# SLOVENSKI STANDARD
# SIST EN IEC 62397:2026

**01-julij-2026**

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**Jedrske elektrarne - Merilna in nadzorna oprema za zagotavljanje varnosti - Detektorji upora temperature (IEC 62397:2022)**

Nuclear power plants - Instrumentation and control important to safety - Resistance temperature detectors (IEC 62397:2022)

Kernkraftwerke - Leittechnik mit sicherheitstechnischer Bedeutung - Widerstands-Temperaturfühler (IEC 62397:2022)



Centrales nucléaires de puissance - Instrumentation et contrôle-commande importants pour la sûreté - Sondes à résistance (IEC 62397:2022)



**Ta slovenski standard je istoveten z:** **EN IEC 62397:2026**

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**ICS:**

| | | |
|---|---|---|
| 27.120.20 | Jedrske elektrarne. Varnost | Nuclear power plants. Safety |

**SIST EN IEC 62397:2026** **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN IEC 62397

June 2026

ICS 27.120.20

English Version

# Nuclear power plants - Instrumentation and control important to safety - Resistance temperature detectors (IEC 62397:2022)

Centrales nucléaires de puissance - Instrumentation et contrôle-commande importants pour la sûreté - Sondes à résistance
(IEC 62397:2022)

Kernkraftwerke - Leittechnik mit sicherheitstechnischer Bedeutung - Widerstands-Temperaturfühler
(IEC 62397:2022)

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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**



Ref. No. EN IEC 62397:2026 E

# European foreword

This document (EN IEC 62397:2026) consists of the text of document IEC 62397:2022, prepared by IEC/SC 45A “Instrumentation, control and electrical power systems of nuclear facilities” of IEC/TC 45 "Nuclear instrumentation".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2027-06-30
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2029-06-30

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 document does not prevent Member States from taking more stringent nuclear safety and/or security measures in the subject-matter covered by this document.

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## Endorsement notice

The text of the International Standard IEC 62397:2022 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 61298-2 | NOTE | Approved as EN 61298-2 |

# 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 60068-2-6 | 2007 | Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal) | EN 60068-2-6 | 2008 |
| 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 60751 | 2022 | Industrial platinum resistance thermometers and platinum temperature sensors | EN IEC 60751 | 2022 |
| IEC/IEEE 60780-323 | 2016 | Nuclear facilities - Electrical equipment important to safety - Qualification | EN 60780-323 | 2017 |
| IEC/IEEE 60980-344 | 2020 | Nuclear facilities - Equipment important to safety - Seismic qualification | EN IEC/IEEE 60980-344 | 2021 |

# IEC 62397

Edition 2.0 2022-11

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

## Nuclear power plants – Instrumentation and control important to safety – Resistance temperature detectors



## Centrales nucléaires de puissance – Instrumentation et contrôle-commande importants pour la sûreté – Sondes à résistance



INTERNATIONAL
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# CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# NUCLEAR POWER PLANTS – INSTRUMENTATION AND CONTROL IMPORTANT TO SAFETY – RESISTANCE TEMPERATURE DETECTORS

## 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 62397 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 second edition cancels and replaces the first edition, published in 2007; it also cancels and replaces the first edition of IEC 61224:1993. This edition constitutes a technical revision.

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

1) The definitions, terms, references, test methods, test requirements and other contents in IEC 61224 are incorporated into the corresponding clauses of IEC 62397, including the situ response time test methods;
2) Move the second paragraph of Scope to 4.1 and add "certain design extension conditions" in the text;
3) Add the definition of temperature units of ITS-90;

