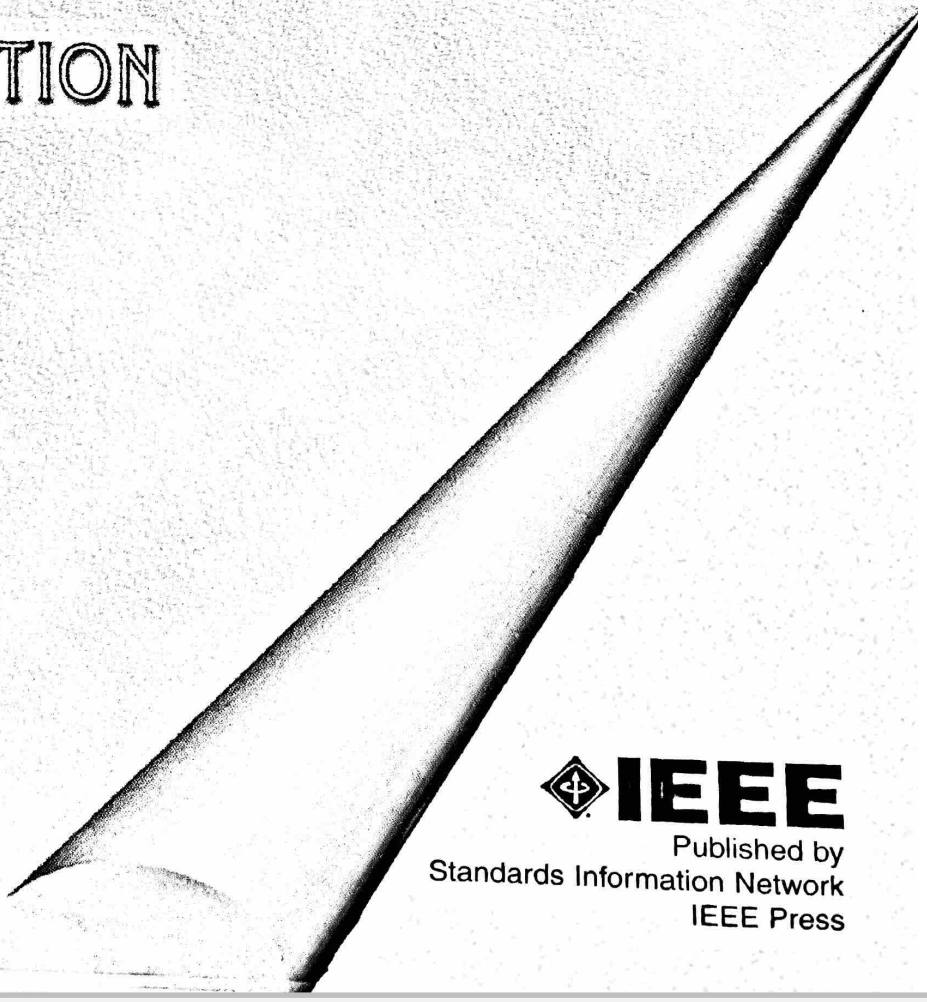
IEEE 100

THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS

SEVENTH EDITION



IEEE
Published by
Standards Information Network
IEEE Press

IEEE 100
The Authoritative Dictionary of IEEE Standards Terms

Seventh Edition

IEEE
Published by
Standards Information Network
IEEE Press

Trademarks and disclaimers

IEEE believes the information in this publication is accurate as of its publication date; such information is subject to change without notice. IEEE is not responsible for any inadvertent errors.

Other tradenames and trademarks in this document are those of their respective owners.

The Institute of Electrical and Electronics Engineering, Inc.
3 Park Avenue, New York, NY, 10016-5997, USA

To order IEEE Press publications, call 1-800-678-IEEE.

Print: ISBN 0-7381-2601-2 *SP1122*

See other standards and standards-related product listings at: http://standards.ieee.org/

The publisher believes that the information and guidance given in this work serve as an enhancement to users, all parties must rely upon their own skill and judgement when making use of it. The publisher does not assume any liability to anyone for any loss or damage caused by any error or omission in the work, whether such error or omission is the result of negligence or any other cause. Any and all such liability is disclaimed.

This work is published with the understanding that the IEEE is supplying information through this publication, not attempting to render engineering or other professional services. If such services are required, the assistance of an appropriate professional should be sought. The IEEE is not responsible for the statements and opinions advanced in this publication.

