INTERNATIONAL STANDARD

ISO/IEC 9995-2

Second edition
2002-09-01

Information technology — Keyboard layouts for text and office systems —

Part 2: Alphanumeric section

Technologies de l'information — Disposition des claviers conçus pour la bureautique —

Partie 2: Module alphanumérique

Reference number
ISO/IEC 9995-2:2002(E)

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO/IEC 9995 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 9995-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

This second edition cancels and replaces the first edition (ISO/IEC 9995-2:1994), which has been technically revised.

ISO/IEC 9995 consists of the following parts, under the general title *Information technology — Keyboard layouts for text and office systems*:

— *Part 1: General principles governing keyboard layouts*

— *Part 2: Alphanumeric section*

— *Part 3: Complementary layouts of the alphanumeric zone of the alphanumeric section*

— *Part 4: Numeric section*

— *Part 5: Editing section*

— *Part 6: Function section*

— *Part 7: Symbols used to represent functions*

— *Part 8: Allocation of letters to the keys of a numeric keypad*

Annex A of this part of ISO/IEC 9995 is for information only.

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Information technology — Keyboard layouts for text and office systems —

Part 2: Alphanumeric section

1 Scope

Within the general scope described in part 1 of ISO/IEC 9995, this part of ISO/IEC 9995 specifies the alphanumeric section of a keyboard and the division of that section into zones, the arrangement, the number, and the location of the keys in the alphanumeric zone ZA0 of the alphanumeric section as well as the layout and allocation of several control functions to the keys in the function zones of the alphanumeric section.

2 Conformance

Equipment is in conformance with this part of ISO/IEC 9995 if it meets the requirements of 8.3 and either 7.1, 7.2.

3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 9995. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 9995 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 applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 646:1991, *Information technology — ISO 7-bit coded character set for information interchange*

ISO/IEC 9995-1:1994, *Information technology — Keyboard layouts for text and office systems — Part 1: General principles governing keyboard layouts*

ISO/IEC 10646-1:2000, *Information technology — Universal Multiple-Octet Coded Character Set (UCS) — Part 1: Architecture and Basic Multilingual Plane* and its Amendment 1 (to be published)

4 Terms and definitions

For the purposes of this part of ISO/IEC 9995, the terms and definitions given in ISO/IEC 9995-1 apply.

5 Arrangement and location

The alphanumeric section is located to the right of and below a part of the function section and to the left of the editing and the numeric sections, see ISO/IEC 9995-1; its extent is from column 99 to column 15.

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6 Division into zones

The alphanumeric section is divided into zones as illustrated in Figure 1.

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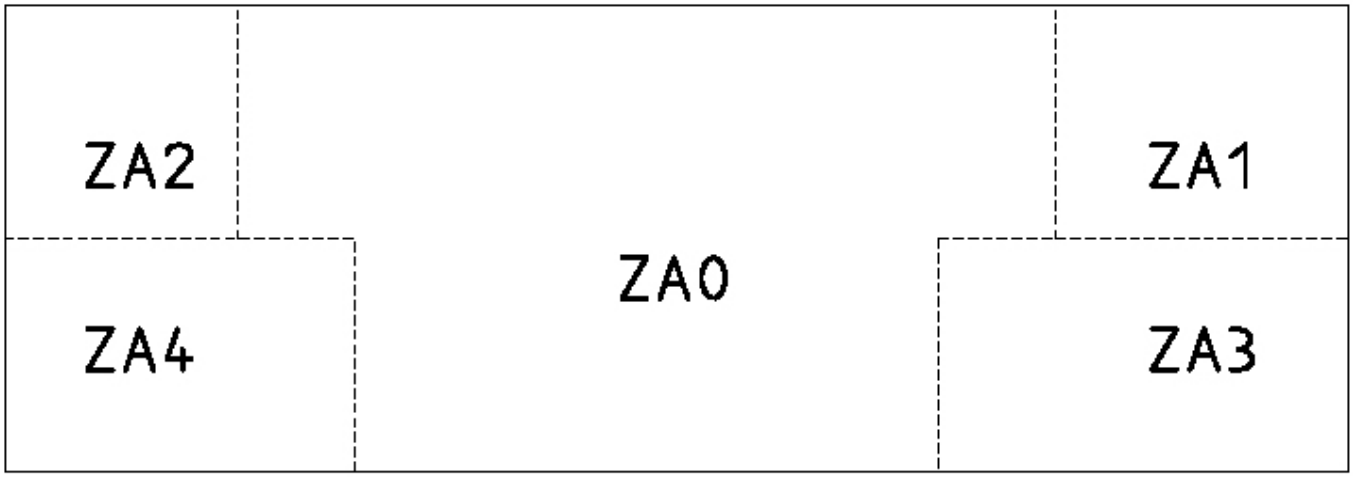


