

IEEE 100

THE
AUTHORITATIVE
DICTIONARY
OF IEEE STANDARDS TERMS

SEVENTH EDITION



IEEE

Published by
Standards Information Network
IEEE Press

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3 Park Avenue, New York, NY, 10016-5997, USA*

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

Print: ISBN 0-7381-2601-2

SP1122

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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 .J28 2000
621.3'03—dc21

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AND (mathematics of computing) A Boolean operator having the property that if P is a statement, Q is a statement, R is a statement, . . . , then the AND of P,Q,R, . . . is true if and only if all statements are true. *Note:* P AND Q is often represented by P·Q, P&Q, PA Q, or PQ.

P	Q	PAQ
0	0	0
0	1	0
1	0	0
1	1	1

AND Truth Table

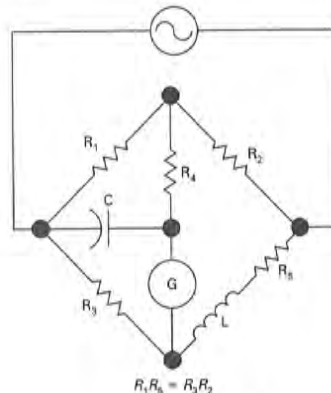
Synonyms: conjunction; meet; logic multiply; intersection; logical multiply; collation; Boolean multiplication.

(C) 1084-1986w

AND-circuit *See:* AND gate.

AND element *See:* AND gate.

Anderson bridge A six-branch network in which an outer loop of four arms is formed by three nonreactive resistors and the unknown inductor, and an inner loop of three arms is formed by a capacitor and a fourth resistor in series with each other and in parallel with the arm that is opposite the unknown inductor, the detector being connected between the junction of the capacitor and the fourth resistor and that end of the unknown inductor that is separated from a terminal of the capacitor by only one resistor, while the source is connected to the other end of the unknown inductor and to the junction of the capacitor with two resistors of the outer loop. *Note:* Normally used for the comparison of self-inductance with capacitance. The balance is independent of frequency. *See also:* bridge.



Anderson bridge

(EEC/PE) [119]

AND gate (1) (general) A combinational logic element such that the output channel is in its ONE state if and only if each input channel is in its ONE state. (C) 162-1963w

(2) A gate that implements the logic AND operator. (C) [85]

(3) A gate that performs the Boolean operation of conjunction. *Synonym:* AND element. (C) 610.10-1994w

AND-NOT* *See:* exclusion.

* Depreciated.

AND-parallelism Pertaining to the performance of multiple predicate operations concurrently; the successful completion of which results in a true response. *Contrast:* OR-parallelism. (C) 610.10-1994w

anechoic chamber An enclosure especially designed with boundaries that absorb sufficiently well the sound incident thereon to create an essentially free-field condition in the frequency range of interest. (SP) [32]

anechoic enclosure (radio frequency) An enclosure whose internal walls have low reflection characteristics. *See also:* electromagnetic compatibility. [53]

anelectrotonus (electrobiolgy) Electrotonus produced in the region of the anode. *See also:* excitability. (EMB) [47]

anemometer (navigation aid terms) An instrument for measuring the speed of wind. (AES/GCS) 172-1983w

aneroid altimeter *See:* barometric altimeter.

anesthetizing location (health care facilities) Any area in which it is intended to administer any flammable or nonflammable inhalation anesthetic agents in the course of examination or treatment and includes operating rooms, delivery rooms, emergency rooms, anesthetizing rooms, corridors, utility rooms and other areas that are intended for induction of anesthesia with flammable or nonflammable anesthetizing agents. (NESC/NEC) [86]

anesthetizing-location receptacle (health care facilities) A receptacle designed to accept the attachment plugs listed for use in such locations. (NESC/NEC) [86]

angel *See:* angel echo.

angel echo (1) Radar returns caused by atmospheric inhomogeneities, refractive index discontinuities, insects, birds, or unknown sources. *Note:* Originally, when some physical target could not be identified through direct visual observation, echoes from such unknown causes were designated as "angels." (AP/PROP) 211-1997

(2) A radar echo caused by birds, insects, and atmospheric clear-air turbulence not usually visible to the eye. Often a term applied to any unknown radar echo that does not appear to be related to conventional targets. *Synonym:* angel.

