

Information technology — Coded graphic character set for use in the preparation of documents used in electrotechnology and for information interchange

The European Standard EN 61286:2002 has the status of a
British Standard

ICS 01.080.10; 29.020; 35.020

National foreword

This British Standard is the official English language version of EN 61286:2002. It was derived by CENELEC from IEC 61286:2001. It supersedes BS EN 61286:1996 which is withdrawn.

The CENELEC common modifications have been implemented at the appropriate places in the text and are indicated by tags (e.g. [C] [C]).

The UK participation in its preparation was entrusted to Technical Committee GEL/3, Documentation and graphical symbols, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Electrotechnical Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 25 October 2002

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 20, an inside back cover and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

EUROPEAN STANDARD

EN 61286

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2002

ICS 01.080.10; 29.020; 35.020

Supersedes EN 61286:1995

English version

**Information technology -
Coded graphic character set for use in the preparation
of documents used in electrotechnology
and for information interchange
(IEC 61286:2001, modified)**

Technologie de l'information -
Jeu de caractères graphiques codés
pour emploi dans l'établissement de
documents utilisés en électrotechnique
et pour échange de l'information
(CEI 61286:2001, modifiée)

Informationstechnik -
Codierter Zeichensatz zur Anwendung
in der Erstellung von Dokumenten der
Elektrotechnik und zum Datenaustausch
(IEC 61286:2001, modifiziert)

This European Standard was approved by CENELEC on 2002-09-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of the International Standard IEC 61286:2001, prepared by SC 3B, Documentation, of IEC TC 3, Information structures, documentation and graphical symbols, together with the common modifications prepared by CENELEC Reporting Secretariat SR 3B, was submitted to the formal vote and was approved by CENELEC as EN 61286 on 2002-09-01.

This European Standard supersedes EN 61286:1995.

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) 2003-09-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-09-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes A and ZA are normative and annexes B and C are informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC IEC 61286:2001 was approved by CENELEC as a European Standard with agreed common modifications.

INFORMATION TECHNOLOGY – CODED GRAPHIC CHARACTER SET FOR USE IN THE PREPARATION OF DOCUMENTS USED IN ELECTROTECHNOLOGY AND FOR INFORMATION INTERCHANGE

1 Scope

This International Standard specifies a standardized coded graphic character set for use in drawings and diagrams, and for the design of graphical symbols.

2 Normative references

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to apply. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 10367:1991 + technical corrigendum 1:2001, *Information technology – Standardized coded graphic character sets for use in 8-bits codes*

ISO/IEC 10646-1:2000, *Information technology – Universal Multiple-Octet Coded Character Set (UCS) – Part 1: Architecture and basic multilingual plane*

ISO 2375:1985, *Data processing – Procedure for registration of escape sequences*

3 Specification of a character set

Symbols of IEC 60617, letter symbols of IEC 60027 and ISO 31 are used in characters in texts in the preparation of documents used in electrotechnology (see IEC 61082) and for the design of graphical symbols.

In the computer processing of electrotechnical documents, such characters should, in accordance with the rules defined in ISO/IEC 10367, be chosen from technical character set No. 1, with the registration number 181. Technical character set No. 1 is reproduced in annex A.

Annex A

(normative)

TECHNICAL CHARACTER SET No.1

TYPE	REGISTRATION NUMBER: 181 DATE OF REGISTRATION: 1994-03-16
ESCAPE SEQUENCE:	G0: - G1: ESC 02/13 05/11 G2: ESC 02/14 05/11 G3: ESC 02/15 05/11 C0: - C1: -
NAME:	TECHNICAL CHARACTER SET No. 1
DESCRIPTION:	<p>This set of 96 graphic characters is intended for use in data processing and technical text applications, and may also be used for information interchange. The set contains graphic characters used in electrical technology for general purpose, language-independent applications, in typical technical office environments, e.g. engineering or design offices . It allows the handling of special graphic characters used in electrotechnical diagrams, including also graphical symbols according to IEC 617 for use on diagrams</p>
SPONSOR:	INTERNATIONAL ELECTROTECHNICAL COMMISSION TECHNICAL COMMITTEE 3 DOCUMENTATION AND GRAPHICAL SYMBOLS
ORIGIN:	INTERNATIONAL ELECTROTECHNICAL COMMISSION SUB-COMMITTEE 3B: DOCUMENTATION
FIELD OF UTILIZATION:	<p>Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, China, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, India, Italy, Japan, Korea (D.P.R. of), Korea (Republic of), Malaysia, The Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, USA, United Kingdom, Yugoslavia</p>

