

SECOND EDITION
COMPREHENSIVE
DICTIONARY
OF
ELECTRICAL
ENGINEERING

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Taylor & Francis
Taylor & Francis Group

Boca Raton London New York Singapore

CRC PRESS, a Taylor & Francis title, part of the Taylor and Francis Group.

Published in 2005 by
CRC Press
Taylor & Francis Group
6000 Broken Sound Parkway NW, Suite 300
Boca Raton, FL 33487-2742

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CRC Press is an imprint of Taylor & Francis Group

No claim to original U.S. Government works
Printed in the United States of America on acid-free paper
10 9 8 7 6 5 4 3 2 1

International Standard Book Number-10: 0-8493-3086-6 (Hardcover)
International Standard Book Number-13: 978-0-8493-3086-5 (Hardcover)
Library of Congress Card Number 2004058572

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Library of Congress Cataloging-in-Publication Data

Comprehensive dictionary of electrical engineering / editor-in-chief Phillip A. Laplante.-- 2nd ed.
p. cm.

ISBN 0-8493-3086-6 (alk. paper)

1. Electric engineering--Dictionaries. I. Title: Electrical engineering. II. Laplante, Phillip A.

TK9.C575 2005
621.3'03--dc22

2004058572

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integrated AOTF

open construction having a continuous rating of one horsepower at 1700–1800 rpm.

integrated AOTF acousto-optical tunable filter device using integrated wave guide optics and surface acoustic waves (SAWs) for acousto-optical interaction.

integrated circuit (IC) (1) an assembly of miniature electronic components simultaneously produced in batch processing, on or within a single substrate, that performs an electronic circuit function.

(2) many transistors, resistors, capacitors, etc., fabricated and connected together to make a circuit on one monolithic slab of semiconductor material.

integrated optics also known as guided-wave optics; generally, describes the devices that couple to fiber optics, but does not include the fibers.

integrated project support environment a software engineering environment supporting all the stages of the software process from initial feasibility studies to operation and maintenance.

integrated services digital network (ISDN) a network that provides end-to-end digital connectivity to support a wide range of services, including voice and nonvoice services, to which users have access by a limited set of standard multipurpose user-network interfaces.

integrating A/D device that takes an analog input signal and integrates it over time to produce a digital signal that represents the area under the curve, or the integral.

integrator for an input of $x(t)$ and an output of $\int_{-\infty}^t x(\tau) d\tau$, is one of the basic signal processing building blocks. Integrators can be implemented using operational amplifiers.

integrity (of data) (1) a belief in the truth of the information represented by a set of data.

(2) a condition stating that the information in a set of data does satisfy a set of logical constraints (the integrity constraints).

intelligence the aggregated and processed information about the environment, including potential adversaries, available to commanders and their staff.

intelligent control a sensory-interactive control structure incorporating cognitive characteristics that can include artificial intelligence techniques and contain knowledge-based constructs to emulate learning behavior with an overall capacity for performance and/or parameter adaptation. Intelligent control techniques include adaptation, learning, fuzzy logic, neural networks, genetic algorithm, as well as their various combinations.

intelligent material See smart material.

intelligibility objective quantitative measure of speech perception.

intensifying transformer one of a class of hedges — for example very, extremely — which intensifies the characteristics of a fuzzy set.

intensity a measure of the strength of a light field. Two different definitions of intensity are commonly encountered. Especially in the discipline of radiometry, intensity is usually defined to be power per unit solid angle. Alternatively, especially in laser physics intensity is defined to be power per unit area. The intended definition can usually be deduced from context or from dimensional analysis.

intensity average spatially or temporally averaged value of the intensity.

intensity modulation alteration of the power level of an optical beam, usually to impose information onto the beam.

DUT device under test

duty cycle (1) the ratio of the turn-on time of a semiconductor switch to the sum of the turn-on and turn-off times;

$$\text{Turn-on}/(\text{Turn-on} + \text{Turn-off})$$

(2) the mode of operation that an electric machine is classified, in consideration of thermal limits, e.g., continuous operation, intermittent operation.

Also known as duty ratio.

duty ratio See duty cycle.

DVI See digital video interactive.

DVM See digital volt meter.

DX-center stands for defect unknown(X)/complex. Name originally given to defects that caused persistent photoconductivity (PPC) in GaAs. The term is now commonly applied to similar defects in both III-V and II-VI compound semiconductors. The presently accepted interpretation of the microscopic nature of the DX-center is a large deformation associated with a negatively charged substitutional impurity.

dyadic decomposition wavelet decomposition in which the dilation is a dyadic number, i.e., 2^j with j being the decomposition level; this corresponds to an octave frequency band division in the frequency domain.

dyadic Green's functions Green's functions that relate together vector field quantities.

dyed resist a photoresist with an added non-photosensitive chemical that absorbs light at the exposing wavelength.

dynamic allocation allocation of memory space that is determined during program execution. Dynamic allocation can be used to designate

space on the stack to store objects whose lifetimes match the execution interval of a subroutine; this allocation is performed upon entry to the subroutine.

dynamic beam control a circuit in a camera designed to instantaneously increase beam current to handle highlights in a scene.

dynamic brake the braking operation of a machine by extracting electrical energy and then dissipating it in a resistor.

dynamic braking since AC motors do not have separate field excitation, dynamic braking is accomplished by continuing to excite the motor from the drive. This causes a generative current to the drives DC intermediate bus circuit. The dynamic brake resistors are then placed across the DC bus to dissipate the power returned. The brake resistor is usually switched by a transistor or other power switch controlled by the drive.

dynamic channel assignment (DCA) a technique of assigning or reassigning radio channels in a communications system in order to respond to current interference or propagation conditions. Such assignment or reassignment may be made before or during radio transmission. DCA is typically implemented in a distributed fashion, with mobile terminals and/or fixed cell sites taking measurements to determine local interference levels, and then applying an algorithm to choose the best radio channel on which to initiate or reassign communication.

dynamic convergence the process of making the electron beam fall on a specified surface during scanning, as in the case of a CRT. This process is necessary for all three-gun CRTs that do not have in-line video displays or CRTs.

dynamic linking deferring the determination of the association between a symbol used in a program module and the object to which it refers until