(AES) 686-1997

angle (of a waveform). The phase of a periodic or approximately periodic waveform. *See also:* phase; phase angle. (IT) [7]

angle brackets The characters "<" (left-angle-bracket) and ">" (right-angle-bracket). When used in the phrase "enclosed in angle brackets" the symbol "<" shall immediately precede the object to be enclosed, and ">" shall immediately follow it. When describing these characters, the names (less-than-sign) and (greater-than-sign) are used.

(C/PA) 9945-2-1993

angle, bunching *See:* bunching angle.

angle, effective bunching *See:* effective bunching angle.

angle, flow *See:* flow angle.

angle, maximum-deflection *See:* maximum-deflection angle.

angle modulation (1) Modulation in which the angle of a sine-wave carrier is the characteristic varied from its reference value. *Notes:* 1. Frequency modulation and phase modulation are particular forms of angle modulation; however, the term "frequency modulation" is often used to designate various forms of angle modulation. 2. The reference value is usually taken to be the angle of the unmodulated wave. *See also:* modulation index. (AP/ANT) 145-1983s

(2) (data transmission) The process of causing the angle of the carrier wave to vary in accordance with the signal wave. Phase and frequency modulation are two particular types of angle modulation. (PE) 599-1985w

angle noise The noise-like variation in the apparent angle of arrival of a signal received from a target, caused by changes in phase and amplitude of multiple, unresolved target-scattering sources. *Note:* Includes both glint and scintillation errors. *See also:* glint; scintillation error. (AES) 686-1997

angle of advance (1) (power inverter) The time interval in electrical degrees by which the beginning of anode conduction leads the moment at which the anode voltage would attain a negative value equal to that of the succeeding anode in the commutating group. *See also:* rectification.

(EEC/PCON) [110]

(2) (semiconductor power converter) (semiconductor rectifiers) The angle by which forward conduction is advanced by the control means only, in the incoming circuit element, ahead of the instant in the cycle at which the incoming com-

marshaling/demarshaling The mapping of information typed as given in the signatures of *Perform*-, *Execute*-, and *Publish*-like operations into the network-specific, on-the-wire formats, including any required endian issues. Demarshaling is the reverse process. (IM/ST) 1451.1-1999

MARSHAL System for Aerospace Simulation (MARSYAS) A simulation language used for simulating large physical systems, designed for use by people inexperienced in simulation or programming. Allows equations and FORTRAN subroutines to be written along with the statements describing a block diagram model. (C) 610.13-1993w

MARSYAS See: MARSHAL System for Aerospace Simulation.

maser (1) (data transmission) (microwave amplification by stimulated emission of radiation) The general class of microwave amplifiers based on molecular interaction with electromagnetic radiation. The nonelectronic nature of the maser principle results in very low noise. (PE) 599-1985w

(2) (laser maser) A device for amplifying or generating radiation by induced transitions of electrons, atoms, molecules, or ions between two energy levels having a population inversion; microwave amplification by stimulated emission of radiation. (LEO) 586-1980w

mask (1) (A) (computers) A pattern of characters that is used to control the retention or elimination of portions of another pattern of characters. **(B) (computers)** A filter.

(C) [20], [85]
(2) (software) A pattern of bits or characters designed to be logically combined with an unknown data item to retain or suppress portions of the data item; for example, the bit string "00000011" when logically ANDed with an eight-bit data item, gives a result that retains the last two bits of the data item and has zero in all the other bit positions. See also: interrupt mask. (C) 610.12-1990

mask document In word processing, a form displayed on a display screen with blank areas for the user to complete. (C) 610.2-1987

masking (1) (A) The process by which the threshold of audibility for one sound is raised by the presence of another (masking) sound. **(B)** The amount by which the threshold of audibility of a sound is raised by the presence of another (masking) sound. The unit customarily used is the decibel. (ACO)

(2) (color television) A process to alter color rendition in which the appropriate color signals are used to modify each other. Note: The modification is usually accomplished by suitable cross coupling between primary color-signal channels. See also: television. (BT/SP/AV) [34], [32]

masking audiogram A graphic presentation of the masking due to a stated noise. Note: This is plotted in decibels as a function of the frequency of the masked tone. (SP) [32]

masking, fault See: fault masking.

