SVENSK STANDARD SS-EN IEC 60751

Fastställd	Utgåva	Sida	Ansvarig kommitté
2022-04-20	3	1 (1+27)	SEK TK 65

Industriella temperaturgivare med motstånd av platina

Industrial platinum resistance thermometers and platinum temperature sensors

Som svensk standard gäller europastandarden EN IEC 60751:2022. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60751:2022.

Nationellt förord

Europastandarden EN IEC 60751:2022

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60751, Third edition, 2022 - Industrial platinum resistance thermometers and platinum temperature sensors**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60751, utgåva 2, 2009, gäller ej fr o m 2025-03-03.

ICS 17.200.20

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Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

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Stora delar av arbetet sker internationellt

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Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

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Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60751

March 2022

ICS 17.200.20

Supersedes EN 60751:2008 and all of its amendments and corrigenda (if any)

English Version

Industrial platinum resistance thermometers and platinum temperature sensors (IEC 60751:2022)

Thermomètres à résistance de platine et capteurs thermométriques de platine industriels (IEC 60751:2022)

Industrielle Platin-Widerstandsthermometer und Platin-Temperatursensoren (IEC 60751:2022)

This European Standard was approved by CENELEC on 2022-03-03. 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 CEN-CENELEC Management Centre 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 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, Turkey and the United Kingdom.

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 60751:2022 E

SEK Svensk Elstandard SS-EN IEC 60751, utg 3:2022

European foreword

The text of document 65B/1210/FDIS, future edition 3 of IEC 60751, prepared by SC 65B "Measurement and control devices" of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60751:2022.

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) 2022-12-03
•	latest date by which the national standards conflicting with the document have to be withdrawn	(dow) 2025-03-03

This document supersedes EN 60751:2008 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60751:2022 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 61298-1 NOTE Harmonized as EN 61298-1

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.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 61152	-	Dimensions of metal-sheathed thermometer elements	EN 61152	-
IEC 61515	2016	Mineral insulated metal-sheathed thermocouple cables and thermocouples	EN 61515	2016

IEC 60751

Edition 3.0 2022-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Industrial platinum resistance thermometers and platinum temperature sensors

Thermomètres à résistance de platine et capteurs hermométriques de platine industriels

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INDUSTRIAL PLATINUM RESISTANCE THERMOMETERS AND PLATINUM TEMPERATURE SENSORS

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 60751 has been prepared by subcommittee 65B: Measurement and control devices, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

This third edition cancels and replaces the second edition published in 2008. This edition constitutes a technical revision.

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

a) formula of resistance versus temperature relationship become the standard specification and the numerical table ceases to be the standard,
b) new clause "Compliance and requirement" is introduced,
c) tolerance acceptance test is modified,
d) an expanded marking system is introduced to accommodate special valid temperature range,
e) vibration test method is revised,
f) cold seal is introduced as an additional type test,

g) numerical table of resistance versus temperature is included in Annex A as information.

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

Draft	Report on voting
65B/1210/FDIS	65B/1214/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/standardsdev/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.

INDUSTRIAL PLATINUM RESISTANCE THERMOMETERS AND PLATINUM TEMPERATURE SENSORS

1 Scope

This International Standard specifies the requirements, in addition to the resistance versus temperature relationship, for both industrial platinum resistance thermometers (later referred to as "thermometers") and industrial platinum resistance temperature sensors (later referred to as "platinum resistors") whose electrical resistance is derived from defined functions of temperature.

Values of temperature in this document are in terms of the International Temperature Scale of 1990, ITS-90. A temperature in the unit °C of this scale is denoted by the symbol t, except in Table A.1 where the full nomenclature t_{90} /°C is used.

This document applies to platinum resistors whose temperature coefficient α, defined as

$$\alpha = \frac{R_{100} - R_0}{R_0 \cdot 100\,°\mathrm{C}},$$

is conventionally written as α = 3,851·10^{-3} °C^{-1}, where R_{100} is the resistance at t = 100 °C and R_0 is the resistance at t = 0 °C.

This document covers platinum resistors and thermometers for the temperature range −200 °C to +850 °C with different tolerance classes. It can also cover particular platinum resistors or thermometers for a part of this temperature range.

For resistance versus temperature relationships with uncertainties less than 0,1 °C, which are possible only for platinum resistors or thermometers with exceptionally high stability and individual calibration, a more complex interpolation equation than is presented in this document can be necessary. The specification of such equations is outside the scope of this document.

2 Normative references

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.

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 61152, *Dimensions of metal-sheathed thermometer elements*

IEC 61515:2016, *Mineral insulated metal-sheathed thermocouple cables and thermocouples*