

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

Fixed inductors for use in electronic and telecommunication equipment –  
Marking codes

(standards.iteh.ai)

Inductances fixes utilisées dans les équipements électroniques et de  
télécommunications – Codes de marquage

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## FIXED INDUCTORS FOR USE IN ELECTRONIC AND TELECOMMUNICATION EQUIPMENT – MARKING CODES

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International Standard IEC 61605 has been prepared by IEC technical committee 51: Magnetic components and ferrite materials.

This third edition cancels and replaces the second edition published in 2005. This edition constitutes a technical revision.

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

- a) The date code system for fixed inductors has been updated.

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

CDV	Report on voting
51/1135/CDV	51/1147/RVC

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 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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# FIXED INDUCTORS FOR USE IN ELECTRONIC AND TELECOMMUNICATION EQUIPMENT – MARKING CODES

## 1 Scope

This document specifies marking codes for fixed inductors.

The colour code specified in Clause 3 gives a colour coding for fixed inductors. It is intended for use with the values of the E3 to E24 series as specified in IEC 60063.

The code specified in Clause 4 gives a system for marking inductance values by means of digits and letters.

The code specified in Clause 5 gives a system for marking the tolerance on inductance values by means of letters.

The code specified in Clause 6 gives a system for marking of date codes on fixed inductors by means of letters and digits.

## 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. <https://standards.iteh.ai/catalog/standards/sist/a20c8967-9282-42b3-9573-c1318e1966fe/iec-61605-2016>

ISO 8601, *Data elements and interchange formats – Information interchange – Representation of dates and times*

## 3 Colour code for fixed inductors

### 3.1 General rules

Colour codes for fixed inductors should be expressed in “bands”. If other shapes than bands are applied, the relevant specification shall prescribe their configuration, placement and identification.

Colour codes for fixed inductors shall consist of four bands. The first three bands shall indicate inductance values and the last band shall indicate tolerances.

Inductance values shall be expressed by two significant figures and another figure expressing multipliers.

Colour corresponding to significant figures, multipliers and tolerances shall be as given in Table 1.

The first two bands represent significant figures and the third band specifies the multiplier. The basic unit for the inductance value shall be expressed in  $\mu\text{H}$ . The first band shall be the one nearest to the end of the inductor and the bands shall be so placed and spaced that there can be no confusion in reading the coding.

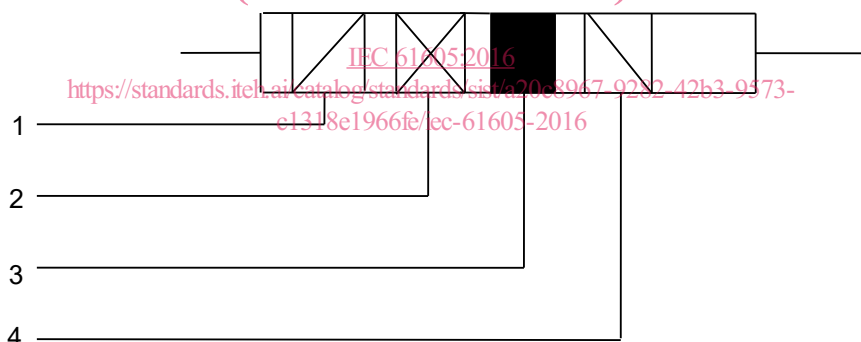
Any additional coding on fixed inductors shall be applied in such a way as not to confuse the coding for value and tolerance.

**Table 1 – Values corresponding to colours**

Colour	Significant figure	Multiplier	Tolerance %
Silver	–	$10^{-2}$	$\pm 10$
Gold	–	$10^{-1}$	$\pm 5$
Black	0	$10^0$	–
Brown	1	$10^1$	$\pm 1$
Red	2	$10^2$	$\pm 2$
Orange	3	$10^3$	–
Yellow	4	$10^4$	–
Green	5	$10^5$	–
Blue	6	$10^6$	–
Violet	7	$10^{-3}$	–
Grey	8	$10^{-4}$	–
White	9	–	–
None	–	–	$\pm 20$

**3.2 Examples of colour code for fixed inductors**

The examples of colour code for fixed inductors are shown in Figure 1, Figure 2 and Figure 3.



