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The IEEE Standard Dictionary of Electrical and Electronics Terms

Sixth Edition

Standards Coordinating Committee 10, Terms and Definitions
Jane Radatz, Chair

This standard is one of a number of information technology dictionaries being developed by standards organizations accredited by the American National Standards Institute. This dictionary was developed under the sponsorship of voluntary standards organizations, using a consensus-based process.

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How to use this dictionary

The terms defined in this dictionary are listed in *letter-by-letter* alphabetical order. Spaces are ignored in this style of alphabetization, so *cable value* will come before *cab signal*. Descriptive categories associated with the term in earlier editions of IEEE Std 100 will follow the term in parentheses. New categories appear after the definitions (see Categories, below), followed by the designation of the standard or standards that include the definition. If a standard designation is followed by the letter s, it means that edition of the standard was superseded by a newer revision and the term was not included in the revision. If a designation is followed by the letter w, it means that edition of the standard was withdrawn and not replaced by a revision. A bracketed number refers to the non-IEEE standard sources given in the back of the book.

Acronyms and abbreviations are no longer listed in a separate section in the dictionary; rather, they are incorporated alphabetically with other terms. Each acronym or abbreviation refers to its expanded term, where it is defined. Acronyms and abbreviations for which no definition was included in past editions have been deleted from this edition of IEEE Std 100.

Abstracts of the current set of approved IEEE standards are provided in the back of the book. It should be noted that updated information about IEEE standards can be obtained at any time from the IEEE Standards World Wide Web site at http://standards.ieee.org/.

Categories

The category abbreviations that are used in this edition of IEEE Std 100 are defined below. This information is provided to help elucidate the context of the definition. Older terms for which no category could be found have had the category "Std100" assigned to them. Note that terms from sources other than IEEE standards, such as the National Electrical Code® (NEC®) or the National Fire Protection Association, may not be from the most recent editions; the reader is cautioned to check the latest editions of all sources for the most up-to-date terminology.

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meets the following requirements: It can be connected to (but is not normally connected to) the offsite or onsite emergency ac power systems; It has minimum potential for common mode failure with offsite power or onsite emergency ac power sources; It is available in a timely manner after the onset of a station blackout; It has sufficient capacity and reliability to operate all systems required for both coping with a station blackout and for the time needed to bring the plant to and maintain the plant in a safe shutdown (nondesign basis accident). (PE) 765-1995

alternate access unit (AAU) Type of unit architecture that defines access between multiple IEEE Standard-compliant buses (e.g., Futurebus+ and Serial Bus) when the buses share a common module. (BA/C) 896.3-1993

alternate-channel interference (second-channel interference) Interference caused in one communication channel by a transmitter operating in a channel next beyond an adjacent channel. *See also:* radio transmission. (EEC/PE) [119]

alternate display (oscillography) A means of displaying output signals of two or more channels by switching the channels in sequence. *See also:* oscillograph. (IM) [40]

alternate function key A function key that, when used in conjunction with the alternate key, performs a different function or command than when it is used alone. (C) 610.10-1994

alternate hierarchical routing A routing strategy in which the traffic is routed through the lowest available level of the network hierarchy. *Note:* It uses a tree like structure of five classes: class 1—regional center, class 2—sectional center, class 3—primary center, class 4—toll center, and class 5—end office. *Synonym:* alternative hierarchical routing. (C) 610.7-1995

alternate index An index that uses alternate keys to reference indexed data. *See also:* secondary index. (C) 610.5-1990

alternate key (1) (A) In a relation, a candidate key that is not chosen to be the primary key for that relation. **(B)** A secondary key for an indexed sequential file. *See also:* alternate index; prime key. (C) 610.5-1990

(2) A control key that controls the interpretation of other keys. That is, when used in conjunction with another key it causes a different interpretation of that key than when the key is used alone. *See also:* shift key. (C) 610.10-1994

alternate mark inversion code *See:* bipolar signal.

