SLOVENSKI STANDARD
SIST EN 60439-1:1995

01-december-1995

Low-voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type-tested assemblies (IEC 439-1:1992 + corrigendum Dec. 1993)

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

Niederspannung-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 60439-1:1994**

ICS:

29.130.20	Nizkonapetostne stikalne in krmilne naprave	Low voltage switchgear and controlgear

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ENGLISH VERSION

Low-voltage switchgear and controlgear assemblies
Part 1: Type-tested and partially type-tested assemblies
(IEC 439-1:1992 + corrigendum 1993)

Ensembles d'appareillage à basse tension
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Niederspannung-Schaltgeräte-kombinationen
Teil 1: Typgeprüfte und partiell typgeprüfte Kombinationen

(IEC 439-1:1992 + Corrigendum 1993)

This European Standard was approved by CENELEC on 1993-12-08. 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, 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

At the request of the CENELEC Technical Committee TC 17D, Low-voltage switchgear and controlgear assemblies, the International Standard IEC 439-1:1992 was submitted to the CENELEC Unique Acceptance Procedure (UAP) in March 1993 for acceptance as a European Standard.

The text of the International Standard and its corrigendum December 1993 was approved by CENELEC as EN 60439-1 on 8 December 1993.

The following dates were fixed:

- latest date of publication of an identical national standard	(dop)	1994-10-01
- latest date of withdrawal of conflicting national standards	(dow)	1994-10-01

For products which have complied with EN 60439-1:1990 and its amendment A1:1993 before 1994-10-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1999-10-01.

Annexes designated "normative" are part of the body of the standard. Annexes designated "informative" are given only for information. In this standard, annexes A, B, F, G and ZA are normative and annexes C, D, E and H are informative.

ENDORSEMENT NOTICE

The text of the International Standard IEC 439-1:1992 and its corrigendum December 1993 was approved by CENELEC as a European Standard without any modification.

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD WITH THE REFERENCES OF THE RELEVANT 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.

NOTE : When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
38, mod	1983	IEC standard voltages!	HD 472 S1	1989
50(441)	1984	International Electrotechnical Vocabulary (IEV) - Chapter 441 Switchgear, controlgear and fuses	-	-
50(471)	1984	Chapter 471: Insulators	-	-
50(604)	1987	Chapter 604: Generation, transmission and distribution of electricity Operation	-	-
71-1	1976	Insulation co-ordination - Part 1: Terms, definitions, principles and rules	-	-
73	1991	Coding of indicating devices and actuators by colours and supplementary means	EN 60073	1993
99-1	1991	Surge arresters - Part 1: Non-linear resistor type gapped surge arresters for a.c. systems	EN 60099-1	1994
112	1979	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980
146-2	1974	Semiconductor convertors - Part 2: Semiconductor self-commutated convertors	-	-
158-2, mod	1982	Low-voltage controlgear Part 2: Semiconductor contactors (solid state contactors)	HD 419.2 S1	1987
269	series	Low-voltage fuses	EN 60269	series

! The title of HD 472 S1 is: Nominal voltages for low voltage public electricity supply systems

IEC Publication	Date	Title	EN/HD	Date
364-3, mod	1977	Electrical installations of buildings Part 3: Assessment of general characteristics	HD 384.3 S1*	1985
364-4-41	1992*	Part 4: Protection for safety Chapter 41: Protection against electric shock (+ corrigendum January 1992)	-	-
364-4-481	1993	Chapter 48: Choice of protective measures as a function of external influences - Section 481 - Selection of measures for protection against electric shock in relation to external influences	-	-
364-5-54	1980	Part 5: Selection and erection of electrical equipment - Chapter 54: Earthing arrangements and protective conductors	HD 384.5.54 S1	1988
417	1973	Graphical symbols for use on equipment Index, survey and compilation of the single sheets	HD 243 S10*	1993
445	1988	Identification of equipment terminals and of terminations of certain designated conductors, including general rules for an alphanumeric system	EN 60445	1990
446	1989*	Identification of conductors by colours or numerals	-	-
447	1974	Standard directions of movement for actuators which control the operation of electrical apparatus	HD 331 S1*	1977
529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May 1993	1991
664-1	1992	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	-	-
750	1983	Item designation in electrotechnology	-	-
890	1987	A method of temperature-rise assessment by extrapolation for partially type-tested assemblies (PTTA) of low-voltage switchgear and controlgear	HD 528 S1	1989