Figure 1 — Division of the alphanumeric section into zones

ZA0 is the alphanumeric zone of the alphanumeric section. The zones ZA1, ZA2, ZA3 and ZA4 are the function zones of the alphanumeric section. The arrangement, the number, and the locations of the keys as well as the allocation of graphic characters and of several functions to the keys are specified in Clause 7, 8 of this part of ISO/IEC 9995.

7 Arrangement and location of keys in the alphanumeric zone of the alphanumeric section

The graphic keys and the space bar shall be arranged in the alphanumeric zone ZA0.

7.1 General keyboard arrangement

The graphic keys and the space bar shall be located as illustrated in Figure 2.

There shall be 45 or more graphic keys and the space bar in the alphanumeric zone of the alphanumeric section. They shall be arranged as follows:

— the space bar in row A, extending, as a minimum, from position A03 to A07;

— 10 keys or more in row B in positions B00 to B11;

— 11 keys or more in row C in positions C01 to C15;

— 12 keys or more in row D in positions D01 to D15;

— 12 keys or more in row E in positions E00 to E15.

This arrangement accommodates existing ISO and national layouts and is flexible enough to allow possible extended versions, especially for national linguistic requirements. The precise boundary of zone ZA0 will be dependent on the number of keys and their configuration.

In order to implement the complementary layouts as specified in ISO/IEC 9995-3, 48 graphic keys are required.

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7.2 Harmonized 48 graphic key keyboard arrangement

On a harmonized keyboard having 48 graphic keys and a space bar, the keys and the space bar shall be located as illustrated in Figure 3.

There shall be 48 graphic keys and the space bar in the alphanumeric zone of the alphanumeric section. The 48 keys shall be arranged as follows:

— the space bar in row A, extending, as a minimum, from position A03 to A07;

— 10 keys in row B in positions B01 to B10, or, if there is no key in position E13, 11 keys in positions B00 to B10;

— 12 keys in row C in positions C01 to C12;

— 12 keys in row D in positions D01 to D12;

— 13 keys in row E in positions E00 to E12, or, if there is no key in position B00, 14 keys in positions E00 to E13.

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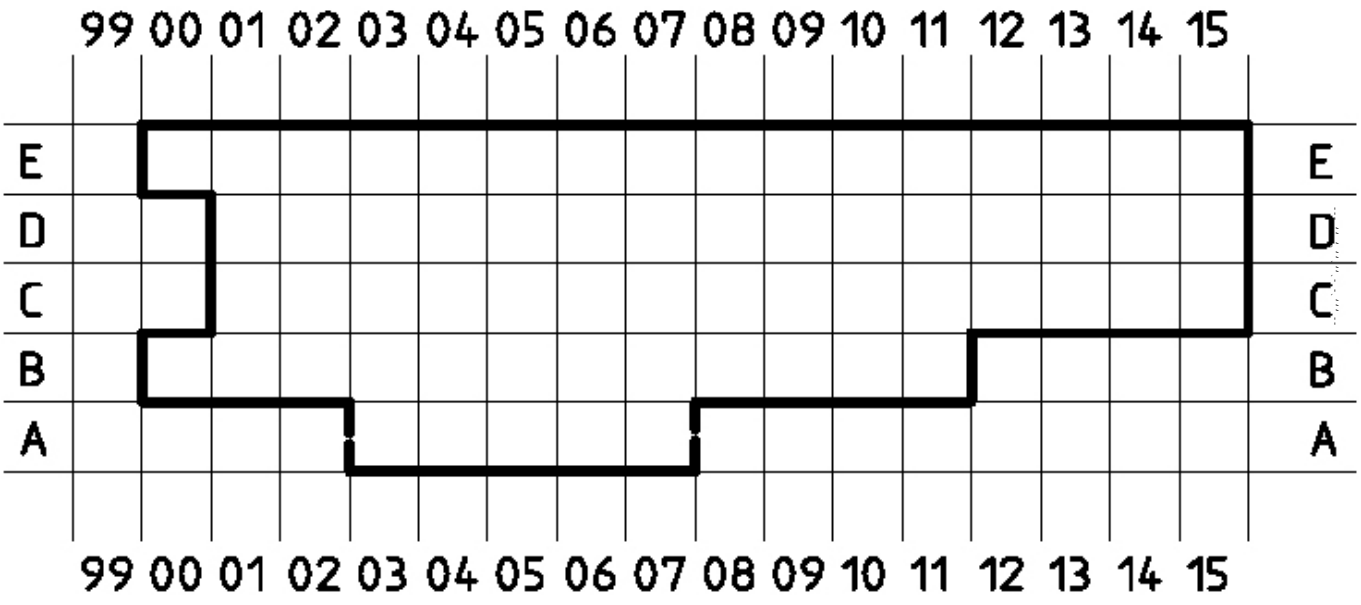


