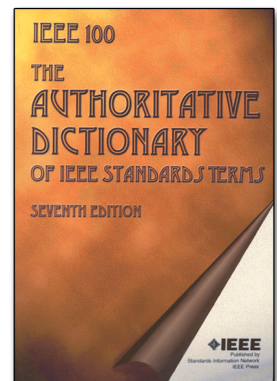


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The Authoritative Dictionary of
IEEE Standards Terms

Seventh Edition



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in the atmosphere with 1 cm² horizontal cross-section.

(AP/PROP) 211-1997

integrated pulse In the absence of qualifiers (such as "true integration"), a pulse that has passed through one or more low-pass networks ("integrators"). (NPS) 325-1996

integrated radiation (laser maser) The integral of the radiance over the exposure duration. (LEO) 586-1980w

integrated services terminal equipment (ISTE) A device that serves as an information source and/or an information sink for the provision of voice, facsimile, video, data, and other information. (C/LM/COM) 802.9a-1995w, 8802-9-1996

integrating (block interval) demand meter (metering) A meter that integrates power or a related quantity over a fixed time interval, and indicates or records the average.

(ELM) C12.1-1982s

integrating accelerometer A device that produces an output that is proportional to the time integral of an input acceleration. (AES/GYAC) 528-1994

integrating amplifier (1) (analog computer) An operational amplifier that produces an output signal equal to the time integral of a weighted sum of the input signals. *Note:* In an analog computer, the term integrator is synonymous with integrating amplifier. (C) 165-1977w, 166-1977w

(2) In an analog computer, an operational amplifier that produces an output signal equal to the time integral of a weighted sum of the input signals. (C) 610.10-1994w

integrating circuit *See:* integrator.

integrating motor In an analog computer, a motor designed to give a constant ratio of output shaft rotational speed to input signal. *Note:* The angle of rotation of the shaft with respect to a datum is thus proportional to the time integral of the applied signal. (C) 610.10-1994w

integrating network *See:* integrator.

integrating photometer (illuminating engineering) One which enables total luminous flux to be determined by a single measurement. The usual type is the Ulbricht sphere with associated photometric equipment for measuring the indirect illuminance of the inner surface of the sphere. (The measuring device is shielded from the source under measurement.) (EEC/IE) [126]

integrating preamplifier (germanium gamma-ray detectors) (x-ray energy spectrometers) A pulse preamplifier in which individual pulses are intentionally integrated by passive or active circuits. (NPS/NID) 325-1986s, 759-1984r

integrating relay A relay that operates on the energy stored from a long pulse or a series of pulses of the same or varying magnitude, for example, a thermal relay. *See also:* relay.

integration (1) (software) The process of combining software components, hardware components, or both into an overall system. (C) 610.12-1990

(2) The merger or combining of two or more lower-level elements into a functioning and unified higher-level element with the functional and physical interfaces satisfied. (C/SE) 1220-1994s

(3) Providing a single set of data for use between multiple activities or departments (multiple application data base). (PE/EDPG) 1150-1991w

(4) (of radar signals) The combination by addition (or the logical equivalent) of echo pulses or signal samples obtained by a radar as it illuminates a target so as to increase the output signal-to-noise ratio beyond that available from a single pulse or sample. (AES) 686-1997

(5) The service that enables delivery of medium access control (MAC) service data units (MSDUs) between the distribution system (DS) and an existing, non-IEEE 802.11 local area network (via a portal). (C/LM) 8802-11-1999

integration loss The loss incurred by integrating a signal non-coherently (postdetection) instead of coherently.

(AES) 686-1997

integration test (1) The testing of several subsystems that perform in combination. (PE/SUB) 1378-1997

(2) (programmable digital computer systems in safety systems of nuclear power generating stations) Test(s) performed during the hardware-software integration process prior to computer system validation to verify compatibility of the software and the computer system hardware. 554-1990

integration testing (1) (software) Testing in which software components, hardware components, or both are combined and tested to evaluate the interaction between them. *See also:* component testing; unit testing; system testing; interface testing. (C) 610.12-1990

(2) An orderly progression of testing of incremental pieces of the software program in which software elements, hardware elements, or both are combined and tested until the entire system has been integrated to show compliance with the program design, and capabilities and requirements of the system. (C/SE) 1012-1998

integrator (1) (analog computer) A device producing an output proportional to the integral of one variable or of a sum of variables, with respect to another variable, usually time. *See also:* integrating amplifier. (C) 165-1977w

