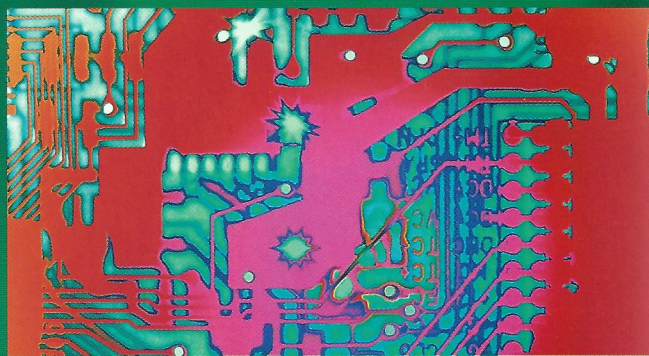


THE PENGUIN
DICTIONARY OF

Electronics

THIRD EDITION



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PREFACE

The Penguin Dictionary of Electronics is primarily concerned with terms and abbreviations used in electronic research and industry and in solid state electronics. This third edition of the dictionary has substantially revised the second edition and contains many definitions of terminology in the related fields of computing, control, electrical engineering, and music technology together with diagrams and tables.

We hope that the dictionary will be of use not only to students and researchers in electronics, physics, and related subjects but also to researchers, technicians working in electronics or in the emerging fields of music and audio electronics who use electronic equipment in their work.

This edition is dedicated to Carol Young, who died in 1997. Carol was not only as the author of the first two editions of the highly successful *Dictionary of Electronics* but as a woman who established a national network of voluntary work, in the voluntary sector, for the community. Living in Harlow, she made major contributions to the establishment of a Women's Refuge, a Well Women Centre, and a Playbus. She went on to found the National Playbus Association, and later, as her family grew up, she became a manager heading the Rural Unit of the National Council for Voluntary Organisations.

intensity 1. *Short for* magnetic intensity or electric intensity (both obsolete terms). **>magnetic field strength; electric field strength.** **2.** The rate of flow of sound energy through unit area perpendicular to the direction of flow. **3.** The rate of flow of light or other radiant energy emitted or reflected by a surface in a given direction per unit area.

intensity modulation *Syn. z-modulation.* The variation in brilliance of the spot on the screen of a cathode-ray tube in accordance with the magnitude of an input signal.

interaction space A region in an electron tube that roughly corresponds to the inter-electrode space and in which the electrons interact with an alternating magnetic field.

interactive Allowing continuous two-way communication between the user of an **>online peripheral device**, such as a **>terminal**, and a **>computer**. Interactive operation enables a user at a remote location to send and receive information to and from a computer quickly, and to modify the operation of a **>program** during its execution following the production of intermediate results or interrogation. **>time sharing; real-time operation.**

intercarrier system *Syn. video IF system.* A system in a television receiver in which the same intermediate-frequency (IF) stages amplify the sound and video signals (**>mixer**).

interconnecting feeder **>trunk feeder.**

interconnection 1. Any method of providing an electrical path between any of the materials (metals, semiconductors, etc.) that combine to form a circuit. **2.** Connections between and external to any functional item that forms a circuit or system of circuits. Functional items include component parts, devices, subassemblies, and assemblies. **>intraconnection.**

interconnector **>trunk feeder.**

interdigitated capacitor **>monolithic capacitor.**

interelectrode capacitance The capacitance between specified electrodes of an electronic device (such as the base and emitter of a bipolar transistor) that may form a small capacitor within the device. The operation of such devices can be significantly affected by the existence of interelectrode capacitances.

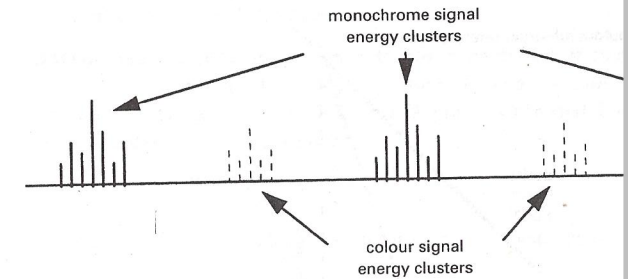
interface The electronic circuitry used to connect two or more devices, usually required to compensate for differences in speed, signal levels, and/or codes between the connecting devices. The devices are generally computer components or systems.

interference A disturbance to the signal in any communication system caused by unwanted signals. A common cause of interference in radio reception is the operation of electrical machinery and apparatus, particularly commutating machines and apparatus containing gas-discharge tubes. Television signals frequently suffer serious interference from motor-vehicle ignition systems.

Man-made interference such as that described above can usually be eliminated by fitting special devices (*suppressors*) to the offending apparatus, but interference from natural causes, such as changes in the atmosphere, is not

interference fading **>fading.**

interlaced scanning **>television.**



Interleaving of colour television signals

interleaving 1. In **>colour television signal transmission**, the slotting of colour signal energy into the gaps between the monochrome modulation sidebands in the frequency spectrum (see diagram). **2.** **>digital codes.**

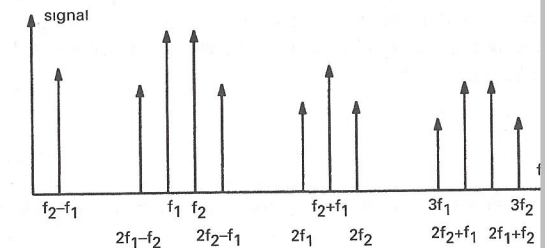
interline transfer device **>solid-state camera.**

interlock A safety device that allows a piece of apparatus to function only when certain predetermined conditions are fulfilled.

intermediate frequency (IF) **>heterodyne reception; mixer.**

intermittent duty **>duty.**

intermodulation (IM) The mixing of different frequency components by a nonlinear component or **>active device** in a circuit, producing unwanted intermodulation products. If two frequencies f_1 and f_2 are applied to a nonlinear element, the following intermodulation products are produced:



α Spectrum of intermodulation products up to 3rd order