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COMPREHENSIVE
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OF
**ELECTRICAL
ENGINEERING**

EDITOR-IN-CHIEF
Phillip A. Laplante



 **CRC PRESS**  Springer  **IEEE PRESS**

A CRC Handbook Published in Cooperation with IEEE Press



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CRC Press

Taylor & Francis Group

Boca Raton London New York

CRC Press is an imprint of the
Taylor & Francis Group, an **informa** business

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

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Version Date: 20150212

International Standard Book Number-13: 978-1-4398-7498-1 (eBook - PDF)

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incandescent lamp

implied addressing a form of addressing where the register or memory address is not specified within the instruction but is assumed.

imprecise interrupt an implementation of the interrupt mechanism in which instructions that have started may not have completed before the interrupt takes place, and insufficient information is stored to allow the processor to restart after the interrupt in exactly the same state. This can cause problems, especially if the source of the interrupt is an arithmetic exception. *See also* precise interrupt.

imprecision a sense of vagueness where the actual value of a parameter can assume the specified value to within a finite tolerance limit.

impressed current a current generated from an independent source. Often used to represent antennas.

improper modes in open waveguides the eigenfunctions relative to the continuous spectrum, which are defined over an infinite interval, are often referred to as improper modes.

impulse a unit pulse. *See also* impulsive transient.

impulse breakdown a test of electrical insulation in which lightning or switching impulses are applied.

impulse generator (1) an electronic device delivering single pulses of various shapes, preferably square.

(2) a high-voltage trigger generator.

impulse noise non-overlapping transient disturbance having abrupt change and short duration.

impulse response the output of a linear time-invariant system when the input is a pulse of short

time duration. The system can be entirely characterized by the impulse response.

In the case of a continuous time system with input $f(t)$, the impulse signal $\delta(t)$ is defined as

$$(i) \delta(t) = 0, \quad t \neq 0$$

$$(ii) \int_{-\epsilon}^{\epsilon} \delta(t) dt = 1, \quad \text{for any } \epsilon > 0,$$

and the impulse response is the zero state system response to an input $f(t) = \delta(t)$. In the case of a discrete time system with input $f[k]$, the impulse signal is defined as

$$(i) \delta[k] = 1, \quad k = 0$$

$$(ii) \delta[k] = 0, \quad k \neq 0,$$

and the impulse response is the zero state system response to input $f[k] = \delta[k]$.

impulsive transient a rapid frequency variation of voltage or current during steady-state operation in which the polarity is mostly unidirectional.

in-circuit emulator (ICE) a device that replaces the processor and provides the functions of the processor plus testing and debugging functions.

in-line gun a CRT electron gun structure that has the red, green, and blue electron gun components aligned in a horizontal plane. The in-line gun structure requires color registration (color convergence) correction in the vertical CRT face plate axis only.

in-order issue the situation in which instructions are sent to be executed in the order that the instructions appear in the program.

in-phase signal in quadrature modulation, the signal component that multiplies $\cos 2\pi f_c t$, where f_c is the carrier frequency.

INA *See* inverse Nyquist array.

incandescent lamp a lamp made by heating a metal filament in vacuum; not a burning candle.

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