

**Fixed inductors for electromagnetic interference
suppression - Part 1: Generic specification**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60938-1:2002 sisaldab Euroopa standardi EN 60938-1:1999 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 18.12.2002 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 60938-1:2002 consists of the English text of the European standard EN 60938-1:1999.

This standard is ratified with the order of Estonian Centre for Standardisation dated 18.12.2002 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

The standard is available from Estonian standardisation organisation.

ICS 29.100.10, 31.020

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60938-1

December 1999

ICS 29.100.10; 31.020

Supersedes **EN 138000:1996**

English version

Fixed inductors for electromagnetic interference suppression
Part 1: Generic specification
(IEC 60938-1:1999)

Inductances fixes d'antiparasitage
Partie 1: Spécification générique
(CEI 60938-1:1999)

Drosseln zur Unterdrückung
elektromagnetischer Störungen
Teil 1: Fachgrundspezifikation
(IEC 60938-1:1999)

This European Standard was approved by CENELEC on 1999-12-01. 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.

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

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

Foreword

The text of document 40/1110/FDIS, future edition 2 of IEC 60938-1, 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 60938-1 on 1999-12-01.

This European Standard supersedes EN 138000:1996.

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) 2000-09-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2002-12-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annexes A, B, C and ZA are normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60938-1:1999 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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	series	Letter symbols to be used in electrical technology	HD 245	series
IEC 60050	series	International Electrotechnical Vocabulary	-	-
IEC 60062	1992	Marking codes for resistors and capacitors	EN 60062	1993
IEC 60068-1	1988	Environmental testing		
+ corr. October	1988	Part 1: General and guidance		
+ A1	1992		EN 60068-1	1994
IEC 60068-2-1	1990	Part 2: Tests - Tests A: Cold	EN 60068-2-1	1993
A1	1993		A1	1993
A2	1994		A2	1994
IEC 60068-2-2	1974	Part 2: Tests - Test B: Dry heat	EN 60068-2-2 ¹⁾	1993
A1	1993		A1	1993
A2	1994		A2	1994
IEC 60068-2-3	1969	Part 2: Tests - Test Ca: Damp heat, steady state		
+ A1	1984		HD 323.2.3 S2	1987
IEC 60068-2-6	1995	Part 2: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	1995
+ corr. March	1995			
IEC 60068-2-13	1983	Part 2: Tests - Test M: Low air pressure	EN 60068-2-13	1999
IEC 60068-2-14	1984	Part 2: Tests - Test N: Change of temperature		
+ A1	1986		EN 60068-2-14	1999
IEC 60068-2-17	1994	Part 2: Tests - Test Q: Sealing	EN 60068-2-17	1994
IEC 60068-2-20	1979	Part 2: Tests - Test T: Soldering		
+ A2	1987		HD 323.2.20 S3	1988

1) EN 60068-2-2 includes supplement A:1976 to IEC 60068-2-2.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-21	1983	Part 2: Tests - Test U: Robustness of terminations and integral mounting devices	EN 60068-2-21 ²⁾	1997
A2	1991		A2	1997
A3	1992		A3	1997
IEC 60068-2-27	1987	Part 2: Tests - Test Ea and guidance: Shock	EN 60068-2-27	1993
IEC 60068-2-29 + corrigendum	1987	Part 2: Tests - Test Eb and guidance: Bump	EN 60068-2-29	1993
IEC 60068-2-30 + A1	1980 1985	Part 2: Tests - Test Db and guidance: Damp heat, cyclic (12 + 12 hour cycle)	EN 60068-2-30	1999
IEC 60068-2-45	1980	Part 2: Tests - Test Xa and guidance: Immersion in cleaning solvents	EN 60068-2-45	1992
A1	1993		A1	1993
IEC 60294	1969	Measurement of the dimensions of a cylindrical component having two axial terminations	-	-
IEC 60335-1 (mod)	1991	Safety of household and similar electrical appliances Part 1: General requirements	EN 60335-1 + corr. January + A11 + A12 + A13 + A14	1994 1995 1995 1996 1998 1998
IEC 60410	1973	Sampling plans and procedures for inspection by attributes	-	-
IEC 60617	series	Graphical symbols for diagrams	EN 60617	series
IEC 60695-2-2	1991	Fire hazard testing Section 2: Needle-flame test	EN 60695-2-2	1994
A1	1994		A1	1995
CISPR 17	1981	Methods of measurement of the suppression characteristics of passive radio interference filters and suppression components	-	-
IEC QC 001002-3	1998	Rules of procedure of the IEC quality assessment system for electronic components (IECQ) Part 3: Approval procedures	-	-
ISO 1000	1992	SI units and recommendations for the use of their multiples and of certain other units	-	-

2) EN 60068-2-21 is superseded by EN 60068-2-21, which is based on IEC 60068-2-21:1999.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

QC 280000

**Fixed inductors for electromagnetic interference suppression –
Part 1: Generic specification**

**Inductances fixes d'antiparasitage –
Partie 1: Spécification générique**

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

QC 280000

**Fixed inductors for electromagnetic interference suppression –
Part 1: Generic specification**

**Inductances fixes d'antiparasitage –
Partie 1: Spécification générique**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

V

ICS 29.100.10; 31.020

ISBN 2-8318-9863-3

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**FIXED INDUCTORS FOR ELECTROMAGNETIC
INTERFERENCE SUPPRESSION –****Part 1: Generic specification**

FOREWORD

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International Standard IEC 60938-1 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This second edition cancels and replaces the first edition published in 1988 and constitutes a minor revision related to tables, figures and references. It also includes Amendment 1 (2006).