mask&swap A data-access operation that stores a *next* value to the *test* specified bits within a specified data type and returns the previous data value. (C/MM) 1596.5-1993

maskSwap A bus transaction that stores bits of a *next* argument to a specified data address and returns the previous data value from that address. The affected bits are specified by a *test* argument. In the CSR Architecture this is called a *mask_swap* transaction. (C/MM) 1596.5-1993

masquerade The pretense by an entity to be a different entity. (LM/C) 802.10-1992

mass (International System of Units (SI)) The SI unit of mass is the kilogram. This unit, or one of the multiples formed by attaching an SI prefix to gram, is preferred for all applications. Among the base and derived units of SI, the unit of mass is the only one whose name, for historical reasons, contains a prefix. Names of decimal multiples and submultiples of the unit of mass are formed by attaching prefixes to the word gram. The megagram (Mg) is the appropriate unit for measuring large masses such as have been expressed in tons. However, the name ton has been given to several large mass units that are widely used in commerce and technology: the long

ton of 2240 lb, the short ton of 2000 lb, and metric ton of 1000 kilograms (also called the tonne). None of these terms are SI. The term metric ton should be restricted to commercial usage, and no prefixes should be used with it. Use of the term tonne is deprecated. See also: units and letter symbols. (QUL) 268-1982s

Massachusetts General Hospital Utility Multi-Programming System (MUMPS) An ANSI standard programming system containing its own operating system, command language, and interactive programming language; designed specifically for medical applications and is particularly adaptable to string handling functions and management of hierarchical data. (C) 610.13-1993w

mass-attraction vertical The normal to any surface of constant geopotential; it is the direction that would be indicated by a plumb bob if the earth were not rotating. See also: navigation. (AES/RS) 686-1982s, [42]

mass burning rate Mass loss per unit time by materials burning under specified conditions. (DEI) 1221-1993w

mass loading The change in phase velocity of a surface acoustic wave produced by a thin layer on the substrate of higher density than that of the substrate; perturbations in reflections, velocity, and dispersion that occur due to loading effects of thin films on the substrate surface. (UFFC) 1037-1992w

mass spectrograph An electronic device based on the action of a constant magnetic field on the paths of ions, used to separate ions of different masses. See also: electron device. (Std100) [84]

mass storage An area of storage, or a storage device, having a very large storage capacity. Note: Sometimes referred to as secondary storage in order to differentiate from main storage. Synonym: bulk storage. (C) 610.10-1994w

mass unbalance (gyros) The characteristic of a gyro resulting from lack of coincidence of the center of supporting forces and the center of mass. It gives rise to torques caused by linear accelerations that lead to acceleration-sensitive drift rates. (AES/GYAC) 528-1994

mast (power transmission and distribution) A column or narrow-base structure of wood, steel, or other material, supporting overhead conductors, usually by means of arms or brackets, span wires, or bridges. Note: Broad-base lattice steel supports are often known as towers; narrow-base steel supports are often known as masts. See also: pole; tower. (T&D/PE) [10]

mast arm See: bracket.

Master See: SBus Master.

master (1) (FASTBUS acquisition and control) A device that is capable of asserting or controlling an operation on a segment according to the FASTBUS protocol. A master may, in addition, contain slave logic. (NID) 960-1993

(2) (STD bus) A card controlling a bus transaction. The master that is currently controlling the bus is the current master. The card that is host to all other masters is the permanent master. All masters that are not the permanent master are temporary masters. (C/MM) 961-1987r

(3) (VMEbus) A functional module that initiates data transfer bus (DTB) cycles to transfer data between itself and a slave module. (BA/C) 1014-1987

(4) (VSB) A functional module that initiates bus cycles in order to transfer data between itself and VSB slaves. The master that is currently in control of the DTB is referred to as the *active* master. (MM/C) 1096-1988w

(5) (NuBus) A bus device that initiates a transaction. (C/MM) 1196-1987w

(6) (NuBus) A module that has acquired control of the bus through the control acquisition procedure. (C/BA) 1014.1-1994w, 896.3-1993w, 896.4-1993w, 10857-1994

(7) A device that initiates communications requests to gather data or perform controls. (PE/SUB) 1379-1997

master antenna te
antenna distribu
buildings.

master-capable S
ule at a given ti
it may be conv
required.

master clock See:

master clock nod
zation process,
Synonym: refere

master compass
tuate repeaters,
devices.

master console In
sole, the primar
Synonym: main
also: remote co

master contactor
device, general
function 1 or th

protective devic
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der the desired c
other abnormal

master control T
viding the conti

master controll
power generat
tive action for c

(2) (car retard
one or more m
It is designed to
the retarder wit
car retarder; m
(3) (land trans
local and train
brake systems.

