

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



BASIC SAFETY PUBLICATION

PUBLICATION FONDAMENTALE DE SÉCURITÉ

**Basic and safety principles for man-machine interface, marking and identification – Identification of equipment terminals, conductor terminations and conductors**

**Principes fondamentaux et de sécurité pour les interfaces homme-machine, le marquage et l'identification – Identification des bornes de matériels, des extrémités de conducteurs et des conducteurs**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**BASIC AND SAFETY PRINCIPLES FOR MAN-MACHINE  
INTERFACE, MARKING AND IDENTIFICATION –  
IDENTIFICATION OF EQUIPMENT TERMINALS,  
CONDUCTOR TERMINATIONS AND CONDUCTORS**

## 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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IEC 60445 has been prepared by IEC technical committee 3: Documentation, graphical symbols and representations of technical information. It is an International Standard.

It has the status of a basic safety publication in accordance with IEC Guide 104.

This seventh edition cancels and replaces the sixth edition published in 2017. This edition constitutes a technical revision.

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

- a) the definitions have been aligned with IEC 60050-195:2021 and IEC 60050-826:—<sup>1</sup>;

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<sup>1</sup> Third edition under preparation. Stage at time of publication: IEC FDIS 60050-826:2021.

- b) the provisions for colour to be used for identification of certain designated conductors are made requirements and not only recommendations;
- c) introduction of a new subclause on marking of protective terminals for multiple power supply inputs on equipment.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
3/1491/FDIS	3/1517/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

The reader's attention is drawn to the fact that Annex B lists all of the "in-some-country" clauses on differing practices of a less permanent nature relating to the subject of this standard.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
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# BASIC AND SAFETY PRINCIPLES FOR MAN-MACHINE INTERFACE, MARKING AND IDENTIFICATION – IDENTIFICATION OF EQUIPMENT TERMINALS, CONDUCTOR TERMINATIONS AND CONDUCTORS

## 1 Scope

This document applies to the identification and marking of terminals of electrical equipment such as resistors, fuses, relays, contactors, transformers, rotating machines and, wherever applicable, to combinations of such equipment (e.g. assemblies), and it also applies to the identification of terminations of certain designated conductors. It also provides general rules for the use of certain colours or alphanumeric notations to identify conductors with the aim of avoiding ambiguity and ensuring safe operation. These conductor colours and alphanumeric notations are intended to be applied on cores, busbars, and electrical equipment, and in cables or installations.

This basic safety publication focusing on safety essential requirements is primarily intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

It is not intended for use by manufacturers or certification bodies. One of the responsibilities of a technical committee is, wherever applicable, to make use of basic safety publications in the preparation of its publications. The requirements of this basic safety publication will not apply unless specifically referred to or included in the relevant publications.

## 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 60417, *Graphical symbols for use on equipment* (available at <http://www.graphical-symbols.info/equipment>)

IEC 60617, *Graphical symbols for diagrams* (available at <http://std.iec.ch/iec60617>)

## 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>

NOTE The terms are sorted in alphabetical order in the English language.