				b ₇	0	0	0	0	1	1	1	1
				b ₆	0	0	1	1	0	0	1	1
				b ₅	0	1	0	1	0	1	0	1
					0	1	2	3	4	5	6	7
b ₄	b ₃	b ₂	b ₁									
0	0	0	0	0			NBSP	°	‰	Π		π
0	0	0	1	1			⌈	±	←	→	α	ρ
0	0	1	0	2			⌋	÷			β	
0	0	1	1	3			⌌	∞	Γ	Σ	γ	σ
0	1	0	0	4			◇	∫	Δ		δ	τ
0	1	0	1	5			◊	...	◁	Υ	ε	υ
0	1	1	0	6			◊	≠	▽	Φ	ζ	φ
0	1	1	1	7			◊	•	▷	×	η	χ
1	0	0	0	8			◊	≈	Θ	Ψ	θ	ψ
1	0	0	1	9			©	≡	Π	Ω	ι	ω
1	0	1	0	10			≤	≥	◻	□	κ	θ
1	0	1	1	11			≪	≫	Λ	∅	λ	φ
1	1	0	0	12			¬	™		∠	μ	ε
1	1	0	1	13			SHY	ℚ		~	ν	
1	1	1	0	14			®	—	≡	≈	ξ	
1	1	1	1	15				==		≈		

For the definitions, see the following pages.

Position	Name	Note
2/0	NO-BREAK SPACE	
2/1	POSTPONED-OUTPUT SYMBOL	
2/2	MONOSTABLE SYMBOL	
2/3	HYSTERESIS SYMBOL	
2/4	OPEN-CIRCUIT-OUTPUT SYMBOL	
2/5	OPEN-CIRCUIT-OUTPUT H-TYPE SYMBOL	
2/6	OPEN-CIRCUIT-OUTPUT L-TYPE SYMBOL	
2/7	PASSIVE-PULL-DOWN-OUTPUT SYMBOL	
2/8	PASSIVE-PULL-UP-OUTPUT SYMBOL	
2/9	COPYRIGHT SIGN	
2/10	LESS-THAN OR EQUAL TO	2)
2/11	MUCH LESS-THAN	
2/12	NOT SIGN	
2/13	SOFT HYPHEN	
2/14	REGISTERED SIGN	
2/15	(This position shall not be used)	
3/0	DEGREE SIGN	
3/1	PLUS-MINUS SIGN	
3/2	DIVISION SIGN	
3/3	INFINITY	
3/4	INTEGRAL	
3/5	HORIZONTAL ELLIPSIS	
3/6	NOT EQUAL TO	
3/7	MIDDLE DOT	
3/8	APPROXIMATELY EQUAL TO	
3/9	IDENTICAL TO	
3/10	GREATER-THAN OR EQUAL TO	2)
3/11	MUCH GREATER-THAN	
3/12	TRADE MARK SIGN	
3/13	CENTRE LINE SYMBOL	
3/14	DIRECT-CURRENT SYMBOL FORM ONE	
3/15	DIRECT-CURRENT SYMBOL FORM TWO	

Position	Name	Note
4/0	PER MILLE SIGN	
4/1	SHIFTING-INPUT SYMBOL RIGHT-TO-LEFT OR BOTTOM-TO-TOP	
4/2	(This position shall not be used)	
4/3	CAPITAL LETTER SYMBOL GAMMA	1)
4/4	CAPITAL LETTER SYMBOL DELTA	1)
4/5	AMPLIFICATION SYMBOL RIGHT-TO-LEFT	
4/6	THREE-STATE OUTPUT SYMBOL	
4/7	AMPLIFICATION SYMBOL LEFT-TO-RIGHT	
4/8	CAPITAL LETTER SYMBOL THETA	1)
4/9	ANALOGUE SYMBOL	
4/10	SOFTWARE-FUNCTION SYMBOL	
4/11	CAPITAL LETTER SYMBOL LAMBDA	1)
4/12	(This position shall not be used)	
4/13	(This position shall not be used)	
4/14	CAPITAL LETTER SYMBOL XI	1)
4/15	(This position shall not be used)	
5/0	CAPITAL LETTER SYMBOL PI	1)
5/1	SHIFTING INPUT SYMBOL LEFT-TO-RIGHT OR TOP-TO-BOTTOM	
5/2	(This position shall not be used)	
5/3	CAPITAL LETTER SYMBOL SIGMA	1)
5/4	(This position shall not be used)	
5/5	CAPITAL LETTER SYMBOL UPSILON	1)
5/6	CAPITAL LETTER SYMBOL PHI	1)
5/7	MULTIPLICATION SIGN	
5/8	CAPITAL LETTER SYMBOL PSI	1)
5/9	CAPITAL LETTER SYMBOL OMEGA	1)
5/10	SQUARE SIGN	
5/11	DIAMETER SIGN	
5/12	ANGLE	
5/13	ALTERNATING-CURRENT SYMBOL LOW-FREQUENCY RANGE	
5/14	ALTERNATING-CURRENT SYMBOL MEDIUM-FREQUENCY RANGE	
5/15	ALTERNATING-CURRENT SYMBOL HIGH-FREQUENCY RANGE	