(2) (digital differential analyzer) A device using an accumulator for numerically accomplishing an approximation to the mathematical process of integration. (C) 162-1963w

(3) A functional unit whose output analog variable is the integral of an input analog variable with respect to time, or a variable other than time. *See also:* incremental integrator; storage integrator. (C) 610.10-1994w

(4) A device having an output proportional to the time integral of the input signal. (COM/TA) 1027-1996

(5) (as applied to relaying) A transducer whose output wave form is substantially the time integral of its input wave form. (SWG/PE) C37.100-1992

integrator, gain *See:* gain integrator.

integrity (1) (software) (data management) The degree to which a system or component prevents unauthorized access to, or modification of, computer programs or data. *See also:* database integrity; data integrity. (C) 610.5-1990w, 610.12-1990

(2) The condition of being unimpaired.

(C/BA) 896.9-1994w

integrity check value (ICV) A value that is derived by performing an algorithmic transformation on the data unit for which data integrity services are provided. The ICV is sent with the protected data unit and is recalculated and compared by the receiver to detect data modification. (C/LM) 802.10-1998

INTELLECT A natural language front-end processor for an SQL database manipulation language. (C) 610.13-1993w

intellectual property An output of creative human thought process that has some intellectual or informational value. Intellectual property can be protected by patents, copyrights, trademarks, or trade secrets. (C/SE) 1420.1b-1999

intelligence bandwidth The sum of the audio- (or video-) frequency bandwidths of the one or more channels. (AP/ANT) 145-1983s

intelligent data model A data model that describes the logic, controls, and constraints that should be applied whenever the data are accessed. (C) 610.5-1990w

intelligent electronic device (IED) Any device incorporating one or more processors with the capability to receive or send data/control from or to an external source (e.g., electronic multifunction meters, digital relays, controllers). (SUB/PE) C37.1-1994

intelligent terminal A terminal that can send and receive information as well as perform some processing, such as making decisions or performing calculations, independent of the computer. *Synonym:* programmable terminal. *Contrast:* dumb terminal. *See also:* smart terminal. (C) 610.10-1994w

intended polarization The polarization of the radio wave for which an antenna system is designed. (AES) 686-1997

switch, load matching *See:* load-matching switch.

switch, load transfer *See:* load transfer switch.

switch machine A quick-acting mechanism, electrically controlled, for positioning track switch points, and so arranged that the accidental trailing of the switch points does not cause damage. A switch machine may be electrically or pneumatically operated. *See also:* car retarder. (EEC/PE) [119]

switch machine lever lights A group of lights indicating the position of the switch machine. (EEC/PE) [119]

switch-machine point detector *See:* point detector.

switch mode (thyristor) The starting instant of the controller ON-state interval is nonperiodic. This instant may be random (analogous to contactor operation), or it may be selected, for example, at voltage zero. (IA/IPC) 428-1981w

switch onto fault protection This provides tripping in the event that the breaker is closed into a zero voltage bolted fault, such as occurs if the grounding chains were left on the line following maintenance. (PE/PSR) C37.113-1999

switch, optical *See:* optical switch.

switch or contactor, load *See:* load switch or contactor.

switch part class designation A code which identifies the curve that relates the loadability factor (LF) of a switch part material and function to the ambient temperature θ_A . (SWG/PE) C37.30-1992s, C37.37-1996

switch point (watthour meters) The transition from one time-of-use period to another. (ELM) C12.13-1985s

switchpoint *See:* switch.

switch register A register made up of a number of manual switches, typically equal to the number of bits in the computer, and generally located on the computer control panel. *Note:* Used to manually enter addresses and data into main storage and to manually intervene in program execution. (C) 610.10-1994w

switchroom (telephone switching systems) That part of a building that houses an assemblage of switching equipment. (COM) 312-1977w

switch signal A low two-indication horizontal color light signal with electric lamps for indicating position of switch or derail. (EEC/PE) [119]

switch sleeve A component of the linkage between the centrifugal mechanism and the starting-switch assembly. *See also:* starting-switch assembly. (EEC/PE) [119]

switch starting *See:* preheat-starting.

