

IEEE Std 100-1996

The IEEE Standard Dictionary of Electrical and Electronics Terms

Sixth Edition



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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 compilation 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 categorized by the standard or publications in which they currently appear. In some cases, terms from withdrawn standards are included to give current readers an idea of how earlier editions of IEEE Std 100 related to the terms defined in later IEEE standards, such as technical journals. Some terms have been added to the book.

The IEEE Standard Dictionary of Electrical and Electronics Terms

Sixth Edition

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. These definitions have been combined wherever it has been possible to do so by making only minor changes. Where they have been left as written in the original standard.

Users of IEEE Std 100 occasionally comment on the arbitrary inclusion of a particular term or term only used in an obscure standard. IEEE Std 100 is a dictionary of terms and definitions, not a glossary of terms only. Those defined in the existing or past editions of IEEE Std 100 are included. Working groups often collaborate to create a glossary of terms. These glossaries have been incorporated into this edition of IEEE Std 100, which is the most current glossary of terms for computers and power engineering.

Standards Coordinating Committee 10, Terms and Definitions
Jane Radatz, Chair

IEEE working groups are encouraged to refer to IEEE Std 100. 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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- tral component in a machine-aided translation system. *See also*: automated dictionary; automated glossary. (C) 610.2-1987
- automated office** *See*: electronic office.
- automated teller machine (ATM)** An unattended terminal-type device that offers simple banking services such as cash withdrawals, transfer of funds between accounts, and account balance inquiry. *Synonym*: customer-bank communication terminal. (C) 610.2-1987
- automated test case generator** *See*: automated test generator.
- automated test data generator** *See*: automated test generator.
- automated test generator (software)** A software tool that accepts as input a computer program and test criteria, generates test input data that meet these criteria, and, sometimes, determines the expected results. *See also*: computer program; data. (C/SE) 729-1983s
- automated thesaurus** In machine-aided translation, a computer-resident thesaurus used in conjunction with an automated lexicon to handle words with multiple meanings. (C) 610.2-1987
- automated verification system (A) (software)** A software tool that accepts as input a computer program and a representation of its specification, and produces, possibly with human help, a proof or disproof of the correctness of the program. (B) (software) Any software tool that automates part or all of the verification process. (C) 610.12-1990
- automated verification tools (software)** A class of software tools used to evaluate products of the software development process. These tools aid in the verification of such characteristics as correctness, completeness, consistency, traceability, testability, and adherence to standards. Examples are design analyzers, automated verification systems, static analyzers, dynamic analyzers, and standards enforcers. *See also*: automated verification system; correctness; design analyzer; dynamic analyzer; software development process; static analyzer; testability; tool; verification. (C/SE) 729-1983s
- automatic (1)** Pertaining to a function, operation, process, or device that, under specified conditions, functions without intervention by a human operator. (C/PE/SUB) 610.10-1994, 610.2-1987, C37.1-1987s
- (2) Self-acting, operating by its own mechanism when actuated by some impersonal influence—as, for example, a change in current strength; not manual; without personal intervention. Remote control that requires personal intervention is not automatic, but manual. (NEC/T&D) C2-1997, C2.2-1960
- (3) Self-acting, operating by its own mechanism when actuated by some impersonal influence, as, for example, a change in current strength, pressure, temperature, or mechanical configuration. *See also*: nonautomatic. (IA/NEC/NESC) [60], [86]
- (4) Pertaining to a process or device that, under specified conditions, functions without intervention by a human operator. (PE/SWG) C37.100-1992
- automatic abstracting** In library automation, the automatic selection of words and phrases from a document to produce an abstract. (C) 610.2-1987
- automatic acceleration (1) (automatic train control)** Acceleration under the control of devices that function automatically to maintain, within relatively close predetermined values or schedules, current passing to the traction motors, the tractive force developed by them, the rate of vehicle acceleration, or similar factors affecting acceleration. *See also*: electric drive; multiple-unit control. (EEC/PE) [119]
