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IEEE Standard for Common Requirements for High-Voltage Power Switchgear Rated Above 1000 V

IEEE Power and Energy Society

Sponsored by the
Switchgear Committee

IEEE
3 Park Avenue
New York, NY 10016-5997
USA

IEEE Std C37.100.1™-2018
(Revision of IEEE Std C37.100.1-2007)

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Abstract: This standard applies to alternating current (ac) switchgear, designed for both indoor and outdoor installation and for operation at service frequencies up to and including 60 Hz on systems having voltages above 1000 V.

This standard is applied in relevant equipment standards by a normative reference to this standard, IEEE Std C37.100.1, on a section or clause-by-clause basis. Annex A of this standard provides recommendations for its application. The inclusion of this standard as a normative reference shall not imply that all of the requirements contained herein apply as a default. In the absence of a normative reference, this standard shall be considered informative only. In case of a conflict in requirements, the requirements of the relevant equipment standard shall prevail.

Keywords: common, IEEE C37.100.1, rated, rating, requirement, specification, switch, switchgear, test

The Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York, NY 10016-5997, USA

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Introduction

This introduction is not part of IEEE Std C37.100.1-2018, IEEE Standard for Common Requirements for High-Voltage Power Switchgear Rated Above 1000 V.

This document, with the exception of formatting and reference updates, is exactly the same as IEEE C37.100.1-2007 having made no technical changes. There was a revised document that was heavily harmonized with IEC; however, copyright permission was ultimately not obtained. In order to comply with the copyright complaint and in light of the impending expiration of the active document, IEEE Std C37.100.1-2007, the decision was made to revert back to the 2007 version of the document and only update the formatting.

This standard was written specifically to collect into one document the requirements that are common in many IEEE power switchgear standards. It follows the concept already in place in IEC 62271-1 [B23]. In some cases, the requirements are equivalent to those in several existing switchgear standards; in other cases, they represent a compromise among two or more standards that have minor (or moderate) differences in the requirement. Still other requirements are taken from IEC 62271-1 [B23].

One distinct exception is the treatment of altitude correction factors or air density correction factors. This standard introduces a departure from the historical approach for altitude correction factors as they apply to applications above 1000 m. Refer to 3.3.2 and Annex B for these details.

The expected benefits of this common requirements concept is to reduce many of the minor inconsistencies among the various switchgear standards and, where differences must remain, to have them highlighted by exception to these common requirements.

It is the intention of the IEEE Switchgear Committee that the relevant (switchgear) standards will adopt the provisions of this standard by normative reference. Specific clauses may be adopted as follows:

a) Without exception (the default)

b) With exceptions

c) With additional requirements or a combination of item b) and item c), as deemed appropriate to the relevant standard

Refer to Annex A for specific recommendations for use with a relevant standard.

In an effort to promote harmonization, this standard is formatted similar to IEC 62271-1 [B23].

Contents

IEEE Standard for Common Requirements for High-Voltage Power Switchgear Rated Above 1000 V

1. Overview

1.1 Scope

This standard applies to alternating current (ac) switchgear, designed for both indoor and outdoor installation and for operation at service frequencies up to and including 60 Hz on systems having voltages above 1000 V.

This standard is applied in relevant equipment standards by a normative reference to this standard, IEEE Std C37.100.1, on a section or clause-by-clause basis. Annex A of this standard provides recommendations for its application.

The inclusion of this standard as a normative reference shall not imply that all of the requirements contained herein apply as a default. In the absence of a normative reference, this standard shall be considered informative only. In case of a conflict in requirements, the requirements of the relevant equipment standard shall prevail.

NOTE 1—In general, this standard applies to all high-voltage power switchgear designed to IEEE C37™ series. Exceptions include low-voltage standards (less than 1000 V) and protective relay standards.[1]

NOTE 2—For the use of this standard, "high voltage" (see IEV 601-01-27)[2] is the rated voltage above 1 kV. However, the term "medium voltage" (see IEV 601-01-28) is commonly used for distribution systems with voltages above 1 kV and generally applied up to and including 52 kV.

NOTE 3—There are many common requirements found in the IEEE C37 switchgear standards. These include service conditions, ratings, such as temperature rise limits, and test methods. This common requirements standard is provided to promote standardization of the requirements and to simplify the maintenance of these standards.

1.2 Purpose

This document does not include a purpose statement.

[1]Notes in text, tables, and figures of a standard are given for information only and do not contain requirements needed to implement the standard.

[2]IEV refers to the International Electrotechnical Vocabulary and may be found in IEC 60050-XXX standards [B1], [B2], [B3], [B4], [B5]. For more information on these references, see the bibliography in Annex K.