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The IEEE Standard
Dictionary of Electrical
and Electronics Terms

Sixth Edition



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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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Introduction

Since the first edition in 1941 of the American Standard Definitions of Electrical Terms, the work now known as IEEE Std 100, The IEEE Standard Dictionary of Electrical and Electronics Terms, has evolved into the unique compendium of terms that it is today.

The current edition includes all terms defined in approved IEEE standards through December 1996. Terms are categorized by their technical subject area. They are also associated with the standards or publications in which they currently appear. In some cases, terms from withdrawn standards are included when no current source can be found. Earlier editions of IEEE Std 100 included terms from sources other than IEEE standards, such as technical journals, books, or conference proceedings. These terms have been maintained for the sake of consistency and their sources are listed with the standards in the back of the book.

The practice of defining terms varies from standard to standard. Many working groups that write standards prefer to work with existing definitions, while others choose to write their own. Thus terms may have several similar, although not identical, definitions. Definitions have been combined wherever it has been possible to do so by making only minor editorial changes. Otherwise, they have been left as written in the original standard.

Users of IEEE Std 100 occasionally comment on the surprising omission of a particular term commonly used in an electrical or electronics field. This occurs because the terms in IEEE Std 100 represent only those defined in the existing or past body of IEEE standards. To respond to this, some working groups obtain authorization to create a glossary of terms used in their field. All existing, approved standard glossaries have been incorporated into this edition of IEEE Std 100, including the most current glossaries of terms for computers and power engineering.

IEEE working groups are encouraged to refer to IEEE Std 100 when developing new or revised standards to avoid redundancy. They are also encouraged to investigate deficiencies in standard terms and create standard glossaries to alleviate them.

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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,

breaks the regions into isolated bubbles, free to move along the surface and the presence or absence of a bubble represents digital information. *Synonym*: magnetic bubble memory.

(C) 610.10-1994

bubble sort An exchange sort in which adjacent pairs of items are compared and exchanged, if necessary, and all passes through the set proceed in the same direction. *Synonyms*: exchange selection sort; propagation sort; sifting sort. *Contrast*: cocktail shaker sort.

(C) 610.5-1990

Buchmann-Meyer pattern *See*: light pattern.

buck arm A crossarm placed approximately at right angles to the line crossarm and used for supporting branch or lateral conductors or turning large angles in line conductors. *See also*: tower.

(PE/T&D) [10]

bucket (1) (A) (data management) An area of storage that may contain more than one record and that is referenced as a whole by some addressing technique. **(B) (data management)** In hashing, a section of a hash table that can hold all records with identical hash values.

(C) 610.5-1990

(2) A device designed to be attached to the boom tip of a line truck, crane, or aerial lift and used to support workers in an elevated working position. It is normally constructed of fiberglass to reduce its physical weight, maintain strength, and obtain good dielectric characteristics. *Synonym*: basket.

(PE/T&D) 516-1995, 524-1992

(3) A colloquial reference for an area of storage that may contain more than one record and that is referenced as a whole by some addressing technique.

(C) 610.10-1994

buffalo *See*: conductor grip; grip, conductor.

buffer (1) (buffer storage) (supervisory control, data acquisition, and automatic control) A device in which data are stored temporarily, in the course of transmission from one point to another; used to compensate for a difference in the flow of data, or time of occurrence of events, when transmitting data from one device to another.

(PE/SWG/SUB) 999-1992, C37.1-1987s, C37.100-1992

(2) (buffer storage) (supervisory control, data acquisition, and automatic control) An isolating circuit used to prevent a driven circuit from influencing a driving circuit.

(PE/SWG/SUB) C37.1-1987s, C37.100-1992

(3) (data processing) A storage device used to compensate for a difference in rate of flow of information or time of occurrence of events when transmitting information from one device to another.

(C) 162-1963w

(4) (elevators) A device designed to stop a descending car or counterweight beyond its normal limit of travel by storing or by absorbing and dissipating the kinetic energy of the car or counterweight. *See also*: elevator.

