

International Standard



6936

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Data processing — Conversion between the ISO 7-bit coded character set (ISO 646) and the CCITT international telegraph alphabet No. 2 (ITA 2)

Traitement de l'information — Conversion entre le jeu de caractères codés à 7 éléments (ISO 646) et l'alphabet télégraphique international CCITT n° 2 (ITA 2)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6936 was developed by Technical Committee ISO/TC 97, *Information processing systems*, and was circulated to the member bodies in December 1981.

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It has been approved by the member bodies of the following countries :

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No member body expressed disapproval of the document.

Data processing — Conversion between the ISO 7-bit coded character set (ISO 646) and the CCITT international telegraph alphabet No. 2 (ITA 2)

1 Scope and field application

This International Standard specifies rules for conversion between the 58 characters (including control functions) of CCITT International Telegraph Alphabet No. 2 (CCITT Recommendation F.1) and the 128 characters of the ISO 7-bit coded character set.

This International Standard does not specify whether small or capital letters will be used to represent the alphabetic characters of ITA 2.

This International Standard is expected to facilitate interworking between, for example, the international telex service and terminals in data networks in cases where the telex character repertoire is sufficient.

2 References

ISO 646, *Information processing — 7-bit coded character set for information interchange*.

ISO 2022, *Information processing — ISO 7-bit and 8-bit coded character sets — Code extension techniques*.

CCITT Recommendation F.1 (Geneva, 1980), *Operational provisions for the International Public Telegram Service*.

CCITT Recommendation V.3 (Geneva, 1972), *International Alphabet No. 5*.¹⁾

CCITT Recommendation S.18 (Geneva, 1980), *Conversion between Alphabets*.

3 Rules for code conversion

3.1 Conversion from ITA 2 to ISO 646

The conversion of characters shall be as specified in table 1.

Characters for which there are no direct equivalents shall be represented by the graphical representation of the substitute character SUB, unless prior agreement has been made between the interchange parties.

NOTE — The annex, together with table 3, provides information on alternative conversions which are in general use in some countries.

3.2 Conversion from ISO 646 to ITA 2

The conversion of characters shall be as specified in table 2.

The control characters of positions 0/1, 0/2, 0/3, 0/4, 0/6, 1/0, 1/5, 1/6, 1/7 and 7/15 are generally not converted because they are removed from the character string by the link control equipment or by convention.

Characters for which there are no direct equivalents shall be represented by the single character, QUESTION MARK, unless prior agreement has been made between the interchange parties.

NOTES

1 The greater number of code combinations available in ISO 646 means that not every character can be translated unambiguously into a single ITA 2 character. Use of a single character, rather than a multi-character representation, will minimize formatting problems.

2 The annex, together with table 4, provides information on some alternative conversions that are in use in some countries.

1) CCITT Recommendation V.3 is equivalent to ISO 646.

Table 1 – Conversion from ITA 2 to ISO 646

ITA 2 combination number	ITA 2 letter shift	ISO 646				ITA 2 figure shift	ISO 646	
		Character ¹⁾	Coding	Character ¹⁾	Coding		Character	Coding
1	A	A	4/1	a	6/1	-	-	2/13
2	B	B	4/2	b	6/2	?	?	3/15
3	C	C	4/3	c	6/3	:	:	3/10
4	D	D	4/4	d	6/4	WRU	ENQ ²⁾	0/5
5	E	E	4/5	e	6/5	3	3	3/3
6	F	F	4/6	f	6/6	National use	SUB	1/10
7	G	G	4/7	g	6/7	National use	SUB	1/10
8	H	H	4/8	h	6/8	National use	SUB	1/10
9	I	I	4/9	i	6/9	8	8	3/8
10	J	J	4/10	j	6/10	BELL	BEL	0/7
11	K	K	4/11	k	6/11	((2/8
12	L	L	4/12	l	6/12))	2/9
13	M	M	4/13	m	6/13	.	.	2/14
14	N	N	4/14	n	6/14	,	,	2/12
15	O	O	4/15	o	6/15	9	9	3/9
16	P	P	5/0	p	7/0	0	0	3/0
17	Q	Q	5/1	q	7/1	1	1	3/1
18	R	R	5/2	r	7/2	4	4	3/4
19	S	S	5/3	s	7/3	'	'	2/7
20	T	T	5/4	t	7/4	5	5	3/5
21	U	U	5/5	u	7/5	7	7	3/7
22	V	V	5/6	v	7/6	=	=	3/13
23	W	W	5/7	w	7/7	2	2	3/2
24	X	X	5/8	x	7/8	/	/	2/15
25	Y	Y	5/9	y	7/9	6	6	3/6
26	Z	Z	5/10	z	7/10	+	+	2/11

ITA 2 combination number	ITA 2 character (either shift)	ISO 646 character	ISO 646 coding
27	CARRIAGE RETURN	CR	0/13
28	LINE FEED	LF	0/10
29	LETTER SHIFT	(See note 3)	
30	FIGURE SHIFT	(See note 3)	
31	SPACE	SP	2/0
32	NU (not normally used)	NUL	0/0

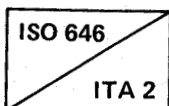
- 1) Small or capital letters may be used, but intermixing of small and capital letters is not allowed.
- 2) This character is used only to operate the answer-back unit of the corresponding instrument in the International Public Services.
- 3) These characters have no corresponding function in ISO 646. Conversion equipment operates the appropriate shift and discards the characters.

