SLOVENSKI STANDARD
SIST EN 62460:2009

01-januar-2009

Tabela temperatura-potencial za termospojne kombinacije ļ istih elementov (IEC 62460:2008)

Temperature - Electromotive force (EMF) tables for pure-element thermocouple combinations

Temperatur – Tabellen der elektromotorischen Kraft (EMK) für Kombinationen von Reinelement-Thermoelementen

Tableaux température - Force électromotrice (F.É.M.) pour les combinaisons de couples thermoélectriques à éléments purs

Ta slovenski standard je istoveten z: **EN 62460:2008**

ICS:

17.200.20	Instrumenti za merjenje temperature	Temperature-measuring instruments
25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control

SIST EN 62460:2009 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62460

September 2008

ICS 17.200.20; 25.040.40

English version

Temperature - Electromotive force (EMF) tables for pure-element thermocouple combinations
(IEC 62460:2008)

Tableaux température - Force électromotrice (F.É.M.) pour les combinaisons de couples thermoélectriques à éléments purs (CEI 62460:2008)

Temperatur - Tabellen der elektromotorischen Kraft (EMK) für Kombinationen von Reinelement-Thermoelementen (IEC 62460:2008)

This European Standard was approved by CENELEC on 2008-08-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 62460:2008 E

Foreword

The text of document 65B/665/FDIS, future edition 1 of IEC 62460, prepared by SC 65B, Devices & process analysis, of IEC TC 65, Industrial-process measurement, control and automation, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62460 on 2008-08-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2009-05-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2011-08-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62460:2008 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60584-1	-[1)]	Thermocouples - Part 1: Reference tables	EN 60584-1	1995[2)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

IEC 62460

Edition 1.0 2008-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Temperature – Electromotive force (EMF) tables for pure-element thermocouple combinations

Tableaux température – Force électromotrice (F.É.M.) pour les combinaisons de couples thermoélectriques à éléments purs

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

TEMPERATURE – ELECTROMOTIVE FORCE (EMF) TABLES FOR PURE-ELEMENT THERMOCOUPLE COMBINATIONS

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 62460 has been prepared by subcommittee 65B: Devices and process analysis, of IEC technical committee 65: Industrial-process measurement, control and automation.

The text of this standard is based on the following documents:

FDIS	Report on voting
65B/665/FDIS	65B/684/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

TEMPERATURE – ELECTROMOTIVE FORCE (EMF) TABLES FOR PURE-ELEMENT THERMOCOUPLE COMBINATIONS

1 Scope

This International Standard specifies the equations and reference tables relating temperature to EMF (electro-motive force) for Gold versus Platinum and Platinum versus Palladium thermocouples. For information and convenience of use it also provides the approximate equations for temperature as functions of EMF.

The tables and equations in this standard are intended for use with thermocouples made from elements of purity not less than 99.999 % for Platinum and Gold and of 99.99 % for Palladium, by weight.

Tolerances on initial values of EMF versus temperature have not been established for the thermocouples in this standard. Where required, these tolerances should be agreed between the wire manufacturer and the user.

Temperatures in this standard are based on the International Temperature Scale of 1990 (ITS-90). They are expressed in degrees Celsius, symbol t_{90}. Values of EMF, symbol E/μV, are given in microvolts.

This standard does not cover extension or compensating wires for use with the pure-element thermocouples. The questions of their use shall be agreed between the manufacturer and the user.

2 Normative references

The following referenced documents are indispensable for the application 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 – Reference tables*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60584-1 apply, as well as the following.

3.1
thermocouple types
the following thermocouple wire types are covered by this standard:

- Gold versus Platinum (Au/Pt or Gold/Platinum)
- Platinum versus Palladium (Pt/Pd or Platinum/Palladium)

Following international convention, as in IEC 60584-1, when identifying thermocouples the positive element/wire is given first.

3.2 thermoelectric values at the ITS-90 fixed points

values are given for the defining triple points (TP), melting points (MP) and freezing points (FP) in the temperature range of the corresponding tables. The Seebeck coefficient *S* is the first derivative of the EMF with respect to temperature.

4 Information on tables and equations

The following tables are included in this standard:

- Gold versus Platinum: EMF at intervals of 1 °C
- Gold versus Platinum: temperatures at intervals of 10μV
- Gold versus Platinum: thermoelectric values at the fixed points of the ITS-90
- Platinum versus Palladium: EMF at intervals of 1 °C
- Platinum versus Palladium: temperatures at intervals of 10μV
- Platinum versus Palladium: thermoelectric values at the fixed points of the ITS-90

For the tables in this document, the reference temperature is 0 °C.

The definitive equations of EMF, E/μV, as functions of temperature, t_{90}/°C, which are used to generate the tables, are given in Annex A for Gold/Platinum thermocouples and Annex B for Platinum/Palladium thermocouples.

For information and convenience in use, approximate equations are also given, expressing t_{90}/°C as functions of E/μV for the respective thermocouples within the stated error limits.