



Standard Specification for High Voltage Detectors—Part 1 Capacitive Type to be Used for Voltages Exceeding 600 Volts AC¹

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1. Scope

1.1 This specification covers portable, live-line tool-supported, direct-contact type capacitive voltage detectors to be used on electrical systems both indoors and outdoors for ac voltages from 600 V to 800 kV with frequency of 60 Hz. The function of the voltage detector is limited to the detection of the presence or absence of nominal operating voltage.

1.1.1 This specification is not applicable to other types of voltage detectors.

1.2 The use and maintenance of these high voltage detectors and any necessary insulated tool handles are beyond the scope of this specification.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

NOTE 1—Except where specified, all voltage defined in this specification refer to phase-to-phase voltage in a three-phase system. Voltage detectors covered by this specification may be used in other than three-phase systems, but the applicable phase-to-phase or phase-to-ground (earth) voltages shall be used to determine the operating voltage.

2. Referenced Documents

2.1 ASTM Standards:

F 819 Definitions of Terms Relating to Electrical Protective Equipment for Workers²

2.2 Other Standard:³

Fed/OSHA (1910, 137, 269, Subpart S)

2.3 ANSI Standard:⁴

ANSI C84.1 Voltage Ratings for Electric Power Systems and Equipment

2.4 IEEE Standards:⁵

IEEE 516 Guide for Maintenance Methods on Energized Power Lines

IEEE 4 High Voltage Testing Techniquesf

2.5 IEC Standard:⁶

IEC 1243-1 First Addition 1993-11

3. Terminology

3.1 Definitions:

3.1.1 *capacitive voltage detector*—a device that relies on current passing through stray capacitance to ground.

3.1.2 *clear indication*—a specific condition that detects and indicates the voltage state at the contact electrode.

3.1.3 *clear perception*—the ability by the user to determine that the voltage detector is in its operating position.

3.1.4 *contact electrode*—the bare conductive part of the conductive element that establishes the electrical connection to the component to be tested.

3.1.5 *indicator*—part of the voltage detector that indicates the presence or absence of the operating voltage at the contact electrode.

3.1.6 *indoor type*—a detector designed for use in dry conditions, normally indoors.

3.1.7 *interference field*—electrical field affecting the indication.

3.1.8 *interference voltage*—voltages other than the signal voltage capable of making the device operate.

3.1.9 *limit marking*—distinctive location or mark to indicate to the user the physical limit to which the detector may be inserted between live components or may touch them.

3.1.10 *nominal operating voltage*—a nominal value consistent with the latest revision of ANSI C84.1.

3.1.11 *non-contact proximity detector*—a device that relies on current passing through stray capacitance to ground without making direct contact with the component to be tested.

3.1.12 *outdoor type*—a detector designed for use either indoors or outdoors.

3.1.13 *response time*—time delay between sudden change

¹ This specification is under the jurisdiction of ASTM Committee F18 on Electrical Protective Equipment for Workers and is the direct responsibility of Subcommittee F18.35 on Tools and Equipment.

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² *Annual Book of ASTM Standards*, Vol 10.03.

³ Available from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082.

⁴ Available from American National Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.

⁵ Available from the Institute of Electrical and Electronics Engineers, Inc., 345 East 47th St., New York, NY 10017.

⁶ Available from the International Electrotechnical Commission, (IEC) Sales Department, Case Postale 131, 3 rue de Varembe, CH-1211, Geneva 20, Switzerland/Suisse. Also available in the United States from the Sales Department, American National Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.