

Kopplingsutrustningar för högst 1000 V växelspänning eller 1500 V likspänning – Del 1: Fordringar på typkontrollerade och delvis typkontrollerade utrustningar

*Low-voltage switchgear and controlgear assemblies –
Part 1: Type-tested and partially type-tested assemblies*

Denna svenska standard finns även utgiven i svensk språkversion.

Som svensk standard gäller europastandarden EN 60439-1:1999 jämte Amendment A1:2004. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60439-1:1999 jämte Amendment A1:2004. Tillägget A1 har inarbetats i texten, vilket anges med ett lodrat streck i marginalen.

Nationellt förord

Europastandarden EN 60439-1:1999

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60439-1, Fourth edition, 1999 - Low-voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type-tested assemblies**

utarbetad inom International Electrotechnical Commission, IEC.

Europastandarden EN 60439-1:1999/A1:2004

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **Amendment No. 1, 2004 till IEC 60439-1, 1999 - Low-voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type-tested assemblies**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60439-1, utgåva 3, 2000, gäller ej fr o m 2007-04-01.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

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Stora delar av arbetet sker internationellt

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Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

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Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK

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English version

Low-voltage switchgear and controlgear assemblies
Part 1: Type-tested and partially type-tested assemblies
(IEC 60439-1:1999)

Ensembles d'appareillage à basse tension
Partie 1: Ensembles de série et
ensembles dérivés de série
(CEI 60439-1:1999)

Niederspannung-
Schaltgerätekombinationen
Teil 1: Typgeprüfte und partiell typgeprüfte
Kombinationen
(IEC 60439-1:1999)

This European Standard was approved by CENELEC on 1999-08-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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 17D/214A/FDIS, future amendment to IEC 60439-1:1992, prepared by SC 17D, Low-voltage switchgear and controlgear assemblies, of IEC TC 17, Switchgear and controlgear, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A3 to EN 60439-1:1994 on 1999-08-01.

The text of this document, together with that of IEC 60439-1:1992 and its amendments 1:1995 and 2:1996, was published by IEC as the fourth edition of IEC 60439-1 in September 1999. According to a decision of principle taken by the Technical Board of CENELEC, the approval of EN 60439-1:1994/A3 has been converted into the approval of a new EN 60439-1.

This European Standard supersedes EN 60439-1:1994 + A1:1995 + A11:1996 + A2:1997.

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) 2000-07-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2002-08-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes A, B, F, G and ZA are normative and annexes C, D and E are informative. Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60439-1:1999 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60364-5-537 NOTE: Harmonized, together with its amendment 1:1989, as HD 384.5.537 S2:1998 (modified).

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 60038 (mod)	1983	IEC standard voltages ¹⁾	HD 472 S1	1989
IEC 60050-441	1984	International Electrotechnical Vocabulary (IEV) Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60050-471	1984	Chapter 471: Insulators	-	-
IEC 60050-604	1987	Chapter 604: Generation, transmission and distribution of electricity - Operation	-	-
IEC 60050-826	1982	Chapter 826: Electrical installations of buildings	HD 384.2 S1	1986
IEC 60060	series	High-voltage test techniques	HD 588.1 S1 EN 60060-2 + A11	1991 1994 1998
IEC 60071-1	1976 ²⁾	Insulation co-ordination Part 1: Terms, definitions, principles and rules	-	-
IEC 60073	1996	Basic and safety principles for man-machine interface, marking and identification Coding principles for indication devices and actuators	EN 60073	1996
IEC 60099-1	1991	Surge arresters Part 1: Non-linear resistor type gapped surge arresters for a.c. systems	EN 60099-1	1994
IEC 60112	1979	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980

¹⁾ The title of HD 472 S1 is: Nominal voltages for low-voltage public electricity supply systems.

²⁾ IEC 60071-1:1993 is harmonized as EN 60071-1:1995.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60146-2	1974	Semiconductors converters Part 2: Semiconductor self-commutated converters	-	-
IEC 60158-2 (mod)	1982	Low-voltage controlgear Part 2: Semiconductor contactors (solid state contactors)	HD 419.2 S1	1987
IEC 60227-3 (mod)	1993	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V Part 3: Non-sheathed cables for fixed wiring	HD 21.3 S3	1995
IEC 60227-4	1992 ³⁾	Part 4: Sheathed cables for fixed wiring	-	-
IEC 60245-3	1994 ⁴⁾	Rubber insulated cables of rated voltages up to and including 450/750 V Part 3: Heat resistant silicone insulated cables	-	-
IEC 60245-4 (mod)	1994	Part 4: Cords and flexible cables	HD 22.4 S3	1995
IEC 60269	series	Low-voltage fuses	EN 60269 HD 630	series series
IEC 60364-3 (mod)	1993	Electrical installations of buildings Part 3: Assessment of general characteristics	HD 384.3 S2	1995
IEC 60364-4-41 (mod)	1992	Part 4: Protection for safety Chapter 41: Protection against electric shock	HD 384.4.41 S2	1996
IEC 60364-4-443 (mod)	1995	Chapter 44: Protection against overvoltages Section 443: Protection against overvoltages of atmospheric origin or due to switching	HD 384.4.443 S1	1999
IEC 60364-4-46 (mod)	1981	Chapter 46: Isolation and switching	HD 384.4.46 S1	1987
IEC 60364-5-54 (mod)	1980	Part 5: Selection and erection of electrical equipment Chapter 54: Earthing arrangements and protective conductors	HD 384.5.54 S1	1988
IEC 60417	1973	Graphical symbols for use on equipment Index, survey and compilation of the single sheets	HD 243 S12 ⁵⁾	1995