Position	Name	Note
6/0	(This position shall not be used)	
6/1	SMALL LETTER SYMBOL ALPHA	1)
6/2	SMALL LETTER SYMBOL BETA	1)
6/3	SMALL LETTER SYMBOL GAMMA	1)
6/4	SMALL LETTER SYMBOL DELTA	1)
6/5	SMALL LETTER SYMBOL EPSILON FORM TWO	1) 2)
6/6	SMALL LETTER SYMBOL ZETA	1)
6/7	SMALL LETTER SYMBOL ETA	1)
6/8	SMALL LETTER SYMBOL THETA FORM TWO	1) 2)
6/9	SMALL LETTER SYMBOL IOTA	1)
6/10	SMALL LETTER SYMBOL KAPPA	1)
6/11	SMALL LETTER SYMBOL LAMBDA	1)
6/12	SMALL LETTER SYMBOL MU	1)
6/13	SMALL LETTER SYMBOL NU	1)
6/14	SMALL LETTER SYMBOL XI	1)
6/15	(This position shall not be used)	
7/0	SMALL LETTER SYMBOL PI	1) 2)
7/1	SMALL LETTER SYMBOL RHO	1) 2)
7/2	(This position shall not be used)	
7/3	SMALL LETTER SYMBOL SIGMA	1) 2)
7/4	SMALL LETTER SYMBOL TAU	1)
7/5	SMALL LETTER SYMBOL UPSILON	1)
7/6	SMALL LETTER SYMBOL PHI FORM TWO	1) 2)
7/7	SMALL LETTER SYMBOL CHI	1)
7/8	SMALL LETTER SYMBOL PSI	1)
7/9	SMALL LETTER SYMBOL OMEGA	1)
7/10	SMALL LETTER SYMBOL THETA FORM ONE	1) 2)
7/11	SMALL LETTER SYMBOL PHI FORM ONE	1) 2)
7/12	SMALL LETTER SYMBOL EPSILON FORM ONE	1) 2)
7/13	(This position shall not be used)	
7/14	(This position shall not be used)	
7/15	(This position shall not be used)	

NOTES

1 The letter symbols marked by 1) in the table are used throughout technologies in different contexts, e.g. for quantities and units, as specified in IEC 27, Part 1 through Part 4 respectively, ISO 31 Part 0 through Part 13, in the design of graphical symbols for functions and products, as specified in IEC 617 Part 1 through Part 13, and in the documentation of electrotechnical diagrams, as specified in IEC 1082 Part 1 through Part 3.

2 For this coded character set, fonts shall show the symbol marked by 2) approximately as in this standard, and not with an alternative shape. For font design see ISO 3098.

Annex B

(informative)

NAMING CONVENTIONS

The following conventions and International Standards have been considered according to the following priority:

- 1) existing names of ISO/IEC 10646-1;
- 2) character naming guidelines according to annex K of ISO/IEC 10646-1;
- 3) where inconsistency in the names have been detected among ISO/IEC 10646-1 and ISO 31, the name as specified in ISO 31 was given preference.

Annex C (informative)

Correspondence between Annex A and ISO/IEC 10646-1:2000

A.1 General

IEC 61286 was developed to cover the needs for graphical symbols of IEC 60617, letter symbols of IEC 60027 and ISO 31 for use in texts appearing in documents used in electrotechnology (see IEC 61082), and for use in labels appearing in graphical symbols.

The defined character set is primarily used in computer-aided design tools used in this area and information exchange. At the time of publication these tools did usually not manage more than single-octet character sets.

Since the time of publication of IEC 61286 Ed. 1 (1995), ISO/IEC 10646-1 has been developed to cover also many of the needs in computer-aided design, and is expected to become the general standard also in this area.

IEC 61286 will therefore be withdrawn as soon as the computer-aided tools are generally capable to manage the multi-octet character set.

Table 1 describes the correspondence between the character set of Annex A of IEC 61286 and ISO/IEC 10646-1. The characters, ordered after their appearance in Annex A, are found in several tables of ISO/IEC10646-1. The following tables are being referred to:

Table 3 - Row 00: Latin 1 Supplement

Table 10 - Row 03: Greek and Coptic

Table 53 - Row 20: General Punctuation

Table 57 - Row 21: Letterlike Symbols

Table 59 - Row 21: Arrows

Table 60 - Row 22: Mathematical Operators

Table 61 - Row 22: Mathematical Operators

Table 62 - Row 23: Miscellaneous Technical

Table 63 - Row 23: Miscellaneous Technical

Table 67 - Row 25: Box Drawing

Table 69 - Row 25: Geometric Shapes

Table 2 lists the characters order after their appearance in ISO/IEC 10646-1.

