SLOVENSKI STANDARD
oSIST prEN IEC 61225:2026

01-april-2026

Nuklearne elektrarne - Merilni, nadzorni in elektroenergetski sistemi - Zahteve za statične neprekinjene enosmerne in izmenične napajalne sisteme

Nuclear power plants - Instrumentation, control and electrical power systems - Requirements for static uninterruptible DC and AC power supply systems

Kernkraftwerke - Leittechnische Systeme und elektrische Stromversorgungssysteme - Anforderungen an statische unterbrechungsfreie Gleich- und Wechselstrom-Energieversorgungssysteme

Centrales nucléaire de puissance - Systèmes d'instrumentation, de contrôle-commande et d'alimentation électrique - Exigences pour les systèmes d'alimentation en courant alternatif et en courant continu statiques sans interruption

Ta slovenski standard je istoveten z: **prEN IEC 61225:2026**

ICS:

27.120.20	Jedrske elektrarne. Varnost	Nuclear power plants. Safety

oSIST prEN IEC 61225:2026 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN IEC 61225

February 2026

ICS 27.120.20

Will supersede EN IEC 61225:2020

English Version

Nuclear power plants - Instrumentation, control and electrical power systems - Requirements for static uninterruptible DC and AC power supply systems (IEC 61225:2025)

Centrales nucléaire de puissance - Systèmes d'instrumentation, de contrôle-commande et d'alimentation électrique - Exigences pour les systèmes d'alimentation en courant alternatif et en courant continu statiques sans interruption
(IEC 61225:2025)

Kernkraftwerke - Leittechnische Systeme und elektrische Stromversorgungssysteme - Anforderungen an statische unterbrechungsfreie Gleich- und Wechselstrom-Energieversorgungssysteme
(IEC 61225:2025)

This draft European Standard is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2026-05-01.

The text of this draft consists of the text of IEC 61225:2025.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

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

Project: 82662

Ref. No. prEN IEC 61225:2026 E

European foreword

This document (prEN IEC 61225:2026) consists of the text of document IEC 61225:2025, prepared by IEC/TC 45 "Instrumentation, control and electrical power systems of nuclear facilities"

This document is currently submitted to the Enquiry.

The following dates are proposed:

• latest date by which the existence of this document has to be announced at national level	(doa)	dav + 6 months
• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	dav + 12 months
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	dav + 36 months (to be confirmed or modified when voting)

This document will supersede EN IEC 61225:2020 and all of its amendments and corrigenda (if any).

This document is read in conjunction with EN 61513:2013, EN IEC 60709:2019, EN 60880:2009, EN IEC 62138:2019, EN IEC 62855:2021 and EN IEC 63046:2021.

As stated in the nuclear safety directive 2009/71/EURATOM, Chapter 1, Article 2, item 2, Member States are not prevented from taking more stringent safety measures in the subject-matter covered by the Directive, in compliance with Community law.

In a similar manner, this European standard does not prevent Member States from taking more stringent nuclear safety and/or security measures in the subject-matter covered by this standard.

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.

Publication	Year	Title	EN/HD	Year
IEC 60038	-	IEC standard voltages	EN 60038	-
IEC 60146-1-1	-	Semiconductor converters - General requirements and line commutated converters - Part 1-1: Specification of basic requirements	EN IEC 60146-1-1	-
IEC 60146-2	-	Semiconductor converters - Part 2: Self-commutated semiconductor converters including direct d.c. converters	EN 60146-2	-
IEC 60364-4-41	-	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41	-
IEC 60709	-	Nuclear power plants - Instrumentation, control and electrical power systems important to safety - Separation	EN IEC 60709	-
IEC 61000	series	Electromagnetic compatibility (EMC)	EN 61000	series
IEC 61513	-	Nuclear power plants - Instrumentation and control important to safety - General requirements for systems	EN 61513	-
IEC 62003	-	Nuclear power plants - Instrumentation, control and electrical power systems - Requirements for electromagnetic compatibility testing	EN IEC 62003	-
IEC 62040	series	Uninterruptible power systems (UPS)	EN IEC 62040	series
IEC/IEEE 60780-323	-	Nuclear facilities - Electrical equipment important to safety - Qualification	EN 60780-323	-
IEC/IEEE 60980-344	-	Nuclear facilities - Equipment important to safety - Seismic qualification	EN IEC/IEEE 60980-344	-