³⁾ IEC 60227-4:1979, mod., is harmonized as HD 21.4 S2:1990.

⁴⁾ IEC 60245-3:1980, mod., is harmonized as HD 22.3 S3:1995.

⁵⁾ HD 243 S12 includes supplements A:1974 to M:1994 to IEC 60417.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60445	1988	Identification of equipment terminals and of terminations of certain designated conductors, including general rules for an alphanumeric system	EN 60445	1990
IEC 60446	1989 ⁶⁾	Identification of conductors by colours or numerals	-	-
IEC 60447	1993	Man-machine interface (MMI) - Actuating principles	EN 60447	1993
IEC 60502	1994	Extruded solid dielectric insulated power cables for rated voltages from 1 kV up to 30 kV	-	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60664-1 (mod)	1992	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	HD 625.1 S1 + corr. November	1996 1996
IEC 60750	1983	Item designation in electrotechnology	-	-
IEC 60865	series	Short-circuit currents - Calculation of effects	EN 60865	series
IEC 60890 + corr. March + A1	1987 1988 1995	A method of temperature-rise assessment by extrapolation for partially type-tested assemblies (PTTA) of low-voltage switchgear and controlgear	HD 528 S2	1997
IEC 60947-1 (mod)	1988	Low-voltage switchgear and controlgear Part 1: General rules	EN 60947-1 ⁷⁾ + corr. June	1991 1997
IEC 60947-3	1999	Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units	EN 60947-3	1999
IEC 60947-4-1	1990	Part 4: Contactors and motor-starters Section 1: Electromechanical contactors and motor-starters	EN 60947-4-1 + corr. June	1992 1997
IEC 61000-4-2	1995	Electromagnetic compatibility (EMC) Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test - Basic EMC publication	EN 61000-4-2	1995
IEC 61000-4-3 (mod)	1995	Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	1996

⁶⁾ IEC 60446:1999 is harmonized as EN 60446:1999.

⁷⁾ EN 60947-1 is superseded by EN 60947-1:1999, which is based on IEC 60947-1:1999.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-4	1995	Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test - Basic EMC publication	EN 61000-4-4	1995
IEC 61000-4-5	1995	Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	1995
IEC 61117	1992	A method for assessing the short-circuit withstand strength of partially type-tested assemblies (PPTA)	-	-
CISPR 11 (mod)	1990	Limits and methods of measurement of electromagnetic disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment	EN 55011 ⁸⁾	1991

⁸⁾ EN 55011 is superseded by EN 55011:1998, which is based on CISPR 11:1997 (mod.).

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES –

Part 1: Type-tested and partially type-tested assemblies

1 General

1.1 Scope and object

This International Standard applies to low-voltage switchgear and controlgear ASSEMBLIES (type-tested ASSEMBLIES (TTA) and partially type-tested ASSEMBLIES (PTTA)), the rated voltage of which does not exceed 1 000 V a.c. at frequencies not exceeding 1 000 Hz, or 1 500 V d.c.

This standard also applies to ASSEMBLIES incorporating control and/or power equipment, the frequencies of which are higher. In this case, appropriate additional requirements will apply.

This standard applies to stationary or movable ASSEMBLIES with or without enclosure.

NOTE Additional requirements for certain specific types of assemblies are given in supplementary IEC standards.

This standard applies to ASSEMBLIES intended for use in connection with the generation, transmission, distribution and conversion of electric energy, and for the control of electric energy consuming equipment.

It also applies to ASSEMBLIES designed for use under special service conditions, for example in ships, in rail vehicles, for hoisting equipment or in explosive atmospheres, and for domestic (operated by unskilled persons) applications, provided that the relevant specific requirements are complied with.

This standard applies also to ASSEMBLIES designed for electrical equipment of machines. However, where applicable the additional requirements of IEC 60204-1 have to be fulfilled.

This standard does not apply to individual devices and self-contained components, such as motor starters, fuse switches, electronic equipment, etc. complying with their relevant standards.

The object of this standard is to lay down the definitions and to state the service conditions, construction requirements, technical characteristics and tests for low-voltage switchgear and controlgear ASSEMBLIES.

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 60038:1983, *IEC standard voltages*

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