

SEVENTH EDITION



MODERN  
DICTIONARY  
*of*  
ELECTRONICS

RUDOLF F. GRAF



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DICTIONARY  
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REVISED AND UPDATED

**Rudolf F. Graf**




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character or set of characters. 3. Within a code set, a character intended to initiate, modify, or stop a control function.

**control characteristic**—1. A plot of the load current of a magnetic amplifier as a function of the control ampere turns for various loads and at the rated supply voltage and frequency. 2. The relationship between the critical grid voltage and the anode voltage of a tube.

**control circuit**—See control.

**control circuits**—In a digital computer, the circuits that carry out the instruction in proper sequence, interpret each instruction, and apply the proper commands to the arithmetic element and other circuits in accordance with the interpretation.

**control-circuit transformer**—A voltage transformer utilized to supply a voltage suitable for the operation of control devices.

**control-circuit voltage**—The voltage provided for the operation of shunt-coil magnetic devices.

**control compartment**—A space within the base, frame, or column of a machine used for mounting the control panel.

**control counter**—In a computer, a device that records the storage location of the instruction word to be operated on following the instruction word in current use.

**control current**—Current that occurs in the control circuit when control voltage is applied.

**control data**—In a computer, one or more items of data used to control the identification, selection, execution, or modification of another routine, record file, operation, data value, etc.

**CONTROL DATA or Control Data**—A trademark and service mark of Control Data Corporation in respect to data processing equipment and related services.

**control electrode**—An electrode on which a voltage is impressed to vary the current flowing between other electrodes.

**control field**—In a sequence of similar items of computer information, a constant location where control information is placed.

**control-flow machine**—A parallel-processing architecture with a single central sequence of instruction, carried out by many processors.

**control grid**—The electrode of a vacuum tube, other than a diode, upon which a signal voltage is impressed to regulate the plate current.

**control-grid bias**—The average direct-current voltage between the control grid and cathode of a vacuum tube.

**control-grid plate transconductance**—The ratio of the amplification factor of a vacuum tube to its plate resistance, combining the effect of both into one term.

**controlled avalanche**—A predictable, nondestructive avalanche characteristic designed into a semiconductor device as protection against reverse transients that exceed its ratings.

**controlled-avalanche device**—A semiconductor device that has very specific maximum and minimum avalanche-voltage characteristics and is also able to operate and absorb momentary power surges in this avalanche region indefinitely without damage.

**controlled-avalanche silicon rectifier**—A silicon diode manufactured with characteristics such that when operating, it is not damaged by transient voltage peaks.

**controlled-carrier modulation**—Also called variable-carrier or floating-carrier modulation. A modulation system in which the carrier is amplitude modulated by the signal frequencies, and also in accordance with the

## control characteristic — control section

envelope signal, so that the modulation factor remains constant regardless of the amplitude of the signal.

**controlled-impedance cable**—Package of two or more insulated conductors in which impedance measurements between respective conductors are kept essentially constant throughout the entire length.

**controlled rectifier**—1. A rectifier employing grid-controlled devices such as thyatrons or ignitrons to regulate its own output current. 2. Also called an SCR (silicon-controlled rectifier). A four-layer pnpn semiconductor that functions like a grid-controlled thyatron.

**controller**—1. An instrument that holds a process or condition at a desired level or status as determined by comparison of the actual value with the desired value.

2. A device or group of devices that serves to govern, in some predetermined manner, the electric power delivered to the apparatus to which it is connected. 3. A hardware interface that accepts instructions from a computer and reformats them to program an instrument or peripheral.

**controller function**—Regulation, acceleration, deceleration, starting, stopping, reversing, or protection of devices connected to an electric controller.

**control-line timing**—Clock signals between a modem and a communication-line controller unit.

**control link**—Apparatus for effecting remote control between a control point and a remotely controlled station.

**control locus**—A curve that shows the critical value of grid bias for a thyatron.

**control operator**—An amateur radio operator designated by the licensee of an amateur radio station to also be responsible for the emissions from that station.

**control panel**—A panel having a systematic arrangement of terminals used with removable wires to direct the operation of a computer or punched-card equipment.

**control point**—1. A point that may serve as a reference for all incremental commands. 2. The operating position of an amateur radio station where the control operator's function is performed.

**control-power disconnecting device**—A disconnective device, such as a knife switch, circuit breaker, or pullout fuse block, used for the purpose of connecting and disconnecting the source of control power to and from the control bus or equipment.

**control program**—A computer program that places another program and its environment in core memory in proper sequence and retains them there until it has finished operating.

**control ratio**—1. The ratio of the change in anode voltage to the corresponding change in critical grid voltage of a gas tube, with all other operating conditions maintained constant. 2. Also called programming coefficient. The required range in control resistance of a regulated power supply to produce a 1-volt change in output voltage. Expressed in ohms per volt.

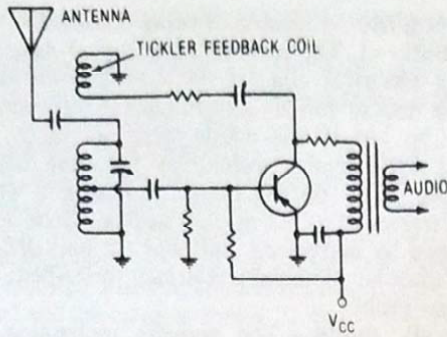
**control read-only memory**—Abbreviated CROM. A major component in the control block of some microprocessors. It is a ROM that has been microprogrammed to decode control logic.