This bilingual version, published in 2008-08, corresponds to the English version.

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

FDIS	Report on voting
40/1110/FDIS	40/1136/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.

The French version of this standard has not been voted upon.

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

A list of all parts of the IEC 60938 series, under the general title: *Fixed inductors for electromagnetic interference suppression*, can be found on the IEC website.

The QC number that appears on the front cover of this publication is the specification number in the IEC quality assessment system for electronic components (IECQ).

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

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- replaced by a revised edition, or
- amended.

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FIXED INDUCTORS FOR ELECTROMAGNETIC INTERFERENCE SUPPRESSION –

Part 1: Generic specification

1 General

1.1 Scope

This International Standard applies to inductors designed for electromagnetic interference suppression intended for use within, or associated with, electronic or electrical equipment and machines. It is restricted to inductors for which safety tests are appropriate.

The combination of two or more inductors within one enclosure is also included.

Inductors within the scope of this standard may also be used to protect apparatus and machines from electrical noise and voltage or current transients coming from either the supply or from other parts of the apparatus.

This standard does not necessarily apply in its entirety to inductors intended for use on motor vehicles, in aircraft or for marine applications.

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 (all parts), *Letter symbols to be used in electrical technology*

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

IEC 60062:1992¹⁾, *Marking codes for resistors and capacitors*

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

IEC 60068-2-1:1990¹⁾, *Environmental testing – Part 2: Tests – Tests A: Cold*
Amendment 1 (1993)
Amendment 2 (1994)

IEC 60068-2-2:1974¹⁾, *Basic environmental testing procedures – Part 2: Tests – Tests B: Dry Heat*
Amendment 1 (1993)
Amendment 2 (1994)

IEC 60068-2-32²⁾:1969, *Basic environmental testing procedures – Part 2: Tests – Test Ca: Damp heat, steady state*
Amendment 1 (1984)

1) A new edition of this publication exists.

2) This publication has been withdrawn and replaced by IEC 60068-2-78.

- IEC 60068-2-6:1995¹⁾, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*
- IEC 60068-2-13:1983, *Environmental testing – Part 2: Tests – Test M: Low air pressure*
- IEC 60068-2-14:1984, *Environmental testing – Part 2: Tests – Test N: Change of temperature*
Amendment 1 (1986)
- IEC 60068-2-17:1994, *Basic environmental testing procedures – Part 2: Tests – Test Q: Sealing*
- IEC 60068-2-20:1979, *Environmental testing – Part 2: Tests – Test T: Soldering*
Amendment 2 (1987)
- IEC 60068-2-21:1983¹⁾, *Basic environmental testing procedures – Part 2: Tests – Test U: Robustness of terminations and integral mounting devices*
Amendment 2 (1991)
Amendment 3 (1992)
- IEC 60068-2-27:1987¹⁾, *Basic environmental testing procedures – Part 2-27: Tests – Test Ea and guidance: Shock*
- IEC 60068-2-29:1987, *Environmental testing – Part 2: Tests – Test Eb and guidance: Bump*
- IEC 60068-2-30:1980¹⁾, *Basic environmental testing procedures – Part 2: Tests – Test Db and guidance: Damp heat, cyclic (12 + 12 hour cycle)*
Amendment 1 (1985)
- IEC 60068-2-45:1980, *Environmental testing – Part 2: Tests – Test XA and guidance: Immersion in cleaning solvents*
Amendment 1 (1993)
- IEC 60294:1969, *Measurement of the dimensions of a cylindrical component having two axial terminations*
- IEC 60335-1:1991¹⁾, *Safety of household and similar electrical appliances – Part 1: General requirements*
- IEC 60410:1973, *Sampling plans and procedures for inspection by attributes*
- IEC 60617 (all parts), *Graphical symbols for diagrams*
- IEC 60695-2-2:1991³⁾, *Fire hazard testing – Part 2: Test methods – Section 2: Needle-flame test*
Amendment 1 (1994)
- CISPR 17:1981, *Methods of measurement of the suppression characteristics of passive radio interference filters and suppression components*
- IEC QC 001002-3:1998¹⁾, *IEC Quality Assessment System for Electronic Components (IECQ) – Rules of Procedure – Part 3: Approval procedures*
- ISO 1000:1992, *SI units and recommendations for the use of their multiples and of certain other units*

³⁾ This publication has been withdrawn and replaced by IEC 60695-11-5.