switch stick A device with an insulated handle and a hook or other means for performing stick operation of a switching device. *Synonym:* switch hook. (SWG/PE) C37.100-1992

switch train A series of switches in tandem. (EEC/PE) [119]

switch-type function generator A function generator using a multitap switch rotated in accordance with the input and having its taps connected to suitable voltage sources. *See also:* electronic analog computer. (C) 165-1977w

swivel link (conductor stringing equipment) A swivel device designed to connect pulling lines and conductors together in series or connect one pulling line to the drawbar of a pulling vehicle. The device will spin and help relieve the torsional forces which build up in the line or conductor under tension. (T&D/PE) 524-1992r

SWR *See:* residual standing-wave ratio; standing-wave-ratio indicator.

syllabic companding (modulation systems) Companding in which the gain variations occur at a rate comparable to the syllabic rate of speech; but do not respond to individual cycles of the audio-frequency signal wave. (IT) [7]

syllable articulation (percent syllable articulation) The percent articulation obtained when the speech units considered are syllables (usually meaningless and usually of the consonant-vowel-consonant type). *See also:* volume equivalent; articulation (percent articulation) and intelligibility (percent intelligibility). (EEC/PE) [119]

syllable hyphen *See:* discretionary hyphen.

symbol (1) A representation of something by reason of relationship, association, or convention. *See also:* logic symbol. (C) [20], [85]

(2) (**packaging machinery**) A sign, mark, or drawing agreed upon to represent an electrical device of component part thereof. (IA/PKG) 333-1980w

(3) (**computer graphics**) A conventional representation of an object, composed of one or more display elements that is expressed as a unit. (C) 610.6-1991w

(4) A 16 bit unit of data accompanied by flag information. The flag information may be explicitly present as a 17th bit, or implied by the context. Symbols are transmitted one after another to form SCI packets or idles. The particular physical layer used to transmit these symbols is not visible to the logical layer. (C/MM) 1596-1992

(5) Refers to data within an SCI packet. A 16-bit unit of data accompanied by flag information. The flag information may be explicitly present as a 17th bit, or implied by the context. Symbols are transmitted one after another to form SCI packets or idles. The particular physical layer used to transmit these symbols is not visible to the logical layer. (C/MM) 1596.3-1996

(6) A 10-bit, 8B/10B encoded byte. (C/BA) 1393-1999

(7) Two signal elements. Four symbols are defined: data_zero, data_one, non-data_I, and non-data_K. (C/LM) 8802-5-1998

(8) The smallest unit of data transmission on the medium. Symbols are unique to the coding system employed. 100BASE-T4 uses ternary symbols; 10BASE-T and 100BASE-X use binary symbols or code bits; 100BASE-T2 uses quinary symbols. (C/LM) 802.3-1998

(9) The radio-frequency (RF) energy and/or the RF current advisory symbols. (NIR/SCC28) C95.2-1999

(10) (**data management**) *See also:* code. (C) 610.5-1990w

symbol for a quantity (abbreviation) (quantity symbol) A letter (which may have letters or numbers, or both, as subscripts or superscripts, or both), used to represent a physical quantity or a relationship between quantities. *Compare with:* abbreviation; functional designation; mathematical symbol; reference designation; symbol for a unit. *See also:* abbreviation. (GSD) 267-1966

symbol for a unit (unit symbol) (abbreviation) A letter, a character, or combinations thereof, that may be used in place of the name of the unit. With few exceptions, the letter is taken from the name of the unit. *Compare with:* abbreviation; mathematical symbol; symbol for a quantity. *See also:* abbreviation. (GSD) 267-1966

symbolic address (1) (computers) An address expressed in symbols convenient to the programmer. (C) [20], [85]

(2) (**software**) An address expressed as a name or label that must be translated to the absolute address of the device or storage location to be accessed. *Contrast:* absolute address. (C) 610.12-1990

(3) An address, expressed in symbols convenient to the computer programmer, that will be translated to an absolute or virtual address before it can be interpreted by the computer. (C) 610.10-1994w

symbolic addressing An addressing mode in which the address field of an instruction contains a symbolic address. (C) 610.10-1994w

symbolic coding (computers) Coding that uses machine instructions with symbolic addresses. (C) [20], [85]

symbolic execution (software) A software analysis technique in which program execution is simulated using symbols, such as variable names, rather than actual values for input data, and program outputs are expressed as logical or mathematical expressions involving these symbols. (C) 610.12-1990

symbolic image A digital image in which the value associated with each pixel is a symbol, rather than a gray level. (C) 610.4-1990w