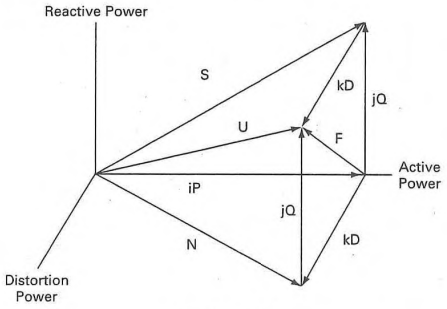
Library of Congress Cataloging-in-Publication Data

IEEE 100 : the authoritative dictionary of IEEE standards terms.—7th ed.
p. cm.
ISBN 0-7381-2601-2 (paperback : alk. paper)
1. Electric engineering—Dictionaries. 2. Electronics—Dictionaries. 3. Computer engineering—Dictionaries. 4. Electric engineering—Acronyms. 5. Electronics—Acronyms. 6. Computer engineering—Acronyms. I. Institute of Electrical and Electronics Engineers.

TK9 .I28 2000
621.3'03—dc21

00-050601

same terminals of entry. In determining the components, the reference terminals for voltage measurement are taken as the neutral terminal of entry, if one exists, otherwise as the true neutral point. The vector power is also the (vector) sum of the vector powers for the individual terminals of entry. The vector power for each terminal of entry is determined by considering each phase conductor and the common reference point as a single-phase circuit, as described for distortion power. The sign given to the distortion power in determining the vector power for each single-phase circuit is the same as that of the total active power. The magnitude of the vector power is the apparent power. If the voltages have the same waveform as the corresponding currents, the magnitude of the vector power is equal to the amplitude of the phasor power. Vector power is expressed in voltamperes when the voltages are in volts and the currents in amperes. *See also:* network analysis.



power vector

(Std100) 270-1966

power winding (saturable reactor) A winding to which is supplied the power to be controlled. Commonly the functions of the output and power windings are accomplished by the same winding, which is then termed the output winding. *See also:* magnetic amplifier. (PE/EEC) [119]

Poynting vector (1) If there is a flow of electromagnetic energy into or out of a closed region, the rate of flow of this energy is, at any instant, proportional to the surface integral of the vector product of the electric field strength and the magnetizing force. This vector product is called Poynting's vector. If the electric field strength is E and the magnetizing force is H, then Poynting's vector is given by

$$U = E \times H \text{ and } U = E \times H/4\pi$$

in rationalized and unrationalized systems, respectively. Poynting's vector is often assumed to be the local surface density of energy flow per unit time. (Std100) 270-1966w

(2) *See also:* time-averaged Poynting vector; instantaneous Poynting vector. (AP/PROP) 211-1997

Poynting vector, instantaneous [$\vec{P}(t,\vec{r})$] *See:* instantaneous Poynting vector.

Poynting vector, time-averaged *See:* time-averaged Poynting vector.

PPCSN *See:* private packet/frame and circuit switching network.

***P*-percent disruptive discharge voltage (V_p)** The prospective value of the test voltage that has a *p*-percent probability of producing a disruptive discharge. (PE/PSIM) 4-1995

PPI *See:* plan-position indicator.

***p-p* junction (semiconductor)** A region of transition between two regions having different properties in *p*-type semiconducting material. *See also:* semiconductor device. (PE/EEC) [119]

ppm *See:* parts per million.

PPM *See:* periodic permanent-magnet focusing; pulse position modulation.

PPMV *See:* parts per million by volume.

PPMW *See:* parts per million by weight.

PPS *See:* preferred power supply.

PPSN *See:* private packet/frame switching network.

PR *See:* physical record.

PRA *See:* pendulous reference axis.

practical reference pulse waveform (pulse measurement) A reference pulse waveform which is derived from a pulse which is produced by a device or apparatus. (IM/WM&A) 181-1977w

practical stability *See:* finite-time stability.

practice Recommended approach, employed to prescribe a disciplined, uniform approach to the software life cycle. (C/SE) 730.1-1995

practices (software quality assurance) Requirements employed to prescribe a disciplined uniform approach to the software development process. *See also:* conventions; standards. (C) 610.12-1990

pragma A generic term used to define a construct with no predefined language semantics that influences how a synthesis tool will synthesize VHDL code into an equivalent hardware representation. (C/DA) 1076.6-1999

preallocation The reservation of resources in a system for a particular use. Preallocation does not imply that the resources are immediately allocated to that use, but merely indicates that they are guaranteed to be available in bounded time when needed. (C/PA) 9945-1-1996

preamble (1) In networking, a sequence of bits at the start of each new transmission to allow synchronization of clocks and other physical layer circuitry at other stations. *See also:* postamble; abnormal preamble. (C) 610.7-1995