(4) A physical
the master con

master controle
required of M-
behavior with)

master director
reading of mag
netic sensing e

master drive A
more follower

master elect A n
competition.

(C/
master element

initiating devic
either directly
tive and time-
operation. Not
operated devic
or mechanical
suitable.

master file (dat
ords that is i
taining emplo
Synonym: mai

master form A
rectly, other fi

master ground
connect (bond

NTA *See*: next transfer address.

n-terminal electron tubes *See*: input capacitance.

N-terminal network A network with N accessible terminals. *See also*: network analysis. (Std100) 270-1966w

N-terminal pair network A network with $2N$ accessible terminals grouped in pairs. *Note*: In such a network one terminal of each pair may coincide with a network node. *See also*: network analysis. (Std100) 270-1966w

Nth field lag (th field lag) The fraction of the output signal which is read out in the N th field after the initial reading scan of an input signal which has been completely extinguished just before the scanning beam reaches that portion of the target irradiated by the input signal. This can be readily understood with reference to the decay characteristics diagram below. A similar definition can be made for the buildup of a signal as illustrated in the buildup characteristics diagram below. (ED) 503-1978w

Nth harmonic The harmonic of frequency N times that of the fundamental component. (Std100) 154-1953w

NTI *See*: noise transmission impairment.

NTSC *See*: National Television Standards Committee.

n-tuple (A) An ordered set of values $(x_1, x_2, \dots, x_n)$. **(B)** In a relational data model, a tuple. (C) 610.5-1990, 1084-1986

n-tuple length register A set of n registers that function as a single register. *Synonym*: n-tuple register. (C) 610.10-1994w

n-tuple register *See*: n-tuple length register.

N² diagram A system engineering or software tool for tabulating, defining, analyzing, and describing functional interfaces and interactions among system components. The N² diagram is a matrix structure that graphically displays the bidirectional interrelationships between functions and components in a given system or structure. (C/SE) 1362-1998

N-type A constant impedance connector compatible with certain coaxial cables. (C) 610.7-1995

n-type crystal rectifier A crystal rectifier in which forward current flows when the semiconductor is negative with respect to the metal. *See also*: rectifier. (EEC/PE) [119]

n-type semiconductor *See*: semiconductor, n -type.

NuBus[®] Refers to IEEE Std 1196-1987, IEEE Standard for a Simple 32-Bit Backplane Bus: Nubus. (C/MM) 1596-1992

nuclear burnup (A) (power operations) A measure of nuclear reactor fuel consumption, usually expressed as energy produced per unit weight of fuel exposed (megawatt-days per metric ton of fuel). **(B) (power operations)** Percentage of fuel atoms that have undergone fission (atom percent burnup). (PE/PSE) 858-1987, 346-1973

nuclear energy (power operations) The energy with which nucleons are bound together to form nuclei. When a nucleus is changed or rearranged in a nuclear reaction (fission, fusion, etc.) or by radioactive decay, nuclear energy may be released or absorbed in the form of kinetic energy of the reactants or products. *See also*: nuclear reactor; nuclear fuel elements; nuclear fuel reprocessing. (T&D/PE/PSE) 858-1987s, 346-1973w

nuclear fuel elements (power operations) (nuclear power generating station) An assembly of rods, tubes, plates, or other geometrical forms into which nuclear fuel is contained for use in a reactor. (PE/PSE) 858-1987s, 346-1973w

nuclear fuel reprocessing (power operations) (nuclear power generating station) The processing of irradiated reactor fuel to recover the unused fissionable material, or fission products, or both. (PE/PSE) 858-1987s, 346-1973w

nuclear plant reliability data system (NPRDS) A reliability database maintained by the Institute of Nuclear Power Operations (INPO) that receives failures reports from utilities within the United States. (PE/NP) 933-1999

nuclear power generating stations, class ratings (1) (class I structures and equipment) Structures and equipment that are essential to the safe shutdown and isolation of the reactor

or whose failure or damage could result in significant release of radioactive material.

