

WILEY ELECTRICAL AND ELECTRONICS ENGINEERING DICTIONARY

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charge-transfer device A semiconductor device, such as a charge-coupled device, in which electric charges are transferred from one location to the next. Its abbreviation is CTD.

charged particle A particle or antiparticle having either a positive charge or a negative charge. Such a charge always has a magnitude of 1. An electron, for instance, has a negative charge, or -1 charge. A proton has a +1 charge, a positron a +1 charge, and so on.

charger A device which serves to charge rechargeable batteries. A rectifier, for instance, may be used for this. Also called **battery charger**.

charging The process of storing electric current in a storage battery, storage cell, or capacitor.

charging current The current that is used for **charging**.

charging rate The rate at which **charging** takes place. May be expressed, for instance, in amperes or microamperes.

chart 1. A visual representation of information, or of relationships between quantities or sets of data. For example, a pie chart. Also called **graph** (1). 2. A sheet of paper, or other appropriate material, ruled and graduated for use by a recording instrument. 3. A map utilized to aid navigation.

chassis 1. The supporting frame upon which a structure is built. 2. A supporting frame upon which electrical components, such as circuit boards or power supplies, are mounted. Such a chassis is usually made of metal and connected to ground.

chassis ground A ground connection made between a component and the chassis it is mounted upon.

chat A real-time written and/or verbal conversation between two or more individuals via a network such as the Internet. Also called **real-time chat**.

chat application Same as **chat program**.

chat bot Same as **chatbot**.

chat program Any program utilized for **chats**, especially over the Internet. An example is an instant messaging program. Also called **chat application**.

chat robot Same as **chatbot**.

chat room 1. A virtual room where **chats** take place. 2. A specific **chat room** (1), such as that dealing with a given topic.

chatbot Abbreviation of **chat robot**. A program that converses with users in settings such as chat rooms or online interactive games. Depending on the specific user, the fact that the other participant in such a chat is a program may go undetected indefinitely. Also spelled **chat bot**. Also called **chatterbot**.

chatter 1. Rapid and repetitive vibrations of an electromechanical device, such as an electric motor. 2. Same as **contact chatter**.

chatterbot Same as **chatbot**.

cheapernet An Ethernet standard using a coaxial cable which is about 0.5 centimeter in diameter, as opposed to **ThickNet** whose cabling is about one centimeter in diameter. Also called **ThinNet**, **ThinWire**, **Thin Ethernet**, or **10Base2**.

Chebyshev filter A filter characterized by minimal passband ripple and a steep cutoff response. Used, for instance, in audio applications. Also spelled **Tschebyscheff filter**.

check 1. The verifying or testing of the accuracy, function, indications, or results of a component, device, instrument, system, or process. 2. A standard utilized for testing and/or verifying a component, device, instrument, system, or process. 3. A sudden stoppage or interruption of an action or process.

check bit A bit which by itself, or as part of a set, is used for error detection. For instance, it may be added to a data

transmission for the purpose of detecting errors in transmission or reception. An example is a parity bit.

check box In a GUI, a box utilized to select or deselect a given choice, the user doing so by clicking the mouse within it. Such a box may be used, for instance, to enable or disable a given feature of an Internet browser. Also spelled **checkbox**.

check character A character which by itself, or as part of a set, is used for error detection. For instance, it may be added to a data transmission for the purpose of detecting errors in transmission or reception.

check digit A numeric digit which is added to a set of digits for error detection. When a given set of digits, such as an account number, is entered into a computer, a check digit is calculated and incorporated into it. When the number is stored, or subsequently accessed, the check digit is recomputed and compared to the original check digit.

check indicator An indicator, such as a light, which informs of the state of a component, device, piece of equipment, or system being monitored. It may notify of a completed process, an error condition, and so on.

check program Same as **checking program**.

check routine Same as **checking routine**.

check sum Same as **checksum**.

checkbox Same as **check box**.

checking program A computer program which detects errors in other programs, in data, or in a system. Such a program may be useful, for example, as a debugger. Also called **check program**.

checking routine A set of computer instructions which detect errors in programs, in data, or in a system. Such a routine may be useful, for example, as a debugger. Also called **check routine**.

checkout One or more tests which are performed to verify the suitability, readiness, or performance of a component, circuit, device, piece of equipment, system, or program.

