

SVENSK STANDARD

SS-EN IEC 62271-110, utg 5:2023

2023-12-13

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REDLINE VERSION

Kopplingsapparater för spänning över 1 kV – Del 110: Koppling av induktiva laster

High-voltage switchgear and controlgear – Part 110: Inductive load switching

En så kallad "Redline version" (RLV) innehåller både standarden som fastställts som SS och en ändringsmarkerad IEC-standard. Alla tillägg och borttagningar sedan den tidigare utgåvan av IEC-standarden är markerade med färg. Med en RLV sparar du mycket tid när du ska identifiera och bedöma aktuella ändringar i standarden. SEK Svensk Elstandard kan bara ge ut RLV i de fall den finns tillgänglig från IEC.





Edition 5.0 2023-03 REDLINE VERSION

INTERNATIONAL STANDARD



High-voltage switchgear and controlgear – Part 110: Inductive load switching

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 29.130.10 ISBN 978-2-8322-6692-2

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR -

Part 110: Inductive load switching

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 62271-110:2017. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 62271-110 has been prepared by subcommittee 17A: Switching devices, of IEC technical committee 17: High-voltage switchgear and controlgear. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2017. This edition constitutes a technical revision.

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

a) references to IEC 62271-100 and IEC 62271-106 have been updated to the latest editions.

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

Draft	Report on voting
17A/1368/FDIS	17A/1376/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/publications.

A list of all parts of the IEC 62271 series can be found, under the general title *High-voltage* switchgear and controlgear, 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 110: Inductive load switching

1 Scope

This part of IEC 62271 is applicable to AC switching devices designed for indoor or outdoor installation, for operation at frequencies of 50 Hz and 60 Hz on systems having voltages above 1 000 V and applied for inductive current switching. It is applicable to switching devices (including circuit-breakers in accordance with IEC 62271-100) that are used to switch high-voltage motor currents and shunt reactor currents and also to high-voltage contactors used to switch high-voltage motor currents as covered by IEC 62271-106.

Switching unloaded transformers, i.e. breaking transformer magnetizing current, is not considered in this document. The reasons for this are as follows:

- a) Owing to the non-linearity of the transformer core, it is not possible to correctly model the switching of transformer magnetizing current using linear components in a test laboratory. Tests conducted using an available transformer, such as a test transformer, will only be valid for the transformer tested and cannot be representative for other transformers.
- b) As detailed in IEC TR 62271-306, the characteristics of this duty are usually less severe than any other inductive current switching duty. Such a duty—may can produce severe overvoltages within the transformer winding(s) depending on the re-ignition behaviour of the switching device and transformer winding resonance frequencies.

NOTE 1 The switching of tertiary reactors from the high-voltage side of the transformer is not covered by this document.

NOTE 2 The switching of shunt reactors earthed through neutral reactors is not covered by this document. However, the application of test results according to this document, on the switching of neutral reactor earthed reactors (4-leg reactor scheme), is discussed in IEC TR 62271-306.

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 60050-441, International Electrotechnical Vocabulary (IEV) – Part 441: Switchgear, controlgear and fuses, available at www.electropedia.org

IEC 62271-1:2017, High-voltage switchgear and controlgear – Part 1: Common specifications for alternating current switchgear and controlgear IEC 62271-1:2017/AMD1:2021

IEC 62271-100:20082021, High-voltage switchgear and controlgear – Part 100: Alternating-current circuit-breakers

IEC 62271-100:2008/AMD1:2012

IEC 62271-106:20112021, High-voltage switchgear and controlgear – Part 106: Alternating current contactors, contactor-based controllers and motor-starters



SVENSK STANDARD SS-EN IEC 62271-110, utg 5:2023

Fastställd 2023-12-13

Sida 1 (32) Ansvarig kommitté

SEK TK 17AC

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Kopplingsapparater för spänning över 1 kV – Del 110: Koppling av induktiva laster

High-voltage switchgear and controlgear – Part 110: Inductive load switching

Som svensk standard gäller europastandarden EN IEC 62271-110:2023. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 62271-110:2023.

Nationellt förord

Europastandarden EN IEC 62271-110:2023

består av:

- europastandardens ikraftsättningsdokument, utarbetat inom CENELEC
- IEC 62271-110, Fifth edition, 2023 High-voltage switchgear and controlgear Part 110: Inductive load switching

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN IEC 62271-110, utg 4:2018 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2026-04-20.

ICS 29.130.10

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EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN IEC 62271-110

April 2023

ICS 29.130.10

Supersedes EN IEC 62271-110:2018; EN IEC 62271-110:2018/AC:2018-03

English Version

High-voltage switchgear and controlgear - Part 110: Inductive load switching (IEC 62271-110:2023)

Appareillage à haute tension - Partie 110: Manœuvre de charges inductives (IEC 62271-110:2023)

Hochspannungs-Schaltgeräte und -Schaltanlagen - Teil 110: Schalten induktiver Lasten (IEC 62271-110:2023)

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Ref. No. EN IEC 62271-110:2023 E

European foreword

The text of document 17A/1368/FDIS, future edition 5 of IEC 62271-110, 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 62271-110:2023.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2024-01-20 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2026-04-20 document have to be withdrawn

This document supersedes EN IEC 62271-110:2018 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of the International Standard IEC 62271-110:2023 was approved by CENELEC as a European Standard without any modification.

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.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	EN/HD	<u>Year</u>
IEC 60050-441	-	International Electrotechnical Vocabulary (IEV) – Part 441: Switchgear, controlgear and fuses	-	-
IEC 62271-1	2017	High-voltage switchgear and controlgear - Part 1: Common specifications for alternating current switchgear and controlgear	EN 62271-1	2017
+ AMD1	2021		+ A1	2021
IEC 62271-100	2021	High-voltage switchgear and controlgear - Part 100: Alternating-current circuit- breakers	EN IEC 62271-100	2021
IEC 62271-106	2021	High-voltage switchgear and controlgear - Part 106: Alternating current contactors, contactor-based controllers and motor- starters	EN IEC 62271-106	2021



Edition 5.0 2023-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

High-voltage switchgear and controlgear – Part 110: Inductive load switching

Appareillage à haute tension – Partie 110: Manœuvre de charges inductives

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR -

Part 110: Inductive load switching

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HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR -

Part 110: Inductive load switching

1 Scope

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- a) Owing to the non-linearity of the transformer core, it is not possible to correctly model the switching of transformer magnetizing current using linear components in a test laboratory. Tests conducted using an available transformer, such as a test transformer, will only be valid for the transformer tested and cannot be representative for other transformers.
- b) As detailed in IEC TR 62271-306, the characteristics of this duty are usually less severe than any other inductive current switching duty. Such a duty can produce severe overvoltages within the transformer winding(s) depending on the re-ignition behaviour of the switching device and transformer winding resonance frequencies.

NOTE 1 The switching of tertiary reactors from the high-voltage side of the transformer is not covered by this document.

NOTE 2 The switching of shunt reactors earthed through neutral reactors is not covered by this document. However, the application of test results according to this document, on the switching of neutral reactor earthed reactors (4-leg reactor scheme), is discussed in IEC TR 62271-306.

2 Normative references

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

IEC 62271-106:2021, High-voltage switchgear and controlgear – Part 106: Alternating current contactors, contactor-based controllers and motor-starters