- (2) Acceleration under the control of devices that function automatically to raise the motor speed. *See also*: electric drive; multiple-unit control. (IA) [60]
- Automatically Programmed Tools (APT) (1)** A problem-oriented programming language used for programming numerically controlled machine tools. (C) 610.13-1993
- (2) A programming system using English-like symbolic descriptions of part and tool geometry and tool motion for numerical control. (C) 610.2-1987
- automatically regulated (rotating machinery)** Applied to a machine that can regulate its own characteristics when associated with other apparatus in a suitable closed-loop circuit. (PE) [9]
- automatically reset relay** *See*: self-reset relay.
- automatic approach control** A system that integrates signals, received by localizer and glide path receivers, into the automatic pilot system, and guides the airplane down the localizer and glide path beam intersection. (EEC/PE) [119]
- automatic bias nulling** A circuit or system technique for setting the mean value of sensor output, averaged over a defined time period, to zero, or to some defined value. (AE) 528-1994
- automatic block signal system** A series of consecutive blocks governed by block signals, cab signals, or both, operated by electric, pneumatic, or other agency actuated by a train or by certain conditions affecting the use of a block. *See also*: block-signal system. (EEC/PE) [119]
- automatic cab signal system** A system that provides for the automatic operation of cab signals. *See also*: automatic train control. (EEC/PE) [119]
- automatic calendar** A component of some office automation systems that allows users to store their appointments in a database and to set up meetings by requesting a search for an available meeting time in each of the participants' calendars. (C) 610.2-1987
- automatic call distribution** A service that evenly distributes calls among incoming end user lines. (AMR) 1390-1995
- automatic call distributor (telephone switching systems)** The facility for allotting incoming traffic to idle operators or attendants. (COM) 312-1977w
- automatic capacitor control equipment** A piece of equipment that provides automatic control for functions related to capacitors, such as their connection to and disconnection from a circuit in response to predetermined conditions such as voltage, load, or time. (PE/SWG) C37.100-1992
- automatic carriage (1)** A control mechanism for a typewriter or other output device that can automatically control the feeding, spacing, skipping and ejecting of paper and preprinted forms. (C) [20], 610.10-1994
- (2) Pertaining to a function, operation, process, or device that, under specified conditions, functions without intervention by a human operator. (C) 610.10-1994
- automatic chart-line follower (navigation aid terms)** A device that automatically derives error signals proportional to the deviation of the position of a vehicle from a predetermined course line drawn on a chart. (AE) 172-1983w
- automatic check** A check that is built into a device in order to verify the accuracy of information transmitted, manipulated, or stored by that device. *Synonyms*: built-in check; hardware check. (C) 610.10-1994, 610.5-1990
- automatic circuit closer (supervisory control, data acquisition, and automatic control)** A self-controlled device for automatically interrupting and reclosing an alternating-current circuit, with a predetermined sequence of opening and reclosing followed by resetting, hold-closed, or lockout operation. (PE/SUB) C37.1-1987s
- automatic circuit recloser** A self-controlled device for automatically interrupting and reclosing an alternating-current circuit, with a predetermined sequence of opening and reclosing followed by resetting, hold-closed, or lockout operation. *Note*: When applicable, it includes an assembly of control elements required to detect overcurrents and control the recloser operation. (PE/SWG/SUB) C37.1-1987s, C37.100-1992
- automatic combustion control** A method of combustion control that is effected automatically by mechanical or electric devices. (PE/T&D) [10]

portion of the functions of the fuse. *Note:* The time-current characteristics of a fuse are usually shown as a curve.

(PE/SWG) C37.100-1992, C37.40-1993

fuse time-current tests Tests that consist of the application of current to determine the relation between the root-mean-square (rms) alternating current or direct current and the time for the fuse to perform the whole or some specified part of its interrupting function.

(PE/SWG) C37.100-1992, C37.40-1981s

fuse tongs Tongs provided with an insulating handle and jaws. Fuse tongs are used to insert the fuseholder or fuse unit into the fuse support or to remove it from the support.

(PE/SWG) C37.100-1992, C37.40-1981s

fuse tube (1) (high-voltage switchgear) A tube of insulating material that encloses the conducting element.

(PE/SWG) C37.40-1993

(2) A tube of insulating material that surrounds the current-responsive element, the conducting element, or the fuse link.