Since ISO/IEC 10646-1 is available in English only, table 1 and 2 are also presented in English only.

Table 1 – Correspondence between Annex A and ISO/IEC 10646-1

Character in Annex A			Corresponding character in ISO/IEC 10646-1		
Pos.	Name	Table	UCS	Name	Note
2/0	NO-BREAK SPACE	3	00A0	NO-BREAK SPACE	
2/1	POSTPONED-OUTPUT SYMBOL	67	2510	BOX DRAWINGS LIGHT DOWN AND LEFT	1)
2/2	MONOSTABLE SYMBOL	63	238D	MONOSTABLE SYMBOL	
2/3	HYSTERESIS SYMBOL	63	238E	HYSTERESIS SYMBOL	
2/4	OPEN-CIRCUIT-OUTPUT SYMBOL	69	25C7	WHITE DIAMOND	1)
2/5	OPEN-CIRCUIT-OUTPUT H-TYPE SYMBOL	63	238F	OPEN-CIRCUIT-OUTPUT H-TYPE SYMBOL	
2/6	OPEN-CIRCUIT-OUTPUT L-TYPE SYMBOL	63	2390	OPEN-CIRCUIT-OUTPUT L-TYPE SYMBOL	
2/7	PASSIVE-PULL-DOWN-OUTPUT SYMBOL	63	2391	PASSIVE-PULL-DOWN-OUTPUT SYMBOL	
2/8	PASSIVE-PULL-UP-OUTPUT SYMBOL	63	2392	PASSIVE-PULL-UP-OUTPUT SYMBOL	
2/9	COPYRIGHT SIGN	3	00A9	COPYRIGHT SIGN	
2/10	LESS-THAN OR EQUAL TO	60	2264	LESS-THAN OR EQUAL TO	2)
2/11	MUCH LESS-THAN	60	226A	MUCH LESS-THAN	
2/12	NOT SIGN	3	00AC	NOT SIGN	
2/13	SOFT HYPHEN	3	00AD	SOFT HYPHEN	
2/14	REGISTERED SIGN	3	00AE	REGISTERED SIGN	
2/15	(This position shall not be used)	-	-	-	
3/0	DEGREE SIGN	3	00B0	DEGREE SIGN	
3/1	PLUS-MINUS SIGN	3	00B1	PLUS-MINUS SIGN	
3/2	DIVISION SIGN	3	00F7	DIVISION SIGN	
3/3	INFINITY	60	221E	INFINITY	
3/4	INTEGRAL	60	222B	INTEGRAL	
3/5	HORIZONTAL ELLIPSIS	53	2026	HORIZONTAL ELLIPSIS	
3/6	NOT EQUAL TO	60	2260	NOT EQUAL TO	
3/7	MIDDLE DOT	3	00B7	MIDDLE DOT	
3/8	APPROXIMATELY EQUAL TO	60	2245	APPROXIMATELY EQUAL TO	
3/9	IDENTICAL TO	60	2261	IDENTICAL TO	
3/10	GREATER-THAN OR EQUAL TO	60	2265	GREATER-THAN OR EQUAL TO	2)
3/11	MUCH GREATER-THAN	60	226B	MUCH GREATER-THAN	
3/12	TRADE MARK SIGN	57	2122	TRADE MARK SIGN	
3/13	CENTRE LINE SYMBOL	57	2104	CENTRE LINE SYMBOL	
3/14	DIRECT-CURRENT SYMBOL FORM ONE	53	2015	HORIZONTAL BAR	1) 3)
3/15	DIRECT-CURRENT SYMBOL FORM TWO	63	2393	DIRECT-CURRENT SYMBOL FORM TWO	
4/0	PER MILLE SIGN	53	2030	PER MILLE SIGN	
4/1	SHIFTING-INPUT SYMBOL RIGHT-TO-LEFT OR BOTTOM-TO-TOP	59	2190	LEFTWARDS ARROW	1)
4/2	(This position shall not be used)	-	-	-	
4/3	CAPITAL LETTER SYMBOL GAMMA	10	0393	GREEK CAPITAL LETTER GAMMA	4)
4/4	CAPITAL LETTER SYMBOL DELTA	10	0394	GREEK CAPITAL LETTER DELTA	4)
4/5	AMPLIFICATION SYMBOL RIGHT-TO-	69	25C1	WHITE LEFT-POINTING TRIANGLE	1)