**control rectifier**—A silicon rectifier capable of switching or regulating the flow of a relatively large amount of power through the use of a very small electrical signal. These solid-state devices can take the place of mechanical and vacuum tube switches, relays, rheostats, variable transformers, and other devices used for switching or regulating electric power.

**control register**—Also called instruction register. In a digital computer, the register that stores the current instruction governing the operation of the computer for a cycle.

**control section**—See control unit.





Regenerative detector.

**regenerative receiver**—A receiver in which controlled regeneration is used to increase the amplification provided by the detector stage.

**regenerative repeater**—1. A repeater that regenerates pulses to restore the original shape. Used in teletypewriter and other code circuits; each code element is replaced by a new code element with specified timing, waveform, and magnitude. 2. Normally, a repeater utilized in telegraph applications. Its function is to retimed and retransmit the received signal impulses restored to their original strength. These repeaters are speed and code sensitive and are intended for use with standard telegraph speeds and codes. 3. A circuit that samples incoming signal pulses and retransmits them with perfect timing and no distortion.

**Regional Bell Operating Company (RBOC)**—Also called Bell Operating Companies (BOC). Local telephone operating companies that were split off from AT&T and which provide most local and intrastate telephone service in the United States.

**regional channel**—A standard broadcast channel within which several stations may operate at 5 kilowatts or less. However, interference may limit the primary service area of such stations to a given field-intensity contour.

**regional interconnections**—See interconnection, 1.

**region of limited proportionality**—The range of applied voltage, below the Geiger-Mueller threshold, where the gas amplification depends on the charge liberated by the initial ionizing event.

**register**—1. A short-term, fast-access circuit used to store bits or words in a CPU; its capacity usually is one computer word. Variations may include provisions for shifting, calculating, etc. Registers play a key role in CPU operations. In most applications the efficiency of programs is related to the number of registers. See also static shift register; dynamic shift register. 2. The relative position of all or part of the conductive pattern with respect to a mechanical feature of the board or to another pattern on the obverse side of the printed-circuit board (e.g., pattern-to-hole register or pattern-front-to-pattern-back register). 3. Also called registration. The accurate matching of two or more patterns such as the three images in color television. 4. A range of notes used for playing a particular piece or part of it (e.g., melody or harmony), particularly the range covered by a clavier or manual. 5. In an automatic-switching telephone system, the part of the system that receives and stores the dialing pulses that control the additional operations necessary to establish a telephone connection. 6. A device that can store information, usually that contained in a small subset or word of the total within a digital computer system. 7. Logic elements (gates, flip-flops, shift registers) that

essentially for temporary storage, in that the contents usually change from one instruction cycle to the next. In fact, much of a microprocessor's operation can be learned by studying the registers, which take part in nearly all operations. 8. An electromechanical device that marks a paper tape in response to signal impulses received from transmitting circuits. A register may be driven by a prewound spring mechanism, an electric motor, or a combination of these. 9. One word of memory. Usually implemented in fast flip-flops, directly accessible to a processor. Most MPUs include a set of internal registers, which can be accessed much faster than the main memory. 10. A special section of primary storage in a computer where data is held while it is being worked on.

**register control**—Any device that provides automatic register. In photoelectric register control, a light source and phototube from a scanning head. Whenever a special mark or a part of the design printed on a continuous web of paper arrives at the scanning head, the amount of light reaching the phototube changes. If necessary, the web is then moved slightly to bring it back into register.

**register file**—1. A small area of memory in which several data elements, or registers, can be accessed simultaneously, rather than one by one. 2. A bank of multiple-bit registers that can be used as temporary storage locations for data or instructions (sometimes referred to as a stack).

**register length**—The number of digits, characters, or bits that a computer register can store.

**register mark**—In printed circuits, a mark used to establish the relative position of one or more printed-wiring patterns or portions of patterns with respect to their desired locations on the base.

**register of a meter**—In a meter, the part that registers the revolutions of the rotor, or the number of impulses received from or transmitted to the meter, and gives the answer in units of electric energy or other quantity measured.

**registration**—1. The accuracy of relative position or concentricity of all functional patterns on any mask with the corresponding patterns of any other mask of a given device series of masks when the masks are properly superimposed. 2. The degree of proper alignment of a circuit pattern on the substrate. 3. The degree of accuracy of pattern position with respect to patterns on other layers of double-sided or multilayer boards.

**registration marks**—The marks used for aligning successive processing masks.

**registration of a meter**—The apparent amount of electric energy (or other quantity being measured) that has passed through the meter, as shown by the register reading. It is equal to the register reading times the register constant. During a given period, it is equal to the register constant times the difference between the register readings at the beginning and end of the period.

**registry**—The superposition of one image onto another (e.g., in the formation of an interlaced scanning raster).

**regular**—Pertaining to reflection, refraction, or transmission in a definite direction rather than in a diffused or scattered manner.

**regulated power supply**—A unit that maintains a constant output voltage of current for changes in line voltage, output load, ambient temperature, or time.

**regulating device**—A device that functions to regulate a quantity or quantities such as voltage, current, power, speed, frequency temperature, and load, at a certain value or between certain limits for machines, tie lines, or other apparatus.



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