NSAI Standards

Irish Standard
I.S. EN IEC 60584-3:2021

Thermocouples - Part 3: Extension and compensating cables - Tolerances and identification system

I.S. EN IEC 60584-3:2021

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN IEC 60584-3:2021 is the adopted Irish version of the European Document EN IEC 60584-3:2021, Thermocouples - Part 3: Extension and compensating cables - Tolerances and identification system

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60584-3

March 2021

ICS 17.200.20

Supersedes EN 60584-3:2008 and all of its amendments and corrigenda (if any)

English Version

Thermocouples - Part 3: Extension and compensating cables - Tolerances and identification system (IEC 60584-3:2021)

Couples thermoélectriques - Partie 3: Câbles d'extension et de compensation - Tolérances et système d'identification (IEC 60584-3:2021)

Thermopaare - Teil 3: Thermoleitungen und Ausgleichsleitungen - Grenzabweichungen und Kennzeichnungssystem (IEC 60584-3:2021)

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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 60584-3:2021 E

European foreword

The text of document 65B/1189/FDIS, future edition 3 of IEC 60584-3, 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 60584-3:2021.

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) 2021-12-23
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-03-23

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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 60584-1	-	Thermocouples - Part 1: EMF specifications and tolerances	EN 60584-1	-

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IEC 60584-3

Edition 3.0 2021-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Thermocouples –
Part 3: Extension and compensating cables – Tolerances and identification system

Couples thermoélectriques –
Partie 3: Câbles d'extension et de compensation – Tolérances et système d'identification

IEC 60584-3:2021-02(en-fr)

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IEC 60584-3

Edition 3.0 2021-02

INTERNATIONAL STANDARD

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Thermocouples –
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

THERMOCOUPLES –

Part 3: Extension and compensating cables – Tolerances and identification system

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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International Standard IEC 60584-3 has been prepared by subcommittee 65B: Measurement and control devices, of IEC Technical Committee 65: Industrial-process measurement, control and automation.

This third edition cancels and replaces the second edition issued in 2007. This edition constitutes a technical revision.

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

a) revision of tolerance values to take recent technological advancement into account,
b) addition of new colour coding for the thermocouple Type C and A in response to the newly revised IEC 60584-1 Edition 3: 2013,
c) creation of an annex to provide examples of sizes for the rod, flat wire and strip of the compensating and extending conductors for thermocouples.

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

FDIS	Report on voting
65B/1189/FDIS	65B/1191/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.

A list of all parts of the IEC 60584 series, under the general title *Thermocouples*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://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.

THERMOCOUPLES –

Part 3: Extension and compensating cables – Tolerances and identification system

1 Scope

It is necessary for thermocouple temperature measurement that the electro-motive force (abbreviated as e.m.f. hereafter) of the thermocouple circuit is precisely measured by a measuring instrument. A thermocouple is electrically connected to the instrument by a proper pair of electric cables. IEC 60584-3 standardizes these cables. It specifies identification and manufacturing tolerances for extension and compensating cables (mineral insulated extension and compensating cables are not included) provided directly to users of industrial processes. These tolerances are determined with respect to the e.m.f. versus temperature relationship of IEC 60584-1. The requirements for extension and compensating cables for use in industrial process control are specified.

Extension and compensating cables may consist of a single strand (solid) wire or multi-stranded wire for which this document is applied. Specification for extension and compensating conductors of forms of rods, flat wires or strips can be established by agreement between suppliers and users.

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 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
extension cables
cables manufactured from conductors having the same nominal composition as those of the corresponding thermocouple

Note 1 to entry: The cables are designated by the letter "X" following the designation of the thermocouple, for example "JX".

3.2
compensating cables
cables manufactured from conductors having a composition different from the corresponding thermocouple