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Sklopi nizkonapetostnih stikalnih in krmilnih naprav - 1. del: Splošna pravila

Low-voltage switchgear and controlgear assemblies - Part 1: General rules

Niederspannungs-Schaltgerätekombinationen - Teil 1: Allgemeine Festlegungen

Ensembles d'appareillage à basse tension - Partie 1: Règles générales

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Ta slovenski standard je istoveten z: **EN 61439-1:2009**

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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 61439-1

November 2009

ICS 29.130.20

Supersedes EN 60439-1:1999 + A1:2004

English version

**Low-voltage switchgear and controlgear assemblies -
Part 1: General rules**
(IEC 61439-1:2009, modified)

Ensembles d'appareillage
à basse tension -
Partie 1: Règles générales
(CEI 61439-1:2009, modifiée)

Niederspannungs-
Schaltgerätekombinationen -
Teil 1: Allgemeine Festlegungen
(IEC 61439-1:2009, modifiziert)

This European Standard was approved by CENELEC on 2009-11-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of the International Standard IEC 61439-1:2009, prepared by SC 17D, Low-voltage switchgear and controlgear assemblies, of IEC TC 17, Switchgear and controlgear, together with the common modifications prepared by the Technical Committee CENELEC TC 17D, Low-voltage switchgear and controlgear assemblies, was submitted to the formal vote and was approved by CENELEC as EN 61439-1 on 2009-11-01.

This European Standard supersedes EN 60439-1:1999 + A1:2004.

This European Standard includes the following significant technical changes with respect to EN 60439-1:1999:

- the dual role of EN 60439-1 as a product standard in its own right, as well as a general rules standard for assemblies covered by a subsidiary product part of the EN 60439 series, has been abandoned;
- consequently, EN 61439-1 is a pure “general rules” standard to be referred to by subsidiary product parts of the EN 61439 series;
- the product standard replacing EN 60439-1 is EN 61439-2;
- the discrimination between type-tested assemblies (TTA) and partially type-tested assemblies (PTTA) is eliminated by the verification approach;
- three different but equivalent types of verification of requirements are introduced:
 - verification by testing,
 - verification by calculation/measurement, or
 - verification by satisfying design rules;
- the requirements regarding temperature rise have been clarified;
- the rated diversity factor (RDF) is covered in more detail;
- requirements from the standard for empty enclosures for assemblies (EN 62208) have been incorporated;
- the whole structure of the standard is aligned with its new function as “general rules” standard.

The following dates were fixed:

- | | | |
|--|-------|------------|
| <ul style="list-style-type: none"> – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2010-11-01 |
| <ul style="list-style-type: none"> – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2014-11-01 |

However, when a dated reference to EN 60439-1 is made in another part of the EN 60439 series of assembly standards not yet transferred into the new EN 61439 series, the superseded EN 60439-1 still applies (see also the Introduction).

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive EMC (2004/108/EC). See Annex ZZ.

Annexes ZA and ZZ have been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61439-1:2009 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

Annex C Items subject to agreement between the assembly manufacturer and the user

Table C.1 – Items subject to agreement between the ASSEMBLY manufacturer and the user

Replace in the block “Installation environment” in the column “User defined functions and characteristics” “EMC environment” by “EMC environment (A or B)”.

Annex J Electromagnetic compatibility (EMC)

J.1 General

Delete the first sentence.

J.3.8.12.4

Replace the definition by:

J.3.8.12.4

signal port

port at which a conductor or cable intended to carry signals is connected to the apparatus

NOTE Examples are analogue inputs, outputs and control lines; data busses; communication networks etc.

[3.4 of IEC 61000-6-1]

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J.9.4.1 General

Replace the second paragraph by:

Environment A: relates to a power network supplied from a high or medium voltage transformer dedicated to the supply of an installation feeding manufacturing or similar plant, and intended to operate in or in proximity to industrial locations, as described below. This standard applies also to apparatus which is battery operated and intended to be used in industrial locations.

The environments encompassed are industrial, both indoor and outdoor.

Industrial locations are in addition characterised by the existence of one or more of the following:

- industrial, scientific and medical (ISM) apparatus (as defined in CISPR 11);
- heavy inductive or capacitive loads are frequently switched;
- currents and associated magnetic fields are high.

NOTE Environment A is covered by the generic EMC standards IEC 61000-6-2 and IEC 61000-6-4.

