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Sestavi nizkonapetostnih stikalnih in krmilnih naprav – 1. del: Tipsko preskušeni in delno tipsko preskušeni sestavi

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

Niederspannungs-Schaltgerätekombinationen -- Teil 1: Typgeprüfte und partiell typgeprüfte Kombinationen

Ensembles d'appareillage à basse tension -- Partie 1: Ensembles de série et ensembles dérivés de série

Ta slovenski standard je istoveten z: EN 60439-1:1999

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29.130.20	Nizkonapetostne stikalne in krmilne naprave	Low voltage switchgear and controlgear
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60439-1

October 1999

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Supersedes EN 60439-1:1994 and its amendments

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)

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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.

Page 6
EN 60439-1:1999

<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

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8) EN 55011 is superseded by EN 55011:1998, which is based on CISPR 11:1997 (mod.).

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Ensembles d'appareillage à basse tension –

Partie 1:

Ensembles de série et ensembles dérivés de série

iTeh STANDARD PREVIEW

Low-voltage switchgear and
controlgear assemblies –

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Part 1:

Type-tested and partially type-tested assemblies

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CONTENTS

Clause	Page
FOREWORD	9
1 General	13
1.1 Scope and object	13
1.2 Normative references.....	13
2 Definitions	19
2.1 General.....	19
2.2 Constructional units of ASSEMBLIES.....	23
2.3 External design of ASSEMBLIES.....	25
2.4 Structural parts of ASSEMBLIES.....	27
2.5 Conditions of installation of ASSEMBLIES	31
2.6 Protective measures with regard to electric shock.....	31
2.7 Gangways within ASSEMBLIES.....	33
2.8 Electronic functions	33
2.9 Insulation co-ordination.....	35
2.10 Short-circuit currents	39
3 Classification of ASSEMBLIES	39
4 Electrical characteristics of ASSEMBLIES	41
4.1 Rated voltages.....	41
4.2 Rated current (I_n) (of a circuit of an ASSEMBLY).....	41
4.3 Rated short-time current (I_{cw}) (of a circuit of an ASSEMBLY)	43
4.4 Rated peak withstand current (I_{pk}) (of a circuit of an ASSEMBLY).....	43
4.5 Rated conditional short-circuit current (I_{cc}) (of a circuit of an ASSEMBLY)	43
4.6 Rated fused short-circuit current (I_{cf}) (of a circuit of an ASSEMBLY).....	43
4.7 Rated diversity factor.....	43
4.8 Rated frequency.....	45
5 Information to be given regarding the ASSEMBLY	45
5.1 Nameplates	45
5.2 Markings.....	47
5.3 Instructions for installation, operation and maintenance.....	47
6 Service conditions	47
6.1 Normal service conditions.....	47
6.2 Special service conditions.....	51
6.3 Conditions during transport, storage and erection.....	53

Clause	Page
7 Design and construction.....	53
7.1 Mechanical design.....	53
7.2 Enclosure and degree of protection.....	61
7.3 Temperature rise.....	63
7.4 Protection against electric shock.....	65
7.5 Short-circuit protection and short-circuit withstand strength.....	81
7.6 Switching devices and components installed in ASSEMBLIES.....	87
7.7 Internal separation of ASSEMBLIES by barriers or partitions.....	97
7.8 Electrical connections inside an ASSEMBLY: bars and insulated conductors.....	99
7.9 Requirements for electronic equipment supply circuits.....	101
7.10 Electromagnetic compatibility (EMC).....	105
7.11 Description of the types of electrical connections of functional units.....	109
8 Test specifications.....	109
8.1 Classification of tests.....	109
8.2 Type tests.....	111
8.3 Routine tests.....	141
Annex A (normative) Minimum and maximum cross-sections of copper conductors suitable for connection.....	153
Annex B (normative) Method of calculating the cross-sectional area of protective conductors with regard to thermal stresses due to currents of short duration.....	155
Annex C (informative) Typical examples of ASSEMBLIES.....	157
Annex D (informative) Forms of internal separations.....	177
Annex E (informative) Items subject to agreement between manufacturer and user.....	183
Annex F (normative) Measurement of creepage distances and clearances.....	185
Annex G (normative) Correlation between the nominal voltage of the supply system and the rated impulse withstand voltage of the equipment.....	195
Bibliography.....	199
Figure 1 Ratio $\frac{\hat{U}_i + \Delta u}{\hat{U}_i}$ as a function of time.....	103
Figure 2 Maximum permitted harmonic component of the nominal system voltage.....	105
Figure C.1 Open-type ASSEMBLY (see 2.3.1).....	157
Figure C.2 Dead-front ASSEMBLY (see 2.3.2).....	159
Figure C.3 Cubicle-type ASSEMBLY (see 2.3.3.1).....	161
Figure C.4 Multi-cubicle-type ASSEMBLY (see 2.3.3.2).....	163
Figure C.5 Desk-type ASSEMBLY (see 2.3.3.3).....	165
Figure C.6 Multi-box-type ASSEMBLY (see 2.3.3.5).....	167

Figure C.7	Busbar trunking system (2.3.4)	169
Figure C.8	Mounting structure (see 2.4.2)	171
Figure C.9	Fixed parts (see 2.2.5, 2.4.3, 2.4.4)	173
Figure C.10	Withdrawable part (see 2.2.7)	175
Figure D.1	Symbols used in figures D.2	177
Figure D.2	Forms 1 and 2	179
Figure D.2	Forms 3 and 4	181
Figure F.1	Measurement of ribs	185
Table 1	Values of rated diversity factor	45
Table 2	Temperature-rise limits	63
Table 3	Cross-sectional area of protective conductors (PE, PEN)	73
Table 3A	Cross-sectional area of a copper bonding conductor	75
Table 4		85
Table 5	Conductor selection and installation requirements	87
Table 6	Electrical conditions for the different positions of withdrawable parts	95
Table 7	List of verifications and tests to be performed on TTA and PT TA	113
Table 8	Test copper conductors for test currents up to 400 A inclusive	117
Table 9	Standard cross-sections of copper conductors corresponding to the test current	119
Table 10		125
Table 11		125
Table 12	Relationship between prospective fault current and diameter of copper wire	131
Table 13	Dielectric withstand voltages for impulse, power frequency and d.c. tests	147
Table 14	Minimum clearances in air	147
Table 15	Test voltages across the open contacts of equipment suitable for isolation	149
Table 16	Minimum creepage distances	151
Table A.1		153
Table B.1	Values of k for insulated protective conductors not incorporated in cables; or bare protective conductors in contact with cable covering	155
Table G.1	Correspondence between the nominal voltage of the supply system and the equipment rated impulse withstand voltage, in the case of overvoltage protection by surge-arresters according to IEC 60099-1	197

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES -

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

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 specifications, 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.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 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 60439-1 has been prepared by subcommittee 17D: Low-voltage switchgear and controlgear assemblies, of IEC technical committee 17: Switchgear and controlgear.

This fourth edition cancels and replaces the third edition published in 1992, the corrigendum of December 1993, amendment 1 (1995), amendment 2 (1996) and amendment 3 (1999). This fourth edition constitutes a technical revision.

The text of this standard is based on the third edition, amendments 1 and 2, and the following documents:

FDIS	Report on voting
17D/214A/FDIS	17D/221/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 3.

Annexes A, B, F and G form an integral part of this standard.

Annexes C, D and E are for information only.

The committee has decided that this publication remains valid until 2002. At this date, in accordance with the committee's decision, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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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 machine tools, 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 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 normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60038:1983, *IEC standard voltages*

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