Character in Annex A			Corresponding character in ISO/IEC 10646-1		
Pos.	Name	Table	UCS	Name	Note
	LEFT				
4/6	THREE-STATE OUTPUT SYMBOL	69	25BD	WHITE DOWN-POINTING TRIANGLE	1)
4/7	AMPLIFICATION SYMBOL LEFT-TO-RIGHT	69	25B7	WHITE RIGHT-POINTING TRIANGLE	1)
4/8	CAPITAL LETTER SYMBOL THETA	10	0398	GREEK CAPITAL LETTER THETA	4)
4/9	ANALOGUE SYMBOL	61	2229	INTERSECTION	1)
4/10	SOFTWARE-FUNCTION SYMBOL	63	2394	SOFTWARE-FUNCTION SYMBOL	
4/11	CAPITAL LETTER SYMBOL LAMBDA	10	039B	GREEK CAPITAL LETTER LAMBDA	4)
4/12	(This position shall not be used)	-	-	-	
4/13	(This position shall not be used)	-	-	-	
4/14	CAPITAL LETTER SYMBOL XI	10	039E	GREEK CAPITAL LETTER XI	4)
4/15	(This position shall not be used)				
5/0	CAPITAL LETTER SYMBOL PI	10	03A0	GREEK CAPITAL LETTER PI	4)
5/1	SHIFTING-INPUT SYMBOL LEFT-TO-RIGHT OR TOP-TO-BOTTOM	59	2192	RIGHTWARDS ARROW	1)
5/2	(This position shall not be used)	-	-	-	
5/3	CAPITAL LETTER SYMBOL SIGMA	10	03A3	GREEK CAPITAL LETTER SIGMA	4)
5/4	(This position shall not be used)	-	-	-	
5/5	CAPITAL LETTER SYMBOL UPSILON	10	03A5	GREEK CAPITAL LETTER UPSILON	4)
5/6	CAPITAL LETTER SYMBOL PHI	10	03A6	GREEK CAPITAL LETTER PHI	4)
5/7	MULTIPLICATION SIGN	3	00D7	MULTIPLICATION SIGN	
5/8	CAPITAL LETTER SYMBOL PSI	10	03A8	GREEK CAPITAL LETTER PSI	4)
5/9	CAPITAL LETTER SYMBOL OMEGA	10	03A9	GREEK CAPITAL LETTER OMEGA	4)
5/10	SQUARE SIGN	69	25A1	WHITE SQUARE	1)
5/11	DIAMETER SIGN	62	2300	DIAMETER SIGN	
5/12	ANGLE	60	2220	ANGLE	
5/13	ALTERNATING-CURRENT SYMBOL LOW-FREQUENCY RANGE	60	223C	TILDE OPERATOR	1) 5)
5/14	ALTERNATING-CURRENT SYMBOL LOW-FREQUENCY RANGE	60	2248	ALMOST EQUAL TO	1) 5)
5/15	ALTERNATING-CURRENT SYMBOL LOW-FREQUENCY RANGE	60	224B	TRIPLE TILDE	1) 5)
6/0	(This position shall not be used)	-	-	-	
6/1	SMALL LETTER SYMBOL ALPHA	10	03B1	GREEK SMALL LETTER ALPHA	4)
6/2	SMALL LETTER SYMBOL BETA	10	03B2	GREEK SMALL LETTER BETA	4)
6/3	SMALL LETTER SYMBOL GAMMA	10	03B3	GREEK SMALL LETTER GAMMA	4)
6/4	SMALL LETTER SYMBOL DELTA	10	03B4	GREEK SMALL LETTER DELTA	4)
6/5	SMALL LETTER SYMBOL EPSILON FORM TWO	(62)	220A	SMALL ELEMENT OF	
6/6	SMALL LETTER SYMBOL ZETA	10	03B6	GREEK SMALL LETTER ZETA	4)
6/7	SMALL LETTER SYMBOL ETA	10	03B7	GREEK SMALL LETTER ETA	4)
6/8	SMALL LETTER SYMBOL THETA FORM TWO	10	03B8	GREEK SMALL LETTER THETA	4)
6/9	SMALL LETTER SYMBOL IOTA	10	03B9	GREEK SMALL LETTER IOTA	4)
6/10	SMALL LETTER SYMBOL KAPPA	10	03F0	GREEK KAPPA SYMBOL	4)
6/11	SMALL LETTER SYMBOL LAMBDA	10	03BB	GREEK SMALL LETTER LAMBDA	4)

