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IEEE Guide for Specifications of High-Voltage Circuit Breakers (over 1000 V)

IEEE Power and Energy Society

Sponsored by the
Switchgear Committee

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IEEE Std C37.12™-2018
(Revision of
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Abstract: Specifications that apply to all indoor and outdoor types of ac high-voltage circuit breakers rated above 1000 volts are covered in this document. This document is issued only as a guide for use in compiling specifications for ac high-voltage circuit breakers. The imperative mode of the language is illustrative of that used in specifications.

Keywords: capacitance current switching, circuit breaker, dielectric withstand, fast transient recovery voltage, high-voltage, IEEE Std C37.12™, indoor, initial, interrupting time, manufacturer, mechanical endurance, operating duty, outdoor, power frequency, purchaser, ratings, related capabilities, short-circuit current, short-line fault, specification

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Introduction

This introduction is not part of IEEE Std C37.12-2018, IEEE Guide for Specifications of High-Voltage Circuit Breakers (over 1000 V).

This guide is a revision of IEEE Std C37.12™-2008. It reflects changes needed to coordinate with the IEEE Std C37.04™, IEEE Std C37.06™, IEEE Std C37.06.1™, IEEE Std C37.09™, IEEE Std C37.010™, IEEE Std C37.011™, IEEE Std C37.012™, IEEE Std C37.015™, IEEE Std C37.11™, and IEC/IEEE 62271-37-013, which replaces IEEE Std C37.013™. It also reflects the present circuit breaker manufacturing technology.[1]

This guide applies to all indoor and outdoor ac high-voltage circuit breakers rated above 1000 V, and is issued as a guide for use in compiling technical specifications for the purchase of ac high-voltage circuit breakers. Primarily this guide applies to the vacuum and sulfur hexafluoride (SF_6) circuit breakers. References to older technologies such as oil, air-blast, and air-magnetic circuit breakers have been deleted since these types are not presently being offered by manufacturers. This guide is intended to assist the user in specifying proper capabilities for circuit breakers when used in conjunction with IEEE Std C37.010 (application of circuit breakers); IEEE Std C37.011 (transient recovery voltages); IEEE Std C37.012 (capacitive switching); and IEEE Std C37.015 (reactive switching). The imperative mode of the language used for example clauses is illustrative of that used in specifications. It does not imply that this document is anything other than advisory in its scope.

This guide contains clauses that may be used directly in a purchaser's specification. Alternately, users may modify example clauses to form the basis of their own specification. This guide does not contain all of the clauses that a purchaser may require for the purchase of high-voltage circuit breakers. For example, this guide makes no reference to commercial conditions that might be included in a purchaser's complete specification. The guide also does not contain example clauses that would provide all necessary requirements for every system application or physical installation. Users of the guide are cautioned to thoroughly review each individual application when preparing a high-voltage circuit breaker specification.

Users of this guide are encouraged to review and thoroughly apply the high-voltage circuit breaker application principles identified in IEEE Std C37.010; IEEE Std C37.011; IEEE Std C37.012; and IEEE Std C37.015. These application guides have been developed to promote selection of appropriate circuit breaker features required for the successful application of high-voltage circuit breakers.

[1]Information on normative references can be found in Clause 2.

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IEEE Guide for Specifications of High-Voltage Circuit Breakers (over 1000 V)

1. Overview

1.1 Scope

This guide is for development of specifications that apply to all indoor and outdoor types of ac high-voltage circuit breakers rated above 1000 V.

1.2 Purpose

This document is intended as a guide for use in developing specifications for ac high-voltage circuit breakers. This guide is for specifications that apply to all indoor and outdoor types of ac high-voltage circuit breakers rated above 1000 V. The imperative mode of the language is illustrative of that used in specifications. It does not imply that this document is anything other than advisory in its scope.

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.

Accredited Standards Committee C2-2017, National Electrical Safety Code® (NESC®).[2]

IEEE Std C37.04™, IEEE Standard Rating Structure for AC High-Voltage Circuit Breakers.[3,4]

IEEE Std C37.06™, IEEE Standard for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis—Preferred Ratings and Related Required Capabilities for Voltages Above 1000 V.[5]

IEEE Std C37.09™, IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis.

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[5]The revision to IEEE Std C37.04, in progress as this draft is being prepared, will incorporate the preferred ratings of IEEE Std C37.06, when a new version of IEEE Std C37.04 is published, the user should refer to appropriate tables in IEEE Std C37.04 for preferred values currently contained in IEEE Std C37.06.