



NSAI
Standards

Irish Standard
I.S. EN 60027-7:2010

Letter symbols to be used in electrical technology -- Part 7: Power generation, transmission and distribution (IEC 60027-7:2010 (EQV))

I.S. EN 60027-7:2010

Incorporating amendments/corrigenda issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

<i>This document replaces:</i>	<i>This document is based on:</i> EN 60027-7:2010	<i>Published:</i> 10 September, 2010
This document was published under the authority of the NSAI and comes into effect on: 29 September, 2010		ICS number: 01.060
NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie
Údarás um Chaighdeáin Náisiúnta na hÉireann		

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60027-7

September 2010

ICS 01.060

English version

Letter symbols to be used in electrical technology -
Part 7: Power generation, transmission and distribution
(IEC 60027-7:2010)

Symboles littéraux à utiliser
en électrotechnique -
Partie 7: Production, transport
et distribution de l'énergie électrique
(CEI 60027-7:2010)

Formelzeichen für die Elektrotechnik -
Teil 7: Energieerzeugung, -übertragung
und -verteilung
(IEC 60027-7:2010)

This European Standard was approved by CENELEC on 2010-09-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

I.S. EN 60027-7:2010

EN 60027-7:2010

- 2 -

Foreword

The text of document 25/391/CDV, future edition 1 of IEC 60027-7, prepared by IEC TC 25, Quantities and units, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60027-7 on 2010-09-01.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

- | | | |
|--|-------|------------|
| – latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement | (dop) | 2011-06-01 |
| – latest date by which the national standards conflicting
with the EN have to be withdrawn | (dow) | 2013-09-01 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60027-7:2010 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 referenced documents are indispensable for the application 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60027-1	1995	Letter symbols to be used in electrical	EN 60027-1	2006
+ A1	1997	technology -	-	-
+ A2	2005	Part 1: General	+ A2 ¹⁾	2007
IEC 60027-2	2005	Letter symbols to be used in electrical	EN 60027-2 ²⁾	2007
		technology -		
		Part 2: Telecommunications and electronics		
IEC 60038	2009	IEC standard voltages	-	-
IEC 60050-121	1998	International Electrotechnical Vocabulary	-	-
+ A1	2002	(IEV) -	-	-
		Part 121: Electromagnetism		
IEC 60050-131	2002	International Electrotechnical Vocabulary	-	-
+ A1	2008	(IEV) -	-	-
		Part 131: Circuit theory		
IEC 60050-141	2004	International electrotechnical vocabulary -	-	-
		Part 141: Polyphase systems and circuits		
IEC 60050-151	2001	International Electrotechnical Vocabulary	-	-
		(IEV) -		
		Part 151: Electrical and magnetic devices		
IEC 60050-195	1998	International Electrotechnical Vocabulary	-	-
+ A1	2001	(IEV) -	-	-
		Chapter 195: Earthing and protection against		
		electric shock		
IEC 60050-411	1996	International Electrotechnical Vocabulary	-	-
+ A1	2007	(IEV) -	-	-
		Chapter 411: Rotating machinery		
IEC 60050-421	1990	International electrotechnical vocabulary	-	-
		(IEV) -		
		Chapter 421: Power transformers and		
		reactors		
IEC 60050-441	1984	International Electrotechnical Vocabulary	-	-
+ A1	2000	(IEV) -	-	-
		Chapter 441: Switchgear, controlgear and		
		fuses		

¹⁾ EN 60027-1 includes A1 to IEC 60027-1.

²⁾ EN 60027-2 is superseded by EN 80000-13:2008, which is based on IEC 80000-13:2008.