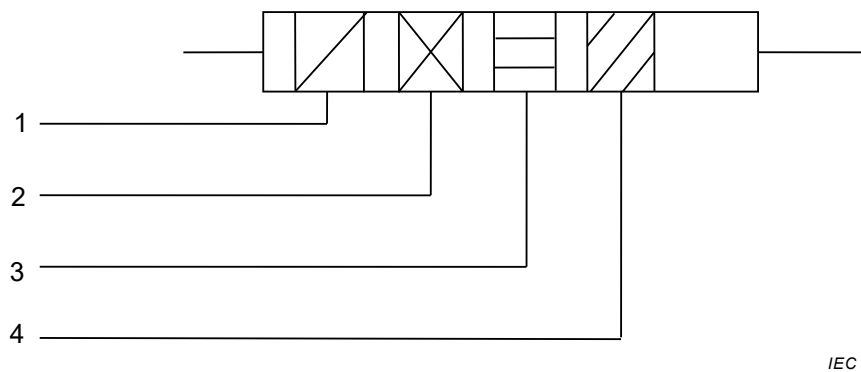
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**Key:**

- |                         |                         |                       |
|-------------------------|-------------------------|-----------------------|
| 1: 1 <sup>st</sup> band | 1 <sup>st</sup> numeral | Yellow = 4            |
| 2: 2 <sup>nd</sup> band | 2 <sup>nd</sup> numeral | Violet = 7            |
| 3: 3 <sup>rd</sup> band | Multiplier              | Black = $\times 10^0$ |
| 4: 4 <sup>th</sup> band | Tolerance               | Silver = $\pm 10\%$   |

**Figure 1 – Example for 47  $\mu\text{H} \pm 10\%$**





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**Key:**

1: 1 <sup>st</sup> band	1 <sup>st</sup> numeral	Yellow	= 4
2: 2 <sup>nd</sup> band	2 <sup>nd</sup> numeral	Violet	= 7
3: 3 <sup>rd</sup> band	Multiplier	Gold	= × 10 <sup>-1</sup>
4: 4 <sup>th</sup> band	Tolerance	Red	= ± 2 %

**Figure 2 – Example for 4,7 µH ± 2 %**

IEC

**Key:**

1: 1 <sup>st</sup> band	1 <sup>st</sup> numeral	Yellow	= 4
2: 2 <sup>nd</sup> band	2 <sup>nd</sup> numeral	Violet	= 7
3: 3 <sup>rd</sup> band	Multiplier	Grey	= × 10 <sup>-4</sup>
4: 4 <sup>th</sup> band	Tolerance	Gold	= ± 5 %

**Figure 3 – Example for 4,7 nH ± 5 %****4 Digit and letter code for inductance values****4.1 General rules**

Nominal inductance values shall be expressed in three characters of letters and digits.

Where inductance values are equal to, or greater than, 10 µH, the first two characters indicate significant figures and the last one indicates multipliers. In this case, cardinal numbers for the multiplier shall be as given in Table 2.

**Table 2 – Cardinal numbers for the multiplier**

<b>Cardinal number</b>	0	1	2	3	4	5	6	7	8	9	–
<b>Multiplier</b>	10 <sup>0</sup>	10 <sup>1</sup>	10 <sup>2</sup>	10 <sup>3</sup>	10 <sup>4</sup>	10 <sup>5</sup>	10 <sup>6</sup>	–	–	–	–

Inductance values less than 10  $\mu\text{H}$  and equal to, or greater than, 100 nH shall be identified with two numbers representing the significant figures and the letter (R) designating decimal point location  $\mu\text{H}$ , and the letter (N) designating decimal point location of nH for the inductance value of less than 100 nH.

**4.2 Examples of digit and letter code for inductance values**

Examples of digit and letter code for inductance values are shown in Table 3.

**Table 3 – Examples of digit and letter code for inductance values**

Inductance values	Digit and letter code
0,1 nH	N10
0,47 nH	N47
1 nH	1N0
4,7 nH	4N7
10 nH	10N
47 nH	47N
0,1 $\mu\text{H}$	R10
0,47 $\mu\text{H}$	R47
1 $\mu\text{H}$	1R0
4,7 $\mu\text{H}$	4R7
10 $\mu\text{H}$	10R
47 $\mu\text{H}$	47R
100 $\mu\text{H}$	101
470 $\mu\text{H}$	471
1 mH	102
4,7 mH	472
10 mH	103
47 mH	473
100 mH	104
470 mH	474
1 H	105
4,7 H	475
10 H	106
47 H	476

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## 5 Letter code for tolerances of inductance values

### 5.1 Symmetrical tolerances

The letter codes shown in Table 4 shall be used to indicate the symmetrical tolerance on inductance values.

**Table 4 – Letter code for symmetrical tolerance**

Tolerance	Letter code
$\pm 0,05$ nH	W
$\pm 0,1$ nH	B
$\pm 0,2$ nH	C
$\pm 0,3$ nH	S
$\pm 0,5$ nH	D
$\pm 1$ %	F
$\pm 2$ %	G
$\pm 3$ %	H
$\pm 5$ %	J
$\pm 10$ %	K
$\pm 15$ %	L
$\pm 20$ %	M
$\pm 30$ %	N

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These letter codes shall be placed after the inductance values.

### 5.2 Other tolerances

For tolerances for which a code letter has not been laid down, the letter A may be used. The letter A indicates that the tolerance is to be identified in other documents.

## 6 Date code system for fixed inductors

### 6.1 Single-character code for year and month

Date codes of year and month in single-character shall be expressed in the code system shown in Table 5 and should be repeated every four years.