(PE/SWG) C37.100-1992

fuse unit An assembly comprising a conducting element mounted in a fuseholder with parts and materials in the fuseholder essential to the operation of the fuse.

(PE/SWG) C37.100-1992, C37.40-1993

fusible element (of a fuse) That part, having predetermined current-responsive melting characteristics, which may be all or part of the current-responsive element.

(PE/SWG) C37.100-1992, C37.40-1993

fusible enclosed (safety) switch A switch complete with fuse holders and either with or without meter-testing equipment or accommodation for meters, having all current-carrying parts completely enclosed in metal, and operable without opening the enclosure. *See also:* switch. (IA) [60]

fusible link A programmable integrated circuit in which circuits form bit patterns by being "blasted" open (that is, by use of a heavy destructive current) or by being left closed. *Note:* This "blasting" is also called "burning" a PROM.

(C) 610.10-1994

fusion (power operations) The formation of a heavier nucleus from two lighter ones with the attendant release of energy.

(PE/T&D) 346-1973w, 858-1987s

fusion frequency (television) Frequency of succession of retinal images above which their differences of luminosity or color are no longer perceptible. *Note:* The fusion frequency is a function of the decay characteristic of the display.

(BT) 201-1979w

fusion splice (fiber optics) A splice accomplished by the application of localized heat sufficient to fuse or melt the ends

of two lengths of optical fiber, forming a continuous, single fiber.

(Std100) 812-1984w

Futurebus+ (1) Refers to IEEE Std 896.1-1991 and IEEE Std 896.2-1991 which refine the earlier IEEE Std 896.1-1987. Those standards are intended for use with (or as an upgrade path from) MULTIBUSII (IEEE Std 1296-1987) systems, VME (IEEE Std 1014-1987) systems, and U.S. Navy next-generation hardware systems. They support cache-coherent multiprocessing with physical buses on the backplane. SCI may be used to interconnect Futurebus+ systems, since they share the same coherence line size and CSR Architecture.

(C/MM) 1596-1992

(2) A name that refers to IEEE 896.1-1991 and companion 896 series standards. Futurebus+ defines a physically bussed backplane bus standard, which supports 32-bit and 64-bit physical addresses. IEEE Std 896.3-1993 discusses bridge and other architectural considerations.

(C/MM) 1212-1991s, 1212.1-1993

(3) Refers to IEEE Std 896.1-1991 and IEEE Std 896.2-1991. Futurebus+ supports cache-coherent multiprocessing with physical buses on the backplane. SCI may be used to interconnect Futurebus+ systems, since they share the same coherence line size and CSR Architecture.

(C/MM) 1596.5-1993

Futurebus+ 1 (FB+ 1) Primary Futurebus+.

(BA/C) 14536-1995

Futurebus+ 2 (FB+ 2) Primary Futurebus+ 2.

(BA/C) 14536-1995

future point (for supervisory control or indication or telemeter selection) Provision for the future installation of equipment required for a point. *Note:* A future point may be provided with space only; drilling, or other mounting provisions only; or drilling, or other mounting provisions, and wiring only.

(PE/SWG) C37.100-1992

FW *See:* forward wave.

FWFM *See:* full width at fiftieth maximum.

FWHM *See:* full width at half maximum; spectral width, full-width half maximum.

FW.1M *See:* full width at one-tenth maximum.

FWTM *See:* full width at tenth maximum.

FW.02M (germanium gamma-ray detectors) Same as FWHM (full width at half maximum) except that the width measurement is made at one fiftieth the maximum ordinate rather than at one half.

(NPS) 325-1986s

FX *See:* foreign exchange.

G

g Acceleration due to gravity; approximately 9.80 m/s^2 (32.2 ft/s^2). (BA/C) 1101.7-1995

G See: giga; armature to field transfer function.

GA See: geographical address.

