

McGRAW-HILL ELECTRONICS DICTIONARY

SIXTH EDITION

**NEIL SCLATER
JOHN MARKUS**

McGraw-Hill

New York San Francisco Washington, D.C. Auckland Bogotá
Caracas Lisbon London Madrid Mexico City Milan
Montreal New Delhi San Juan Singapore
Sydney Tokyo Toronto

Library of Congress Cataloging-in-Publication Data

Sclater, Neil.

McGraw-Hill electronics dictionary / Neil Sclater, John Markus. —
6th ed.

p. cm.

Markus' name appears first on the earlier edition.

Includes index.

ISBN 0-07-057837-0

1. Electronics—Dictionaries. I. Markus, John, 1911–

II. Title.

TK7804.M354 1997

621.38'03—dc21

97-16168

CIP

Copyright © 1997, 1994, 1978, 1945 by McGraw-Hill, Inc. All rights reserved.
Printed in the United States of America. Except as permitted under the
United States Copyright Act of 1976, no part of this publication may be
reproduced or distributed in any form or by any means, or stored in a data
base or retrieval system, without the prior written permission of the pub-
lisher. Copyright © 1966, 1960 under the title *Electronics and Nucleonics
Dictionary*. All rights reserved.

2 3 4 5 6 7 8 9 0 DOC/DOC 9 0 2 1 0 9 8 7

ISBN 0-07-057837-0

*The sponsoring editor for this book was Steve Chapman, the editing
supervisor was M. R. Carey, and the production supervisor was Clare
Stanley. It was set in Times Roman by North Market Street Graphics.*

Printed and bound by R. R. Donnelley & Sons Company.

Information contained in this work has been obtained by McGraw-Hill, Inc. from
sources believed to be reliable. However, neither McGraw-Hill nor its authors
guarantee the accuracy or completeness of any information published herein and
neither McGraw-Hill nor its authors shall be responsible for any errors, omissions,
or damages arising out of use of this information. This work is published with the
understanding that McGraw-Hill and its authors are supplying information but
are not attempting to render engineering or other professional services. If such
services are required, the assistance of an appropriate professional should be
sought.

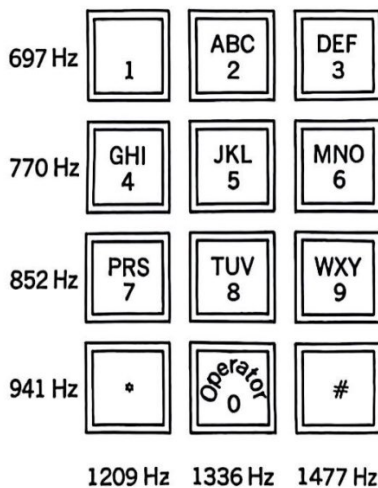
total harmonic distortion

total harmonic distortion [THD] The ratio, expressed in percent, of the RMS voltage value for all harmonics present in the output of an audio system to the total RMS voltage at the output, for a pure sinewave input. The lower the percentage figure, the better the audio system.

total ionization 1. The total electric charge on the ions of one sign when the energetic particle that has produced these ions has lost all its kinetic energy. 2. The total number of ion pairs produced by the ionizing particle along its entire path.

touch control A circuit that closes a relay when two metal areas are bridged by a finger or hand.

Touch Tone telephone A telephone that has 12 pushbuttons, each of which produces a distinctive two-frequency musical tone which initiates the proper automatic switching in telephone exchanges, just as the DC pulsing of a rotating dial does.



Touch Tone telephone pushbutton arrangement. Each button produces two tone frequencies with values indicated at left and below button pressed.

tourmaline A strongly piezoelectric natural crystal.

tower radiator A tall metal structure that functions as a transmitting antenna.

Townsend avalanche *Avalanche effect.*

Townsend characteristic The current-voltage characteristic curve for a phototube at constant illumination and at voltages below those where glow discharge occurs.

Townsend coefficient The number of ionizing collisions by an electron per centimeter of path length in the direction of the applied electric field in a radiation counter.

Townsend discharge A discharge in a gas at moderate pressure (above about 0.1 mmHg), corresponding to corona. It is free of space charges.

Townsend ionization *Avalanche effect.*

T pad A pad made up of resistors arranged as a T network.

TPI Abbreviation for *tracks per inch*.

TQFP Abbreviation for *thin quad flat package* for integrated circuits.

trace 1. The visible path of a moving spot on the screen of a cathode-ray tube. 2. An extremely small quantity of a substance. 3. An interpretive diagnostic technique that provides an analysis of each executed instruction of a computer and writes it on an output device as each instruction

is executed by the computer. 4. A conductive path on a printed circuit board.

trace concentration A concentration of a substance below the usual limits of chemical detection.

trace interval The time interval for a sweep to trace a desired pattern on the screen of a cathode-ray tube.

tracer 1. A foreign substance, usually radioactive, that is mixed with or attached to a given substance so the distribution or location of the latter can later be determined. 2. A thread of contrasting color woven into the insulation of a wire for identification purposes.

track 1. A path that records one channel of information on a magnetic tape or other magnetic recording medium. The location of the track is determined by the recording equipment rather than by the medium. 2. The horizontal component of the path actually followed by a vehicle, or (marine usage) the intended course. 3. The trace of a moving target on a PPI radar screen or an equivalent plot. 4. To follow the progress of a missile, aircraft, hurricane, or other moving object or action, generally by radar, radio direction finders, infrared, or optical equipment.

trackball A computer control device for moving the cursor on a computer monitor screen. It is basically a ball that is free to rotate in an enclosure surrounded by sensors which translate movements of the ball by the fingertips into cursor motions.

track-command guidance Missile guidance in which the target and missile are tracked by separate radars, and corrective commands are sent to the missile by radio.

track homing The process of following a line of position known to pass through an objective.

tracking 1. The condition in which all tuned circuits in a receiver accurately follow the frequency indicated by the tuning dial over the entire tuning range. 2. A motion given to the major lobe of a radar or radio antenna so that some preassigned moving target in space is always within the major lobe. 3. The following of a groove by a phonograph needle. 4. Maintaining the same ratio of loudness in the two channels of a stereophonic sound system at all settings of the ganged volume control.

tracking beam The beam that is aimed directly at the target at all times in antimissile warfare. Data obtained from this beam is transmitted to the counter-attacking guided missile over what is known as the guidance beam.

tracking element The element in a fire-control system that receives data from the position-finding element and computes the speed and direction of movement of the target and sometimes the rates of change in speed and direction.

tracking filter A bandpass filter whose center frequency follows the average frequency of the input signal.

tracking radar A radar that keeps one or more targets under continuous surveillance so that a more accurate determination can be made of the target's location. Targets of interest detected by a search radar are often "handed off" to and acquired by the tracking radar. Some radars combine both search and track functions by time-sharing the agile beam of a phased-array antenna. See *search radar*.

tracking station A radio, radar, or other station organized to track an object moving through the atmosphere or space.

track in range To adjust the gate of a radar receiver so that it opens at the correct instant to accept the signal from a target that is changing in range.