Character in Annex A			Corresponding character in ISO/IEC 10646-1		
Pos.	Name	Table	UCS	Name	Note
6/12	SMALL LETTER SYMBOL MU	10	03BC	GREEK SMALL LETTER MU	4)
6/13	SMALL LETTER SYMBOL NU	10	03BD	GREEK SMALL LETTER NU	4)
6/14	SMALL LETTER SYMBOL XI	10	03BE	GREEK SMALL LETTER XI	4)
6/15	(This position shall not be used)	-	-	-	
7/0	SMALL LETTER SYMBOL PI	10	03C0	GREEK SMALL LETTER PI	4)
7/1	SMALL LETTER SYMBOL RHO	10	03F1	GREEK RHO SYMBOL	4)
7/2	(This position shall not be used)	-	-	-	
7/3	SMALL LETTER SYMBOL SIGMA	10	03C3	GREEK SMALL LETTER SIGMA	4)
7/4	SMALL LETTER SYMBOL TAU	10	03C4	GREEK SMALL LETTER TAU	4)
7/5	SMALL LETTER SYMBOL UPSILON	10	03C5	GREEK SMALL LETTER UPSILON	4)
7/6	SMALL LETTER SYMBOL PHI FORM TWO	10	03D5	GREEK PHI SYMBOL	4)
7/7	SMALL LETTER SYMBOL CHI	10	03C7	GREEK SMALL LETTER CHI	4)
7/8	SMALL LETTER SYMBOL PSI	10	03C8	GREEK SMALL LETTER PSI	4)
7/9	SMALL LETTER SYMBOL OMEGA	10	03C9	GREEK SMALL LETTER OMEGA	4)
7/10	SMALL LETTER SYMBOL THETA FORM ONE	10	03D1	GREEK THETA SYMBOL	4)
7/11	SMALL LETTER SYMBOL PHI FORM ONE	10	03C6	GREEK SMALL LETTER PHI	4)
7/12	SMALL LETTER SYMBOL EPSILON FORM ONE	10	03B5	GREEK SMALL LETTER EPSILON	4)
7/13	(This position shall not be used)	-	-	-	
7/14	(This position shall not be used)	-	-	-	
7/15	(This position shall not be used)	-	-	-	
NOTES					
1) The character of ISO/IEC 10646-1 has a more general name, but identical appearance compared to Annex A.					
2) The character of ISO/IEC 10646-1 has the same name but not identical appearance compared to Annex A. The two forms are considered as "font variants".					
3) This symbol, specified in IEC 60617 Ed.1, is withdrawn in IEC 60617 Ed. 2 and should not be used.					
4) The names of the characters for the Greek letters are slightly modified.					
5) Annex A specifies expressive sine shape for these characters, ISO/IEC 10646-1 uses the tilde operator.					

Table 2 – Correspondence between ISO/IEC 10646-1 and Annex A

Character in Annex A			Corresponding character in ISO/IEC 10646-1		
Pos.	Name	Table	UCS	Name	Note
2/0	NO-BREAK SPACE	3	00A0	NO-BREAK SPACE	
2/9	COPYRIGHT SIGN	3	00A9	COPYRIGHT SIGN	
2/12	NOT SIGN	3	00AC	NOT SIGN	
2/13	SOFT HYPHEN	3	00AD	SOFT HYPHEN	
2/14	REGISTERED SIGN	3	00AE	REGISTERED SIGN	
3/0	DEGREE SIGN	3	00B0	DEGREE SIGN	
3/1	PLUS-MINUS SIGN	3	00B1	PLUS-MINUS SIGN	
3/7	MIDDLE DOT	3	00B7	MIDDLE DOT	
5/7	MULTIPLICATION SIGN	3	00D7	MULTIPLICATION SIGN	
3/2	DIVISION SIGN	3	00F7	DIVISION SIGN	
4/3	CAPITAL LETTER SYMBOL GAMMA	10	0393	GREEK CAPITAL LETTER GAMMA	4)
4/4	CAPITAL LETTER SYMBOL DELTA	10	0394	GREEK CAPITAL LETTER DELTA	4)
4/8	CAPITAL LETTER SYMBOL THETA	10	0398	GREEK CAPITAL LETTER THETA	4)
4/11	CAPITAL LETTER SYMBOL LAMBDA	10	039B	GREEK CAPITAL LETTER LAMBDA	4)
4/14	CAPITAL LETTER SYMBOL XI	10	039E	GREEK CAPITAL LETTER XI	4)
5/0	CAPITAL LETTER SYMBOL PI	10	03A0	GREEK CAPITAL LETTER PI	4)
5/3	CAPITAL LETTER SYMBOL SIGMA	10	03A3	GREEK CAPITAL LETTER SIGMA	4)
5/5	CAPITAL LETTER SYMBOL UPSILON	10	03A5	GREEK CAPITAL LETTER UPSILON	4)
5/6	CAPITAL LETTER SYMBOL PHI	10	03A6	GREEK CAPITAL LETTER PHI	4)
5/8	CAPITAL LETTER SYMBOL PSI	10	03A8	GREEK CAPITAL LETTER PSI	4)
5/9	CAPITAL LETTER SYMBOL OMEGA	10	03A9	GREEK CAPITAL LETTER OMEGA	4)
6/1	SMALL LETTER SYMBOL ALPHA	10	03B1	GREEK SMALL LETTER ALPHA	4)
6/2	SMALL LETTER SYMBOL BETA	10	03B2	GREEK SMALL LETTER BETA	4)
6/3	SMALL LETTER SYMBOL GAMMA	10	03B3	GREEK SMALL LETTER GAMMA	4)
6/4	SMALL LETTER SYMBOL DELTA	10	03B4	GREEK SMALL LETTER DELTA	4)
7/12	SMALL LETTER SYMBOL EPSILON FORM ONE	10	03B5	GREEK SMALL LETTER EPSILON	4)
6/6	SMALL LETTER SYMBOL ZETA	10	03B6	GREEK SMALL LETTER ZETA	4)
6/7	SMALL LETTER SYMBOL ETA	10	03B7	GREEK SMALL LETTER ETA	4)
6/8	SMALL LETTER SYMBOL THETA FORM TWO	10	03B8	GREEK SMALL LETTER THETA	4)
6/9	SMALL LETTER SYMBOL IOTA	10	03B9	GREEK SMALL LETTER IOTA	4)
6/11	SMALL LETTER SYMBOL LAMBDA	10	03BB	GREEK SMALL LETTER LAMBDA	4)
6/12	SMALL LETTER SYMBOL MU	10	03BC	GREEK SMALL LETTER MU	4)
6/13	SMALL LETTER SYMBOL NU	10	03BD	GREEK SMALL LETTER NU	4)
6/14	SMALL LETTER SYMBOL XI	10	03BE	GREEK SMALL LETTER XI	4)
7/0	SMALL LETTER SYMBOL PI	10	03C0	GREEK SMALL LETTER PI	4)
7/3	SMALL LETTER SYMBOL SIGMA	10	03C3	GREEK SMALL LETTER SIGMA	4)
7/4	SMALL LETTER SYMBOL TAU	10	03C4	GREEK SMALL LETTER TAU	4)
7/5	SMALL LETTER SYMBOL UPSILON	10	03C5	GREEK SMALL LETTER UPSILON	4)
7/11	SMALL LETTER SYMBOL PHI FORM ONE	10	03C6	GREEK SMALL LETTER PHI	4)