GAC See: geographical address control.

gaff Tool used to handle and roll poles. *Synonym:* gaff hook. (PE/T&D) 751-1990

gaff hook See: gaff.

gain (1) (waveguide) The power increase in a transmission path in the mode or form under consideration. It is usually expressed as a positive ratio, in decibels. (MTT) 146-1980w

(2) (A) (wood structures used in power transmission and distribution) A flat surface cut into the side of a pole to facilitate connections. **(B) (wood structures used in power transmission and distribution)** A connection device to accomplish the same purpose without cutting the pole. (PE/T&D) 751-1990

(3) (in a given direction) The ratio of the radiation intensity, in a given direction, to the radiation intensity that would be obtained if the power accepted by the antenna were radiated isotropically. *Notes:* 1. Gain does not include losses arising from impedance and polarization mismatches. 2. The radiation intensity corresponding to the isotropically radiated power is equal to the power accepted by the antenna divided by 4π . 3. If an antenna is without dissipative loss, then in any given direction, its gain is equal to its directivity. 4. If the direction is not specified, the direction of maximum radiation intensity is implied. 5. The term **absolute gain** is used in those instances where added emphasis is required to distinguish gain from relative gain; for example, absolute gain measurements. *Synonym:* absolute gain. (AP) 145-1993

(4) In a circuit or device, the ratio between the input and output signals. (C) 610.10-1994

(5) See also: gain, partial; realized gain. (AP) 145-1993

gain and offset (A) (independently based). Gain and offset are the values by which the input values are multiplied and then to which the input values are added, respectively, to minimize the mean squared deviation from the output values. **(B)** (terminal-based). Gain and offset are the values by which the input values are multiplied and then to which the input values are added, respectively, to cause the deviations from the output values to be zero at the terminal points, that is, at the first and last codes. (IM) 1057-1994

gain-crossover frequency (hydraulic turbines) The frequency at which the gain becomes unity and its decibel value zero. (PE) 125-1975s

gain hit or change A sudden increase or decrease in amplitude, usually not exceeding 12 dB of the received signal. Gain hits last at least 4 ms but may continue for hours. (Example: Modems that use amplitude modulation carry the information by the level of the signal, and a gain hit may look like data to these modems.) *Contrast:* impulse noise. (PE) 1143-1994

gain integrator (1) (analog computer) For each input, the ratio of the input to the corresponding time rate of change of the output. For fixed input resistors, the "time constant" is determined by the integrating feedback capacitor. (C) 165-1977w

(2) In an analog computer, a device which provides the ratio of the input to the corresponding time rate of change of the output, for each input. (C) 610.10-1994

gain/loss The logarithmic ratio (expressed in decibels) of output power to input power. (COM) 1007-1991

gain margin (hydraulic turbines) The reciprocal of the gain at the frequency at which the open-loop phase angle reaches 180 degrees. (PE) 125-1975s

gain medium (laser gyro) A medium that, when energized, provides amplification of coherent light waves to maintain lasing within a closed optical path. (AE) 528-1994

gain, partial (of an antenna for a given polarization) In a given direction, that part of the radiation intensity corresponding to a given polarization divided by the radiation intensity that would be obtained if the power accepted by the antenna were radiated isotropically. *Note:* The (total) gain of an antenna, in a specified direction, is the sum of the partial gains for any two orthogonal polarizations. (AP) 145-1993

gain, photomultiplier tube The ratio of the signal output current to the photoelectric signal current from the photocathode. (NI) N42.15-1990

gain stability The ability of a device to maintain its gain within specified limits, under specified environmental and power variations. (COM) 1007-1991

gain time control See: sensitivity time control.

gain, transmission See: transmission gain.

galactic radio waves (radio-wave propagation) Radio waves originating in our galaxy. (AP) 211-1990

gallon One U.S. gallon equals 3.785 liters. (PE/SUB) 980-1994

galloping The sudden surging and stopping action of cables during high-tension pulls when excessive stretching occurs in the pull rope. (PE) 1185-1994

gal/min Gallons per minute. (PE/T&D) 957-1987s

gal/s Gallons per second. (PE/T&D) 957-1987s

galvanic action Noise currents due to the junction or thermal potentials resulting from a combination of different metals. This current can be a part of the disturbing current passing through the conductors or shield of the signal cable. (PE) 1143-1994

game A physical or mental competition in which the participants, called players, seek to achieve some objective within a given set of rules. *See also:* game theory. (C) 610.3-1989

game theory (A) The study of situations involving competing interests, modeled in terms of the strategies, probabilities, actions, gains, and losses of opposing players in a game. *See also:* management game; war game. **(B)** The study of games to determine the probability of winning given various strategies. *See also:* management game; war game. (C) 610.3-1989

gaming simulation See: simulation game.