(2) A sequence of bits recorded at the beginning of each block on a magnetic tape for the purpose of synchronization. *Contrast:* postamble. (C) 610.10-1994w

preamble breakpoint *See:* prolog breakpoint.

preamplifier (1) An amplifier connected to a low-level signal source to present suitable input and output impedances and provide gain so that the signal may be further processed without appreciable degradation in the signal-to-noise ratio. *Notes:* 1. A preamplifier may include provision for equalizing and.or mixing. 2. Further processing frequently includes further amplification in a main amplifier. *See also:* amplifier. (SP) 151-1965w

(2) The input section of an amplifier chain, usually located as close to the detector element as possible. (NPS) 325-1996

preamplifier, pulsed optical feedback *See:* pulsed optical feedback preamplifier.

pre-arbitrated (PA) access function The *access control function* in this part of ISO/IEC 8802 that uses assigned *offsets* in *Pre-Arbitrated (PA) slots* for the transfer of *isochronous service octets*. (LM/C) 8802-6-1994

pre-arbitrated (PA) segment A multiuser *segment* transferred using *Pre-Arbitrated Access (PA) functions*. The payload of the *PA segment* contains *isochronous service octets* from zero or more *Isochronous Service Users* (*ISUs*). (LM/C) 8802-6-1994

pre-arbitrated (PA) slot A *slot* that is dedicated by the *Head of Bus function* for transfer of *isochronous service octets* in the payload of a *PA segment*. (LM/C) 8802-6-1994

pre-arcing time *See:* melting time.

preassigned multiple access (communication satellite) A method of providing multiple access in which the satellite channels are preassigned at both ends of the path. (COM) [19]

precedence call (telephone switching systems) A call on which the calling party has elected to use one of several levels of priority available to him. (COM) 312-1977w

precedented system A system for which design examples exist within its class, so as to provide guidance for establishing the design architecture, engineering and technical plans, specifications, or low risk alternatives. (C/SE) 1220-1998

reserve shutdown hours (electric generating unit reliability, availability, and productivity) The number of hours a unit was in the reserve shutdown state. (PE/PSE) 762-1987w

reserve shutdown maintenance derated hours (electric generating unit reliability, availability, and productivity) The reserve shutdown hours during which a Class 4 unplanned derating was in effect. (PE/PSE) 762-1987w

reserve shutdown planned derated hours (electric generating unit reliability, availability, and productivity) The reserve shutdown hours during which a basic or extended planned derating was in effect. (PE/PSE) 762-1987w

reserve shutdown unit derated hours (electric generating unit reliability, availability, and productivity) The reserve shutdown hours during which a unit derating was in effect. (PE/PSE) 762-1987w

reserve shutdown unplanned derated hours (electric generating unit reliability, availability, and productivity) The reserve shutdown hours during which an unplanned derating was in effect. (PE/PSE) 762-1987w

reservoir operating curve (power operations) A curve, or family of curves (reservoir capability versus time), indicating how a reserve is to be operated under specified conditions to obtain best or predetermined results. (PE/PSE) 858-1987s

reservoir operating rule curve (electric power supply) A curve, or family of curves (reservoir capability versus time), indicating how a reservoir is to be operated under specified conditions to obtain best or predetermined results. (PE/PSE) 346-1973w

reservoir storage (power operations) (electric power system) The volume of water in a reservoir at a given time. (PE/PSE) 858-1987s, 346-1973w

reset (1) (A) **(electronic digital computation)** To restore a storage device to a prescribed state, not necessarily that denoting zero. (B) **(electronic digital computation)** To place a binary cell in the initial or zero state. *See also:* set. (C/MIL/ICTL) 162-1963, [20], 270-1966, [60], [85], [2], 610.10-1994

(2) **(analog computer)** The computer control state in which integrators are held constant and the proper initial condition voltages or charges are applied or reapplied. *See also:* initial condition. (C) 165-1977w