Replace the third paragraph by:

Environment B: relates to low-voltage public mains networks or apparatus connected to a dedicated DC source which is intended to interface between the apparatus and the low-voltage public mains network. It applies also to apparatus which is battery operated or is powered by a non-public, but non-industrial, low-voltage power distribution system if this apparatus is intended to be used in the locations described below.

The environments encompassed are residential, commercial and light-industrial locations, both indoor and outdoor. The following list, although not comprehensive, gives an indication of locations which are included:

- residential properties, for example houses, apartments;
- retail outlets, for example shops, supermarkets;
- business premises, for example offices, banks;
- areas of public entertainment, for example cinemas, public bars, dance halls;
- outdoor locations, for example petrol stations, car parks, amusement and sports centres;
- light-industrial locations, for example workshops, laboratories, service centres.

Locations which are characterised by being supplied directly at low voltage from the public mains network are considered to be residential, commercial or light-industrial.

NOTE Environment B is covered by the generic EMC standards IEC 61000-6-1 and IEC 61000-6-3.

J.9.4.4.2.1 Frequencies of 9 kHz or higher

Delete the last sentence of the second paragraph.

Delete the headline and **put** the remaining text of the subclause at the end of J.9.4.4.2.

J.9.4.4.2.2 Frequencies lower than 9 kHz

Delete the whole subclause.

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Table J.1 – Emission limits for environment A

Delete in the table the following text in footnote b):

“or at a distance of 3 m with the limits increased by 20 dB”.

Bibliography

Add, after IEC 61000-6-2, the following standard and note:

IEC 61000-6-3:2006, *Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments*

NOTE Harmonized as EN 61000-6-3:2007 (not modified)

Add the following notes for the standards indicated:

IEC 60079	NOTE Harmonized in EN 60079 series (modified).
IEC 60112	NOTE Harmonized as EN 60112:2003 (not modified).
IEC 60245-4	NOTE Harmonized as HD 22.4 S3:1995 (modified).
IEC 61000-6-1	NOTE Harmonized as EN 61000-6-1:2007 (modified).
IEC 61000-6-2	NOTE Harmonized as EN 61000-6-2:2005 (not modified).
IEC 61000-6-4	NOTE Harmonized as EN 61000-6-4:2007 (not modified).
IEC 61140	NOTE Harmonized as EN 61140:2002 (not modified).
IEC 61241	NOTE Harmonized in EN 61241 series (modified).

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 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 + corr. February + A1	1989 2002 1995
IEC 60068-2-2	2007	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	2007
IEC 60068-2-11	1981	Environmental testing - Part 2-11: Tests - Test Ka: Salt mist	EN 60068-2-11	1999
IEC 60068-2-30	2005	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	2005
IEC 60073	2002	Basic and safety principles for man-machine interface, marking and identification. Coding principles for indicators and actuators	EN 60073	2002
IEC 60085	2007	Electrical insulation. Thermal evaluation and designation	EN 60085	2008
IEC 60099-1 (mod)	1991	Surge arresters - Part 1: Non-linear resistor type gapped surge arresters for a.c. systems	EN 60099-1	1994
IEC 60204 (mod)	Series	Safety of machinery - Electrical equipment of machines	EN 60204	Series
IEC 60216	Series	Electrical insulating materials - Properties of thermal endurance	EN 60216	Series
IEC 60228	2004	Conductors of insulated cables	EN 60228 + corr. May	2005 2005
IEC 60364 (mod)	Series	Low-voltage electrical installations	HD 384/ HD 60364	Series
IEC 60364-4-41 (mod)	2005	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41 + corr. July	2007 2007
IEC 60364-4-44	2007	Low voltage electrical installations - Part 4-44: Protection for safety - Protection against voltage disturbances and electromagnetic disturbances	-	-
IEC 60364-5-52	2001	Electrical installations of buildings - Part 5-52: Selection and erection of electrical equipment - Wiring systems	-	-
IEC 60364-5-53	2001	Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control	-	-

