SVENSK STANDARD SS-EN 60393-1

Fastställd	Utgåva	Sida	Ansvarig kommitté
2010-06-21	1	1 (1+105)	SEK TK 40

Potentiometrar för elektronikutrustning – Del 1: Artspecifikation

Potentiometers for use in electronic equipment – Part 1: Generic specification

Som svensk standard gäller europastandarden EN 60393-1:2009. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60393-1:2009.

Nationellt förord

Europastandarden EN 60393-1:2009

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60393-1, Third edition, 2008 - Potentiometers for use in electronic equipment - Part 1: Generic specification**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SEN 43 11 00, utgåva 1, 1976, gäller ej fr o m 2010-07-01.

ICS 31.040.20

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60393-1

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ICS 31.040.20

Supersedes CECC 41 000:1976

English version

Potentiometers for use in electronic equipment - Part 1: Generic specification

(IEC 60393-1:2008)

Potentiomètres utilisés dans les équipements électroniques - Partie 1: Spécification générique (CEI 60393-1:2008)

Potentiometer zur Verwendung in Geräten der Elektronik - Teil 1: Fachgrundspezifikation (IEC 60393-1:2008)

CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60393-1:2009 E

SEK Svensk Elstandard

Foreword

The text of document 40/1897/FDIS, future edition 3 of IEC 60393-1, prepared by IEC TC 40, Capacitors and resistors for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60393-1 on 2009-07-01.

This European Standard supersedes CECC 41 000:1976.

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)	2010-04-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-07-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60393-1:2008 was approved by CENELEC as a European Standard without any modification.

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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 60027-1	-[1)]	Letter symbols to be used in electrical technology - Part 1: General	EN 60027-1	2006[2)]
IEC 60050	Series	International Electrotechnical Vocabulary (IEV)	-	-
IEC 60062	-[1)]	Marking codes for resistors and capacitors	EN 60062 + corr. January	2005[2)] 2007
IEC 60063 A1 A2	1963 1967 1977	Preferred number series for resistors and capacitors	-	-
IEC 60068-1 + corr. October + A1	1988 1988 1992	Environmental testing - Part 1: General and guidance	EN 60068-1	1994
IEC 60068-2-1 A1 A2	1990 1993 1994	Environmental testing - Part 2: Tests - Tests A: Cold	EN 60068-2-1[3)] A1 A2	1993 1993 1994
IEC 60068-2-2 A1 A2	1974 1993 1994	Environmental testing - Part 2: Tests - Tests B: Dry heat	EN 60068-2-2[4)] A1 A2	1993 1993 1994
IEC 60068-2-6	-[1)]	Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	2008[2)]
IEC 60068-2-13	-[1)]	Environmental testing - Part 2: Tests - Test M: Low air pressure	EN 60068-2-13	1999[2)]
IEC 60068-2-14 + A1	1984 1986	Environmental testing - Part 2: Tests - Test N: Change of temperature	EN 60068-2-14	1999
IEC 60068-2-17	-[1)]	Environmental testing - Part 2: Tests - Test Q: Sealing	EN 60068-2-17	1994[2)]
IEC 60068-2-20 + A2	1979 1987	Environmental testing - Part 2: Tests - Test T: Soldering	HD 323.2.20 S3[5)]	1988
IEC 60068-2-21	-[1)]	Environmental testing - Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices	EN 60068-2-21	2006[2)]

1) Undated reference.

2) Valid edition at date of issue.

3) EN 60068-2-1 is superseded by EN 60068-2-1:2007, which is based on IEC 60068-2-1:2007.

4) EN 60068-2-2 includes supplement A:1976 to IEC 60068-2-2; it is superseded by EN 60068-2-2:2007, which is based on IEC 60068-2-2:2007

5) HD 323.2.20 S3 is superseded by EN 60068-2-20:2008, which is based on IEC 60068-2-20:2008.

Publication	Year	Title	EN/HD	Year
IEC 60068-2-27	-[1)]	Environmental testing - Part 2: Tests - Test Ea and guidance: Shock	EN 60068-2-27	2009[2)]
IEC 60068-2-29	-[1)]	Environmental testing - Part 2: Tests - Test Eb and guidance: Bump	EN 60068-2-29[6)]	1993[2)]
IEC 60068-2-30	-[1)]	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	2005[2)]
IEC 60068-2-45 A1	1980 1993	Environmental testing - Part 2: Tests - Test XA and guidance: Immersion in cleaning solvents	EN 60068-2-45 A1	1992 1993
IEC 60068-2-58	-[1)]	Environmental testing - Part 2-58: Tests - Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)	EN 60068-2-58 + corr. December	2004[2)] 2004
IEC 60068-2-78	-[1)]	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	2001[2)]
IEC 60410	-[1)]	Sampling plans and procedures for inspection by attributes	-	-
IEC 60617	Data-base	Graphical symbols for diagrams	-	-
IEC 60915	-[1)]	Capacitors and resistors for use in electronic equipment - Preferred dimensions of shaft ends, bushes and for the mounting of single-hole, bush-mounted, shaft-operated electronic components	EN 60915 + corr. April	2007[2)] 2009
IEC 61249-2-7	-[1)]	Materials for printed boards and other interconnecting structures - Part 2-7: Reinforced base materials, clad and unclad - Epoxide woven E-glass laminated sheet of defined flammability (vertical burning test), copper-clad	EN 61249-2-7 + corr. September	2002[2)] 2005
IEC QC 001002-3	-[1)]	IEC Quality Assessment System for Electronic Components (IECQ) - Rules of Procedure - Part 3: Approval procedures	-	-
IEC QC 001005	-[1)]	IEC Quality Assessment System for Electronic Components (IECQ) - Register of films, products and services approved under the IECQ system, including ISO 9000	-	-
ISO 1000	-[1)]	SI units and recommendations for the use of their multiples and of certain other units	-	-
ISO 9000	-[1)]	Quality management systems - Fundamentals and vocabulary	EN ISO 9000	2005[2)]

