

STN	Vysokonapäťové spínacie a riadiace zariadenia Časť 102: Odpájače a uzemňovacie spínače na striedavý prúd	STN EN IEC 62271-102 35 4220
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High-voltage switchgear and controlgear - Part 102: Alternating current disconnectors and earthing switches

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/19

Obsahuje: EN IEC 62271-102:2018, IEC 62271-102:2018

Oznámením tejto normy sa od 19.06.2021 ruší
STN EN 62271-102 (35 4220) z decembra 2003

127826

EUROPEAN STANDARD

EN IEC 62271-102

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2018

ICS 29.130.10; 29.130.99

Supersedes EN 62271-102:2002

English Version

High-voltage switchgear and controlgear -
Part 102: Alternating current disconnectors and earthing
switches
(IEC 62271-102:2018)

Appareillage à haute tension -
Partie 102: Sectionneurs et sectionneurs de terre à courant
alternatif
(IEC 62271-102:2018)

Hochspannungs-Schaltgeräte und -Schaltanlagen -
Teil 102: Wechselstrom-Trennschalter und -
Erdungsschalter
(IEC 62271-102:2018)

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EN IEC 62271-102:2018**European foreword**

The text of document 17A/1173/FDIS, future edition 2 of IEC 62271-102, 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 62271-102:2018.

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) 2019-03-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-06-19

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60507:2013	NOTE	Harmonized as EN 60507:2014 (not modified).
IEC 60447:2004	NOTE	Harmonized as EN 60447:2004 (not modified).
IEC 60060-1:2010	NOTE	Harmonized as EN 60060-1:2010 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-151	-	International Electrotechnical Vocabulary - - Part 151: Electrical and magnetic devices		-
IEC 60050-441	-	International Electrotechnical Vocabulary - (IEV) - 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 guidelines	EN IEC 60071-2	-
IEC 60137	-	Insulated bushings for alternating voltages above 1000 V	EN 60137	-
IEC 60270	-	High-voltage test techniques - Partial discharge measurements	EN 60270	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 corr. May	1991 1993
+A1	1999		+A1	2000
+A2	2013		+A2	2013
IEC 60865-1	-	Short-circuit currents - Calculation of effects - Part 1: Definitions and calculation methods	EN 60865-1	-
IEC 62262	2002	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	2002
IEC 62271-1	2017	High-voltage switchgear and controlgear - Part 1: Common specifications for alternating current switchgear and controlgear	EN 62271-1	2017

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62271-100 +A1 +A2	2008 2012 2017	High-voltage switchgear and controlgear - Part 100: Alternating current circuit- breakers	EN 62271-100 +A1 +A2	2009 2012 2017
IEC 62271-101 +A1	2012 2017	High-voltage switchgear and controlgear - Part 101: Synthetic testing	EN 62271-101 -	2013 -
IEC 62271-200	2011	High-voltage switchgear and controlgear - Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	EN 62271-200	2012
IEC 62271-201	2014	High-voltage switchgear and controlgear - Part 201: AC solid-insulation enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	EN 62271-201	2014
IEC 62271-203	2011	High-voltage switchgear and controlgear - Part 203: Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV	EN 62271-203	2012
IEC/TR 62271-305	-	High-voltage switchgear and controlgear - Part 305: Capacitive current switching capability of air-insulated disconnectors for rated voltages above 52 kV	-	-
ISO 2768-1	-	General tolerances - Part 1: Tolerances for linear and angular dimensions without individual tolerance indications	EN 22768-1	-



IEC 62271-102

Edition 2.0 2018-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**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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IEC 62271-102

Edition 2.0 2018-05

INTERNATIONAL STANDARD

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Part 102: Alternating current disconnectors and earthing switches**

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ICS 29.130.10; 29.130.99

ISBN 978-2-8322-5654-1

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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
- amended.

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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*

IEC 62262:2002, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

IEC 62271-1:2017, *High-voltage switchgear and controlgear – Part 1: Common specifications for alternating current switchgear and controlgear*

IEC 62271-100:2008, *High-voltage switchgear and controlgear – Part 100: Alternating current circuit-breakers*

IEC 62271-100:2008/AMD1:2012

IEC 62271-100:2008/AMD2:2017

IEC 62271-101:2012, *High-voltage switchgear and controlgear – Part 101: Synthetic testing*

IEC 62271-101:2012/AMD1:2017

IEC 62271-200:2011, *High-voltage switchgear and controlgear – Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

IEC 62271-201:2014, *High-voltage switchgear and controlgear – Part 201: AC solid-insulation enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

IEC 62271-203:2011, *High-voltage switchgear and controlgear – Part 203: Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV*

IEC/TR 62271-305, *High-voltage switchgear and controlgear – Part 305: Capacitive current switching capability of air-insulated disconnectors for rated voltages above 52 kV*

ISO 2768-1, *General tolerances – Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

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