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IEEE Standard for AC High Voltage Circuit Switchers Rated 15.5 kV through 245 kV

IEEE Power and Energy Society

Sponsored by the
Switchgear Committee

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USA

IEEE Std C37.016™-2018
(Revision of IEEE Std C37.016-2006)

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Abstract: This standard is applicable to ac circuit switchers designed for outdoor installation and for rated power frequencies of 50 Hz and 60 Hz and rated maximum voltages of 15.5 kV through 245 kV. It is applicable only to three-pole circuit switchers for use in three-phase systems. This standard is also applicable to the operating devices of circuit switchers and to their auxiliary equipment. Included in this document are the normal and special service conditions under which the ratings are based and requirements for design and construction, which include those for interrupting media, stored energy systems, operating characteristics, mechanical loading and operation capabilities, electrical insulation, and auxiliary devices. The rating structure establishes the basis for all assigned ratings, including continuous current, dielectric withstand voltages, primary-bus fault breaking current, transformer-limited fault breaking current, short-circuit making current, transient recovery voltages, and capacitor switching, plus associated capabilities such as mechanical endurance and operation under high- and low-temperature environmental extremes. Routine (production) tests are defined and requirements for their execution documented.

Keywords: circuit switcher, coordinated disconnect, design tests, IEEE C37.016, interrupter, operating mechanism, primary-bus fault, production tests, ratings, service conditions, stored energy, transformer-limited fault, transient recovery voltage

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Introduction

This introduction is not part of IEEE Std C37.016-2018, IEEE Standard for AC High Voltage Circuit Switchers Rated 15.5 kV through 245 kV.

This standard is being revised to remove references to IEC documents and to, where appropriate, use references to IEEE documents. Since the first release of this standard in 2006, there have not been significant technical issues with the standard, so the technical content is intended to be consistent with the 2006 version.

Contents

IEEE Standard for AC High Voltage Circuit Switchers Rated 15.5 kV through 245 kV

1. Overview

1.1 Scope

This standard is applicable to ac circuit switchers designed for outdoor installation and for rated power frequencies of 50 Hz and 60 Hz and rated maximum voltages of 15.5 kV through 245 kV. It is applicable only to three-pole circuit switchers for use in three-phase systems. This standard is also applicable to the operating devices of circuit switchers and to their auxiliary equipment. It includes the basis of rating, preferred ratings and test procedures for circuit switchers.

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

IEC 60507:2013, Artificial pollution tests on high-voltage ceramic and glass insulators to be used on a.c. systems.[1]

IEC 60815-1:2008, Selection and dimensioning of high-voltage insulators intended for use in polluted conditions—Part 1: Definitions, information and general principles.

IEEE Std 4™-2013, IEEE Standard for High-Voltage Testing Techniques.[2, 3]

IEEE Std C37.30.1™-2011, IEEE Standard Requirements for AC High-Voltage Air Switches Rated Above 1000 V.

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