(EEC/PE) [119]

(5) (A) (computers) A device or storage area used to store data temporarily to compensate for differences in rates of data flow, time of occurrence of events, or amounts of data that can be handled by the devices or processes involved in the transfer or use of the data. *Synonym*: input buffer. **(B) (computers)** A routine that accomplishes the objectives in definition (A). **(C) (computers)** To allocate, schedule, or use devices or storage areas as in definition (A). *See also*: anticipatory buffering; dynamic buffering; simple buffering.

(C) 610.12-1990, 610.5-1990

(6) A device or storage area used to store data temporarily to compensate for differences in rates of data flow, time or occurrence of events, or amounts of data that can be handled by the devices or processes involved in the transfer or use of the data. *Synonyms*: input buffer; input-output area; output buffer.

(C) 610.10-1994

(7) (relay) *See also*: relay spring stud.

buffer amplifier (1) (general) An amplifier in which the reaction of output-load-impedance variation on the input circuit is reduced to a minimum for isolation purposes. *See also*: amplifier; unloading amplifier.

always of one polarity. *Note*: This isolates a preceding circuit from the effects of the following circuit. *See also*: unloading amplifier.

(C) 610.10-1994

buffered computer A computer that can perform input-output and process operations simultaneously by using input and output buffers.

(C) 610.10-1994

buffered input Input that is received using buffers.

(C) 610.5-1990

buffered interconnect (BI) A device that implements an intersegment connection such that the FASTBUS protocol (FBP) on one segment is not synchronized with that on the other.

960-1993

buffered write A write transaction that appears to complete when the request is queued in the agent or responder. A buffered-write transaction returns an optimistic (*done_correct*) status before the responder's completion status (which could report an error) is available.

(C/MM) 1212-1991s

buffering The process of using a buffer. *See also*: dynamic buffering.

(C) 610.10-1994

buffer memory (sequential events recording systems) The memory used to compensate for the difference in rate of flow of information or time of occurrence of events when transmitting information from one device to another. *See also*: buffer; event; storage.

(PE) [1]

buffer pool A collection of buffers that can be allocated and used as needed.

(C) 610.5-1990

buffer prefix An area contained within a buffer that is used to store control information for the buffer.

(C) 610.10-1994

buffer register *See*: data buffer register; input buffer register.

buffers (buffer salts) Salts or other compounds that reduce the changes in the pH of a solution upon the addition of an acid or alkali. *See also*: ion.

(EEC/PE) [119]

buffer salts *See*: buffers.

buffer storage (1) An intermediate storage medium between data input and active storage.

(IA) [61]

(2) (data management) A storage device that is used as a buffer. *Synonym*: buffer store.

(C) 610.5-1990

(3) (telecommunications) Memory provided in a digital switching system or digital facility interface (DFI) to compensate for timing drift and frame registration differences between a DFI and the switching system. Reduces the probability of slips caused by environmentally produced phase modulation, such as those resulting from diurnal temperature variations. The mechanism for absorbing slips in the DFI of a local digital switch could consist of several single frame stores that are alternately written and read. This scheme allows the two clocks to drift within the limits of the buffer storage. In addition, a type of hysteresis should be provided at the DFI whereby a buffer that was involved in a slip is protected against an immediate slip in the reverse direction. Enough buffering should be used to minimize such occurrences.

(COM) 973-1990w

(4) (A) A type of storage that is used as temporary storage; to compensate for differences in data rate and data flow. *See also*: dynamic buffering. **(B)** A portion of main storage that is assigned to temporary storage as in definition (A).

(C) 610.10-1994

buffer store *See*: buffer storage.

buffing (electroplating) The smoothing of a metal surface by means of flexible wheels, to the surface of which fine abrasive particles are applied, usually in the form of a plastic composition or paste. *See also*: electroplating.

(EEC/PE) [119]

bug (1) (telegraphy) A semiautomatic telegraph key in which movement of a lever to one side produces a series of correctly spaced dots and movement to the other side produces a single dash. *See also*: error; fault.

(EEC/PE) [119]

(2) In computer hardware, a recurring physical problem that prevents a system or system component from working to-

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