



NSAI
Standards

Irish Standard
I.S. EN IEC 60445:2021

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

I.S. EN IEC 60445:2021

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN IEC 60445:2021 is the adopted Irish version of the European Document EN IEC 60445:2021, Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals, conductor terminations and conductors

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EUROPEAN STANDARD

EN IEC 60445

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2021

ICS 01.080.20; 13.110; 29.020

Supersedes EN 60445:2017 and all of its amendments
and corrigenda (if any)

English Version

**Basic and safety principles for man-machine interface, marking
and identification - Identification of equipment terminals,
conductor terminations and conductors
(IEC 60445:2021)**

Principes fondamentaux et de sécurité pour les interfaces
hommes-machines, le marquage et l'identification -
Identification des bornes de matériels, des extrémités de
conducteurs et des conducteurs
(IEC 60445:2021)

Grund- und Sicherheitsregeln für die Mensch-Maschine-
Schnittstelle - Kennzeichnung von Anschlüssen elektrischer
Betriebsmittel, angeschlossenen Leiterenden und Leitern
(IEC 60445:2021)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 60445:2021 (E)

European foreword

The text of document 3/1491/FDIS, future edition 7 of IEC 60445, prepared by IEC/TC 3 “Documentation, graphical symbols and representations of technical information” was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60445:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2022-05-20 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2024-08-20 document have to be withdrawn

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60079-11 NOTE Harmonized as EN 60079-11

IEC 60757 NOTE Harmonized as HD 457 S1

IEC 61666:2010 NOTE Harmonized as EN 61666:2010 (not modified)

IEC 62491 NOTE Harmonized as EN 62491

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

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NOTE 1 Where 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60417	-	Graphical symbols for use on equipment	-	-
IEC 60617	-	Graphical symbols for diagrams	-	-

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IEC 60445

Edition 7.0 2021-07

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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IEC 60445

Edition 7.0 2021-07

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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CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	6
4 Methods of identification	10
5 Application of identification means	10
6 Identification by colours	11
6.1 General.....	11
6.2 Use of single colours.....	11
6.2.1 The use of the single colours GREEN and YELLOW	11
6.2.2 Neutral or mid-point conductor	12
6.2.3 Line conductor in AC system	12
6.2.4 Line conductor in DC system.....	12
6.2.5 Functional earthing conductor	12
6.3 Use of bi-colour combinations.....	12
6.3.1 Permitted colours	12
6.3.2 Protective conductor	12
6.3.3 PEN conductor.....	13
6.3.4 PEL conductor	13
6.3.5 PEM conductor	14
6.3.6 Protective bonding conductor	14
7 Identification by alphanumeric notation.....	14
7.1 General.....	14
7.2 Equipment terminal identification – Marking principles.....	14
7.3 Identification of certain designated conductors.....	17
7.3.1 General	17
7.3.2 Neutral conductor.....	17
7.3.3 Protective conductor	17
7.3.4 PEN conductor.....	17
7.3.5 PEL conductor	17
7.3.6 PEM conductor	17
7.3.7 Protective bonding conductor	17
7.3.8 Functional earthing conductor	18
7.3.9 Functional bonding conductor.....	18
7.3.10 Mid-point conductor	18
7.3.11 Line conductor	18
7.3.12 System-referencing-conductor.....	18
Annex A (informative) Colours, alphanumeric notations and graphical symbols used for identification of conductors and terminals	19
Annex B (informative) List of notes concerning particular conditions in certain countries	21
Bibliography	26
Figure 1 – Single element with two terminals	15

Figure 2 – Single element with four terminals: Two endpoints and two intermediate points	15
Figure 3 – Three-phase equipment with six terminals.....	15
Figure 4 – Three-element equipment with twelve terminals: Six endpoints and six intermediate points	16
Figure 5 – Equipment with groups of elements.....	16
Figure 6 – Interconnection of equipment terminals and certain designated conductors.....	17
 Table A.1 – Colours, alphanumeric notations and graphical symbols used for identification of conductors and terminals	 19

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

FOREWORD

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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:—¹;

¹ 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. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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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.

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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/>
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