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High-voltage switchgear and controlgear – Part 102: Alternating current disconnectors and earthing switches

Appareillage à haute tension – Partie 102: Sectionneurs et sectionneurs de terre à courant alternatif

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 102: Alternating current disconnectors and earthing switches

FOREWORD

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International Standard IEC 62271-102 has been prepared by subcommittee 17A: Switching devices, of IEC technical committee 17: High-voltage switchgear and controlgear.

This second edition cancels and replaces the first edition published in 2001, Amendment 1:2011 and Amendment 2:2013. This edition constitutes a technical revision.

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

a) new numbering according to IEC 17/1025/RQ to harmonize with ISO/IEC Directives, Part 2, and IEEE Std. C37.100.1;
b) clause numbering has been aligned with IEC 62271-1:2017;
c) the Scope has been extended to cover all indoor and outdoor installations. Consideration of switching devices having disconnecting and/or earthing switch functionalities, apart from other functions, are also covered by this document;

d) ratings have been moved from Annexes B, C and E to Clause 5; the order of the subclauses now corresponds to the order of subclauses in Clause 7;

e) new rating values for bus-transfer current and bus-transfer voltage have been assigned;

f) new class of mechanical endurance for earthing switches has been added (M1);

g) subclause "Rated values of electrical endurance for earthing switches" is now called "Classification of earthing switches for short-circuit making capability";

h) new subclause with ratings for ice-coating has been added;

i) new subclause with classification of bus-charging switching capability has been added;

j) new withstand requirements for interlocking devices have been added;

k) the way to comply with the requirements of the isolating distance of disconnectors has been modified;

l) design and construction requirements for position-indicating devices have been modified, aligning the requirements for position indication and signalling;

m) the value of the operating force has been changed;

n) the test procedures and validation criteria have been revised and modified where necessary;

o) requirements for applied voltage during single-phase test on non-simultaneous closing earthing switches have been changed;

p) non-verifiable requirements have been deleted;

q) a new subclause has been added for testing mechanical interlocking devices;

r) the high- and low-temperature test is mandatory if the temperature limits for the service conditions of the apparatus (defined by the manufacturer) are above +40 °C or below −5 °C, and a more detailed testing procedure is given;

s) the testing procedure to verify the proper functioning of the position-indicating device allows a more practicable testing for every technology used;

t) a new Annex B has been added with title: "Current-switching capability required of disconnectors and earthing switches";

u) a new Annex C has been added with title: "Tolerances on test quantities for type tests";

v) a new Annex E has been added with title: "Extension of validity of type tests".

This standard is to be read in conjunction with IEC 62271-1:2017, to which it refers and which is applicable, unless otherwise specified. In order to simplify the indication of corresponding requirements, the same numbering of clauses and subclauses, except annexes, is used as in IEC 62271-1:2017. Additional subclauses are numbered from 101.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
17A/1173/FDIS	17A/1180/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62271 series, published 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 "http://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
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HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 102: Alternating current disconnectors and earthing switches

1 Scope

This part of IEC 62271 applies to alternating current disconnectors and earthing switches, designed for indoor and outdoor installations for nominal voltages above 1 000 V and for service frequencies up to and including 60 Hz.

It also applies to the operating devices of these disconnectors and earthing switches and their auxiliary equipment.

Additional requirements for disconnectors and earthing switches in enclosed switchgear and controlgear are given in IEC 62271-200, IEC 62271-201 and IEC 62271-203.

NOTE Disconnectors in which the fuse forms an integral part are not covered by this standard.

This document is also applicable to switching devices having disconnecting and/or earthing functionalities apart from other functions, such as high-speed earthing switch, circuit-breaker and switch-disconnector.

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 60050-151, *International Electrotechnical Vocabulary – Part 151: Electrical and magnetic devices*

IEC 60050-441, *International Electrotechnical Vocabulary – Chapter 441: Switchgear controlgear and fuses*

IEC 60050-471, *International Electrotechnical Vocabulary – Part 471: Insulators*

IEC 60050-614, *International Electrotechnical Vocabulary – Part 614: Generation, transmission and distribution of electricity – Operation*

IEC 60071-2, *Insulation co-ordination – Part 2: Application guide*

IEC 60137, *Insulating bushings for alternating voltages above 1 000 V*

IEC 60270, *High-voltage test techniques – Partial discharge measurements*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
IEC 60529:1989/AMD1:1999
IEC 60529:1989/AMD2:2013

IEC 60865-1, *Short-circuit currents – Calculation of effects – Part 1: Definitions and calculation methods*