[6)] EN 60068-2-29 is superseded by EN 60068-2-27:2009, which is based on IEC 60068-2-27:2008.

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POTENTIOMETERS FOR USE IN ELECTRONIC EQUIPMENT –

Part 1: Generic specification

1 General

1.1 Scope

This part of IEC 60393 is applicable to all types of resistive potentiometers, including lead-screw actuated types, presets, multi-turn units, etc. to be used in electronic equipment.

It establishes standard terms, inspection procedures and methods of test for use in sectional and detail specifications of electronic components for quality assessment or any other purpose.

It has been mainly written, and the test methods described, to conform to the widely used single-turn rotary potentiometer with an operating shaft.

For other types of potentiometers:

- the angle of rotation may be several turns;
- the reference to an operating shaft shall apply to any other actuating device;
- the angular rotation shall be taken to mean mechanical travel of the actuating device;
- a value for force shall be prescribed instead of a value for torque if the actuating device moves in a linear instead of a rotary manner.

These alternative prescriptions will be found in the sectional or detail specification.

When a component is constructed as a variable resistor, i.e. as a two-terminal device, the detail specification shall prescribe the modifications required in the standard tests.

1.2 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 60027-1, *Letter symbols to be used in electrical technology – Part 1: General*

IEC 60050 (all parts), *International Electrotechnical Vocabulary (IEV)*

IEC 60062, *Marking codes for resistors and capacitors*

IEC 60063:1963, *Preferred number series for resistors and capacitors*
Amendment 1 (1967)
Amendment 2 (1977)

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*
Amendment 1 (1992)

IEC 60068-2-1:1990, *Environmental testing – Part 2: Tests – Tests A: Cold*
Amendment 1 (1993)
Amendment 2 (1994)

IEC 60068-2-2:1974, *Environmental testing – Part 2: Tests – Tests B: Dry heat*
Amendment 1 (1993)
Amendment 2 (1994)

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

IEC 60068-2-13, *Environmental testing – Part 2: Tests – Test M: Low air pressure*

IEC 60068-2-14:1994, *Environmental testing – Part 2: Tests – Test N: Change of temperature*
Amendment 1 (1986)

IEC 60068-2-17, *Environmental testing – Part 2: Tests – Test Q: Sealing*

IEC 60068-2-20:1979, *Environmental testing – Part 2: Tests – Test T: Soldering*
Amendment 2 (1987)

IEC 60068-2-21, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60068-2-27, *Environmental testing – Part 2: Tests – Test Ea and guidance: Shock*

IEC 60068-2-29, *Environmental testing – Part 2: Tests – Test Eb and guidance: Bump*

IEC 60068-2-30, *Environmental testing – Part 2-30: Tests – Test dB : Damp heat, cyclic (12 h + 12 hour cycle)*

IEC 60068-2-45:1980, *Environmental testing – Part 2: Tests – Test XA and guidance: Immersion in cleaning solvents*
Amendment 1 (1993)

IEC 60068-2-58, *Environmental testing – Part 2-58: Tests – Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)*

IEC 60068-2-78, *Environmental testing – Part 2-78 – Test Cab: Damp heat, steady state*

IEC 60410, *Sampling plans and procedures for inspection by attributes*

IEC 60617, *Graphical symbols for diagrams*

IEC 60915, *Capacitors and resistors for use in electronic equipment – Preferred dimensions of shaft ends, bushes and for the mounting of single-hole, bush-mounted, shaft-operated electronic components*

IEC 61249-2-7, *Materials for printed boards and other interconnecting structures – Part 2-7: Reinforced base materials clad and unclad – Epoxide woven E-glass laminated sheet of defined flammability (vertical burning test), copper-clad*

IECQ 001002-3, *IEC Quality Assessment System for Electronic Components (IECQ) – Rules of procedure – Part 3: Approval procedures*

IECQ 001005, see www.iecq.org\certificates for relevant information

ISO 1000, *SI units and recommendations for the use of their multiples and of certain other units*

ISO 9000, *Quality management systems – Fundamentals and vocabulary*