gamma (television) The exponent of that power law that is used to approximate the curve of output magnitude versus input magnitude over the region of interest. (BT) 201-1979w

gamma correction (television) The insertion of a nonlinear output-input characteristic for the purpose of changing the system transfer characteristic. (BT) 201-1979w

gamma key The connector keying pin located at the center of the module connector, next to the guide pin. (BA/C) 1101.3-1993

gamma-ray branching ratio For a given excited state, the ratio of the emission rate of a particular gamma ray to the total transition rate from the level (not to be confused with emission probability per decay). (NI) N42.14-1991

gamma-ray emission rate The rate at which a gamma ray of a given energy from the decay of a particular radionuclide is emitted from a given source. The gamma-ray emission rate is the activity times the gamma-ray emission probability. (NI) N42.14-1991

gamma-ray resolution (1) (germanium detectors) The measured full width at half maximum (FWHM), after background subtraction, of a gamma-ray peak distribution, expressed in units of energy. (PE) 485-1983

GAMMA 2

(2) (sodium maximum gamma-ray energy)

GAMMA 3 trices and gramming

gang punch card of a c

gap See: file

gap character for technic

gap discharge gapless Not p arrester."

gap loss (fiber) between axi guide coupl loss." See a

gap width The measured al

garage A build self-propelle fuel power a hibition, or d building whi such in whic rated therefo

garbage Unwar

garbage collect ization techni **(B) (data mai** in which the by physically deleted logica

(2) (software) for memory co

gas-accumulator lates all or a fi equipment and accumulated.

gas admixture waveguide cor separate consti in gas tubes.

gas-barrier insul signed to preve to another.

(2) A spacer ins of gas from one (PE/S

gas cleanup (nonl components) T ecules to be abs charge.

gas density, mini which the gas-i certified to meet (PE/

gas density, nomi ating gas density (PE/S

gas density, norm ating gas density

(2) **(sodium iodide detector)** The measured full width at half maximum (FWHM), after background subtraction, of a gamma-ray peak distribution, expressed as a percentage of the energy corresponding to the centroid of the distribution. (NI) N42.12-1980s

GAMMA 3 A programming language used for generating matrices and reports in conjunction with a mathematical programming system. (C) 610.13-1993

gang punch To punch identical hole patterns into each punch card of a card deck. (C) 610.10-1994

gap See: file gap; head gap; interblock gap; interrecord gap.

gap character A character that is included in a computer word for technical reasons but that does not represent data. (C) 610.5-1990

gap discharge See: microspark.

gapless Not possessing gaps, series, or parallel as in "gapless arrester." (PE/PSPD) C62.11-1993

gap loss (fiber optics) That optical power loss caused by a space between axially aligned fibers. *Note:* For waveguide-to-waveguide coupling, it is commonly called "longitudinal offset loss." See also: coupling loss. (Std100) 812-1984w

gap width The dimension of the air gap in a read/write head, measured along the radius of the disk. (C) 610.10-1994

garage A building or portion of a building in which one or more self-propelled vehicles carrying volatile flammable liquid for fuel power are kept for use, sale, storage, rental, repair, exhibition, or demonstrating purposes, and all that portion of a building which is on or below the floor or floors in which such in which such vehicles are kept and which is not separated therefrom by suitable cutoffs. (NEC/NESC) [86]

garbage Unwanted or meaningless data. (C) 610.5-1990

garbage collection (1) (A) (data management) A space optimization technique in which superfluous data are eliminated. (B) **(data management)** A database reorganization technique in which the contents of a database are made more compact by physically deleting garbage such as records that have been deleted logically but remain physically in the database. (C) 610.5-1990

(2) **(software)** In computer resource management, a synonym for memory compaction. *Synonym:* memory compaction. (C) 610.12-1990

gas-accumulator relay A relay so constructed that it accumulates all or a fixed proportion of gas released by the protected equipment and operates by measuring the volume of gas so accumulated. (PE/SWG) C37.100-1992

gas admixture ratio (nonlinear, active, and nonreciprocal waveguide components) The ratio of partial pressures of the separate constituent gases of the total gas composition used in gas tubes. (MTT) 457-1982w

gas-barrier insulator (1) An insulating support specifically designed to prevent passage of gas from one gas compartment to another. (PE/SUB) C37.122-1993, C37.122.1-1993