Figure 2 — Arrangement and location of keys in the alphanumeric zone of the alphanumeric section ZA0 for the general keyboard arrangement

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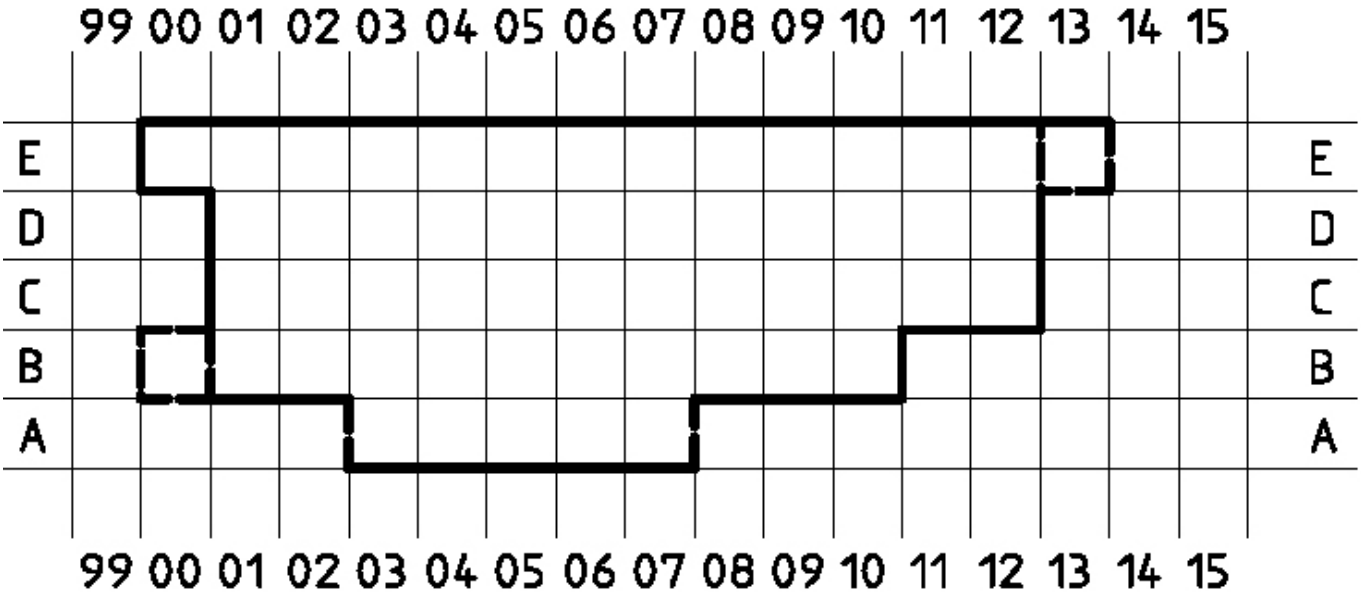


Figure 3 — Arrangement and location of keys in the alphanumeric zone of the alphanumeric section ZA0 for the harmonized 48 graphic key keyboard arrangement

8 Functions of the alphanumeric zone of the alphanumeric section

The functions to be allocated to the keys of the alphanumeric zone ZA0 are graphic characters including the character space.

8.1 Allocation of graphic characters

The allocation of graphic characters is determined by either a national standard or by national usage.

NOTE Annex A gives recommendations on allocations that are suitable for use in national standards.

