

Visokonapetostne stikalne naprave – 107. del: Stikala za izmenični tok z vgrajeno varovalko za naznačene napetosti nad 1 kV do vključno 52 kV (IEC 62271-107:2005)

High-voltage switchgear and controlgear – Part 107: Alternating current fused circuit-switchers for rated voltages above 1 kV up to and including 52 kV (IEC 62271-107:2005)

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High-voltage switchgear and controlgear
Part 107: Alternating current fused circuit-switchers for rated voltages
above 1 kV up to and including 52 kV
(IEC 62271-107:2005)

Appareillage à haute tension
Partie 107: Circuits-switchers fusibles
pour courant alternatif de tension
assignée supérieure à 1 kV et jusqu'à
52 kV inclus
(CEI 62271-107:2005)

Hochspannungs-Schaltgeräte und
-Schaltanlagen
Teil 107: Wechselstrom-
Leistungsschalter-Sicherungs-
Kombinationen für
Bemessungsspannungen über 1 kV
bis einschließlich 52 kV
(IEC 62271-107:2005)

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 17A/732/FDIS, future edition 1 of IEC 62271-107, prepared by SC 17A, High-voltage switchgear and controlgear, of IEC TC 17, Switchgear and controlgear, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62271-107 on 2005-10-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2006-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2008-10-01

This European Standard should be read in conjunction with EN 60694:1996, 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 is used as in EN 60694. Additional subclauses are numbered from 101.

Annex ZA has been added by CENELEC.

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The text of the International Standard IEC 62271-107:2005 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-441	- ¹⁾	International Electrotechnical Vocabulary (IEV) Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60265-1	- ¹⁾	High-voltage switches Part 1: Switches for rated voltages above 1 kV and less than 52 kV	EN 60265-1	1998 ²⁾
IEC 60282-1	2002	High-voltage fuses Part 1: Current-limiting fuses	EN 60282-1	2002
IEC 60466	- ¹⁾	AC insulation-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 38 kV	-	-
IEC 60694	- ¹⁾	Common specifications for high-voltage switchgear and controlgear standards	EN 60694 + corr. May	1996 ²⁾ 1999
IEC 60787	- ¹⁾	Application guide for the selection of fuse-links of high-voltage fuses for transformer circuit applications	-	-
IEC 62271-100	- ¹⁾	High-voltage switchgear and controlgear Part 100: High-voltage alternating-current circuit-breakers	EN 62271-100	2001 ²⁾
IEC 62271-102	- ¹⁾	Part 102: Alternating current disconnectors and earthing switches	EN 62271-102	2002 ²⁾
IEC 62271-105	- ¹⁾	Part 105: Alternating current switch-fuse combinations	EN 62271-105	2003 ²⁾
IEC 62271-200	- ¹⁾	Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	EN 62271-200	2004

1) Undated reference.

2) Valid edition at date of issue.

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Partie 107:

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High-voltage switchgear and controlgear –

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Part 107:

Alternating current fused circuit-switchers
for rated voltages above 1 kV up to and
including 52 kV

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Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

**Part 107: Alternating current fused circuit-switchers
for rated voltages above 1 kV up to and including 52 kV**

FOREWORD

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International Standard IEC 62271-107 has been prepared by subcommittee 17A: High voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

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

FDIS	Report on voting
17A/732/FDIS	17A/739/RVD

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

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

This standard should be read in conjunction with IEC 60694, second edition, published in 1996, 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 is used as in IEC 60694. Amendments to these clauses and subclauses are given under the same numbering, whilst additional subclauses are numbered from 101.

The list of other parts of the IEC 62271 series can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
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HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 107: Alternating current fused circuit-switchers for rated voltages above 1 kV up to and including 52 kV

1 General

1.1 Scope

This part of IEC 62271 applies to three-pole operated units for distribution systems that are functional assemblies of a circuit-switcher and current-limiting fuses designed so as to be capable of:

- breaking, at the rated recovery voltage, any load or fault current up to and including the rated short-circuit breaking current;
- making, at the rated voltage, circuits to which the rated short-circuit breaking current applies.

