BS EN 60063:2015



BSI Standards Publication

Preferred number series for resistors and capacitors

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National foreword

This British Standard is the UK implementation of EN 60063:2015. It is identical to IEC 60063:2015. It supersedes BS 2488:1966 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/40X, Capacitors and resistors for electronic equipment.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

Preferred number series for resistors and capacitors (IEC 60063:2015)

Séries de valeurs normales pour résistances et condensateurs
(IEC 60063:2015)

Vorzugsreihen für die Nennwerte von Widerständen und Kondensatoren
(IEC 60063:2015)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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Foreword

The text of document 40/2340A/FDIS, future edition 3 of IEC 60063, prepared by IEC/TC 40 "Capacitors and resistors for electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60063:2015.

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) 2016-02-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-05-01

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The text of the International Standard IEC 60063:2015 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 documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When 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 60062	-	Marking codes for resistors and capacitors	EN 60062	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PREFERRED NUMBER SERIES FOR RESISTORS AND CAPACITORS

FOREWORD

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International Standard IEC 60063 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This third edition cancels and replaces the second edition published in 1963 and constitutes a technical revision.

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

– revision of the information on a relationship between an E Series and the tolerance of a resistance or capacitance value of a respective component;
– introduction of advice on a possible deduction from the marking of a component to an associated E Series and also to an associated tolerance;
– complete editorial revision.

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

FDIS	Report on voting
40/2340A/FDIS	40/2370/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 stability date indicated on the IEC website 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.

PREFERRED NUMBER SERIES FOR RESISTORS AND CAPACITORS

1 Scope

This International Standard provides series of preferred values for the resistance of resistors and for the capacitance of capacitors.

The definition of such series with a defined numeric resolution is a basic prerequisite for the marking and coding of capacitors and resistors with their respective capacitance or resistance values as described in IEC 60062.

NOTE The number series defined in this standard are based on progressive ratios of $\sqrt[i]{10}$, with $r = 3 \cdot 2^i$, and i being a whole number in the range of 0 to 6, hence e.g. of $\sqrt[12]{10}$.

This system of progressive ratios had been established prior to the 1952 release of the first edition of this standard[1] as a consequence of the standardisation of tolerances at ±5 %, ±10 % and ±20 % and the related commercial practice. An adoption of the ISO practice, based on a $\sqrt[10]{10}$ system, was never considered achievable.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60062, *Marking codes for resistors and capacitors*

3 Terms and definitions

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

3.1
E series
infinite series of numeric values with a given number of elements per decade, rounded or derived from the elements of a geometric series

Note 1 to entry: The number of elements within a decade, r, is given in the designation of the E series, Er, e.g. E24 for a number series with 24 values per decade.

4 Number series

4.1 Number series with two significant digits

The series E24, E12, E6 and E3 with two significant digits are the decimal multiples and sub-multiples of the respective values given in Table 1.

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1 IEC 60063:1952, *Series of preferred values and their associated tolerances for resistors and capacitors*