4) Add reference standards, including IEC 60737:2010, IEC 60751:2022, IEC 62765-2:2019, IEC 62342:2007, IEC 62385:2007, IEC 61298-2, IEC 60068-2;
5) Update the reference IEC 60780 to IEC/IEEE 60780-323:2016; update the reference IEC 60980 to IEC/IEEE 60980-344:2020;
6) Delete the outdated definition of "accuracy (measurement)" and modify the definition of "calibration", "drift" and "response time";
7) Add the terms and definitions of "cross-calibration (cross-validation)", "self-heating index", "tolerance of RTD", "sheath", "*in situ* measurement", and some abbreviated terms (e.g., NPP);
8) Delete the reference values of failure rate, radiation dose, contact resistance and leak rate, environmental conditions and test conditions in 4.2, 4.3.2, 4.4.2.2, 4.6, 5.4.7;
9) Clarify 4.3.1;
10) Add "fast neutron damage" and "β irradiation" in 4.3.2 and correct the requirement for material change to be "shall not";
11) Replace platinum description with general material requirement in 4.3.3;
12) Delete the statement on sealant elements and flat sealants;
13) Add labels of dust cover, spring and extension tube in Figure 3 and Figure 4 and correct a typo in Figure 6;
14) Add electrical connector configuration requirement referring to IEC 60751 in 4.4.2.1;
15) Modify the temperature rating requirement of type I connector in 4.4.2.2 and add the definition of manufacturer in the footnote;
16) Add the type of connection for RTD mounted in pipe and relax the statement on spring force in 4.4.3.1;
17) Modify the type I and type II statement in 4.4;
18) Change the subtitle to "Manufacturing Quality" and add detailed requirements in 4.5;
19) Considering the application for difference types of nuclear power plants, in 4.6 and 4.7 introduce the concept that the user shall specify the requirements, test method and acceptance criteria for tests depending on the application of the subject RTD;
20) Delete the last three paragraphs in 4.6;
21) Add detailed performance requirements in 4.7 and move the test requirements to a new subclause 5.4 "Test method";
22) Replace "330 °C" in the standard with the (highest) operating temperature;
23) Add a new subclause "4.7.1 General" to describe the general requirements and restate *in situ* response time measurement requirement;
24) Add the Callendar formula for temperature range of -200 °C to 0 °C and delete the temperature tolerance values and refer to IEC 60751 in 4.7.3;
25) Supplement detailed requirements of "self-heating error" in 4.7.4;
26) Change the subtitle to "thermal response time" in 4.7.5 and delete the definition of thermal response time;
27) Relax the performance requirements to "should" in 4.7.8, 4.7.9, 4.7.10, 4.7.11 and 4.7.13, and relax the steam test requirement to only RTDs used in steam environment;
28) Merge "Insulation resistance test after storage" into "Electrical insulation resistance", reduce the requirement and change insulation resistance under 200 °C to be 10 MΩ in 4.7.7;
29) Add "Dielectric inspection" and "Hydraulic strength" as 4.7.12 and 4.7.13;
30) Revise description on *in situ* response time testing in 4.7.14;
31) Add identifications in 4.8;
32) Delete the insulation breakdown test;
33) Refer to IEC 60751 for self-heating test in 5.4.3;

34) Delete the vibration spectrum for vibration test, and refer to IEC 60068-2-6 in 5.4.7;

35) Revise thermal cycling test requirement to be more general and refer to IEC 60068-2-30 in 5.4.9;

36) Add 5.4.13 "Cross-calibration testing";

37) Add dielectric inspection test and hydraulic test as product tests in 5.5 and note that the user can specify the test requirement;

38) Add dielectric inspection test and hydraulic test as qualification tests in 5.6, note that the user can specify the test requirement, and refer to IEC/IEEE 60780-323 and IEC/IEEE 60980-344 or pertinent national guides and regulations;

39) Change title from "Technical information required" to "Documentation" of Clause 6 and add "the regular maintenance strategy" in performance specification;

40) Add an informative annex "Annex A *In situ* response time test methods" to include the related information from IEC 61224, update figures and cross-references, and cite it in 4.7.13 and 5.4.12;

41) Add the IAEA documents in bibliography.

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

| Draft | Report on voting |
|---|---|
| 45A/1447/FDIS | 45A/1454/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,
- replaced by a revised edition, or
- amended.