I.S. EN 60027-7:2010

EN 60027-7:2010

- 4 -

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-442	1998	International Electrotechnical Vocabulary - Part 442: Electrical accessories	-	-
IEC 60050-448	1995	International Electrotechnical Vocabulary (IEV) - Chapter 448: Power system protection	-	-
IEC 60050-466	1990	International electrotechnical vocabulary (IEV) - Chapter 466: Overhead lines	-	-
IEC 60050-601 + A1	1985 1998	International Electrotechnical Vocabulary (IEV) - Chapter 601: Generation, transmission and distribution of electricity - General	- -	- -
IEC 60050-603 + A1	1986 1998	International electrotechnical vocabulary - Chapter 603: Generation, transmission and distribution of electricity - Power system planning and management	- -	- -
IEC 60050-604 + A1	1987 1998	International Electrotechnical Vocabulary (IEV) - Chapter 604: Generation, transmission and distribution of electricity - Operation	- -	- -
IEC 60050-811	1991	International electrotechnical vocabulary (IEV) - Chapter 811: Electric traction	-	-
IEC 60909-0	2001	Short-circuit currents in three-phase a.c. systems - Part 0: Calculation of currents	EN 60909-0	2001
IEC/TR 60909-1	2002	Short-circuit currents in three-phase e.c. systems - Part 1: Factors for the calculation of short-circuit currents according to IEC 60909-0	-	-
IEC/TR 60909-2	2008	Short-circuit currents in three-phase a.c. systems - Part 2: Data of electrical equipment for short-circuit current calculations	-	-
IEC 60909-3	2003	Short-circuit currents in three-phase a.c. systems - Part 3: Currents during two separate simultaneous line-to-earth short-circuits and partial short-circuit currents flowing through earth	EN 60909-3 ³⁾	2003
IEC 62428	2008	Electric power engineering - Modal components in three-phase a.c. systems - Quantities and transformations	EN 62428	2008
IEC 80000-6	2008	Quantities and units - Part 6: Electromagnetism	EN 80000-6	2008

³⁾ EN 60909-3 is superseded by EN 60909-3:2010, which is based on IEC 60909-3:2009.

CONTENTS

FOREWORD	3
1 Scope	5
2 Normative references	5
3 Letter symbols for AC, three-phase AC, and other network quantities	7
4 Letter symbols for space and time	17
5 Letter symbols for numerical values and ratios of quantities	20
6 Subscripts and superscripts	24
6.1 Subscripts for natural quantities and components in three-phase AC systems	24
6.2 Subscripts for operating conditions	25
6.3 Subscripts for electrical equipment	25
6.4 Subscripts for locations, reference points, and fault locations	27
6.5 Superscripts	28
6.6 Multiple subscripts and their succession	28
Bibliography	29

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LETTER SYMBOLS TO BE USED
IN ELECTRICAL TECHNOLOGY –****Part 7: Power generation, transmission, and distribution**

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60027-7 has been prepared by IEC technical committee 25: Quantities and units.

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

CDV	Report on voting
25/391/CDV	25/406/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.

A list of all parts of the IEC 60027 series, under the general title *Letter symbols to be used in electrical technology* can be found on the IEC website.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

LETTER SYMBOLS TO BE USED IN ELECTRICAL TECHNOLOGY –

Part 7: Power generation, transmission, and distribution

1 Scope

This part of IEC 60027 is applicable to generation, transmission, and distribution of electric energy. It gives names and letter symbols for quantities and units. In addition, rules for multiple subscripts and their succession are given.

This part of IEC 60027 is an addition to IEC 60027-1. Therefore letter symbols already given in IEC 60027-1 are repeated only if they have a special meaning in the field of power generation, transmission, and distribution or if they are used in this field with special subscripts.

Guidance on the use of capital and lower case letters, is given in IEC 60027-1, 2.1, and guidance on the representation of complex quantities, is given in IEC 60027-1, 1.6. Therefore in many cases only U is given instead of \underline{U} , $|\underline{U}| = U$ or u .

2 Normative references

The following referenced documents are indispensable for the application 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 60027-1:1992, *Letter symbols to be used in electrical technology – Part 1: General*
Amendment 1:1997
Amendment 2:2005

IEC 60027-2:2005, *Letter symbols to be used in electrical technology – Part 2: Telecommunications and electronics*

IEC 60038:2009, *IEC standard voltages*

IEC 60050-121:1998, *International Electrotechnical Vocabulary – Part 121: Electromagnetism*
Amendment 1 (2002)

IEC 60050-131:2002, *International Electrotechnical Vocabulary – Part 131: Circuit theory*
Amendment 1 (2008)

IEC 60050-141:2004, *International Electrotechnical Vocabulary – Part 141: Polyphase systems and circuits*

IEC 60050-151:2001, *International Electrotechnical Vocabulary – Part 151: Electrical and magnetic devices*

IEC 60050-195:1998, *International Electrotechnical Vocabulary – Part 195: Earthing and protection against electric shock*
Amendment 1 (1998)

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-