Character in Annex A			Corresponding character in ISO/IEC 10646-1		
Pos.	Name	Table	UCS	Name	Note
7/7	SMALL LETTER SYMBOL CHI	10	03C7	GREEK SMALL LETTER CHI	4)
7/8	SMALL LETTER SYMBOL PSI	10	03C8	GREEK SMALL LETTER PSI	4)
7/9	SMALL LETTER SYMBOL OMEGA	10	03C9	GREEK SMALL LETTER OMEGA	4)
7/10	SMALL LETTER SYMBOL THETA FORM ONE	10	03D1	GREEK THETA SYMBOL	4)
7/6	SMALL LETTER SYMBOL PHI FORM TWO	10	03D5	GREEK PHI SYMBOL	4)
6/10	SMALL LETTER SYMBOL KAPPA	10	03F0	GREEK KAPPA SYMBOL	4)
7/1	SMALL LETTER SYMBOL RHO	10	03F1	GREEK RHO SYMBOL	4)
3/14	DIRECT-CURRENT SYMBOL FORM ONE	53	2015	HORIZONTAL BAR	1) 3)
3/5	HORIZONTAL ELLIPSIS	53	2026	HORIZONTAL ELLIPSIS	
4/0	PER MILLE SIGN	53	2030	PER MILLE SIGN	
3/13	CENTRE LINE SYMBOL	57	2104	CENTRE LINE SYMBOL	
3/12	TRADE MARK SIGN	57	2122	TRADE MARK SIGN	
4/1	SHIFTING-INPUT SYMBOL RIGHT-TO-LEFT OR BOTTOM-TO-TOP	59	2190	LEFTWARDS ARROW	1)
5/1	SHIFTING-INPUT SYMBOL LEFT-TO-RIGHT OR TOP-TO-BOTTOM	59	2192	RIGHTWARDS ARROW	1)
6/5	SMALL LETTER SYMBOL EPSILON FORM TWO	60	220A	SMALL ELEMENT OF	
3/3	INFINITY	60	221E	INFINITY	
5/12	ANGLE	60	2220	ANGLE	
4/9	ANALOGUE SYMBOL	61	2229	INTERSECTION	1)
3/4	INTEGRAL	60	222B	INTEGRAL	
5/13	ALTERNATING-CURRENT SYMBOL LOW-FREQUENCY RANGE	60	223C	TILDE OPERATOR	1) 5)
3/8	APPROXIMATELY EQUAL TO	60	2245	APPROXIMATELY EQUAL TO	
5/14	ALTERNATING-CURRENT SYMBOL LOW-FREQUENCY RANGE	60	2248	ALMOST EQUAL TO	1) 5)
5/15	ALTERNATING-CURRENT SYMBOL LOW-FREQUENCY RANGE	60	224B	TRIPLE TILDE	1) 5)
3/6	NOT EQUAL TO	60	2260	NOT EQUAL TO	
3/9	IDENTICAL TO	60	2261	IDENTICAL TO	
2/10	LESS-THAN OR EQUAL TO	60	2264	LESS-THAN OR EQUAL TO	2)
3/10	GREATER-THAN OR EQUAL TO	60	2265	GREATER-THAN OR EQUAL TO	2)
2/11	MUCH LESS-THAN	60	226A	MUCH LESS-THAN	
3/11	MUCH GREATER-THAN	60	226B	MUCH GREATER-THAN	
5/11	DIAMETER SIGN	62	2300	DIAMETER SIGN	
2/2	MONOSTABLE SYMBOL	63	238D	MONOSTABLE SYMBOL	
2/3	HYSTERESIS SYMBOL	63	238E	HYSTERESIS SYMBOL	
2/5	OPEN-CIRCUIT-OUTPUT H-TYPE SYMBOL	63	238F	OPEN-CIRCUIT-OUTPUT H-TYPE SYMBOL	
2/6	OPEN-CIRCUIT-OUTPUT L-TYPE SYMBOL	63	2390	OPEN-CIRCUIT-OUTPUT L-TYPE SYMBOL	
2/7	PASSIVE-PULL-DOWN-OUTPUT SYMBOL	63	2391	PASSIVE-PULL-DOWN-OUTPUT SYMBOL	
2/8	PASSIVE-PULL-UP-OUTPUT SYMBOL	63	2392	PASSIVE-PULL-UP-OUTPUT SYMBOL	