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* HD 384.3 S1 includes supplements A:1979 + B:1980 to IEC 364-3
IEC 364-4-41:1977 is harmonized as HD 384.4.41 S1:1980
HD 243 S10 includes supplements A:1974 to K:1991 to IEC 417
IEC 446:1973 is harmonized as HD 324 S1:1977
HD 331 S1 is superseded by EN 60447:1993, which is based on IEC 447:1993

IEC Publication	Date	Title	EN/HD	Date
947-1, mod	1988	Low-voltage switchgear and controlgear Part 1: General rules (Corrigendum January 1992)	EN 60947-1 + corr. March	1991 1993
947-3	1990	Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units (+ corrigendum December 1991)	EN 60947-3 + corr. March	1992 1993
947-4-1	1990	Part 4: Contactors and motor-starters Section One - Electromechanical contactors and motor-starters (corrigendum December 1991)	EN 60947-4-1 + corr. March	1992 1993

CENELEC

Corrigendum to EN 60439-1:1994

English version

Foreword

Add after the implementation dates:

NOTE: EN 60439-1:1990 remains applicable for use with EN 60439-2:1993, EN 60439-3:1991and EN 60439-4:1991.

February 1995

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Ensembles d'appareillage à basse tension

Partie 1:
Ensembles de série et ensembles dérivés de série

Low-voltage switchgear and controlgear assemblies

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

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Commission Electrotechnique Internationale
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CONTENTS

Page

FOREWORD 7

Clause

1 General 9
1.1 Scope and object 9
1.2 Normative references 9

2 Definitions 13
2.1 General 13
2.2 Constructional units of ASSEMBLIES 17
2.3 External design of ASSEMBLIES 19
2.4 Structural parts of ASSEMBLIES 21
2.5 Conditions of installation of ASSEMBLIES 25
2.6 Protective measures with regard to electric shock 25
2.7 Gangways within an ASSEMBLY 27
2.8 Electronic functions 27
2.9 Insulation co-ordination 29
2.10 Short-circuit currents 33

3 Classification of ASSEMBLIES 35

4 Electrical characteristics of ASSEMBLIES 35
4.1 Rated voltages 35
4.2 Rated current (of a circuit of an ASSEMBLY) 37
4.3 Rated short-time withstand current (I_{cw}) (of a circuit of an ASSEMBLY) 37
4.4 Rated peak withstand current (I_{pk}) (of a circuit of an ASSEMBLY) 37
4.5 Rated conditional short-circuit current (I_{cc}) (of a circuit of an ASSEMBLY) 37
4.6 Rated fused short-circuit current (I_{cf}) (of a circuit of an ASSEMBLY) 39
4.7 Rated diversity factor 39
4.8 Rated frequency 39

5 Information to be given regarding the ASSEMBLY 41
5.1 Nameplates 41
5.2 Markings 41
5.3 Instructions for installation, operation and maintenance 43

6 Service conditions 43
6.1 Normal service conditions 43
6.2 Special service conditions 47
6.3 Conditions during transport, storage and erection 47

Clause Page

7 Design and construction 49
7.1 Mechanical design 49
7.2 Enclosure and degree of protection 59
7.3 Temperature rise 61
7.4 Protection against electric shock 65
7.5 Short-circuit protection and short-circuit withstand strength 83
7.6 Switching devices and components installed in ASSEMBLIES 89
7.7 Internal separation of ASSEMBLIES by barriers or partitions 99
7.8 Electrical connections inside an ASSEMBLY : bars and insulated conductors 101
7.9 Requirements for electronic equipment supply circuits 103
7.10 Electromagnetic compatibility 109
8 Test specifications 111
8.1 Classification of tests 111
8.2 Type tests 113
8.3 Routine tests 147

ANNEXES

A Minimum and maximum cross-sections of copper conductors suitable for connection 159
B Method of calculating the cross-sectional area of protective conductors with regard to thermal stresses due to currents of short duration 161
C Typical examples of ASSEMBLIES 162
D Typical arrangements of forms of separation by barriers or partitions 172
E Items subject to agreement between manufacturer and user 179
F Measurement of creepage distances and clearances 181
G Correlation between the nominal voltage of the supply system and the rated impulse withstand voltage of the equipment 189
H Bibliography 194

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES

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

FOREWORD

1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.

2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.

3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

4) The IEC has not laid down any procedure concerning marking as an indication of approval and has no responsibility when an item of equipment is declared to comply with one of its recommendations.

International standard IEC 439-1 has been prepared by Sub-Committee 17D: Low voltage switchgear and controlgear assemblies, of IEC Technical Committee No. 17: Switchgear and controlgear.

