

SIXTH EDITION

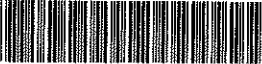
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SIXTH EDITION

NEIL SCLATER
JOHN MARKUS

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apparent power The power value obtained in an AC circuit by multiplying the effective values of voltage and current. The result is expressed in voltamperes and must be multiplied by the power factor to secure the average or true power in watts.

apparent precession The relative angular movement of the spinning axis of a gyroscope in relation to a line on the earth, resulting from the rotation of the earth.

Applegate diagram A diagram that illustrates the behavior of the electrons in a velocity-modulation tube such as a reflex klystron. The distances of electrons from the buncher in the drift space are plotted as vertical coordinates against time on the horizontal axis. Close spacing of these vertical lines indicates bunching of electrons.

Appleton layer *F layer.*

application-specific integrated circuit [ASIC] A class of dedicated semicustom ICs that includes gate arrays, standard cells, and programmable logic devices (PLDs) for specific applications, in contrast with standard ICs that have more universal applications.

APT 1. [Automatically Programmed Tools] A computer language developed primarily for programming numerically controlled machine tools. It is written in convenient Englishlike computer language, using such practical instructions as line, sphere, and tangent. 2. Abbreviation for *automatic picture transmission.*

APT satellite A low earth-orbiting [LEO] satellite with automatic picture-taking capabilities.

AQL Abbreviation for *acceptable quality level.*

A quadrant One of the two quadrants in which the A signal of an A-N radio range is heard.

ARAM An acronym for an *audio dynamic random-access memory.* (It is also called an *audio DRAM.*)

arc *Electric arc.*

arcback The flow of a principal electron stream in the reverse direction in a mercury-vapor rectifier tube because of formation of a cathode spot on an anode. This results in failure of the rectifying action. Also called backfire. The action corresponds to reverse emission in electron tubes.

arc cathode A cathode in which electron emission is self-sustaining at a low voltage drop, approximately equal to the ionization potential of the gas.

arc-discharge tube A discharge tube in which a high-current arc discharge passes through the gas between the electrodes, generally for the purpose of producing an intense flash of light.

arc drop The voltage drop between the anode and cathode of a gas rectifier tube during conduction.

arc-drop loss The product of the instantaneous values of tube voltage drop and current averaged over a complete cycle of operation of a gas tube.

Archie A network communications tool for locating files on the *Internet* available on *file transfer protocol* [FTP] serving computers.

arcing The production of an arc, as at the brushes of a motor or the contacts of a switch.

arc spectrum The spectrum of light produced by vaporizing an element in an electric arc.

arc spraying Spraying with metal that has been melted by an electric arc.

arcthrough In multielectrode gas tubes, the loss of control that results from the flow of a principal electron stream in the normal direction during a scheduled nonconducting period.

arc welding A fusion welding process in which welding heat is obtained from an electric arc struck between an electrode and the metal being welded or between two separate electrodes, as in atomic hydrogen welding.

area control radar A radar set or system for air traffic control over a relatively large area, to provide a smooth flow of air traffic to the approach control radar.

areal density On a computer memory disk, the density (bits per inch) multiplied by track density (tracks per inch), or bits per square inch of disk surface.

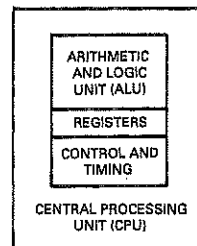
argon [A or Ar] The most abundant inert (rare) gas element that has an atomic number of 18 and an atomic weight of 39.948. It makes up 0.9% of the air by volume. It is used as a fill in ionized gas signs, in lasers capable of penetrating seawater, and as a fill with nitrogen in electric lightbulbs, where it retards the evaporation of the lamp filament.

argon glow lamp A lamp containing argon that glows with a pale blue-violet light. Typical power ratings are from ¼ to 2 W.

argon laser A gas laser that contains ionized argon to produce strong radiation at 0.488 μm and infrared radiation.

arithmetic circuit A computer circuit that performs an arithmetic operation.

arithmetic-logic unit [ALU] A section of a microprocessor or microcontroller that performs mathematical operations such as addition, subtraction, multiplication, division, and logic on numbers (usually binary) presented to its inputs. It provides an output that is an appropriate function of its inputs.



Arithmetic-logic unit (ALU) is that part of a computer's central processing unit (CPU) that performs all arithmetic calculations.

arithmetic mean *Mean.*

arithmetic operation A digital computer operation in which numerical quantities are added, subtracted, multiplied, divided, or compared.

arithmetic shift A computer operation in which a quantity is multiplied or divided by a power of the number base. Thus, binary 1011 represents decimal 11, and therefore two arithmetic shifts to the left is binary 101100, which represents decimal 44.

ARL Abbreviation for *acceptable reliability level.*

arm 1. An interconnected set of links and powered joints that supports and moves a mechanical wrist, hand, or end-effector tool in the performance of some task. It can be manually controlled, as in a *telercheric*, or under pro-