They are intended to be used for circuits or applications requiring only a normal mechanical and electrical endurance capability. Such applications cover protection of HV/LV transformers for instance, but exclude distribution lines or cables, as well as motor circuits and capacitor bank circuits.

Short-circuit conditions with low currents, up to the fused circuit-switcher rated take-over current, are dealt with by supplementary devices (strickers, relays, etc.), properly arranged, tripping the circuit-switcher. Fuses are incorporated in order to ensure that the short-circuit breaking capacity of the device is above that of the circuit-switcher.

NOTE 1 In this standard the term "fuse" is used to designate either the fuse or the fuse-link where the general meaning of the text does not result in ambiguity.

This standard applies to fused circuit-switchers designed with rated voltages above 1 kV up to and including 52 kV for use on three-phase alternating current systems of either 50 Hz or 60 Hz. Comparison with other existing switching devices is provided in Clause 8.

NOTE 2 Other circuit-switchers exist; see reference [1] of the bibliography.

Fuses are covered by IEC 60282-1.

Earthing switches forming an integral part of a circuit-switcher are covered by IEC 62271-102.

Installation in enclosure, if any, is covered either by IEC 62271-200 or by IEC 60466.

1.2 Normative references

The following referenced documents are indispensable for the application 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) – Chapter 441: Switchgear, controlgear and fuses*

IEC 60265-1: *High-voltage switches – Part 1: Switches for rated voltages above 1 kV and less than 52 kV*

IEC 60282-1: 2002, *High-voltage fuses – Part 1: Current-limiting fuses*

IEC 60466: *A.C. insulation-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 38 kV*

IEC 60694: *Common specifications for high-voltage switchgear and controlgear standards*

IEC 60787: *Application guide for the selection of fuse-links of high-voltage fuses for transformer circuit applications*

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

IEC 62271-102: *High-voltage switchgear and controlgear – Part 102: Alternating current disconnectors and earthing switches*

IEC 62271-105: *High-voltage switchgear and controlgear – Part 105: Alternating current switch-fuse combinations*

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

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2 Normal and special service conditions

Clause 2 of IEC 60694 is applicable.

3 Terms and definitions

For the purposes of this document, the terms and definitions of IEC 60050(441) and IEC 60694 apply. Some of them are recalled here for ease of reference.

The definitions given below are also applicable. Additional definitions are classified so as to be aligned with the classification used in IEC 60050(441). The definitions of IEC 60050(441) are not repeated but reference is made to their specific number.

3.1 General terms

None

3.2 Assemblies of switchgear and controlgear

None.

3.3 Parts of assemblies

None.

3.4 Switching devices

3.4.101

circuit-switcher

mechanical switching device suitable for making, carrying and interrupting currents under normal circuit conditions. It is also suitable for interrupting specified fault currents that may be less than its short-time withstand current.

NOTE Other circuit-switchers exist; see reference [1] of the bibliography.

3.4.102

fused circuit-switcher

device comprising a three-pole circuit-switcher and three current limiting fuses, capable of making and breaking any load or fault current up to its short-circuit breaking current, under TRV and power factor conditions defined in this standard

3.4.103

fused circuit-switcher base (or device base)

fused circuit-switcher without fuse-links mounted

3.4.104

non-sustained disruptive discharge (NSDD)

disruptive discharge associated with current interruption, that does not result in the resumption of power frequency current or, in the case of capacitive current interruption does not result in current at the natural frequency of the circuit

3.5 Parts of switchgear and controlgear

3.5.101

release

[IEV 441-15-17]

3.5.102

over-current release

[IEV 441-16-33]

3.5.103

shunt release

[IEV 441-16-41]

3.6 Operation

3.6.101

independent manual operation (of the fused circuit-switcher)

[IEV 441-16-16]

3.6.102

stored energy operation (of the fused circuit-switcher)

[IEV 441-16-15]

3.7 Characteristic quantities

3.7.101

prospective current (of a circuit and with respect to a switching device or a fuse)

[IEV 441-17-01]

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