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60364-5-54 (mod)	2002	Electrical installations of buildings - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements, protective conductors and protective bonding conductors	HD 60364-5-54	2007
IEC 60445 (mod)	2006	Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals and conductor terminations	EN 60445	2007
IEC 60446	2007	Basic and safety principles for man-machine interface, marking and identification - Identification of conductors by colours or alphanumerics	EN 60446	2007
IEC 60447	2004	Basic and safety principles for man-machine interface, marking and identification - Actuating principles	EN 60447	2004
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
A1	1999		A1	2000
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60695-2-10	2000	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	2001
IEC 60695-2-11	2000	Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products	EN 60695-2-11	2001
IEC 60695-11-5	2004	Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	2005
IEC/TR3 60890	1987	A method of temperature-rise assessment by extrapolation for partially type-tested assemblies (PTTA) of low-voltage switchgear and controlgear	CLC/TR 60890 ²⁾	2002
IEC 60947-1	2004	Low-voltage switchgear and controlgear - Part 1: General rules	EN 60947-1 + corr. November	2004 ³⁾ 2004
IEC 61000-3-2	2005	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	EN 61000-3-2	2006
IEC 61000-4-2	1995	Electromagnetic compatibility (EMC) -	EN 61000-4-2	1995 ⁴⁾
A1	1998	Part 4-2: Testing and measurement	A1	1998
A2	2000	techniques - Electrostatic discharge immunity test	A2	2001

²⁾ CLC/TR 60890 includes corrigendum March 1988 + A1:1995 to IEC/TR3 60890.

³⁾ EN 60947-1:2004 is superseded by EN 60947-1:2007, which is based on IEC 60947-1:2007.

⁴⁾ EN 61000-4-2:1995 is superseded by EN 61000-4-2:2009, which is based on IEC 61000-4-2:2008.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-3	2006	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006
IEC 61000-4-4	2004	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2004
IEC 61000-4-5	2005	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2006
IEC 61000-4-6 + A1 + A2	2003 2004 2006	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6 + corr. August	2007 ⁵⁾ 2007
IEC 61000-4-8 A1	1993 2000	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8 A1	1993 2001
IEC 61000-4-11	2004	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	2004
IEC 61000-4-13	2002	Electromagnetic compatibility (EMC) - Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests	EN 61000-4-13	2002
IEC 61000-6-4	2006	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments	EN 61000-6-4	2007
IEC 61082	Series	Preparation of documents used in electrotechnology	EN 61082	Series
IEC/TR 61117	1992	A method for assessing the short-circuit withstand strength of Partially Type-Tested Assemblies (PTTA)	-	-
IEC 61180	Series	High-voltage test techniques for low-voltage equipment	EN 61180	Series
IEC/TS 61201	2007	Use of conventional touch voltage limits - Application guide	-	-
IEC 61346-1	1996	Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations - Part 1: Basic rules	EN 61346-1	1996

⁵⁾ EN 61000-4-6:2007 is superseded by EN 61000-4-6:2009, which is based on IEC 61000-4-6:2008.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61346-2	- ⁶⁾	Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations - Part 2: Classification of objects and codes for classes	EN 61346-2	2000 ⁷⁾
IEC 62208	2002	Empty enclosures for low-voltage switchgear and controlgear assemblies - General requirements	EN 62208	2003
IEC 62262	2002	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	2002
CISPR 11 (mod) + A1 (mod)	2003 2004	Industrial scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement	EN 55011	2007
CISPR 22 (mod) A1	2005	Information technology equipment - Radio disturbance characteristics - Limits and	EN 55022 A1	2006 2007
A2	2006	methods of measurement	-	-
ISO 178	2001	Plastics - Determination of flexural properties	EN ISO 178	2003
ISO 179	Series	Plastics - Determination of Charpy impact properties	EN ISO 179	Series
ISO 2409	1992	Paints and varnishes - Cross-cut test	EN ISO 2409	1994
ISO 4628-3	2003	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 3: Assessment of degree of rusting	EN ISO 4628-3	2003
ISO 4892-2	1994	Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc sources	EN ISO 4892-2	1999 ⁸⁾

⁶⁾ Undated reference.

⁷⁾ Valid edition at date of issue.

⁸⁾ EN ISO 4892-2:1999 is superseded by EN ISO 4892-2:2006, which is based on ISO 4892-2:2006.

Annex ZZ (informative)

Coverage of Essential Requirements of EC Directive 2004/108/EC

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers all relevant essential requirements as given in Article 1 of Annex I of the EC Directive 2004/108/EC.

This Part 1 of the EN 61439 series alone does not give presumption of conformity with the essential requirements of the EMC Directive without another relevant part of the series (e.g. EN 61439-2 for power switchgear and controlgear assemblies). These product parts call up the applicable EMC requirements of EN 61439-1 for assemblies within their specific scope.

WARNING: Other requirements and other EC Directives may be applicable to the products falling within the scope of this standard.

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Part 1: General rules

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Partie 1: Règles générales

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