checkpoint A designated point at which the state of a computer program or system, and its data, are saved to a non-volatile storage medium, such as a tape or a disk, so that if there is an interruption or failure, the program or system can be restarted from this spot.

checkpoint/restart A method of recovering from an interruption or failure of a computer program or system, by reverting to the last **checkpoint**, and restarting from there.

checkpointing The creation of multiple **checkpoints**, to facilitate recovery after any possible interruption or failure of a computer program or system.

checksum Also spelled **check sum**. 1. A value used to determine whether a block of data has been transmitted or written without errors. It is calculated by adding the binary value of each character in the block. After transmission or writing, a new checksum is calculated, and compared to the first. If the two numbers do not match, an error has occurred. A checksum will not detect all errors, nor will it alert to data that was erroneous to begin with. 2. A **checksum** (1) utilized to verify the integrity of files, a piece of code, or programs. Used, for instance for verification that a file has not been infected by a virus.

chemical 1. Pertaining to **chemistry**. 2. Same as **chemical compound**.

chemical bond An attractive force sufficient to unite atoms so that they function as a unit. Also called **bond** (2).

chemical compound A substance comprised of a specific proportion of two or more constituents, each of which is a **chemical element**. There are countless chemical compounds. Also called **chemical** (2), **compound** (2), or **compound** (2) corp.

diagnostic tests 1. Tests utilized to verify that a component, device, piece of equipment, or system is functioning properly. 2. Tests utilized to pinpoint the causes of a given malfunction.

diagnostics Same as **diagnostic routines**.

diagram 1. A graphical representation designed to show the components of a circuit, device, piece of equipment, or system, and the relationship of each component with the others. Examples include block diagrams and phase diagrams. 2. A graphical representation, such as a chart or a graph, showing the relationship between two or more variables. 3. A graphical representation of the electrical elements in a circuit, and the way each is interconnected with each other. Each circuit element is represented by a symbol, while lines represent the wiring. Also called **circuit diagram**, **schematic diagram**, **wiring diagram**, **schematic circuit diagram**, or **wiring schematic**.

dial 1. A face with a graduated scale upon which a pointer or other indicator specifies the level a varying quantity is at. For example, a thermometer dial. Such a dial may also be virtual, such as that displayed on a computer monitor. 2. A face with a graduated scale upon which a pointer or other indicator specifies the level to which a variable control is set. For instance, a radio dial. Such a dial may also be virtual, such as that displayed on some audio receivers. 3. A device on a telephone which generates signals which are utilized to place calls. Also called **telephone dial**. 4. The action of using a **dial** (3) to place a telephone call.

dial-back security In a network accessed by modem, a security measure in which the called server authenticates the user, hangs up, and dials the user back. This helps ensure that the user is accessing the network from an authorized location.

dial cable A cable which moves a pointer along a graduated scale on a **dial** (1), or **dial** (2). For instance, such a cable may be attached to a rotating knob.

dial cord A **dial cable** whose composition is not that of a metal.

dial knob A knob which is turned to change the indicated position of a **dial** (1), **dial** (2), or **dial** (3).

dial lamp Same as **dial light**.

dial light A light utilized to illuminate a **dial** (1), **dial** (2), or **dial** (3). Also called **dial lamp**, or **pilot light** (2).

dial pulse In a rotary telephone, one or more pulses which interrupt a steady direct current, to indicate a dialed digit. For example, to dial a 4, 4 such pulses are sent.

dial pulsing The dialing of telephone number utilizing **dial pulses**. Also called **loop pulsing**.

dial signaling Signaling in which the rotary dial or keypad of a telephone generates pulse trains which are sent to a switching center.

dial telephone A telephone incorporating a dial, as opposed to another dialing mechanism, such as a key pad or one that is voice activated. Also called **dial telephone set**.

dial telephone set Same as **dial telephone**.

dial telephone system A telephone system in which connections between customers are made automatically through dialing.

dial tone A tone heard through a calling device, such as a telephone or modem, indicating that the system is ready for dialing from this line. Also called **dialing tone**.

dial-up Same as **dial-up connection**. Also spelled **dialup**.

dial-up access The use of a **dial-up connection** for communications. Used, for instance, by a computer modem to access a network. Also spelled **dialup access**.

dial-up connection Pertaining to a temporary connection over telephone lines using a public switched network, as opposed to the use of a private network, such as a dedicated circuit.

