

Ergonomics of human-system interaction - Part 410: Design criteria for physical input devices

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 9241-410:2008 sisaldab Euroopa standardi EN ISO 9241-410:2008 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 24.04.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 14.02.2008.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 9241-410:2008 consists of the English text of the European standard EN ISO 9241-410:2008.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 24.04.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 14.02.2008.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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English Version

Ergonomics of human-system interaction - Part 410: Design criteria for physical input devices (ISO 9241-410:2008)

Ergonomie de l'interaction homme-système - Partie 410:
Critères de conception des dispositifs d'entrée physiques
(ISO 9241-410:2008)

Ergonomie der Mensch-System-Interaktion - Teil 410:
Gestaltungskriterien für physikalische Eingabegeräte (ISO
9241-410:2008)

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Foreword

This document (EN ISO 9241-410:2008) has been prepared by Technical Committee ISO/TC 159 "Ergonomics" in collaboration with Technical Committee CEN/TC 122 "Ergonomics", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by August 2008, and conflicting national standards shall be withdrawn at the latest by August 2008.

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Endorsement notice

The text of ISO 9241-410:2008 has been approved by CEN as a EN ISO 9241-410:2008 without any modification.

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Introduction

Input devices are a means for users to enter data into interactive systems. Generally speaking, an input device is a sensor that can detect changes in user behaviour (gestures, moving fingers, etc.) and transform it into signals to be interpreted by the interactive system. An *input device* is regarded as the combination of hardware with the software designed to use it (e.g. a driver).

This part of ISO 9241 defines design criteria for products on the basis of relevant properties of physical input devices as laid down in ISO 9241-400:2007. It is intended to cover assessment methods for laboratory use (in order to accelerate future development of test and evaluation methods) and user organizations in future parts of ISO 9241.

Most of the principles presented in this part of ISO 9241 have previously been defined or outlined in International Standards for keyboards and other input devices (ISO 9241-4 and ISO 9241-9). Where necessary, definitions of terms have been reformulated so that they are applicable for all input devices.

ISO 9241 was originally developed as a seventeen-part International Standard on the ergonomics requirements for office work with visual display terminals. As part of the standards review process, a major restructuring of ISO 9241 was agreed to broaden its scope, to incorporate other relevant standards and to make it more usable. The general title of the revised ISO 9241, "Ergonomics of human-system interaction", reflects these changes and aligns the standard with the overall title and scope of Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 4, *Ergonomics of human-system interaction*. The revised multipart standard is structured as a series of standards numbered in the "hundreds": the 100 series deals with software interfaces, the 200 series with human centred design, the 300 series with visual displays, the 400 series with physical input devices and so on.

See Annex A for an overview of the entire ISO 9241 series.

Ergonomics of human-system interaction —

Part 410:

Design criteria for physical input devices

1 Scope

This part of ISO 9241 specifies criteria based on ergonomics factors for the design of physical input devices for interactive systems including keyboards, mice, pucks, joysticks, trackballs, trackpads, tablets and overlays, touch-sensitive screens, styli and light pens, and voice- and gesture-controlled devices. It gives guidance on the design of these devices, taking into consideration the capabilities and limitations of users, and specifies generic design criteria for physical input devices, as well as specific criteria for each type of device. Requirements for the design of products are given either as a result of context-free considerations, or else can be determined based on the specified design criteria for the intended use; such specified criteria generally having been subdivided into task-oriented categories, wherever applicable.

EXAMPLE The resolution of a pointing device is given in relation to four levels of index of difficulty for the Fitts test. The required category for the resolution can be determined on the basis of the task characteristics, user population and context of use for the intended application.

This part of ISO 9241 does not specify the categories that are appropriate for devices as, according to the concept of usability, a product has no *inherent* usability. Selecting the category to which a certain property of a device belongs is subject to the design of a product.

This part of ISO 9241 is expected to be used by the manufacturers of physical input devices, including product designers and test organizations, in determining the design characteristics of a device for its intended context of use (user population, task, software or environment, etc.). The data generated by the users of this part of ISO 9241 for the description of the properties of their products can be applied in the selection of a device adequate for the actual context of use on the basis of the task primitives relevant for the task of the specific user population, and for achieving the required level of efficiency and effectiveness for a given system.

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.

ISO 7000, *Graphical symbols for use on equipment — Index and synopsis*

ISO 9241-400:2007, *Ergonomics of human-system interaction — Part 400: Principles and requirements for physical input devices*

ISO/IEC 9995 (all parts), *Information technology — Keyboard layouts for text and office systems*

IEC 60417-DB, *Graphical symbols for use on equipment*²⁾

2) Permanently updated database.