This third edition replaces the second edition of 1985. It comprises a revision of the second edition, together with the corrigendum of November 1986, Amendment No. 1 of April 1991 and the following documents:

DIS	Reports on voting
17D(CO)45 17D(CO)46 17D(CO)50, 50A	17D(CO)51 17D(CO)52 17D(CO)54

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

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

Annexes C, D, E and H are for information only.

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 shall 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 generation, transmission, distribution and conversion of electric energy and for the control of electric energy consuming equipment.

It also applies to such 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. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and 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. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 38: 1983, *IEC standard voltages.*

IEC 50(441): 1984, *International Electrotechnical Vocabulary (IEV) – Chapter 441: Switchgear, controlgear and fuses.*

IEC 50(471): 1984, *International Electrotechnical Vocabulary (IEV) – Chapter 471: Insulators.*

IEC 50(604): 1987, *International Electrotechnical Vocabulary (IEV) – Chapter 604: Generation, transmission and distribution of electricity – Operation.*

IEC 71-1: 1976, *Insulation co-ordination – Part 1: Terms, definitions, principles and rules.*

IEC 73: 1991, *Coding of indicating devices and actuators by colours and supplementary means.*

IEC 99-1: 1991, *Surge arresters – Part 1: Non-linear resistor type gapped surge arresters for a.c. systems.*

IEC 112: 1979, *Method for determining the comparative and the proof-tracking indices of solid insulating materials under moist conditions.*

IEC 146-2: 1974, *Semiconductor convertors – Part 2: Semiconductor self-commutated convertors.*

IEC 158-2: 1982, *Low-voltage controlgear – Part 2: Semiconductor contactors (solid state contactors).*

IEC 269, *Low-voltage fuses.*

IEC 364-3: 1977, *Electrical installations of buildings – Part 3: Assessment of general characteristics.*

IEC 364-4-41: 1992, *Electrical installations of buildings – Part 4: Protection for safety – Chapter 41: Protection against electric shock.*

IEC 364-4-481: 1993, *Electrical installations of buildings – Part 4: Protection for safety – Section 481: Choice of protective measures against electric shock in relation to external influences* (in preparation).

IEC 364-5-54: 1980, *Electrical installations of buildings – Part 5: Selection and erection of electrical equipment – Chapter 54: Earthing arrangements and protective conductors.*

IEC 417: 1973, *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets.*

IEC 445: 1988, *Identification of equipment terminals and of terminations of certain designated conductors, including general rules for an alphanumeric system.*

IEC 446: 1989, *Identification of conductors by colours or numerals.*

IEC 447: 1974, *Standard directions of movement for actuators which control the operation of electrical apparatus.*

IEC 529: 1989, *Degrees of protection provided by enclosures (IP Code).*

IEC 664-1: 1992, *Insulation coordination for equipment within low-voltage systems – Part 1: Basic principles and requirements.*

IEC 750: 1983, *Item designation in electrotechnology.*

IEC 890: 1987, *A method of temperature-rise assessment by extrapolation for partially type-tested assemblies (PTTA) of low-voltage switchgear and controlgear.*

IEC 947-1: 1988, *Low-voltage switchgear and controlgear – Part 1: General rules.*

IEC 947-3: 1990, *Low-voltage switchgear and controlgear – Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units.*

IEC 947-4-1: 1990, *Low-voltage switchgear and controlgear – Part 4: Contactors and motor-starters – Section 1: Electromechanical contactors and motor-starters.*

2 Definitions

For the purpose of this International Standard, the following definitions apply.

NOTE - Certain definitions in this clause are taken unchanged or modified from those of IEC 50 (IEV) or from other IEC publications.

2.1 *General*

2.1.1 *Low-voltage switchgear and controlgear assembly (ASSEMBLY)*

A combination of one or more low-voltage switching devices together with associated control, measuring, signalling, protective, regulating equipment, etc., completely assembled under the responsibility of the manufacturer with all the internal electrical and mechanical interconnections and structural parts (see 2.4).

NOTES

1 Throughout this standard, the abbreviation ASSEMBLY is used for a low-voltage switchgear and controlgear assembly.

2 The components of the ASSEMBLY may be electromechanical or electronic.

3 For various reasons, for example transport or production, certain steps of assembly may be made in a place outside the factory of the manufacturer.

2.1.1.1 *Type-tested low-voltage switchgear and controlgear assembly (TTA)*

A low-voltage switchgear and controlgear assembly conforming to an established type or system without deviations likely to significantly influence the performance, from the typical ASSEMBLY verified to be in accordance with this standard.