Ordinary home telephones and dial-up modems use this service. Also spelled **dialup connection**. Also called **dial-up**.

dial-up line A line which enables a **dial-up connection**. Examples include ordinary home lines and ISDN. Also spelled **dialup line**.

dial-up modem A modem through which a **dial-up connection** may be established. Also spelled **dialup modem**.

dial-up network A network, such as the Internet, which is accessed via a **dial-up connection**. Also spelled **dialup network**. Its abbreviation is **DUN**.

dial-up networking The use of a **dial-up network**. Also spelled **dialup networking**.

dial-up service A service, such as that offered by an Internet service provider, which is accessed via a **dial-up connection**. Also spelled **dialup service**.

dialed number identification service A service, offered by telephone companies, which sends and displays the number the calling party has dialed. Serves, for instance, to automatically route incoming calls to specialized representatives within a multifaceted enterprise which utilizes many toll-free numbers. Its abbreviation is **DNIS**.

dialer A device which automatically dials telephone numbers. Such numbers may be manually or automatically programmed into memory, and may be dialed when pressing a short code, or at a pre-programmed time. Also called **automatic dialer**, or **telephone dialer**.

dialing The use of a device, such as a telephone or modem, to dial and establish connections.

dialing tone Same as **dial tone**.

dialog box On a computer display, a box that appears to request input, or to provide information. As soon as the input is given, or the message is acknowledged, pressing "OK" or its equivalent closes the box. Such a box may appear, for instance, to request a username and password, or to inform of an error.

dialup Same as **dial-up**.

dialup access Same as **dial-up access**.

dialup connection Same as **dial-up connection**.

dialup line Same as **dial-up line**.

dialup modem Same as **dial-up modem**.

dialup network Same as **dial-up network**.

dialup networking Same as **dial-up networking**.

dialup service Same as **dial-up service**.

diamagnet A material, such as copper, which is **diamagnetic**.

diamagnetic Pertaining to materials whose relative magnetic permeability is less than unity, with the relative magnetic permeability of a vacuum having an assigned value of 1. Such materials are repelled by a magnet, and as such assume a position at right angles to magnetic lines of force. Examples include copper, silver, and bismuth.

diamagnetic material A material, such as copper, whose relative magnetic permeability is less than unity.

diamagnetism The characteristic of certain materials of having a relative magnetic permeability of less than unity.

diamond An allotropic form of the chemical element carbon, occurring as crystals. It is the hardest substance known, and as such has an assigned value of 10 on the Mohs scale. It is a precious stone, has extremely high thermal conductivity, a high refractive index, and may be transparent, translucent, or colored. Its applications include its use in cutting and grinding tools, optical windows, lasers, and semiconductors.

diamond antenna A wideband directional antenna whose long-wire radiators form the sides of a rhombus, and which is fed at one apex. Such antennas feature high power gain over a wide range of frequencies. Also called **rhombic antenna**.

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munication. Also spelled **e-commerce**. Also called **ebusiness**, **e-business**, or **digital commerce**.

ecommunications Abbreviation of **electronic communications**.

econtent Abbreviation of **electronic content**.

ECP Abbreviation of **Extended Capabilities Port**, or **Enhanced Capabilities Port**.

ECR 1. Abbreviation of **electron cyclotron resonance**. 2. Abbreviation of **electronic cash register**.

ECR ion source Abbreviation of **electron cyclotron resonance ion source**.

ECR plasma Abbreviation of **electron cyclotron resonance plasma**.

ECR source Abbreviation of **electron cyclotron resonance source**.

ecredit Same as **e-credit**.

ECTL Abbreviation of **emitter-coupled transistor logic**.

EDA Abbreviation of **Electronic Design Automation**.

EDAC Abbreviation of **error detection and correction**.

EDC Abbreviation of **error detection and correction**.

