



SLOVENSKI STANDARD
SIST EN IEC 61936-2:2023

01-december-2023

Elektroenergetski postroji za izmenične napetosti nad 1 kV in enosmerne napetosti nad 1,5 kV - 2. del: Enosmerna napetost

Power installations exceeding 1 kV AC and 1,5 kV DC - Part 2: DC

Starkstromanlagen mit Nennwechselspannungen über 1 kV AC und 1,5 kV DC – Teil 2: Gleichstrom

Installations électriques de puissance de tension supérieure à 1 kV en courant alternatif et 1,5 kV en courant continu - Partie 2: Courant continu

Ta slovenski standard je istoveten z: EN IEC 61936-2:2023

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ICS:

29.240.01	Omrežja za prenos in distribucijo električne energije na splošno	Power transmission and distribution networks in general
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en

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 61936-2

November 2023

ICS 29.020; 29.080.01

English Version

**Power installations exceeding 1 kV AC and 1,5 kV DC - Part 2:
DC
(IEC 61936-2:2023)**

Installations électriques de puissance de tension supérieure
à 1 kV en courant alternatif et 1,5 kV en courant continu -
Partie 2: Courant continu
(IEC 61936-2:2023)

Starkstromanlagen mit Nennwechselspannungen über 1 kV
AC und 1,5 kV DC - Teil 2: Gleichstrom
(IEC 61936-2:2023)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 61936-2:2023 (E)**European foreword**

The text of document 99/413/FDIS, future edition 1 of IEC 61936-2, prepared by IEC/TC 99 "Insulation co-ordination and system engineering of high voltage electrical power installations above 1,0 kV AC and 1,5 kV DC" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61936-2:2023.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2024-07-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-10-31

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Endorsement notice

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In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 62271-1 NOTE Approved as EN 62271-1

<https://standards.iteh.ai/> IEC/TR 62271-208 NOTE Approved as CLC/TR 62271-208

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60060-1	-	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	-
IEC 60071-1	-	Insulation co-ordination - Part 1: Definitions, principles and rules	EN IEC 60071-1	-
IEC 60071-2	2023	Insulation co-ordination - Part 2: Application guidelines	EN IEC 60071-2	2023
IEC 60071-5	-	Insulation co-ordination - Part 5: Procedures for high-voltage direct current (HVDC) converter stations	EN 60071-5	-
IEC 60071-11	-	Insulation co-ordination - Part 11 - Definitions, principles and rules for HVDC system	EN IEC 60071-11	-
IEC 60079-10-1	-	Explosive atmospheres - Part 10-1: Classification of areas - Explosive gas atmospheres	EN IEC 60079-10-1	-
IEC 60079-10-2	-	Explosive atmospheres - Part 10-2: Classification of areas - Explosive dust atmospheres	EN 60079-10-2	-
IEC 60479-1	-	Effects of current on human beings and livestock	-	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 60664-1	-	Insulation coordination for equipment with low-voltage supply systems - Part 1: Principles, requirements and tests	EN IEC 60664-1	-
IEC/TS 60815-1	-	Selection and dimensioning of high-voltage-insulators intended for use in polluted conditions - Part 1: Definitions, information and general principles	-	-

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IEC/TS 60815-4	-	Selection and dimensioning of high-voltage - insulators intended for use in polluted conditions - Part 4: Insulators for d.c. systems	-
IEC 61000-6-5	2015	Electromagnetic compatibility (EMC) - Part 6-5: Generic standards - Immunity for equipment used in power station and substation environment	2015
IEC 61936-1	2021	Power installations exceeding 1 kV AC and 1,5 kV DC - Part 1: AC	2021
IEC 61975	-	High-voltage direct current (HVDC) installations - System tests	EN 61975 -
IEC/IEEE 60076-57-- 129		Power transformers - Part 57-129: Transformers for HVDC applications	- -

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IEC 61936-2

Edition 1.0 2023-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Power installations exceeding 1 kV AC and 1,5 kV DC –
Part 2: DC**

**Installations électriques de puissance de tension supérieure à 1 kV en courant
alternatif et 1,5 kV en courant continu –
Partie 2: Courant continu**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

POWER INSTALLATIONS EXCEEDING 1 kV AC AND 1,5 kV DC –**Part 2: DC**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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IEC 61936-2 has been prepared by IEC technical committee 99: Insulation co-ordination and system engineering and erection of electrical power installations above 1 kV AC and 1,5 kV DC. It is an International Standard.

This first edition cancels and replaces the IEC TS 61936-2 published in 2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) references to IEC 61936-1 updated to IEC 61936-1:2021;
- b) alignment with IEC 61936-1:2021 where required;

- c) the scope has been improved to clarify the application of this document, including an improved definition of a DC installation;
- d) missing and obsolete terms and definitions have been updated including improvement of existing terms;
- e) added new definitions of DC system and converter unit;
- f) added symbols and abbreviated terms;
- g) expansion and improvement of the general requirements, including addition of simplified diagrams showing examples of VSC and LCC DC systems (Figure 1 and Figure 2);
- h) addition of Table 1 which shows where agreements between supplier and user are needed;
- i) clause on electrical requirements has been restructured and improved;
- j) schematic diagrams for various DC system configurations and neutral point locations added (Figure 3);
- k) addition of new content for harmonics and new clauses for electromagnetic compatibility and radio interference;
- l) addition of content specific to DC installations for normal and special conditions;
- m) clause on insulation (Clause 5) has been significantly restructured and rewritten with a change in approach in the clauses on minimum clearances that references relevant parts of IEC 60071;
- n) clause on electrical equipment has been restructured and improved;
- o) clause on DC installations has been restructured and improved;
- p) clause on protection, control and auxiliary systems has been restructured and improved, with content added to the clause on protection systems that is specific to DC installations;
- q) clause on earthing has been restructured and improved;
- r) clause on inspection and testing has been restructured and improved, including addition of references specific to DC installations;
- s) Annex A has been replaced with a new Annex A (informative), where the table of rated insulation levels and minimum clearances in air have been replaced with a table of typical DC voltages and presumed switching and lightning impulse withstand voltages;
- t) tables added to Annex A showing the correlation between presumed switching and lightning impulse withstand voltages and minimum phase-to-earth air clearances;
- u) Annex B has been improved and references updated.

The text of this International Standard is based on the following documents:

Draft	Report on voting
99/413/FDIS	99/436/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 61936 series, published under the general title *Power installations exceeding 1 kV AC and 1,5 kV DC*, can be found on the IEC website.

Notes concerning particular conditions in certain countries are provided in Annex G of IEC 61936-1: 2021.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
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