
Ergonomic requirements for office work with visual display terminals (VDTs) - Part 3: Visual display requirements (ISO 9241-3:1992)

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Ergonomische Anforderungen für Bürotätigkeiten mit Bildschirmgeräten - Teil 3: Anforderungen an visuelle Anzeigen (ISO 9241-3:1992)

Exigences ergonomiques pour travail de bureau avec terminaux a écrans de visualisation (TEV) - Partie 3: Exigences relatives aux écrans de visualisation (ISO 9241-3:1992)

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Exigences ergonomiques pour travail de bureau
avec terminaux à écrans de visualisation (TEV)
- Partie 3: Exigences relatives aux écrans de
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Ergonomische Anforderungen für Bürotätigkeiten
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This European Standard was approved by CEN on 1992-12-20. CEN 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 CEN member.

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

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

On the proposal of the CEN Central Secretariat, the Technical Board has decided to submit the International Standard:

ISO 9241-3:1992 "Ergonomic requirements for office work with visual display terminals (VDTs) - Part 3: Visual display requirements"

to the formal vote.

The result of the formal vote was positive.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 1993, and conflicting national standards shall be withdrawn at the latest by October 1993.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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Endorsement notice

The text of this European Standard is identical to the text of the International Standard ISO 9241-3:1992 without any modification.

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Part 3: Visual display requirements

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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 preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9241-3 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Sub-Committee SC 4, *Signals and controls*.

ISO 9241 consists of the following parts, under the general title *Ergonomic requirements for office work with visual display terminals (VDTs)*:

- Part 1: *General introduction*
- Part 2: *Guidance on task requirements*
- Part 3: *Visual display requirements*
- Part 4: *Keyboard requirements*
- Part 5: *Workstation layout and postural requirements*
- Part 6: *Environmental requirements*
- Part 7: *Display requirements with reflections*
- Part 8: *Requirements for displayed colours*
- Part 9: *Requirements for non-keyboard input devices*
- Part 10: *Dialogue principles*
- Part 11: *Usability statements*
- Part 12: *Presentation of information*
- Part 13: *User guidance*
- Part 14: *Menu dialogues*

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- *Part 15: Command dialogues*
- *Part 16: Direct manipulation dialogues*
- *Part 17: Form filling dialogues*

Annexes A, B, C and D of this part of ISO 9241 are for information only.

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Introduction

Task performance as well as the comfort of people in office work systems is affected by the presentation of information on the visual display terminal (VDT) and by the visual conditions at the workplace.

The satisfaction of individual human requirements is highly application-dependent. The recommendations and requirements defined here are based on established ergonomics principles, as described in ISO 6385.

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Ergonomic requirements for office work with visual display terminals (VDTs) —

Part 3: Visual display requirements

1 Scope

This part of ISO 9241 establishes image quality requirements for the design and evaluation of single- and multi-colour VDTs. The requirements are stated as performance specifications, and the evaluations provide test methods and conformance measurements. It should be noted that, at present, the recommendations are based on Latin, Cyrillic, and Greek origin alphabetic characters, and Arabic numerals.

Other factors that affect performance and comfort are coding, format, and the style of presentation of information. With the exception of their visual aspects, they are not covered by this part of ISO 9241.

This part of ISO 9241 applies to the ergonomic design of electronic displays for office tasks. Office tasks include such activities as data entry, text processing, and interactive inquiry, but do not include recommendations for other specific applications such as computer-aided design or process control.

It is planned to issue recommendations on such applications separately.

2 Definitions

For the purposes of this part of ISO 9241, the following definitions apply.

2.1 angle of view: The angle between the line-of-sight angle and the line orthogonal to the surface of the display at the point where the line-of-sight intersects the image surface of the display.

2.2 anti-aliased font: Alphanumeric characters in which a technique has been utilized to smooth character edges.

2.3 between-character spacing: The distance between horizontally adjacent characters at their nearest point.

2.4 between-line spacing: The distance between vertically adjacent characters at their nearest point.

2.5 between-word spacing: The horizontal distance between adjacent words at their nearest point.

2.6 blink coding: Information presented by temporal luminance variations in images.

2.7 character format: The number of horizontal and vertical elements in the matrix used to form a single character.

2.8 character height: The distance between the top and bottom edges of a non-accented capital letter.

2.9 character size uniformity: The constancy in size of a particular character presented at different locations on the screen.

2.10 character width: The horizontal distance between the edges at the widest part of a capital letter (excluding serifs).

2.11 character width-to-height ratio: The ratio of character width to character height.

2.12 design viewing distance: The distance or range of distances (specified by the supplier) between the screen and the operator's eyes for which the images on the display meet the requirements of this part of ISO 9241, such as character size, raster