivity in the

- time), and these N bits of ciphertext are fed back into the algorithm by first shifting the current DES input N bits to the left, and then appending the N bits of ciphertext to the right-hand side of the shifted input to produce a new DES input used for the next iteration of the algorithm. { 'sī-fər |fēd,bak }
- cipher machine** [COMMUN] Mechanical or electrical apparatus for enciphering and deciphering. { 'sī-fər mə'shēn }
- ciphertext** [COMMUN] A message which has been transformed by a cipher so that it can be read only by those privy to the secrets of the cipher. { 'sī-fər,tekst }
- ciphertext autokey cipher** [COMMUN] A stream cipher in which the cryptographic bit stream generated at a given time is determined by the ciphertext generated at earlier times. { 'sī-fər ,tekst 'ōd-ō,kē ,sī-fər }
- ciphony** [COMMUN] A technique by which security is accomplished by converting speech into a series of on-off pulses and mixing these with the pulses supplied by a key generator; to recover the original speech, the identical key must be subtracted and the resultant on-off pulses reconverted into the original speech pattern; unauthorized listeners are unable to reconstruct the plain text unless they have an identical key generator and the daily key setting. { 'sī-fə-nē }
- ciphony equipment** [ELECTR] Any equipment attached to a radio transmitter, radio receiver, or telephone for scrambling or unscrambling voice messages. { 'sī-fə-nē i,kwip-mənt }
- circle diagram** [ELEC] A diagram which gives a graphical solution of equations for a transmission line, giving the input impedance of the line as a function of load impedance and electrical length of the line. { 'sər-kəl |dī-ə,gram }
- circle-dot mode** [ELECTR] Mode of cathode-ray storage of binary digits in which one kind of digit is represented by a small circle of excitation of the screen, and the other kind by a similar circle with a concentric dot. { 'sər-kəl |dāt ,mōd }
- circuit** [ELEC] See electric circuit. [ELECTROMAG] A complete wire, radio, or carrier communications channel. { 'sər-kət }
- circuit analyzer** See volt-ohm-milliammeter. { 'sər-kət ,an-ə,līz-ər }
- circuit board** See printed circuit board. { 'sər-kət ,bōrd }
- circuit breaker** [ELEC] An electromagnetic device that opens a circuit automatically when the current exceeds a predetermined value. { 'sər-kət ,brāk-ər }
- circuit capacity** [COMMUN] Number of communications channels which can be handled by a given circuit at the same time. { 'sər-kət kə'pas-əd-ē }
- circuit conditioning** [ELECTR] Test, analysis, engineering, and installation actions to upgrade a communications circuit to meet an operational requirement; includes the reduction of noise, the equalization of phase and level stability and frequency response, and the correction of impedance discontinuities, but does not include normal maintenance and repair activities. { 'sər-kət kən'dish-ə-nīŋ }
- circuit design** [ELEC] The art of specifying the components and interconnections of an electrical network. { 'sər-kət də'zīn }
- circuit diagram** [ELEC] A drawing, using standardized symbols, of the arrangement and interconnections of the conductors and components of an electrical or electronic device or installation. Also known as schematic circuit diagram; wiring diagram. { 'sər-kət ,dī-ə,gram }
- circuit efficiency** [ELECTR] Of an electron tube, the power delivered to a load at the output terminals of the output circuit at a desired frequency divided by the power delivered by the electron stream to the output circuit at that frequency. { 'sər-kət i'fish-ən-sē }
- circuit element** See component. { 'sər-kət |el-ə-mənt }
- circuit grade** [COMMUN] A circuit rating defining the ability to carry information; grades include telegraph, voice, and broad-band. { 'sər-kət ,grād }
- circuit interrupter** [ELEC] A device in a circuit breaker to remove energy from an arc in order to extinguish it. { 'sər-kət ,in-tə,rəp-tər }
- circuit loading** [ELEC] Power drawn from a circuit by an electric measuring instrument, which may alter appreciably the quantity being measured. { 'sər-kət ,lōd-īŋ }
- circuit noise** [COMMUN] In telephone practice, the noise which is brought to the receiver electrically from a telephone system, excluding noise picked up acoustically by telephone transmitters. { 'sər-kət ,nōiz }
- circuit noise level** [COMMUN] Ratio of the circuit noise at that point to some arbitrary amount of circuit noise chosen as a reference; usually expressed in decibels above reference noise, signifying the reading of a circuit noise meter, or in adjusted decibels, signifying circuit noise meter reading adjusted to represent interfering effect under specified conditions. { 'sər-kət ,nōiz ,lev-əl }
- circuit protection** [ELECTR] Provision for automatically preventing excess or dangerous temperatures in a conductor and limiting the amount of energy liberated when an electrical failure occurs. { 'sər-kət prə'tek-shən }
- circuit reliability** [COMMUN] The percent of time a circuit was available to the user during a specified period of time. { 'sər-kət rī,lī-ə'bil-əd-ē }
- circuitron** [ELECTR] Combination of active and passive components mounted in a single envelope like that used for tubes, to serve as one or more complete operating stages. { 'sər-kyə ,trän }
- circuitry** [ELEC] The complete combination of circuits used in an electrical or electronic system or piece of equipment. { 'sər-kə-trē }
- circuit shift** See cyclic shift. { 'sər-kət ,shift }
- circuit switching** [COMMUN] 1. The method of providing communication service through a switching facility, either from local users or from other switching facilities. 2. A method of

