IEEE Std 100-1992

The New IEEE Standard Dictionary of Electrical and Electronics Terms

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The New IEEE Standard Dictionary of Electrical and Electronics Terms

[Including Abstracts of All Current IEEE Standards]

Fifth Edition

Gediminas P. Kurpis, Chair

Christopher J. Booth, Editor

The Institute of Electrical and Electronics Engineers, Inc.
345 East 47th Street, New York, NY 10017-2394, USA

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SH15594

Foreword

From their earliest years, both the American Institute of Electrical Engineering (AIEE) (1884) and the Institute of Radio Engineers (IRE) (1912) published standards defining technical terms. They have maintained this practice since they were combined in 1963 to become the IEEE (Institute of Electrical and Electronics Engineers).

In 1928, the AIEE organized Sectional Committee C42 on Definitions of Electrical Terms under the procedures of the American Standards Association, now the American National Standards Institute. In 1941, AIEE published its first edition of American Standard Definitions of Electrical Terms in a single volume. However, by the time a second edition was ready, the highly accelerated development of new terms made it impracticable to publish in a single volume, and 17 separate documents, each limited to a specific field, were published from 1956 to 1959.

Over the years, IRE published a large number of standards that either included definitions or were devoted entirely to definitions. In 1961, it published all of its then-approved definitions in an alphabetically arranged single volume.

The 1972, 1977, 1984, and 1988 editions of the *IEEE Standard Dictionary of Electrical and Electronics Terms* included all terms and definitions that had been standardized previously by IEEE, as well as many from American National Standards and the International Electrotechnical Vocabulary. This edition adds definitions from IEEE standards published since the 1988 edition, up to those approved in December of 1991.

This edition of IEEE Std 100-1992, *The New IEEE Standard Dictionary of Electrical and Electronics Terms*, represents an evolution in our conception of the Dictionary and its place in our time and in relation to the directions that electrotechnology is heading. This is the first edition of the dictionary to be produced using desk-top publishing technology and in-house. For the first time, this invaluable compendium is in a single electronic database, and we are planning new products that will take advantage of the possibilities that this allows. The inclusion of abstracts of all current IEEE standards enhances the usefulness of the Dictionary to the standards-writing community and to industry as a whole. We have taken the first step toward eliminating the need for the Sources section at the back of the Dictionary: only those definitions from sources other than IEEE standards are listed; the number of the originating IEEE standard is given at the end of the definition. The Acronyms and Abbreviations section is much reduced in size from that of the previous edition, and represents a rethinking of the entire section. Obsolete and irrelevant terms have been eliminated.

The sponsoring body for this document was Standards Coordinating Committee 10 on Definitions (SCC10), which consisted of the following members:

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it may be called an "off-set paraboloidal reflector." 145-1983

paraelastic crystal (primary ferroelectric terms). By analogy with paraelectric crystals, a crystal in which mechanical strain S is a single-valued function of mechanical stress T, whose elastic compliance exhibits an obvious Curie-Weiss behavior with temperature over some given temperature range, and that at some critical temperature T_c undergoes a phase transition to a ferroelastic phase. Crystals that clearly have a paraelastic phase include the metallic alloys Nb_3Sn, In-Th, Au-Zn-Sn, and lithium ammonium tartrate. 180-1986

paraelectric Curie temperature (of a ferroelectric material). The intercept of the linear portion of the plot of $1/\varepsilon$ versus T, where ε is the small signal dielectric permittivity measured at zero bias field and T is the absolute temperature in the region above the ferroelectric Curie temperature where ε generally follows the Curie-Weiss relation. *See:* **ferroelectric domain.** 180-1962

paraelastic phase (primary ferroelectric terms). A phase that encompasses the range of temperature in which the elastic compliance exhibits Curie-Weiss behavior. 180-1986

paraelectric phase (primary ferroelectric terms). Encompasses the range of temperature or pressure over which the permittivity exhibits Curie-Weiss behavior. 180-1986

paraelectric region (ferroelectric material). The region above the Curie point where the small signal permittivity increases with decreasing temperature. *See:* **ferroelectric Curie point; small signal permittivity.** [21]

parallax (computer graphics). The apparent displacement of an object as seen from two different points. It is used to simulate a three-dimensional image on a graphical display device. 610.6-1991

parallel (parallel elements) (1) (network). (A) Two-terminal elements are connected in parallel when they are connected between the same pair of nodes. (B) Two-terminal elements are connected in parallel when any cut-set including one must include the others. *See:* **network analysis.** 270-1966w