(2) A spacer insulator specifically designed to prevent passage of gas from one gas compartment to another. (PE/SWG/SUB) C37.100-1992, C37.122.1-1993

gas cleanup (nonlinear, active, and nonreciprocal waveguide components) The phenomenon that causes gas atoms or molecules to be absorbed into a solid medium during a gas discharge. (MTT) 457-1982w

gas density, minimum The minimum operating gas density at which the gas-insulated substation and its components are certified to meet their assigned electrical ratings. (PE/SWG/SUB) C37.100-1992, C37.122-1993, C37.122.1-1993

gas density, nominal The manufacturer's recommended operating gas density (usually expressed as pressure at 20 °C). (PE/SWG/SUB) C37.100-1992, C37.122-1983s, C37.122.1-1993

gas density, normal The manufacturer's recommended operating gas density (usually expressed as a pressure at 20° C). (PE/SUB) C37.122-1993

gas-discharge display device See: plasma display device.

gaseous discharge (illuminating engineering) The emission of light from gas atoms excited by an electric current. (EEC/IE) [126]

gas fill (nonlinear, active, and nonreciprocal waveguide components) The process by which a plasma limiter or gas tube is evacuated and an admixture of gases is inserted. (MTT) 457-1982w

gas filled joint (power cable joints) Joints in which the fluid filling the joint housing is in the form of a gas. (PE) 404-1986s

gas-filled protector A discharge gap between two or more electrodes hermetically sealed in a ceramic or glass envelope. (PE) 487-1992

gas-filled transformer (power and distribution transformers) A sealed transformer, except that the windings are immersed in a dry gas which is other than air or nitrogen. (PE) C57.12.80-1978r

gas-flow counter tube A radiation-counter tube in which an appropriate atmosphere is maintained by a flow of gas through the tube. (ED) [45]

gas flow error (laser gyro) The error resulting from the flow of gas in dc discharge tubes. (AE) 528-1994

gas focusing (electron-beam tubes) A method of concentrating an electron beam by gas ionization within the beam. See also: gas tube. (ED) [45]

gas grooves (electrometallurgy) The hills and valleys in metallic deposits caused by streams of hydrogen or other gas rising continuously along the surface of the deposit while it is forming. See also: electrowinning. (EEC/PE) [119]

gas-insulated substation (GIS) A compact, multicomponent assembly, enclosed in a grounded metallic housing in which the primary insulating medium is a compressed gas and that normally consists of buses, switch-gear, and associated equipment (subassemblies). (PE/SWG/SUB) C37.100-1992, C37.122-1993, C37.122.1-1993

gas-insulated-substation (GIS) surge arrester A surge arrester specifically designed for use in a gas-insulated substation. (PE/SWG/SUB) C37.100-1992, C37.122-1983s

gas-insulated surge arrester A metal-enclosed surge arrester specifically designed for use in a gas-insulated substation. (PE/SUB) C37.122-1993, C37.122.1-1993

gasket-sealed relay A relay in an enclosure sealed with a gasket. See also: relay. (EEC) [87]

gasket, waveguide (waveguide components) A resilient insert usually between flanges intended to serve one or more of the following primary purposes:

- To reduce gas leakage affecting internal waveguide pressure,
- To prevent intrusion of foreign material into the waveguide, or
- To reduce power leakage and arcing.