(3) **(software)** To set a variable, register, or other storage location back to a prescribed state. *See also:* initialize; clear. (C) 610.12-1990, 610.10-1994w

(4) An action that occurs when certain error conditions occur, or when error conditions exceed a preset value. Reset causes the Data Link layer to go to the offline state. Reconnection can than be requested by the DCC. (EMB/MIB) 1073.3.1-1994

(5) When describing the operating status of an S-module, the state of the S-module's Status registers produced by execution of the Reset Slave Status command. (TT/C) 1149.5-1995

(6) The state of an inverse-time overcurrent relay when the integral of the function of current $F(I)$ that produces a time-current characteristic is zero. (PE/PSR) C37.112-1996

(7) (of a relay) The action of a relay as it makes designated response to decreases in input. As a qualifying term, reset denotes the state of a relay when all response to decrease of input has been completed. Reset is also used to identify the maximum value of an input quantity reached by progressive decreases that will permit the relay to reach the state of complete reset from pickup. *Note:* In defining the designated performance of relays having multiple inputs, reset describes the state when all inputs are zero and also when some input circuits are energized, if the resulting state is not altered from the zero-input condition. (SWG/PE/PSR) C37.100-1992, C37.90-1978s

reset action (process control) A component of control action in which the final control element is moved at a speed proportional to the extent of proportional-position control action. *Note:* This term applies only to a multiple control action including proportional-position control action. *See also:* proportional plus integral control action; positioning control system. (PE/EDPG) [3]

reset, automatic *See:* automatic reset.

reset characteristic The time versus current curve that defines the time required for the integral of the function of current $F(I)$ to reach zero for values below current pickup when the integral is initially at the trip value. (PE/PSR) C37.112-1996

reset control action (electric power system) Action in which the controller output is proportional to the input signal and the time integral of the input signal. The number of times per minute that the integral control action repeats the proportional control action is called the reset rate. *Note:* Applies only to a controller with proportional control action plus integral control action. *See also:* speed-governing system. (PE/PSE) 94-1970w

reset current or voltage (faulted circuit indicators) The nominal rms (root-mean-square) value of current or voltage that will cause the indicator of the automatic current or voltage reset FCI (faulted circuit indicator) to change from FAULT to NORMAL indication. (T&D/PE) 495-1986w

reset device A device whereby the brakes may be released after an automatic train-control brake application. (EEC/PE) [119]

reset dwell time The time spent in reset. In cycling the computer from reset, to operate, to hold, and back to reset, this time must be long enough to permit the computer to recover from any overload and to charge or discharge all integrating capacitors to appropriate initial voltages. *See also:* electronic analog computer. (C) 165-1977w

reset interval (1) (automatic circuit recloser) The time required for the counting mechanism to return to the starting position. (SWG/PE) C37.60-1981r

(2) (of an automatic circuit recloser or automatic line sectionalizer) The time required, after a counting operation, for the counting mechanism to return to the starting position of that counting operation. (SWG/PE) C37.100-1992

reset, manual *See:* manual reset.

reset on inertial navigation systems (navigation aid terms) Use of external data (for example, position fix) to refine alignment of and to calibrate the inertial navigation system. (AES/GCS) 172-1983w

reset packet A packet used during initialization to reset the node's CSR state, empty ring buffers, initialize the ring interface and establish that ring closure has been achieved. (C/MM) 1596-1992

reset pulse A drive pulse that tends to reset a magnetic cell. (Std100) 163-1959w

reset rate (process control) (proportional plus reset control action or proportional plus reset plus rate control action) The number of times per minute that the effect of proportional-position control action is repeated. *See also:* integral action rate. (PE/EDPG) [3]

reset switch A machine-operated device that restores normal operation to the control system after a corrective action. *See also:* photoelectric control. (IA/ICTL/IAC) [60]

resettability (1) (electric pipe heating systems) The restoring of a mechanism, electrical circuit, or device to the prescribed state. Resettability is usually associated with temperature controllers and is the difference in degrees when returning to original temperature setting. (PE/EDPG) 622A-1984r, 622B-1988r

(2) (oscillators) The ability of the tuning element to retune the oscillator to the same operating frequency for the same set of input conditions. (ED) 158-1962w

reset test A test or collection of tests that is invoked by a command_reset. Although a reset test is actually a form of initialization test, the term reset test is used to avoid confusing its functionality with the initialization tests that are invoked by writing to the TEST_START register. (C/MM) 1212-1991s