(2) (Class 1E) The safety classification of the electric equipment and systems that are essential to emergency reactor shutdown, containment isolation, reactor core cooling, and containment and reactor heat removal, or are otherwise essential in preventing significant release of radioactive material to the environment.

(3) (Class 1E control switchboard) A rack panel, switchboard, or similar type structure fitted with any Class 1E equipment.

(4) (Class 1E electric systems) The systems that provide the electric power used to shut down the reactor and limit the release of radioactive material following a design basis event.

(5) (class II structures and equipment) Structures and equipment that are important to reactor operation but are not essential to the safe shutdown and isolation of the reactor and whose failure cannot result in a significant release of radioactive material.

(6) (class III structures and equipment) Structures and equipment that are not essential to the operation, safe shutdown, or isolation of the reactor and whose failure cannot result in the release of radioactive material.

(PE/NP) 380-1975w, 323-1974s, 344-1975s, 336-1980s, 420-1982, 383-1974r, 382-1980s, 308-1980s

nuclear power generating station (station) A plant wherein electric energy is produced from nuclear energy by means of suitable apparatus. The station may consist of one or more generating units. (PE/NP) 308-1991

nuclear reactor (power operations) An apparatus by means of which a fission chain reaction can be initiated, maintained, and controlled. (PE/PSE) 858-1987s

nuclear safety related (nuclear power generating station) That term used to call attention to safety classifications incorporated in the body of the document so marked. *Note*: As used in IEEE Std 494-1974, the term calls attention to the safety classification Class 1E. (PE/NP) 494-1974w

nucleus That part of a control program that is resident in main storage. *Synonym*: resident control program. (C) 610.10-1994w

nugget A data structure used in the procedural interface (PI) for rapid switching between technologies. (C/DA) 1481-1999

nuisance alarm An alarm warning that does not represent danger, safeguards threat, or equipment failure conditions requiring an actual response. (PE/NP) 692-1997

nuisance failure Intermittent or sustained failure of equipment secondary to system safety or reliability. (PE/NP) 933-1999

NUL The null character (^0'). (PE/SUB) 1379-1997

NULL A byte with all bits set to zero. (C/MM) 1284.1-1997

null (1) (direction finding systems) (navigation aid terms)

The condition of minimum output as a function of the direction of arrival of the signal, or of the rotation of the response pattern of the DF (direction finder) antenna system. (AES/GCS) 172-1983w

(2) (microprocessor operating systems parameter types) A value whose definition is to be supplied within the context of a specific operating system. This value is a representation of the set of no numbers or no value for the operating system in use. (C/MM) 855-1985s

(3) (signal-transmission system) The condition of zero error-signal achieved by equality at a summing junction between an input signal and an automatically or manually adjusted balancing signal of phase or polarity opposite to the input signal. *See also*: signal. (IE) [43]

(4) The direction between radiation lobes where the signal drops to a minimum. In general, a null is any portion of the pattern where the signal level is less than 10% of the rms of the pattern. (T&D/PE) 1260-1996

(5) See also: null. (AES/GYAC) 528-1994

null address (local area networks) An all zero address that does not identify any network end node. The null address may

be used as the sent from an end level repeater. T Address (SA) fie between an end address may also null address are promiscuous por

nullator An ideal and short circuit loss-less one-po

null balance (auto (instruments) T instrument when cal quantity will does not exceed posing electrical related to the po ment system; fe

null-balance syste by producing a current. *See also*

null character (1) is used to accom inserted into or t out affecting the trol of equipmer acter. *See also*: **(2)** The value PC use of a null ch names or values shall not return i environment vai

null cycle A type i resource lock ar

null data (data ma but for which n

null DATA packe

nullity (degrees o number of indej work. The nulli minus the numl parts $P, N = B$

null junction (po at which the ref and one side of null junction is virtual ground.

null offsetting (a calibration or te sition is intenti input axis relati

null operation (F, address cycle fc system contains address used. It for an arbitrat

NULL packet (1) data field entire to logic one. Sy

(2) A packet in Bus between D

null pointer (dat is, a pointer tha