alternate name Any name besides the data element name by which a data item is known. *Note:* Often stored in data dictionaries. *Synonym:* alias. (C) 610.5-1990

alternate power source One or more generator sets intended to provide power during the interruption of the normal electrical service or the public utility electrical service intended to provide power during interruption of service normally provided by the generating facilities on the premises. (NEC/NESC) [86]

alternate root directory A pathname other than / for managing installed software. (C/PA) 1387.2-1995

alternate route (data transmission) A secondary communications path used to reach a destination if the primary path is unavailable. (PE) 599-1985w

alternate-route trunk group (telephone switching systems) A trunk group that accepts alternate-routed traffic. (COM) 312-1977w

alternate routing (1) (telephone switching systems) A means of selectively distributing traffic over a number of routes ultimately leading to the same destination. (COM) 312-1977w

(2) A routing strategy that assigns a secondary communications path to a destination when the primary path is busy or unavailable. *Synonym:* alternative routing. (C) 610.7-1995

alternate track On a disk, a spare track that is used in place of a normal track in the event that the latter is damaged or inoperable. *Synonym:* alternative track. (C) 610.10-1994

alternating charge-characteristic (nonlinear capacitor) The function relating the instantaneous values of the alternating component of transferred charge, in a steady state, to the corresponding instantaneous values of a specified applied periodic capacitor-voltage. *Note:* The nature of this characteristic may depend upon the nature of the applied voltage. *See also:* nonlinear capacitor. (ED) [46]

alternating current (ac) (1) (electric installations on shipboard) A periodic current the average value of which over a period is zero. (Unless distinctly specified otherwise, the term refers to a current that reverses at regularly recurring intervals of time and that has alternately positive and negative values.) (IA) 45-1983r

(2) An electric current that reverses direction at regularly recurring intervals of time. *Contrast:* direct current. (C) 610.10-1994

alternating-current and direct-current ringing Ringing in which alternating current activates the ringer and direct current controls the removal of ringing upon answer. (COM) 312-1977w

alternating-current breakdown voltage (gas-tube surge protective devices) The minimum root-mean-square (rms) value of a sinusoidal voltage at frequencies between 15 Hz and 62 Hz that results in arrester sparkover. (PE/PSPD) C62.31-1984s

alternating-current circuit A circuit that includes two or more interrelated conductors intended to be energized by alternating current. (Std100) 270-1966w

alternating-current circuit breaker (power system device function numbers) A device that is used to close and interrupt an ac power circuit under normal conditions or to interrupt this circuit under fault or emergency conditions. (PE/SUB) C37.2-1979s

alternating-current commutator motor An alternating-current motor having an armature connected to a commutator and included in an alternating-current circuit. *See also:* asynchronous machine. (PE) [9]

alternating-current component *See:* symmetrical component.

alternating-current–direct-current general-use snap-switch A form of general-use snap-switch suitable for use on either direct- or alternating-current circuits for controlling the following:

a) Resistive loads not exceeding the ampere rating at the voltage involved.
b) Inductive loads not exceeding one-half the ampere rating at the voltage involved, except that switches having a marked horsepower rating are suitable for controlling motors not exceeding the horse-power rating of the switch at the voltage involved.
c) Tungsten filament lamp loads not exceeding the ampere rating at 125 V, when marked with the letter "T." Alternating-current-direct-current general use snap-switches are not generally marked alternating-current-direct-current, but are always marked with their electrical rating.

See also: switch. (NESC) [86]

alternating-current–direct-current ringing Ringing in which a combination of alternating and direct currents is utilized, the direct current being provided to facilitate the functioning of the relay that stops the ringing. (EEC/PE) [119]

alternating-current directional overcurrent relay (power system device function numbers) A relay that functions on a desired value of ac overcurrent flowing in a predetermined direction. (PE/SUB) C37.2-1979s

alternating-current distribution The supply to points of utilization of electric energy by alternating current from its source to one or more main receiving stations. *Note:* Generally, a voltage is employed that is not higher than that which could be delivered or utilized by rotating electric machinery. Step-down transformers of a capacity much smaller than that of the line are usually employed as links between the moderate voltage of distribution and the lower voltage of the consumer's apparatus. (PE/T&D) [10]

alternating-current electric locomotive An electric locomotive that collects propulsion power from an alternating-current

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