



SLOVENSKI STANDARD

SIST EN 60265-1:2001

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

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

Hochspannungs-Lastschalter -- Teil 1: Hochspannungs-Lastschalter für Nennspannungen über 1 kV und unter 52 kV

Interrupteurs à haute tension -- Partie 1: Interrupteurs pour tensions assignées supérieures à 1 kV et inférieures à 52 kV

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Ta slovenski standard je istoveten z: EN 60265-1:1998

ICS:

29.130.10	Visokonapetostne stikalne in krmilne naprave	High voltage switchgear and controlgear
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

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April 1998

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Supersedes HD 355.1 S3:1995

Descriptors: Switches, high voltage, tests, characteristics

English version

High-voltage switches
Part 1: Switches for rated voltages above 1 kV and less than 52 kV
(IEC 60265-1:1998)

Interrupteurs à haute tension
Partie 1: Interrupteurs pour tensions
assignées supérieures à 1 kV et
inférieures à 52 kV
(CEI 60265-1:1998)

Hochspannungs-Lastschalter
Teil 1: Hochspannungs-Lastschalter
für Nennspannungen über 1 kV und
unter 52 kV
(IEC 60265-1:1998)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

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/512/FDIS, future edition 3 of IEC 60265-1, 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 60265-1 on 1998-04-01.

This European Standard supersedes HD 355.1 S3:1995.

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) 1999-01-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2001-01-01

This standard refers to EN 60694:1996, which is applicable unless otherwise specified in this standard. In order to simplify the indication of corresponding requirements, the same numbering of clauses and subclauses is used as in EN 60694. Amendments to these clauses and subclauses are given under the same references whilst additional subclauses are numbered from 101.

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60265-1:1998 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)**Normative references to international publications
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When 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)	1984	International Electrotechnical Vocabulary (IEV) Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60056 (mod)	1987	High-voltage alternating-current circuit-breakers	HD 348 S7 ¹⁾	1998
IEC 60059	1938	IEC standard current ratings	-	-
IEC 60071-1	1993	Insulation co-ordination Part 1: Definitions, principles and rules	EN 60071-1	1995
IEC 60129	1984	Alternating current disconnectors and earthing switches	EN 60129	1994
IEC 60420	1990	High-voltage alternating current switch-fuse combinations	EN 60420	1993
IEC 60694	1996	Common specifications for high-voltage switchgear and controlgear standards	EN 60694 + corr. April	1996 1998
IEC 61233	1994	High-voltage alternating current circuit-breakers - Inductive load switching	-	-

1) HD 348 S7 includes A3:1996 to IEC 60056, mod.

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**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

60265-1

Troisième édition
Third edition
1998-01

Interrupteurs à haute tension –

**Partie 1:
Interrupteurs pour tensions assignées
supérieures à 1 kV et inférieures à 52 kV**

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High-voltage switches –

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**Part 1:
Switches for rated voltages above 1 kV
and less than 52 kV**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHES –

Part 1: Switches for rated voltages above 1 kV and less than 52 kV

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
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- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60265-1 has been prepared by subcommittee 17A: High-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

This standard refers to IEC 60694, second edition, published in 1996, which is applicable unless otherwise specified in this standard. 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 references whilst additional subclauses are numbered from 101.

This third edition cancels and replaces the second edition published in 1983 and its amendments 1 (1984) and 2 (1994), and constitutes a technical revision.

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

FDIS	Report on voting
17A/512/FDIS	17A/519/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.

HIGH-VOLTAGE SWITCHES –

Part 1: Switches for rated voltages above 1 kV and less than 52 kV

1 General

1.1 Scope

This part of IEC 60265 is applicable to three-phase, alternating current switches and switch-disconnectors having making and breaking current ratings, for indoor and outdoor installations, for rated voltages above 1 kV and less than 52 kV and for rated frequencies from 16 $\frac{2}{3}$ Hz up to and including 60 Hz.

This standard is also applicable to the operating devices of these switches and to their auxiliary equipment.

Switch-disconnectors are also covered by IEC 60129.

General principles and provisions of this standard may also be applicable to single pole switches intended for application in single-phase systems. The requirements for dielectric tests and making and breaking tests should be in accordance with the requirements of the specific application.

NOTE 1 – Except where special clarification is required, the term "switch" is used to refer to all kinds of switches and switch-disconnectors within the scope of this standard.

NOTE 2 – Earthing switches are not covered by this standard. Earthing switches forming an integral part of a switch are covered by IEC 60129.

NOTE 3 – This standard is not applicable to switching devices attached as an accessory to a high-voltage fuse assembly or its mounting and operated by opening and closing the fuse assembly.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60265. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 60265 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050(441):1984, *International Electrotechnical Vocabulary (IEV) – Chapter 441: Switchgear, controlgear and fuses*

IEC 60056:1987, *High-voltage alternating-current circuit-breakers*

IEC 60059:1938, *IEC standard current ratings*

IEC 60071-1:1993, *Insulation coordination – Part 1: Definitions, principles and rules*

IEC 60129:1984, *Alternating current disconnectors and earthing switches*

IEC 60420:1990, *High-voltage alternating current switch-fuse combinations*

IEC 60694:1996, *Common specifications for high-voltage switchgear and controlgear standards*

IEC 61233:1994, *High-voltage alternating current circuit-breakers – Inductive load switching*

1.101 General requirements

The main purpose of this standard is to establish requirements for general purpose switches used in distribution systems.