Character in Annex A			Corresponding character in ISO/IEC 10646-1		
Pos.	Name	Table	UCS	Name	Note
3/15	DIRECT-CURRENT SYMBOL FORM TWO	63	2393	DIRECT-CURRENT SYMBOL FORM TWO	
4/10	SOFTWARE-FUNCTION SYMBOL	63	2394	SOFTWARE-FUNCTION SYMBOL	
2/1	POSTPONED-OUTPUT SYMBOL	67	2510	BOX DRAWINGS LIGHT DOWN AND LEFT	1)
5/10	SQUARE SIGN	69	25A1	WHITE SQUARE	1)
4/7	AMPLIFICATION SYMBOL LEFT-TO-RIGHT	69	25B7	WHITE RIGHT-POINTING TRIANGLE	1)
4/6	THREE-STATE OUTPUT SYMBOL	69	25BD	WHITE DOWN-POINTING TRIANGLE	1)
4/5	AMPLIFICATION SYMBOL RIGHT-TO-LEFT	69	25C1	WHITE LEFT-POINTING TRIANGLE	1)
2/4	OPEN-CIRCUIT-OUTPUT SYMBOL	69	25C7	WHITE DIAMOND	1)
NOTES					
1) The character of ISO/IEC 10646-1 has a more general name, but identical appearance compared to Annex A.					
2) The character of ISO/IEC 10646-1 has the same name but not identical appearance compared to Annex A. The two forms are considered as "font variants".					
3) This symbol, specified in IEC 60617 Ed.1, is withdrawn in IEC 60617 Ed. 2 and should not be used.					
4) The names of the characters for the Greek letters are slightly modified.					
5) Annex A specifies expressive sine shape for these characters, ISO/IEC 10646-1 uses the tilde operator.					

Bibliography

IEC 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60617 (1996-1997), *Graphical symbols for diagrams*

IEC 61082 (all parts), *Preparation of documents used in electrotechnology*

ISO 31:1992, *Quantities and units*

ISO 3098 (all parts), *Technical product documentation – Lettering*

ISO/IEC 10646-1:2000, *Information technology – Universal Multiple-Octet Coded Character Set (UCS) – Part 1: Architecture and Basic Multilingual Plane (available in English only)*

Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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>
ISO/IEC 10367 + corr. July	1991 2001	Information technology - Standardized coded graphic character sets for use in 8-bit codes	-	-
ISO/IEC 10646-1	2000	Information technology - Universal Multiple-Octet Coded Character Set (UCS) Part 1: Architecture and basic multilingual plane	-	-
ISO 2375	1985	Data processing - Procedure for registration of escape sequences	-	-

National Annex NA
(informative)

Original IEC text amended by CENELEC common modifications

The text of the International Standard IEC IEC 61286:2001 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

2 Normative references

Replace the existing references by:

ISO/IEC 10367:1991 + technical corrigendum 1:2001, *Information technology – Standardized coded graphic character sets for use in 8-bits codes*

ISO/IEC 10646-1:2000, *Information technology – Universal Multiple-Octet Coded Character Set (UCS) – Part 1: Architecture and basic multilingual plane*

ISO 2375:1985, *Data processing – Procedure for registration of escape sequences*

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