When the characters of the Latin alphabet are allocated to the keys of the alphanumeric zone ZA0, the following requirements apply:

a) the 83 invariant graphic characters of ISO 646 shall be accommodated. These characters are:

- the 26 small letters a to z of the Latin alphabet;
- the 26 capital letters A to Z of the Latin alphabet;
- the ten digits zero to nine, see “b)” below,
- exclamation mark;
- quotation mark;
- percent sign;
- ampersand;
- apostrophe;
- asterisk;

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— left parenthesis;

— right parenthesis;

— plus sign;

— comma;

— hyphen, minus sign;

— full stop;

— solidus;

— colon;

— semicolon;

— less-than sign;

— equals sign;

— greater-than sign;

— question mark;

— low line;

— the character space, see "c)" below.

b) the digits zero to nine shall be allocated to the keys in row E;

c) the character space shall be allocated to the space bar in row A.

8.2 Allocation of functions to non-graphic keys

Keyboards usually provide one or more of the following functions on non-graphic keys.

— level 2 select;

— tabulation;

— capitals lock/level 2 lock/generalized lock;

— return;

— backspace/backward erase;

— level 3 select;

— group select;

— control;

— alternate.

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8.3 Minimum function key requirements

This part of ISO/IEC 9995 allocates the following functions:

8.3.1 Level 2 select

Two keys for the function level 2 select shall be provided in row B, one at each end of the row of graphic keys. All or part of the left-hand level 2 select key shall be in position B99. The right-hand level 2 select key shall be adjacent to the right-hand end of the row of graphic keys

8.3.2 Level 3 select

For keyboards with characters allocated at level 3, at least one key for the function *Level 3 select* shall be provided to a key position in the alphanumeric section, outside of the alphanumeric zone.

Specifically, for the harmonized 48 graphic key keyboard arrangement, at least one *Level 3 select* key shall be provided in zone ZA3 or ZA4, either in row A or in row B.

8.3.3 Group select

For keyboards with characters allocated in more than one group, a *Group select* function shall be allocated to a key or a combination of keys in the alphanumeric section, outside of the alphanumeric zone.

Specifically, for the harmonized 48 graphic key keyboard arrangement, when characters are allocated in more than one group, the *Group select* function shall be activated by holding a *Level 3 select* key depressed while depressing a *Level 2 select* key or vice-versa.

Optionally, if one key can be dedicated to the *Group select* function, in this case it is recommended to be placed adjacent to a *Level 3 select* key.

For the input of graphic character repertoire of collection 281 (titled MES-1) as specified in amendment 1 to ISO/IEC 10646:1-2000, a Common Secondary Group Layout (to be used as group 2) is specified in ISO/IEC 9995-3. Specifically for group 2, the activation of group 2 with the *Group select* function is recommended to be latching for the next character entered and for this character only. In other words, activation of group 2 changes the logical state of the keyboard so that all keys involved in this activation can be released, and still, the next key typed will be selecting a character in group 2. After typing such a character in this mode, the keyboard then reverts back automatically to the group active before group 2 was activated.

NOTE It is recommended, when a group which defines a complete script (e.g. Katakana, Hiragana, Cyrillic, Greek, Arabic, Hebrew) is selected, that the group be locked in this position until another group select or a de-selection is done (e.g., after Katakana is selected, returning to Group 1 is typically done by deselecting Katakana). The exact way to activate the group selection with a Group Select function is not standardized at this point. It is recommended that at the minimum any Group locking, except for group 1 and group 2, be visually indicated by an appropriate means (e.g. lamp, LCD or screen indication). Ideally the actual group in use should at any time be identified to the user.

8.3.4 Tabulation

One key for the function tabulation shall be provided in row D, adjacent to the left-hand end of the row of graphic keys. All or part of this key shall be in position D00.

8.3.5 Capitals lock/Level 2 lock/Generalized lock

One key for the lock function shall be provided in row C, adjacent to the left-hand end of the row of graphic keys. All or part of this key shall be in position C00.

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8.3.6 Return

One key for the function return shall be provided. All or part of this key shall be in row C, adjacent to the right-hand end of the row of graphic keys.

8.3.7 Backspace/Backward erase

One key for the function backspace/backward erase shall be provided.

8.4 Keytop markings

Keytop markings for function keys of the alphanumeric section are specified in ISO/IEC 9995-7.