General purpose switches shall comply with the following service applications:

- carrying normal current continuously;
- switching of mainly active loads;
- switching of distribution line closed-loop circuits;
- switching of no-load transformers;
- switching of the charging current of unloaded cables and overhead lines;
- carrying short-circuit currents for a specified time;
- making short-circuit currents.

General purpose switches intended for use in isolated neutral systems or in systems earthed by a high impedance shall be capable of switching under earth fault conditions.

A further object of this standard is to establish requirements for limited purpose and special purpose switches used in distribution systems.

Limited purpose switches shall have a rated normal current, a rated short-time withstand current, and one or more, but not all, of the switching capabilities of a general purpose switch.

Special purpose switches shall have a rated normal current, a rated short-time withstand current, a rated short-circuit making current and, in addition, shall be suitable for one or more of the following applications:

- switching single capacitor banks;
- switching back-to-back capacitor banks;
- switching of closed-loop circuits consisting of large power transformers in parallel;
- switching of motors under steady-state and stalled conditions.

It is assumed that opening and closing operations are performed according to the manufacturer's instructions. A making operation may immediately follow a breaking operation but a breaking operation shall not immediately follow a making operation since the current to be broken may then exceed the rated breaking current of the switch.

2 Normal and special service conditions

IEC 60694 is applicable.

3 Definitions

For the purpose of this part of IEC 60265, the definitions of IEC 60050(441) and IEC 60694 apply. Some of them are recalled hereunder for easier use.

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

3.1 General terms

No particular definitions.

3.2 Assemblies

No particular definitions.

3.3 Parts of assemblies

No particular definitions.

3.4 Switching devices

3.4.101

switch

switching device capable of making, carrying and breaking currents under normal circuit conditions, which may include specified operating overload conditions and also carrying for a specified time currents under specified abnormal circuit conditions, such as those of a short-circuit [IEV 441-14-10, modified]

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3.4.102

switch-disconnector

[IEV 441-14-12] <https://standards.iteh.ai/catalog/standards/sist/d0062d3f-935d-483e-80bb-d98fd3ff99fe/sist-en-60265-1-2001>

3.4.103

general purpose switch

switch capable of performing, with currents up to its rated breaking currents, all making and breaking operations which may normally occur in distribution systems. The switch shall also be capable of carrying and making short-circuit currents.

3.4.103.1

class E1 general purpose switch

general purpose switch suitable for applications in normally continuously fed parts of distribution system and where infrequent switching operations are performed

3.4.103.2

class E2 general purpose switch

general purpose switch designed so as not to require inspection or maintenance of the interrupting parts of the main circuit and only minimal maintenance of its other parts during its expected operating life

NOTE – Minimal maintenance may include lubrication, replenishment of gas, and cleaning of external surfaces, where applicable.

3.4.103.3

class E3 general purpose switch

general purpose switch having the capability of frequent switching of higher currents and a higher frequency of making on short-circuits

3.4.103.4**class M1 general purpose switch**

general purpose switch suitable for applications requiring a mechanical endurance of 1 000 operations

3.4.103.5**class M2 general purpose switch**

general purpose switch suitable for special service applications and for frequent operation having an extended mechanical endurance of 5 000 operations

NOTE – Class M2 switches may also be suitable for limited purpose and special purpose switch classifications.

3.4.104**limited purpose switch**

switch which has a rated normal current, a rated short-time withstand current, and one or more switching capabilities of a general purpose switch

3.4.105**special purpose switch**

switch which has a rated normal current, a rated short-time withstand current, a rated short-circuit making current, and is capable of performing specific service duties for special applications

NOTE 1 – Examples of such special requirements are capacitor bank switching, motor switching and parallel power-transformer switching.

NOTE 2 – In certain applications, other devices are utilized which will make short circuits or prevent the switch from making on a short circuit. In these applications, a short-circuit making capability is not required. The user should specify accordingly.

3.4.105.1**single capacitor bank switch**

special purpose switch intended for switching of a single capacitor bank with charging currents up to its rated single capacitor bank breaking current

3.4.105.2**back-to-back capacitor bank switch**

special purpose switch intended for breaking capacitor bank charging currents with one or more capacitor banks connected to the supply side of the switch up to its rated back-to-back capacitor bank breaking current. The switch shall be capable of making the associated inrush current up to its rated capacitor bank inrush making current.

3.4.105.3**motor switch**

special purpose switch intended for switching of motors under steady-state and stalled conditions

3.4.105.4**parallel power transformer closed-loop switch**

special purpose switch intended for switching a closed-loop circuit consisting of large power transformers in parallel. The switch is typically applied as a medium voltage tie switch on the transformer secondary circuit such that the breaking current is high and the transient recovery voltage (TRV) conditions are severe.