IEC 61225

Edition 4.0 2025-07

INTERNATIONAL STANDARD

Nuclear power plants - Instrumentation, control and electrical power systems - Requirements for static uninterruptible DC and AC power supply systems

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Nuclear power plants - Instrumentation, control and electrical power systems - Requirements for static uninterruptible DC and AC power supply systems

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 61225 has been prepared by subcommittee 45A: Instrumentation, control and electrical power systems of nuclear facilities, of IEC technical committee 45: Nuclear instrumentation. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2019. This edition constitutes a technical revision.

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

a) expansion and clarification of the requirements for static uninterruptible DC and AC power supply systems to ease the application in SMRs and passive designs.

This International Standard is to be used in conjunction with IEC 61513:2011, IEC 60709:2018, IEC 60880:2006, IEC 62138:2018, IEC 62855:2016 and IEC 63046:2020.

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

Draft	Report on voting
45A/1591/FDIS	45A/1610/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.

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
- revised.

INTRODUCTION

a) Technical background, main issues and organization of the standard

The 1993 issue of IEC 61225 was developed for specifying the requirements relevant to the design of electrical supplies for I&C systems in nuclear power plants. Considering the experience gathered worldwide on this subject, in 2003 working group A2 recommended a revision to this document to allow a new revision, IEC 61225 Ed. 2 (2005), to be consistently integrated into the SC 45A standard series. In 2015, working group A11 recommended a revision to this document following the publication of the revision of IAEA SSG-34 and that the scope of the standard should cover static uninterruptible power supplies for all types of connected equipment. In 2022, working group A11 recommended a revision to this document to ease the application to SMRs and passive designs.

International operating experience with electrical supply systems in nuclear power plants has highlighted a number of supply voltage variations and malfunctions, such as:

- voltage perturbations due to disturbances on the internal AC distribution system (with origin off-site or on-site).
- voltage overshoot on loss of grid.
- open phase conditions (one or two phases).
- asymmetrical faults.

These types of perturbations can degrade the performance of static uninterruptible power supplies and ultimately result in failure of connected equipment.

One of the objectives of the uninterruptible power supplies is to protect connected equipment from voltage variations on the on-site AC interruptible distribution system (the immunity concept). The power supplies also guarantee an output voltage with specified magnitude and waveform (in case of AC) to connected loads. The power supplies have the capacity to supply the relevant loads during a specified time regardless of any voltage variations on the on-site AC interruptible distribution system.

Examples of voltage and frequency variations in the incoming feeder to the supplies can be found in informative Annex A. Examples of specifications for static uninterruptible power supplies can be found in informative Annex B. Requirements for SMRs and passive designs are given in Annex C.

This document is applicable to the design of static uninterruptible electrical power supplies in new nuclear power plants (including SMRs and passive designs) when design work is initiated after the publication of this document and in general for nuclear facilities. It also serves as a reference for upgrading and modernizing existing nuclear power plants and facilities.

b) Situation of the current standard in the structure of the SC 45A standard series

IEC 61225 is a second level document specifically addressing the particular topic of requirements for electrical supplies.

For more details on the structure of the SC 45A standard series, see item d) of this introduction.

c) Recommendations and limitations regarding the application of this document

It is important to note that this document establishes no additional functional requirements for safety systems.

To ensure that the standard will continue to be relevant in future years, the emphasis has been placed on issues of principle, rather than specific technologies.