electrical resistor

the conductivity. Also known as resistivity; specific resistance. { i'lek-trə-kəl ,rē-zis'tiv-əd-ē }

electrical resistor See resistor. { i'lek-trə-kəl ri 'zis-tər }

electrical resonator See tank circuit. { i'lek-trə-kəl 'rez-ən,ād-ər }

electrical symbol [ELEC] A simple geometrical symbol used to represent a component of a circuit in a schematic circuit diagram. { i'lek-trə-kəl 'sim-bəl }

electrical system [ELEC] System of wiring, switches, relays, and other equipment associated with receiving and distributing electricity. { i'lek-trə-kəl ,sis-təm }

electrical transcription See transcription. { i'lek-trə-kəl tranz'krip-shən }

electrical unit [ELEC] A standard in terms of which some electrical quantity is evaluated. { i'lek-trə-kəl 'yü-nət }

electrical zero [ELEC] A standard reference position from which rotor angles are measured in synchros and other rotating devices. { i'lek-trə-kəl 'zir-ō }

electric arc [ELEC] A discharge of electricity through a gas, normally characterized by a voltage drop approximately equal to the ionization potential of the gas. Also known as arc. { i'lek-trik 'ärk }

electric-arc lamp See arc lamp. { i'lek-trik ,ärk 'lamp }

electric cell [ELEC] 1. A single unit of a primary or secondary battery that converts chemical energy into electric energy. 2. A single unit of a device that converts radiant energy into electric energy, such as a nuclear, solar, or photovoltaic cell. { i'lek-trik 'sel }

electric charge See charge. { i'lek-trik 'chärj }

electric circuit [ELEC] Also known as circuit. 1. A path or group of interconnected paths capable of carrying electric currents. 2. An arrangement of one or more complete, closed paths for electron flow. { i'lek-trik 'sər-kət }

electric circuit theory See circuit theory. { i'lek-trik 'sər-kət ,thē-ə-rē }

electric coil See coil. { i'lek-trik 'kōil }

electric comparator [ELEC] A comparator in which movement results in a change in some electrical quantity, which is then amplified by electrical means. { i'lek-trik kəm'par-əd-ər }

electric condenser See capacitor. { i'lek-trik kən'den-sər }

electric conductor See conductor. { i'lek-trik kən'dək-tər }

electric connection [ELEC] A direct wire path for current between two points in a circuit. { i'lek-trik kə'nek-shən }

electric connector [ELEC] A device that joins electric conductors mechanically and electrically to other conductors and to the terminals of apparatus and equipment. { i'lek-trik kə'nek-tər }

electric constant [ELEC] The permittivity of empty space, equal to 1 in centimeter-gram-second electrostatic units and to $10^7/4\pi\epsilon^2$ farads per meter or, numerically, to 8.854×10^{-12} farad per meter in International System units, where

c is the speed of light in meters per second. Symbolized ϵ_0 . { i'lek-trik 'kän-stənt }

electric contact [ELEC] A physical contact that permits current flow between conducting parts. Also known as contact. { i'lek-trik 'kän,təkt }

electric contactor See contactor. { i'lek-trik 'kän ,tak-tər }

electric control [ELEC] The control of a machine or device by switches, relays, or rheostats, as contrasted with electronic control by electron tubes or by devices that do the work of electron tubes. { i'lek-trik kən'tröl }

electric controller [ELEC] A device that governs in some predetermined manner the electric power delivered to apparatus. { i'lek-trik kən'tröl-ər }

electric converter See synchronous converter. { i'lek-trik kən'vərd-ər }

electric corona See corona discharge. { i'lek-trik kə'rō-nə }

electric current See current. { i'lek-trik 'kə-rənt }

electric current density See current density. { i'lek-trik 'kə-rənt ,den-səd-ē }

electric current meter See ammeter. { i'lek-trik 'kə-rənt ,mēd-ər }

electric cutout See cutout. { i'lek-trik 'kəd,aut }

electric delay line [ELECTR] A delay line using properties of lumped or distributed capacitive and inductive elements; can be used for signal storage by recirculating information-carrying wave patterns. { i'lek-trik di'lā ,līn }

electric dipole [ELEC] A localized distribution of positive and negative electricity, without net charge, whose mean positions of positive and negative charges do not coincide. { i'lek-trik 'dī ,pōl }

electric dipole moment [ELEC] A quantity characteristic of a charge distribution, equal to the vector sum over the electric charges of the product of the charge and the position vector of the charge. { i'lek-trik 'dī,pōl ,mō-mənt }

electric discharge See discharge. { i'lek-trik 'dis ,chärj }

electric-discharge lamp See discharge lamp. { i'lek-trik 'dis,chärj ,lamp }

electric-discharge tube See discharge tube. { i'lek-trik 'dis,chärj ,tüb }

electric displacement [ELEC] The electric field intensity multiplied by the permittivity. Symbolized D . Also known as dielectric displacement; dielectric flux density; displacement; electric displacement density; electric flux density; electric induction. { i'lek-trik dis'plās-mənt }

electric displacement density See electric displacement. { i'lek-trik dis'plās-mənt ,den-səd-ē }

electric distribution system See distribution system. { i'lek-trik ,dis-trə'byū-shən ,sis-təm }

electric energy measurement [ELEC] The measurement of the integral, with respect to time, of the power in an electric circuit. { i'lek-trik 'en-ər-jē ,mez-ər-mənt }

electric energy meter [ELEC] A device which measures the integral, with respect to time, of the power in an electric circuit. { i'lek-trik 'en-ər-jē ,mēd-ər }

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