It is recommended that the *Level 3 select* and the *Group select* functions be marked with the corresponding function symbols specified in ISO/IEC 9995-7 according to labeling provisions of ISO/IEC 9995-1.

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Annex A
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Allocation guidelines

It is recognized that various national layouts are in existence. Figure A.1 shows a typical arrangement of a subset of the Latin alphabet as can be found on many national layouts.

The figure is provided for information only. It may be of assistance in the development of new national standards.

Only capital forms of the letters are shown in Figure A.1 or Table A.1. It is understood that the small forms of these letters are allocated to level 1 of the keys and the capital forms are allocated to level 2.

Table A.1 — Examples of allocation

Key	Graphic Character
B01	Z or Y or W
B07	M or some other character
C01	A or Q
C10	Some other character or M
D01	Q or A
D02	W or Z
D06	Y or Z

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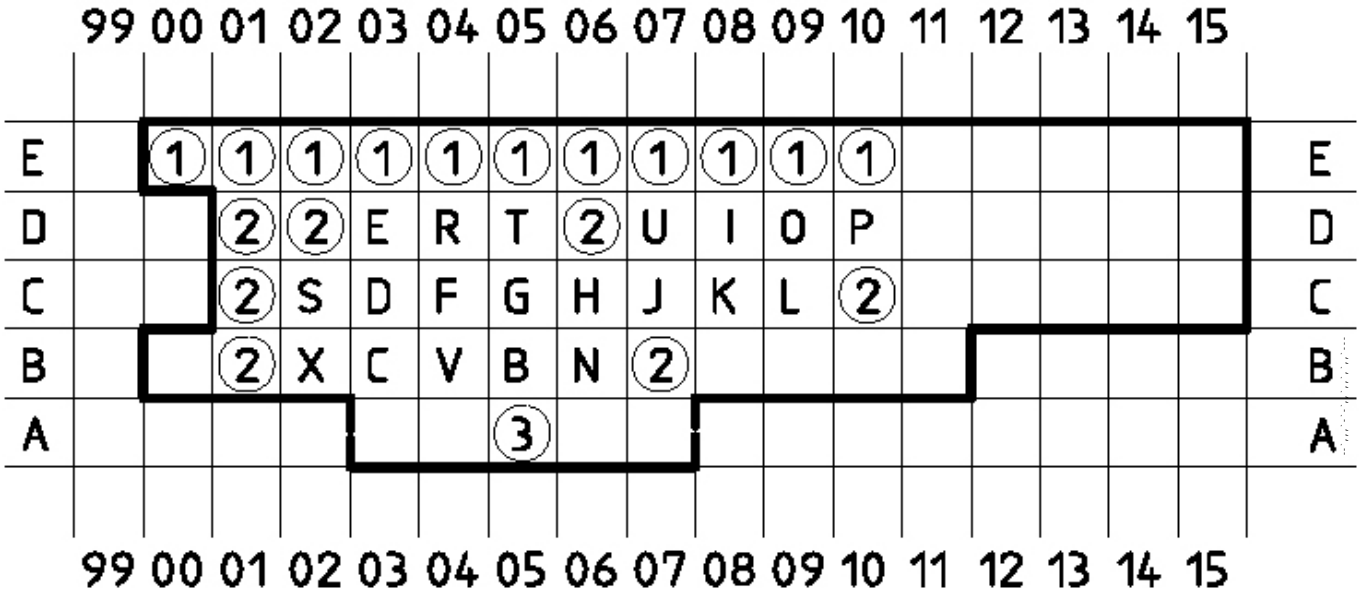


Figure A.1 — Sample arrangement and location of keys in the alphanumeric zone of the alphanumeric section ZA0

NOTE 1 Digit one to digit nine are allocated to the keys in positions E01 to E09, the digit zero is normally allocated to the key in position E10 and sometimes to the key in position E00. Depending on national custom the digits are allocated to level 1 or to level 2. In a keyboard which has the digits allocated to the keys in the numeric zone of the numeric section the digits may be omitted from the alphanumeric zone.

NOTE 2 Depending on national custom the different graphic characters allocated to the keys are shown in Table A.1.

NOTE 3 The graphic character Space is allocated to the space bar on level 1 and level 2. The graphic character No-Break Space, if present, is allocated to level 3 of the space bar.

NOTE 4 The graphic character Soft Hyphen, if present, is preferably allocated to level 3 of the key to which the graphic character Hyphen is allocated.

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