(MTT) 147-1979w

gas leakage (1) Loss of insulating gas from the pressurized compartment. (PE/SUB) C37.122-1993, C37.122.1-1993

(2) Loss of insulating gas from the pressurized system. (PE/SWG) C37.100-1992

gas multiplication factor (radiation counter tubes) The ratio of the charge collected from the sensitive volume to the charge produced in this volume by the initial ionizing event. (NPS) 309-1970r

gas-oil sealed system (power and distribution transformers) A system in which the interior of the tank is sealed from the atmosphere, over the temperature range specified, by means of an auxiliary tank or tanks to form a gas-oil seal operating on the manometer principle. (PE) C57.12.80-1978r

gasoline dispensing and service station A location where gasoline or other volatile flammable liquids or liquified flammable gases are transferred to the fuel tanks (including aux-

interconnected active and passive semiconductor devices diffused into a single silicon chip. *Synonyms:* chip; microcircuit. *See also:* monolithic integrated circuit; very-high-speed integrated circuit. (C) 610.10-1994

Integrated Civil Engineering System (ICES) A general-purpose software system including several programming languages, such as COGO and STRUDL, and subsystems that are designed for use in civil engineering and engineering management. (C) 610.13-1993

integrated data dictionary A data dictionary that is functionally involved in data accesses, performing required checks for value limits and data types and disallowing illegal modifications to data elements within the system that is described. (C) 610.5-1990

integrated database A repository for storing all information pertinent to the systems engineering process to include all data, schema, models, tools, technical management decisions, process analysis information, requirement changes, process and product metrics, and trade-offs. (C/SE) 1220-1994

integrated data processing (IDP) The use of computers to coordinate a number of processes and improve overall efficiency by reducing or eliminating redundant data entry or processing operations. (C) 610.2-1987

integrated demand The demand integrated over a specified period divided by that period. (PE) 858-1993

integrated-demand meter (block-interval demand meter) A meter that indicates or records the demand obtained through integration. *See also:* demand meter; electricity meter. (ELM) C12.1-1982s

integrated device electronics A data-transfer interface in which the control electronics for the disk drive are physically located on the drive itself rather than on an expansion board or drive adapter. *Synonym:* integrated drive electronics. (C) 610.10-1994

integrated diagnostics A process that covers the entire spectrum of diagnostic activities in all phases of weapon system acquisition. (ATL) 1226-1993

integrated drive electronics *See:* integrated device electronics.

integrated electronics The portion of electronic art and technology in which the interdependence of material, device, circuit, and system-design consideration is especially significant; more specifically, that portion of the art dealing with integrated circuits. *See also:* integrated circuit. (ED) [46]. 274-1966w

integrated energy curve (power operations) A curve of demand versus energy showing the amount of energy represented under a load curve, or a load duration curve, above any point of demand. (PE) 858-1987s

integrated heating system A complete system consisting of components such as pipelines, vessels, heating elements, heat transfer medium, thermal insulation, moisture barrier, non-heating leads, temperature controller, safety signs, junction boxes, conduit and fittings. (NEC/NESC) [86]

integrated injection logic A family of circuit logic in which the logic state is defined by current flow rather than by voltage level. (C) 610.10-1994

integrated mica *See:* mica paper.

integrated microprocessor One or more large scale integration devices so interconnected as to provide all of the functions of a central processing unit within a single LSI circuit. *Note:* This use of the term is deprecated typically "microprocessor" is used. *See also:* diagonally integrated microprocessor; horizontally integrated microprocessor; vertically integrated microprocessor. (C) 610.10-1994

integrated-numbering plan (telephone switching systems) In the world-numbering plan, arrangements for identifying telephone stations within a geographical area identified by a world-zone number which is also used as a country code. *See also:* world-zone number. (COM) 312-1977w

integrated numbering-plan area (telephone switching systems) A geographical area of the world that is identified by

a world-zone number which is also used as a country code. *See also:* world-zone number. (COM) 312-1977w

integrated optical circuit (IOC) (fiber optics) An optical circuit, either monolithic or hybrid, composed of active and passive components, used for coupling between optoelectronic devices and providing signal processing functions. (Std100) 812-1984w

integrated plow (cable plowing) (static or vibratory plows) A self-contained or integral plow-prime mover unit. (Std100)

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. (COM/C/LM) 802.9a-1995, 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. (AE) 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) 610.10-1994

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) 610.10-1994

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) 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. (Std100)

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) 1220-1994

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

(4) The combination of multiple signals of a radar to enhance detectability, reduce measurement errors, improve angular resolution, or improve performance in some other way. (AE) 686-1990w

integration loss The loss incurred by integrating a signal non-coherently instead of coherently. (AE) 686-1990w