EDD Abbreviation of **envelope delay distortion**.

eddy current A circulating current induced in a conductor that is moved through a magnetic field, or which is subjected to a varying magnetic field. Eddy currents are generally undesired, and energy is lost usually in the form of heat. Laminations may be used in magnetic cores to minimize such losses of energy. Also called **Foucault current**.

eddy-current damping Damping provided by **eddy currents** which retard the motion of a moving conductor.

eddy-current heating Heating produced by **eddy currents**. Usually used for materials with high electrical conductivity, such as metals. Eddy-current heating features accuracy, fast heating cycle times, and maximum repeatability, among other benefits. Used, for instance, for soldering, annealing, brazing, metal-to-glass bonding, and shrink fitting. Also called **induction heating**.

eddy-current loss The loss of energy due to **eddy currents**. Such losses are usually in the form of heat. Also called **eddy-current losses**.

eddy-current losses Same as **eddy-current loss**.

EDFA Abbreviation of **erbium-doped fiber amplifier**.

edge 1. The line at which two surfaces or regions intersect, or where an object or area begins or ends. 2. The portion of a pulse waveform which first increases or decreases in amplitude. When increasing, it is a leading edge, and when decreasing it is a trailing edge.

edge connector A set of wide contacts which protrude from a circuit board, and which serve to be inserted into another circuit board. Used, for instance, to plug an expansion board into an expansion slot. Also called **edgeboard connector**, or **card-edge connector**.

edge detection In artificial intelligence, the determining of the borders of an object using a detection system incorporating optical sensors and complex programs. Edge detection is a key component in differentiating between objects and all that surrounds them.

edge detector A device or system utilized for **edge detection**.

edge device A device which serves to convert LAN frames into ATM cells, and vice versa.

edge effect An effect observed near the outer edges of the parallel metal plates of a capacitor, in which there is an outward bulging of the lines of force. This effect must be taken into consideration in order to correctly compute the capacitance. Alternatively, a guard ring may be used to eliminate this effect. Also called **fringing** (1).

edge router A device that routes data packets between LANs and ATM networks. Also called **boundary router**.

edge triggered A device actuated by **edge triggering**.

edge triggering The triggering of a device, such as a flip flop, depending on whether the edge of a clock pulse is rising or falling. For instance, a device can be set to sample data only when the edge of its synchronizing clock pulse is rising, in which case it is positive-edge triggered. If it were to sample data only when the edge of its synchronizing clock pulse is falling, it would then be negative-edge triggered.

edgeboard connector Same as **edge connector**.

edging In a color TV receiver, extraneous colors occurring at the boundaries between zones with different colors, or along the edges of objects. Also called **color edging**, or **fringing** (2).

EDI Abbreviation of **Electronic Data Interchange**. The use of computer networks, like the Internet, to conduct business transactions such as buying, selling, sending confirmations, billing, and collecting. EDI follows certain standards, such as X12 or EDIFACT, for the exchange of this information, simplifying and expediting the various processes.

EDIF Acronym for **electronic design interchange format**.

EDIFACT Abbreviation of **Electronic Data Interchange for Administration Commerce and Transport**. An ISO standard pertaining to **EDI**.

Edison base An internally-threaded lamp base whose diameter is approximately 1 inch. It is commonly used as a base for incandescent bulbs.

Edison battery A storage battery in which the positive electrode is nickel oxide, the negative electrode is iron, and the electrolyte is a solution of approximately 20% potassium hydroxide. Such batteries are rugged, durable, and reliable, but do not recharge very efficiently. Also known as **Edison storage battery**, or **nickel-iron battery**.

Edison cell One of multiple cells comprising an **Edison battery**.

Edison effect The emission of electrons from heated objects, such as a heated electrical conductor. An example is the emission of electrons by a cathode in an electron tube. Also known as **thermionic emission** (1), or **Richardson effect**.

Edison plug A plug, with two flat blades, which serves to be inserted into a power outlet. In various countries it is the standard plug utilized to connect household devices such as lamps and vacuum cleaners.

Edison storage battery Same as **Edison battery**.

edit To make a change, such as a deletion or a rearrangement, in existing data.

edit decision list In a video editor, a file containing a list of edit choices, such as the desired sequence of frames.

edit mode A mode of operation in which a computer program accepts changes in existing data or files.

editor A computer program which creates text files, or modifies existing text files. A word processor is a more powerful editor program with greater flexibility than most editors. Also called **text editor**.

EDL Abbreviation of **edit decision list**.

EDM 1. Abbreviation of **electronic document management**, or **enterprise document management**. 2. Abbreviation of **electrical-discharge machining**, or **electron-discharge machining**.

EDMS Abbreviation of **electronic document management system**, or **enterprise document management system**.