Table 2 — Conversion from ISO 646 to ITA 2

	0	1	2	3	4	5	6	7
0	NUL NU	DLE removed	SP SP	0 0	@ ?	P P	' ?	p P
1	SOH removed	DC1 ?	! ?	1 1	A A	Q Q	a A	q Q
2	STX removed	DC2 ?	" ?	2 2	B B	R R	b B	r R
3	ETX removed	DC3 ?	#(£) ?	3 3	C C	S S	c C	s S
4	EOT removed	DC4 ?	¤(\$) ?	4 4	D D	T T	d D	t T
5	ENQ WRU	NAK removed	% ?	5 5	E E	U U	e E	u U
6	ACK removed	SYN removed	& ?	6 6	F F	V V	f F	v V
7	BEL BELL	ETB removed	' ?	7 7	G G	W W	g G	w W
8	BS ?	CAN ?	(?	8 8	H H	X X	h H	x X
9	HT ?	EM ?) ?	9 9	I I	Y Y	i I	y Y
10	LF LF	SUB ?	* ?	: :	J J	Z Z	j J	z Z
11	VT ?	ESC ?	+ +	; ;	K K	[?	k K	{ ?
12	FF ?	IS4 ?	/ /	< ?	L L	\ ?	l L	 ?
13	CR CR	IS3 ?	- -	= =	M M] ?	m M	} ?
14	SO ?	IS2 ?	. .	> ?	N N	^ ?	n N	~ ?
15	SI ?	IS1 ?	/ /	? ?	O O	- ?	o O	DEL removed

NOTES

- 1 Characters allocated to LETTER SHIFT or FIGURE SHIFT are specified in table 1. If the last shift that occurred differs from the next one required, it is essential for the converted character to be preceded by the appropriate shift character. This operation is necessary each time a change of shift is required.
- 2 For position 0/0, see A.4.
- 3 For positions 2/3 and 2/4 in ISO 646, see 4.3.2 in ISO 646.



Annex

Alternative conversions between ISO 646 and ITA 2

(This annex is not an integral part of the standard.)

A.1 This International Standard (see note to 3.1 and note 2 to 3.2) permits alternative conversions for characters which have no direct equivalents, provided these conversions are agreed between interchange parties. Other alternatives may be used.

A.2 Tables 3 and 4 list conversions which are in use in some countries.

A.3 In some nationally adapted applications of ITA 2 and ISO 646 special conversion rules are required because national characters have been allocated in different order in the coded character sets concerned.

A.4 NUL is equivalent to "all space" (combination 32 or NU) in ITA 2.

Table 3 – Examples of alternative conversions from ITA 2 to ISO 646

ITA 2			ISO 646 (IRV)		
Shift	Combination number	Character	Character	Code	Remarks
a) Figure	6	National use ISO 6936:1983		5/11	See clause A.3
Figure	7			5/12	
Figure	8			5/13	
b) Figure	6	National use		7/11	See clause A.3
Figure	7			7/12	
Figure	8			7/13	
c) Either	29	LETTER SHIFT	IS2	1/14	
Either	30	FIGURE SHIFT	IS1	1/15	
d) Either	29	LETTER SHIFT	DEL	7/15	
Either	30	FIGURE SHIFT	DEL	7/15	
e) as d) but with additional agreement that only shift characters following the first one are converted to 7/15. The first one is treated according to table 1 in the body of this International Standard.					

Table 4 — Examples of alternative conversions from ISO 646 to ITA 2

ISO 646 (IRV)		ITA 2		Remarks
Code	Character	Characters	Combination number	
0/1 0/2 0/3 0/4 0/6 1/1 1/5 1/6 1/7	SOH STX ETX EOT ACK DLE NAK SYN ETB	}) ?)	(in figure shift) 12 (RIGHT PARENTHESIS) 2 (QUESTION MARK) 12 (RIGHT PARENTHESIS)	These conversions are alternatives where characters are not removed from the character string by the link control equipment or by convention.
0/8 0/9 0/11 0/12 0/14 0/15 1/1 1/2 1/3 1/4 1/8 1/9 1/10 1/11 1/12 1/13	BS HT VT FF SO SI DC1 DC2 DC3 DC4 CAN EM SUB ESC IS4 IS3	}) ?)	(in figure shift) 12 (RIGHT PARENTHESIS) 2 (QUESTION MARK) 12 (RIGHT PARENTHESIS)	Representation by other sequences will be dealt with by another International Standard.
1/14 1/15	IS2 IS1	LETTER SHIFT FIGURE SHIFT	29 30	See also table 3. 29 and 30 may be used with either shift.
7/15	DEL	LETTER SHIFT	29	
2/1 2/2 2/3 2/4 2/5 2/6 2/10 3/11 3/12 3/14 4/0 5/14 5/15 6/0 7/11 7/12 7/13 7/14	! " # (£) ¤ (\$) % & * ; < > @ ^ . { }	(?)	(in figure shift) 11 (LEFT PARENTHESIS) 2 (QUESTION MARK) 12 (RIGHT PARENTHESIS)	Representation by other sequences will be dealt with by another International Standard.
5/11 5/12 5/13	[\]	National use options	(in figure shift) 6 7 8	See clause A.3
7/11 7/12 7/13	{ }	National use options	(in figure shift) 6 7 8	See clause A.3

NOTE — Use of NEW LINE requires additional agreement between the interchange parties.

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