BS EN IEC 62271-101:2021

BSI Standards Publication

High-voltage switchgear and controlgear

Part 101: Synthetic testing

bsi.

National foreword

This British Standard is the UK implementation of EN IEC 62271-101:2021. It is identical to IEC 62271-101:2021. It supersedes BS EN 62271-101:2013+A1:2018, which will be withdrawn on 28 March 2022.

The UK participation in its preparation was entrusted to Technical Committee PEL/17, High voltage switchgear, controlgear and assemblies.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2021

ISBN 978 0 539 06078 2

ICS 29.130.10

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2021.

Amendments/corrigenda issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62271-101

September 2021

ICS 29.130.10

Supersedes EN 62271-101:2013 and all of its amendments and corrigenda (if any)

English Version

High-voltage switchgear and controlgear - Part 101: Synthetic testing (IEC 62271-101:2021)

Appareillage à haute tension - Partie 101: Essais synthétiques (IEC 62271-101:2021)

Hochspannungs-Schaltgeräte und -Schaltanlagen - Teil 101: Synthetische Prüfung (IEC 62271-101:2021)

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 17A/1312/FDIS, future edition 3 of IEC 62271-101, prepared by SC 17A "Switching devices" of IEC/TC 17 "High-voltage switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62271-101:2021.

The following dates are fixed:

•	latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop) 2022-05-31
•	latest date by which the national standards conflicting with the document have to be withdrawn	(dow) 2024-08-31

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Endorsement notice

The text of the International Standard IEC 62271-101:2021 was approved by CENELEC as a European Standard without any modification.

IEC 62271-101

Edition 3.0 2021-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

High-voltage switchgear and controlgear – Part 101: Synthetic testing

Appareillage à haute tension – Partie 101: Essais synthétiques

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 29.130.10

ISBN 978-2-8322-1004-6

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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International Standard IEC 62271-101 has been prepared by subcommittee 17A: Switching devices, of IEC technical committee 17: High-voltage switchgear and controlgear.

This third edition cancels and replaces the second edition published in 2012 and Amendment 1:2017. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the second edition:

a) alignment with the third edition of IEC 62271-100:2021;
b) update this document with the last methods and techniques used for synthetic tests;

The text of this document is based on the following documents:

FDIS	Report on voting
17A/1312/FDIS	17A/1315/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

This publication shall be read in conjunction with IEC 62271-100:2021, to which it refers. The numbering of the subclauses of Clause 7 is the same as in IEC 62271-100. However, not all subclauses of IEC 62271-100 are addressed; merely those where synthetic testing has introduced changes.

A list of all the parts in the IEC 62271 series, under the general title *High-voltage switchgear and controlgear*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 101: Synthetic testing

1 Scope

This part of IEC 62271 mainly applies to AC circuit-breakers within the scope of IEC 62271-100. It provides the general rules for testing AC circuit-breakers, for making and breaking capacities over the range of test duties described in 7.102 to 7.111 of IEC 62271-100:2021, by synthetic methods.

It has been proven that synthetic testing is an economical and technically correct way to test high-voltage AC circuit-breakers according to the requirements of IEC 62271-100 and that it is equivalent to direct testing.

The methods and techniques described are those in general use. The purpose of this document is to establish criteria for synthetic testing and for the proper evaluation of results. Such criteria will establish the validity of the test method without imposing restraints on innovation of test circuitry.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62271-100:2021, *High-voltage switchgear and controlgear – Part 100: Alternating-current circuit-breakers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62271-100 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
direct test
test in which the applied voltage, the current and the transient and power-frequency recovery voltages are all obtained from a circuit having a single-power source, which can be a power system or special alternators as used in short-circuit testing stations or a combination of both

3.2
synthetic test
test in which all of the current, or a major portion of it, is obtained from one source (current circuit), and in which the applied voltage and/or the recovery voltages (transient and power frequency) are obtained wholly or in part from one or more separate sources (voltage circuits)