EDO DRAM Abbreviation of **extended data out dynamic random-access memory**, or **extended data output dynamic random-access memory**. A type of DRAM whose speed is enhanced by its capability to access the next block of memory while the data from the previous block is being sent to

ferrite bead A bead made from **ferrite**. Such beads are often made from powdered ferrite which is pressed and sintered. Used, for instance, as an RF choke, or for magnetic storage.

ferrite choke An RF choke consisting of a ferrite bead or core. For example, such a choke may be slipped around a coaxial cable.

ferrite core A magnetic core made from powdered **ferrite**. The particles are mixed with an appropriate binder, and the core is formed through applied pressure. Used, for instance, as an RF choke, or for magnetic storage. Also called **dust core**, or **powdered-iron core**.

ferrite-core memory A form of magnetic memory consisting of a matrix of ferrite cores linked by wires. It is a seldom-used form of non-volatile computer memory.

ferrite isolator A device, consisting of a ferrite rod, which permits electromagnetic energy to pass freely in one direction, while absorbing that arriving from the opposite direction. Used, for instance, in waveguides.

ferrite loopstick Same as **ferrite-rod antenna**.

ferrite phase shifter A device, consisting of a ferrite rod, which is utilized to alter the phase of the signal passing through it. Used, for instance, in waveguides.

ferrite rod A rod made of **ferrite**. Such rods are often made from powdered ferrite which is pressed and sintered.

ferrite-rod antenna A small receiving antenna consisting of a coil wound around a ferrite rod. Such antennas feature high sensitivity at low and medium frequencies, and are used, for instance, in place of a loop antenna in a radio receiver. Also called **ferrite antenna**, **ferrite loopstick**, **ferrod**, **loopstick antenna**.

ferrite switch A device, composed of ferrite, which when activated blocks the energy flowing through a waveguide. It does so by rotating the electric field vector by 90° when energized.

ferrod Same as **ferrite-rod antenna**.

ferroelectric 1. Pertaining to, or producing **ferroelectricity**. 2. Same as **ferroelectric material**.

ferroelectric capacitor A capacitor in which the dielectric exhibits **ferroelectricity**.

ferroelectric crystal A crystal of a **ferroelectric material**.

ferroelectric hysteresis A property of certain ferroelectric materials, in which electric polarization is retained after removal of the electric field. Also called **electric hysteresis**.

ferroelectric material A dielectric material which exhibits **ferroelectricity**. Examples of such materials include barium titanate, and Rochelle salt. Also called **ferroelectric (2)**.

ferroelectric RAM Same as **FRAM**.

ferroelectricity A property of certain dielectric materials, in which electrical polarization occurs spontaneously. That is, the electric dipoles of the material line up spontaneously due to their mutual interaction. When induced by an electric field, the polarization remains until disturbed. It is analogous to the spontaneous magnetic polarization occurring in **ferromagnetism**.

ferrofluid A dense solution in which microscopic or ultramicroscopic magnetic particles are suspended. Used, for instance, in high-frequency speakers for lubrication, damping, and cooling.

ferromagnet A material, such as a ferromagnetic metal or alloy, which exhibits **ferromagnetism**.

ferromagnetic Displaying **ferromagnetism**.

ferromagnetic alloy An alloy which exhibits **ferromagnetism**. Examples include steel, permalloy, and alnico.

ferromagnetic Curie temperature The temperature at which the ferromagnetic properties of a material become paramagnetic. At or above this temperature, the thermal energy in the material is too great to exhibit ferromagnetism. Also

called **Curie temperature**, **Curie point**, or **magnetic transition temperature**.

ferromagnetic domain Within a ferromagnetic material, a region in which the atomic or ionic magnetic moments are aligned in the same direction. Such a domain may be used, for instance, to store a bit as a 1 or a 0 on a magnetic tape or disk. Also called **magnetic domain**, or **domain (2)**.

ferromagnetic material A metal or alloy which exhibits **ferromagnetism**. Examples include metals such as iron, nickel, or cobalt, and alloys such as steel, permalloy, or alnico.

ferromagnetic metal A metal which exhibits **ferromagnetism**. Examples include iron, nickel, and cobalt.

