MODERN DICTIONARY of ELECTRONICS

SIXTH EDITION

REVISED AND UPDATED

Rudolf F. Graf

Newnes is an imprint of Butterworth-Heinemann

A member of the Reed Elsevier group

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Library of Congress Cataloging-in-Publication Data
Graf, Rudolf F.
Modern dictionary of electronics / by Rudolf F. Graf. — 6th ed.
p. cm.
Reprint. Originally published: Indianapolis, Ind. : H.W. Sams, © 1984.
ISBN 0-7506-9870-5
1. Electronics—Dictionaries.
TK7804.G67 1996 96-25894
621.381'03—dc 20 CIP

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library.

The publisher offers special discounts on bulk orders of this book.
For information, please contact:
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Newton, MA 02158–1626
Tel: 617-928-2500
Fax: 617-928-2620

For information on all Newnes electronics publications available, contact our World Wide Web home page at: http://www.bh.com/bh

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Illustrated by: *T.R. Emrick*

Printed in the United States of America
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tone. In telegraphy service, the carrier is keyed to produce the modulation.

modulated light—Light whose intensity has been made to vary in accordance with variations in an audio-frequency or code signal.

modulated oscillator—An oscillator the output frequency of which is varied by an input signal.

modulated photoelectric alarm system—A photoelectric alarm system in which the transmitted light beam is modulated in a predetermined manner and in which the receiving equipment will signal an alarm unless it receives the properly modulated light.

modulated signal generator—A device which produces an output signal that may be changed in amplitude and/or frequency according to a desired pattern. It is calibrated in units of both power (or voltage) and frequency.

modulated stage—The radio-frequency stage to which the modulator is coupled and in which the continuous wave (carrier wave) is modulated, in accordance with the system of modulation and the characteristics of the modulating wave.

modulated wave—A carrier wave in which the amplitude, frequency, or phase varies in accordance with intelligence signal being transmitted.

modulating amplifier using variable reactance—A very-high-frequency electron-beam parametric amplifier with bandpass characteristics that are independent of gain, and which is unconditionally stable.

modulating electrode—In a cathode-ray tube, an electrode to which a potential is applied to control the magnitude of the beam current.

modulating signal—*See* Modulating Wave.

modulating wave—Also called modulating signal, or simply signal. A wave which varies some characteristic (i.e., frequency, amplitude, phase) of the carrier.

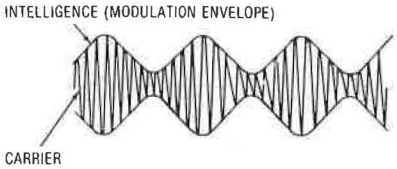
modulation—1. The process of modifying some characteristic of a wave (called a carrier) so that it varies in step with the instantaneous value of another wave (called a modulating wave or signal). The carrier can be a direct current, an alternating current (provided its frequency is above the highest frequency component in the modulating wave), or a series of regularly repeating, uniform pulses called a pulse chain (provided their repetition rate is at least twice that of the highest frequency to be transmitted). 2. The controlled variation of frequency, phase and/or amplitude of a carrier wave of any frequency in order to transmit a message. method may be either pulse modulation (digital) or intensity modulation (analog). 4. The process of varying one signal with another. 5. The imposing of a signal on some type of transmission or storage medium, such as a radio carrier or magnetic tape. 6. The process, or results of the process, whereby some characteristic of one signal is varied in accordance with another signal. The modulated signal is called the carrier and may be modulated in three fundamental ways: by varying the amplitude (amplitude modulation) by varying the frequency (frequency modulation) or by varying the phase (phase modulation).

modulation capability—The maximum percentage of modulation possible without objectionable distortion.

modulation code—A code used to cause variations in a signal in accordance with a predetermined scheme; normally used to alter or modulate a carrier wave to transmit data.

modulation distortion—Distortion occurring in the radio-frequency amplifier tube of a receiver when the operating point is at the bend of the grid-voltage/plate-current characteristic curve. As a result, the plate-current changes are greater on positive than on negative half-cycles. The effect is equivalent to an increase in the percent of modulation.

modulation envelope—A curve, drawn through the peaks of a graph, showing how the waveform of a modulated carrier represents the waveform of the intelligence carried by the signal. The modulation envelope is the intelligence waveform.



Modulation envelope.

modulation factor—In an amplitude-modulated wave, the ratio of half the difference between the maximum and minimum amplitudes to the average amplitude. This ratio is multiplied by 100 to obtain the percentage of modulation.

modulation frequency—That signal which causes the output frequency of an oscillator to be modulated.

modulation index—1. In frequency modulation with a sinusoidal modulating wave, the ratio of the frequency deviation