

EXHIBIT E

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 In some cases, terms from withdrawn standards are included when no current source can be found.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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Assistance was provided by the IEEE Standards editorial staff.

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.

- formance history and a cursory electrical and mechanical examination, displays an indication of operational performance for all required functions. (MIL) [2]
- operand (1) (mathematics of computing) (software)** A variable, constant, or function upon which an operation is to be performed. For example, in the expression $A = B + 3$, B and 3 are the operands. (C) 1084-1986w, 610.12-1990
- (2) (microprocessor assembly language)** Data which is to be operated on; also, an address denoting data which is to be operated on. (C/MM) 695-1985s
- (3)** An argument to a command that is generally used as an object supplying information to a utility necessary to complete its processing. Operands generally follow the options in a command line. (C/PA) 9945-2-1993
- (4)** An entity on which an operation is performed. (C) 610.10-1994
- operand field** A field within a computer instruction that specifies an operand needed by the instruction. *See also:* address field; operation field. (C) 610.10-1994
- operand handler** In a pipelined machine, the portion of the computer that fetches data from memory and stores results in memory. *Note:* It receives its instructions from the instruction decoder, and passes operands to or from the execution unit. (C) 610.10-1994
- operate (analog computer)** In an analog computer, the computer-control state in which input signals are connected to all appropriate computing elements, including integrators, for the generation of the solution. (C) 165-1977w, 610.10-1994
- operated unit** A switch, signal, lock, or other device that is operated by a lever or other operating means. (EEC/PE) [119]
- operating basis earthquake (OBE) (1) (seismic qualification of Class 1E equipment for nuclear power generating stations)** An earthquake that could reasonably be expected to occur at the plant site during the operating life of the plant considering the regional and local geology and seismology and specific characteristics of local subsurface material. It is that earthquake that produces the vibratory ground motion for which those features of the nuclear power plant, necessary for continued operation without undue risk to the health and safety of the public, are designed to remain functional. (PE) 344-1987r
- (2) (Class 1E battery chargers and inverters) (nuclear power generating station) (seismic qualification of Class 1E equipment) (seismic testing of relays)** That earthquake which could reasonably be expected to affect the plant site during the operating life of the plant. It is that earthquake which produces the vibratory ground motion for which those features of the nuclear power plant necessary for continued operation without undue risk to the health and safety of the public are designed to remain functional. (PE/SWG) 382-1985, 649-1980s, 650-1979s, C37.100-1992, C37.81-1989r, C37.98-1977s
- operating bypass (1) (nuclear power generating station)** Inhibition of the capability to accomplish a safety function that could otherwise occur in response to a particular set of generating conditions. *Note:* An operating bypass is not the same as a maintenance bypass. Different modes of plant operation may necessitate an automatic or manual bypass of a safety function. Operating bypasses are used to permit mode changes (for example, prevention of initiation of emergency core cooling during the cold shutdown mode). (PE) 603-1991
- (2) (nuclear power generating station)** Normal and permissive removal of the capability to accomplish a protective function that could otherwise occur in response to a particular set of generating station conditions. *Note:* Typically, operating bypasses are used to permit a change to a different mode of generating station operation (for example, prevention of initiation of safety injection during cold shutdown conditions). (PE) 279-1971w
- operating characteristic (of a relay)** The response of the relay to the input quantities that result in relay operation. (PE/SWG) C37.100-1992, C37.90-1978s
- operating conditions (1) (reliability data) (reliability data for pumps and drivers, valve actuators, and valves)** The loading or demand cyclic operation, or both, of an item between zero and 100% of its related capability(ies). (PE) 500-1984r
- (2) (general)** The whole of the electrical and mechanical quantities that characterize the work of a machine, apparatus, or supply network, at a given time. 96-1969r
- operating cycle (nuclear power generating station)** The complete sequence of operations that occur during a response to a demand function. (PE) 380-1975w, 382-1980s
- operating device (elevators)** The car switch, pushbutton, lever, or other manual device used to actuate the control. *See also:* control. (EEC/PE) [119]
- operating duty (of a switching device)** A specified number and kind of operations at stated intervals. (PE/SWG) C37.100-1992
- operating duty cycle (metal-oxide surge arresters for ac power circuits) (surge arresters)** One or more unit operations, as specified. (PE/PSPD) 28-1974, C62.1-1981s, C62.11-1993
- operating-duty test (surge arresters)** A test in which working conditions are simulated by the application to the arrester of a specified number of impulses while it is connected to a power supply of rated frequency and specified voltage. (PE) [8], [84]
- operating experience (1) (safety systems equipment in nuclear power generating stations)** Verifiable service data for equipment. (PE) 627-1980r
- (2) (Class 1E battery chargers and inverters)** Accumulation of verifiable service data for conditions equivalent to those for which particular equipment is to be qualified. (PE) 323-1974s, 650-1979s
- operating failure rate (reliability data for pumps and drivers, valve actuators, and valves)** The probability (per hour) of failure for those operating components required to operate or function for a period of time. (PE) 500-1984r
- operating floor (packaging machinery)** A floor or platform used by the operator under normal operating conditions. (IA) 333-1980w
- operating frequency (thyristor)** The operating frequency is the reciprocal value of the operating period. (IA) 428-1981w
- operating frequency line current (thyristor)** The root-mean-square (rms) value of the fundamental component of the line current, whose frequency is the operating frequency. (IA) 428-1981w
- operating frequency load voltage (thyristor)** The root-mean-square (rms) value of the fundamental component of the load voltage, whose frequency is the operating frequency. (IA) 428-1981w
- operating influence** The change in a designated performance characteristic caused solely by a prescribed change in a specified operating variable from its reference operating condition to its extreme operating condition, all other operating variables being held within the limits of reference operating conditions. *Notes:* 1. It is usually expressed as a percentage of span. 2. If the magnitude of the influence is affected by direction, polarity, or phase, the greater value shall be taken. (EEC) [112]
- operating interface** The surfaces at which a connector is normally separated. (See the corresponding figure.) (PE/T&D) 386-1995
- operating life (accelerometer) (gyros)** The accumulated time of operation throughout which a gyro or accelerometer exhibits specified performance when maintained and calibrated in accordance with a specified schedule. (AE) 528-1994