ferromagnetic resonance A resonant condition in which the permeability of a ferromagnetic material reaches a peak value at a given microwave frequency. Used, for instance, to measure magnetic properties via microwave absorption. Its abbreviation is **FMR**.

ferromagnetism A property of certain metals and alloys, in which magnetic polarization occurs spontaneously. That is, the magnetic dipoles of the metal or alloy line up spontaneously due to their mutual interaction. Such materials have a very high relative permeability, which varies with the magnetizing force. Above the Curie temperature, the ferromagnetic properties of a material become paramagnetic. It is analogous to the spontaneous electric polarization occurring in **ferroelectricity**.

ferrosoferric oxide A reddish or bluish-black powder whose chemical formula is Fe_2O_4 . It is used in magnetic-tape coatings, magnetic inks, and in ferrites. Also called **iron oxide**, **iron oxide black**, **black iron oxide**, or **magnetic iron oxide**.

ferrule A mechanical fixture which helps align, hold, or give structural support. For instance, such fixtures at each end of a cartridge fuse, which enable plug-in connection. A ferrule is usually made of metal, ceramic, or plastic.

FET Acronym for **field-effect transistor**. A semiconductor device whose flow of charge carriers, either electrons or holes, is controlled by an external electric field. Such transistors have three electrodes, which are the source, drain, and gate. The external field controls or modulates the gate, which in turn controls the current flowing from the source to the drain. The electrical path between the source and drain is called channel. Field-effect transistors are one of the two main classes of transistors, the other being bipolar junction transistors. Used extensively in computer chips.

FET voltmeter Abbreviation of **field-effect transistor voltmeter**. A voltmeter which incorporates a **FET**, for enhanced sensitivity and accuracy.

FET VOM Abbreviation of **field-effect transistor volt-ohm milliammeter**. A volt-ohm milliammeter which incorporates a **FET**, for enhanced sensitivity and accuracy.

fetch To locate an instruction in computer memory and load it into a CPU register. Once an instruction is fetched, it can then be executed. Also called **instruction fetch**.

fetch cycle The time required for a fetch. This interval is measured in clock cycles.

fetch-execute cycle The sequence of steps required to implement computer instructions. An instruction is fetched, then executed, then the next fetch occurs, and so on.

FEXT Abbreviation of **far-end crosstalk**.

fF Abbreviation of **femtofarad**.

FF 1. Abbreviation of **fast-forward**. 2. Abbreviation of **flip-flop**. 3. Abbreviation of **form feed**.

FFC Same as **flat cable**. Abbreviation of **flat-flexible cable**, or **flat-flexible cable**.

FFT Abbreviation of **fast Fourier transform**.

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magnetic character A character printed with **magnetic ink**.

magnetic character reader A device which scans magnetic characters, and utilizes magnetic character recognition to identify them.

magnetic character recognition The ability of a computer, or other device, to identify scanned magnetic characters, and to convert this information into a digital code suitable for further processing. An example is a magnetic-ink character recognition system utilized to identify bank checks.

magnetic circuit A closed path described by magnetic lines of force. A magnetic circuit is analogous to an electric circuit in that the magnetomotive force corresponds to the electromotive force, reluctance to resistance, and magnetic flux to electric current.

magnetic circuit breaker A circuit breaker which utilizes a magnetic field for opening a circuit under specified conditions. Such devices are especially useful, for instance, for accurate and reliable circuit protection when used over a wide temperature interval, which can be a problem with thermal circuit breakers.

magnetic coercive force The magnetic field which must be applied to a previously magnetized ferromagnetic material, in order to reduce to zero the residual magnetism of said material. Usually expressed in oersteds. Also called **coercive force**.

magnetic coercivity For a given ferromagnetic material, the ease or difficulty in it being magnetized or demagnetized. A material exhibiting low coercivity is easy to magnetize and demagnetize, while a material with high coercivity is hard to magnetize and demagnetize. Also called **coercivity**.

magnetic coil One or more conductors wound in a series of turns, so as to introduce inductance, or to produce a magnetic field in an electric circuit. A magnetic coil may be wound, for example, around a ferromagnetic core. Used, for instance, in transformers, electromagnets, solenoids, motors, loudspeakers, and so on. Also known as **magnet coil**, **coil**, **inductor**, **inductance** (3), **inductance coil**, or **electric coil**.

