



IEEE Standard for Interrupter Switches for Alternating Current, Rated Above 1000 V

IEEE Power Engineering Society

Sponsored by the
Switchgear Committee

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6 June 2006

IEEE Std 1247™-2005
(Revision of IEEE Std 1247-1998)

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**Switchgear Committee
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Approved 28 March 2006

American National Standards Institute

Approved 7 December 2005

IEEE-SA Standards Board

Abstract: The basic requirements of interrupter switches used indoors, outdoors, and in enclosures are covered. This standard does not apply to load-break separable insulated connectors.

Keywords: enclosed switch, indoor switch, interrupter switch, outdoor switch, switching ability, switching current, switching rating

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Print: ISBN 0-7381-4864-4 SH95503
PDF: ISBN 0-7381-4865-2 SS95503

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Introduction

This introduction is not part of IEEE Std 1247-2005, IEEE Standard for Interrupter Switches for Alternating Current, Rated Above 1000 Volts.

Over many years, standards covering interrupter switches have been developed in subcommittees other than the High Voltage Switch Subcommittee. As a result, different and sometimes conflicting requirements for interrupter switches have been developed. Where there is a clear need for different requirements in different applications, diverging standards are appropriate. However, where application requirements are similar, the body of standards should treat the requirements uniformly. As a result of this philosophy, the Switchgear Administrative Subcommittee passed the following motion at the May 1991 meeting in Fort Lauderdale:

In an effort to promote a uniform approach to standards, the following policy is set:

Future standards and revisions to standards that incorporate fuses, switches, circuit breakers, and/or reclosers and sectionalizers shall reference the basic fuse, switch, circuit breaker, and/or recloser and sectionalizer standard wherever possible and treat material differences only when there are unique application requirements.

This standard was written to provide the basic standard for interrupter switches. As such, an attempt was made to encompass as many different types of interrupter switches as practical. This standard has also provided the opportunity to update and revise the general treatment of interrupter switches, and address newer technologies that are being used to provide switching functions.

Part of the heritage of this document comes from the treatment of interrupter switches in other IEEE C37 standards. It is anticipated that material relating to interrupter switches, currently in the IEEE C37.30 series, will be removed from those documents when this document is published. Further, when this document is published, it is anticipated that other standards, not in the IEEE C37.30 series, will begin to reference this document, as outlined in the above Administrative motion.

Although this standard does not apply to circuit-breakers, circuit-switchers, or reclosers, standards for circuit-breakers, circuit-switchers, and reclosers should reference this document for their load-interrupting requirements. A further intent of this document is to provide test circuits to be used to establish ratings for common applications of switching devices not generally covered by standards.

Although this document will be published before the work on IEEE Std C37.100.1™ (Common Clauses) is finished, it is the intention of the Interrupter Switch Working Group to adopt or reference common clauses as they become available. Specifically the treatment of:

- Air-bid correction factors, and
- Total temperature limits for contacts, connections, and insulation

will conform to the Common Clauses Document.

Conformance and field testing are not covered in this document. The user is referred to apparatus-specific test documents such as IEEE Std C37.41™, ANSI C37.57, and ANSI C37.58.

This standard has adopted the approach of many other standards in avoiding asymmetrical current ratings. For example, the traditional momentary (asymmetrical) current rating is now covered in the peak current withstand. Because of the lack of a need to calculate asymmetrical currents, and the common use of data

acquisition systems (which automatically calculate rms currents), IEEE Std C37.09™ is not referenced as a means to determine symmetrical or asymmetrical values.

The actual revision is limited to the correction of technical errors that have been identified in subclauses 8.3.1.3, 8.3.2.1, 8.3.2.2.1, 8.3.2.5 and 8.2.2.6, 8.3.2.3, and 8.3.2.6; Figures 1, 2, 3, 4, 7, 8, 9, 10, and 11; and Tables 6, 7, and 9.

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IEEE Standard for Interrupter Switches for Alternating Current, Rated Above 1000 V

1. Overview

1.1 Scope

This standard applies to switching devices, interrupters, and interrupter switches (as defined in IEEE Std C37.100™) for alternating current, rated above 1000 V and used indoors, outdoors, or in enclosures for which a switching rating is to be assigned. While this standard covers the basic requirements of interrupter switches used indoors, outdoors, and in enclosures, other standards such as IEEE Std C37.20.2™, IEEE Std C37.20.3™, IEEE Std C37.20.4™, and IEEE Std C37.74™ also contain requirements for switches used in enclosures. This standard does not apply to load-break separable insulated connectors, which are covered by IEEE Std 386™-1995 [B8].¹ This standard also does not apply to circuit-breakers, circuit-switchers, or reclosers.

1.2 Purpose

The purpose of this standard is to provide a basic standard for switches as defined in 3.5. The broad definition of a switch, given in 3.5, encompasses devices that meet the strict definition of an interrupter switch in IEEE Std C37.100, and also encompass devices that utilize insulating media other than air.

2. Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

ANSI C2-2002, National Electrical Safety Code® (NESC®).²

ANSI C29.1-2002, Test Methods for Electrical Power Insulators.

ANSI C37.22-1997 (Reaff 2003), American National Standard Preferred Ratings and Related Required Capabilities for Indoor AC Medium-Voltage Switches Used in Metal-Enclosed Switchgear.

¹ The numbers in brackets preceded by the letter B correspond to those of the bibliography in Annex E.

² ANSI publications are available from the Sales Department, American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036, USA (<http://www.ansi.org/>).