(2) (electronic computers). (A) Pertaining to the simultaneity of two or more processes. (B) Pertaining to the simultaneity of two or more similar or identical processes. (C) Pertaining to simultaneous processing of the individual parts of a whole, such as the bits of a character and the characters of a word, using separate facilities for the various parts. *See:* **serial-parallel.** 162-1963, 270-1966w, [20], [85]

(3) (radio-wave propagation). Of a propagating wave for which the electric field vector lies parallel to the plane of incidence. *Note:* Sometimes called vertical polarization. 211-1977

(4) (software). (A) Pertaining to the simultaneous transfer, occurrence, or processing of the individual parts of a whole, such as the bits of a character, using separate facilities for the various parts. *Contrast with:* **serial (A).** (B) *See:* **concurrent.** 610.12-199

parallel addition. Addition that is performed concurrently on all digit places of the operands. *Note:* This technique uses partial sums and partial carries to obtain its results. *Contrast with:* **serial addition.** 610.1

parallel-connected capacitance (as applied to interrupter switches) (power switchgear). Capacitances are defined to be parallel-connected when the crest value of inrush current to the capacitance being switched exceeds the switch inrush current capability for single capacitance. C37.100-198

parallel connection. The arrangement of cells in a battery made by connecting all positive terminals together and all negative terminals together, the voltage of the group being only that of one cell and the current drain through the battery being divided among the several cells. *See:* **battery (primary or secondary).** [11

parallel construct. A program construct consisting of two or more procedures that can occur simultaneously. 610.12-19

parallel digital computer. One in which the digits are handled in parallel. Mixed serial and parallel machines are frequently called serial or parallel according to the way arithmetic processes are performed. An example of a parallel digital computer is one that handles decimal digits in parallel although it might handle the bits that comprise a digit either serially or in parallel. *See:* **serial digital computer.** 270-1966w

parallel feeder (power switchgear). One that operates in parallel with one or more feeders of the same type form the same source. *Note:* These feeders may be of the stub-, multiple-, or tie-feeder type. C37.100-19

parallel heating cable (electrical heat tracing for industrial applications). Heating elements that are electrically connected in parallel either continuously or in zones, so that watt density per lineal length is maintained irrespective of any change in length for the continuous type or for any number of discrete zones. 152-19

paralleling (rotating machinery). The process by which a generator is adjusted and connected to run in parallel with another generator or system. *See:* **asynchronous machine; direct-current commutating machine.**

paralleling reactor (power and distribution transformer). A current-limiting reactor for correcting the division of load between paral-

connected transform
impedance voltages.

**parallel-mode interf
sion system).** *See:*
mode.

parallel operation (
regulators, connect
individual output cu
in a common load. S
connection are used
slave connection, p
parallel padding. C
paralleled without s

parallel padding (pow
parallel operation
supplies in which
automatic crossove
employed so that
portion of the tot
supply adding to t
output only when
exceeds the capabi
first supply.

**parallel (or perpen
(facsimile).** A linear
field vector is par
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applied mainly t
incident upon a pla
of the earth, surf
conductor). Then th
reference the plane
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and the normal to t
If these two directi
plane must be
convention.
(2) (radio-wave pro
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Sometimes called
magnetic (TM) polar
"p" polarization.

parallel processing
Pertaining to the
two or more seque
sequence of instru
more sets of dat
multiple arithmeti
multiprocessing; m

parallel programmi
method of parallel
power supplies
terminals (voltage-
paralleled. These te
to a separate progr

parallel projection
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are rendered the
Note: The resulting

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