

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Conventions concerning electric circuits

Conventions concernant les circuits électriques



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INTERNATIONAL STANDARD

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Conventions concerning electric circuits

Conventions concernant les circuits électriques

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	5
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	7
4 Orientation of geometrical objects	15
4.1 Orientation of a curve	15
4.2 Orientation of a surface.....	15
4.3 Arrows perpendicular to the plane of the figure	15
5 Conventions concerning currents.....	15
5.1 Physical direction of current.....	15
5.2 Reference direction of current.....	16
5.3 Indication of the reference direction for currents	16
5.3.1 Indication of the reference direction for currents for a branch	16
5.3.2 Indication of the reference direction for mesh currents.....	16
5.4 Kirchhoff law for nodes	17
6 Conventions concerning voltages	17
6.1 Physical polarity of voltage	17
6.2 Reference polarity for a pair of nodes	18
6.3 Indication of the reference polarity	18
6.3.1 First method	18
6.3.2 Second method.....	18
6.3.3 Third method	19
6.4 Kirchhoff law for meshes.....	19
7 Conventions concerning power	20
7.1 Physical direction of power	20
7.2 Reference direction of power	20
7.3 Indication of the reference direction of power.....	20
7.4 Combined conventions.....	20
7.4.1 General	20
7.4.2 Motor convention	21
7.4.3 Generator convention	21
8 Conventions concerning two-port networks.....	21
9 Conventions concerning sources	22
9.1 Conventions concerning voltage sources	22
9.1.1 Independent voltage sources	22
9.1.2 Controlled voltage sources	22
9.2 Conventions concerning current sources.....	23
9.2.1 Independent current sources	23
9.2.2 Controlled current sources.....	23
10 Conventions concerning passive elements.....	24
10.1 General conventions	24
10.2 Resistive elements.....	24
10.2.1 Resistive two-terminal elements	24
10.2.2 Resistive n -terminal elements	25
10.3 Capacitive elements.....	26
10.3.1 Capacitive two-terminal elements	26

10.3.2	Capacitive n -terminal elements	27
10.4	Inductive elements	29
10.4.1	Inductive two-terminal elements	29
10.4.2	Inductive n -port elements	30
11	Complex notation	32
11.1	General	32
11.2	Conventions concerning complex representation of sinusoidal quantities	32
11.3	Reference direction of a complex current	32
11.4	Reference polarity for a complex voltage	33
11.5	Complex representation of Ohm's law	34
11.6	Conventions concerning the graphical representation of phasors	35
11.7	Conventions concerning phase differences	35
11.8	Conventions concerning power	36
11.8.1	Time-dependent electric power	36
11.8.2	Complex power	36
	Bibliography	37
	Figure 1 – Orientation of a curve	15
	Figure 2 – Orientation of a surface	15
	Figure 3 – Indication of the reference direction for a current by an arrow	16
	Figure 4 – Indication of the reference direction using the node names	16
	Figure 5 – Indication of the reference direction for mesh currents	17
	Figure 6 – Examples of the Kirchhoff law for nodes	17
	Figure 7 – Indication of the reference polarity by means of plus and minus signs	18
	Figure 8 – Simplified indication of the reference polarity by means of plus signs	18
	Figure 9 – Indication of the reference polarity by an arrow	18
	Figure 10 – Indication of the reference polarity using the node names	19
	Figure 11 – Simplified indication of the reference polarity using the node names	19
	Figure 12 – Examples of the Kirchhoff law for meshes	20
	Figure 13 – Indication of the reference direction of power	20
	Figure 14 – Examples of motor conventions	21
	Figure 15 – Examples of generator conventions	21
	Figure 16 – A reference convention for a two-port network	22
	Figure 17 – Graphical representation of an independent voltage source	22
	Figure 18 – Graphical representation of a voltage source controlled by a voltage: $u_s = \alpha u_c$	22
	Figure 19 – Graphical representation of a voltage source controlled by a current: $u_s = \beta i_c$	23
	Figure 20 – Graphical representation of an independent current source	23
	Figure 21 – Graphical representation of a current source controlled by a voltage: $i_s = \gamma u_c$	24
	Figure 22 – Graphical representation of a current source controlled by a current: $i_s = \delta i_c$	24
	Figure 23 – Examples of graphical representations of a two-terminal resistive element	25

Figure 24 – Examples of the graphical representation of a four-terminal resistive element.....	25
Figure 25 – Examples of the graphical representation of a two-terminal capacitive element.....	26
Figure 26 – Examples of the graphical representation of a four-terminal capacitive element.....	27
Figure 27 – Examples of the graphical representation of a two-terminal inductive element.....	29
Figure 28 – Examples of the graphical representation of a three-port inductive element.....	30
Figure 29 – Examples of the Kirchhoff law for nodes in complex notation.....	33
Figure 30 – Examples of the Kirchhoff law for meshes in complex notation	34
Figure 31 – Examples of graphical representation of reference directions and polarities in Ohm's law for a complex two-terminal element.....	35
Figure 32 – Graphical representation of a phasor in the complex plane.....	35
Figure 33 – Graphical representation of phase difference in the complex plane	35
Figure 34 – Examples of the reference directions for time-dependent electric power.....	36
Figure 35 – Examples of the reference directions for the complex power	36

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONVENTIONS CONCERNING ELECTRIC CIRCUITS

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 60375 has been prepared by IEC technical committee 25: Quantities and units, and their letter symbols.

This third edition cancels and replaces the second edition issued in 2003. This edition constitutes a technical revision.

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

- a) the clause on conventions concerning magnetic circuits has been removed; accordingly the title of the document has been abbreviated to read "Conventions concerning electric circuits";
- b) text and figures have been revised and homogenised;
- c) Clause 3 has been structured into subclauses;
- d) Clause 4 – Orientation of geometrical objects – has been inserted, and thus the clause numbering has been altered.

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

FDIS	Report on voting
25/620/FDIS	25/622/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.

CONVENTIONS CONCERNING ELECTRIC CIRCUITS

1 Scope

This International Standard specifies the rules for signs and reference directions and reference polarities for electric currents and voltages in electric networks.

In Clauses 3 to 10, the time dependence is arbitrary. It is assumed that the wavelength of the highest frequency involved is larger than the largest distance between two points of the network; processes are considered to be quasi-static. Clause 11 specifies the rules and recommendations for complex notation.

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.

IEC 60617, *Graphical symbols for diagrams* ¹

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

orientation

<of a curve> property of a curve described by the position vector $r(u)$ which is associated with increasing or decreasing values of the parameter u

[SOURCE: IEC 60050-102:2007, 102-04-19]

3.2

orientation

<of a surface> for a surface having a tangent plane at any point, property determined by the choice, continuously from point to point, of one of the two normal unit vectors at each point

[SOURCE: IEC 60050-102:2007, 102-04-36, modified – Note 1 to entry omitted.]

3.3

electric charge

additive scalar quantity, associated with elementary particles and with macroscopic matter that characterizes their electromagnetic interactions

¹ IEC 60617 is a database containing symbols referenced in the form (IEC 60617-Sxxxxx) where Sxxxxx is the identity number of the symbol.