magnetic compass A magnetic instrument which indicates a horizontal reference direction. Such an instrument usually consists of one or more magnetic needles which freely turn on a pivot and point to magnetic north.

magnetic component In an electromagnetic wave, the magnetic constituent. It is perpendicular to the electric component. Also called **electromagnetic component**.

magnetic conductivity Same as **magnetic permeability**.

magnetic confinement The confinement of a plasma using magnetic fields. A magnetic bottle may be used for this purpose.

magnetic constant A physical constant equal to $4\pi \cdot 10^{-7}$ henry per meter, or approximately 1.256637×10^{-6} henry per meter. This number represents the absolute permeability of free space. The relative permeability of free space is 1. Its symbol is μ_0 . Also called **permeability of free space**.

magnetic contactor A contactor which is actuated via electromagnetic means.

magnetic control The control of a device, piece of equipment, system, or process through the use of electromagnetic components, such as magnetic contactors.

magnetic controller An automatic controller which utilizes magnetic control.

magnetic core 1. A magnetic material, such as iron, around which a magnetic coil is wound. Such a core may be used in a device such as an electromagnet or transformer, and increases the inductance of the coil. Also called **core** (3). 2. Same as **magnetic core memory**.

magnetic core memory A magnetic material, such as iron oxide, used as a bistable element, multiple units of which are configured in an array which may store data. It is a seldom-

used form of non-volatile computer memory. Also called **magnetic core** (2), **core** (4), **core storage** (1), or **core memory** (1).

magnetic coupling Coupling in which magnetic energy is transferred between components or circuits. An example is electromagnetic coupling.

magnetic cycle 1. The variations in the magnetic flux of a material or medium as the strength of an influencing magnetic field varies through a complete cycle. For example, the changes in the magnetization of a body as a magnetizing AC fluctuates. 2. A cyclical variation in which magnetic properties vary in a regular manner. For example, the 22 year solar magnetic cycle.

magnetic damping The use of one or more magnetic fields for damping. An example would be the use of electromagnetic induction to limit overshoot of the pointer of an instrument.

magnetic declination For a given geographic location, the angle representing the difference between magnetic north and true north. Also called **declination**.

magnetic deflection The use of one or more magnetic fields for deflecting particles or objects. An example is electrostatic deflection.

magnetic density For a given material, medium, or region, the magnetic lines of force per unit area of cross-section.

magnetic detector A device which detects magnetic materials. Such a detector can be used in robotics, for example, to locate materials of a specific composition. Also called **magnetic sensor**.

magnetic dip For a given location on the surface of the earth, the angle between the horizontal plane and the direction of the lines of force of the earth's magnetic field. Magnetic dip is 0° at the magnetic equator and 90° at each of the magnetic poles. Also called **magnetic inclination**, **inclination** (2), or **dip** (3).

magnetic dipole Two equal magnetic poles with opposite polarity separated by a very small distance. Two equal magnetic poles with opposite polarity separated by a very small distance. Also called **magnetic doublet**, **dipole** (2), or **doublet** (3).

magnetic dipole moment For a magnet placed in a magnetic field, the maximum torque experienced by the magnet divided by the magnitude of the magnetic field acting on said magnet. May be expressed in joules/tesla. Also called **magnetic dipole moment**, or **dipole moment** (2).

magnetic disc Same as **magnetic disk**.

magnetic disk A digital magnetic storage medium, which is usually in the form of a rotating round plate. Information is encoded by altering the magnetic polarity of minute portions on the surface of such a disk. Magnetic disks may be recorded, erased, and rerecorded many times, and the most common formats are hard disks, floppy disks, and removable hard disks. Also spelled **magnetic disc**. Also called **disk** (1).

magnetic displacement Same as **magnetic flux density**.

magnetic domain Within a ferromagnetic substance, a region in which the atomic or ionic magnetic moments are aligned in the same direction. Such a domain may be used, for instance, to store a bit as a 1 or a 0 on a magnetic tape or disk. Also called **ferromagnetic domain**, or **domain** (2).

magnetic doublet Two equal magnetic poles with opposite polarity separated by a very small distance. Also called **magnetic dipole**, **dipole** (2), or **doublet** (3).

magnetic drum An early type of data-storage device, which consisted of a cylinder coated with a magnetic material, and whose tracks each had their own read/write head. Also called **drum storage**, or **drum** (2).