

Ergonomics of human-system interaction - Part 112:  
Principles for the presentation of information (ISO  
9241-112:2017)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 9241-112:2017 sisaldab Euroopa standardi EN ISO 9241-112:2017 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 9241-112:2017 consists of the English text of the European standard EN ISO 9241-112:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.03.2017.	Date of Availability of the European standard is 22.03.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 13.180, 35.080, 35.240.01

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

EUROPEAN STANDARD

**EN ISO 9241-112**

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2017

ICS 13.180; 35.080; 35.240.01

Supersedes EN ISO 9241-12:1998

English Version

**Ergonomics of human-system interaction - Part 112:  
Principles for the presentation of information (ISO 9241-  
112:2017)**

Ergonomie de l'interaction homme-système - Partie  
112: Principes et lignes directrices relatives à la  
présentation de l'information (ISO 9241-112:2017)

Ergonomie der Mensch-System-Interaktion - Teil 112:  
Grundsätze der Informationsdarstellung (ISO 9241-  
112:2017)

This European Standard was approved by CEN on 5 February 2017.

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 CEN-CENELEC Management Centre or to any CEN 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 CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## European foreword

This document (EN ISO 9241-112:2017) 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 September 2017, and conflicting national standards shall be withdrawn at the latest by September 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 9241-12:1998.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Endorsement notice

The text of ISO 9241-112:2017 has been approved by CEN as EN ISO 9241-112:2017 without any modification.

# Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Introduction to the presentation of information</b> .....	<b>4</b>
4.1 Sources of guidance on presentation of information within the ISO 9241-100 series and their relationship.....	4
4.2 Modalities and media.....	5
4.3 Accessibility.....	6
4.4 Action guidance.....	6
4.5 Information presentation and aesthetics.....	6
<b>5 Introduction to principles</b> .....	<b>6</b>
5.1 Overview.....	6
5.2 Relationship to other sets of principles in the ISO 9241-100 series.....	7
5.3 Relationship between individual principles.....	7
<b>6 Principles and recommendations</b> .....	<b>7</b>
6.1 Detectability.....	7
6.1.1 Principle of detectability.....	7
6.1.2 Guidance related to using prominence.....	8
6.1.3 Guidance related to timely presentation of information.....	8
6.1.4 Guidance related to making controls detectable by the user.....	9
6.1.5 Guidance related to using continuity to aid detectability.....	10
6.2 Freedom from distraction.....	10
6.2.1 Principle of freedom from distraction.....	10
6.2.2 Guidance on minimizing and avoiding distractions.....	10
6.3 Discriminability.....	11
6.3.1 Principle of discriminability.....	11
6.3.2 Guidance related to the structuring of presented information.....	11
6.3.3 Guidance related to using presentation attributes.....	12
6.3.4 Guidance related to grouping using proximity.....	12
6.3.5 Guidance related to using similarity.....	13
6.4 Interpretability.....	13
6.4.1 Principle of interpretability.....	13
6.4.2 Guidance related to ensuring comprehensibility.....	14
6.4.3 Guidance related to ensuring unambiguous meaning.....	14
6.4.4 Guidance related to using closure appropriately.....	15
6.4.5 Guidance related to textual coherence.....	15
6.4.6 Guidance related to selection and use of media/modality.....	16
6.4.7 Guidance related to user capabilities.....	16
6.5 Conciseness.....	17
6.5.1 Principle of conciseness.....	17
6.5.2 Guidance related to conciseness of content.....	17
6.5.3 Guidance related to conciseness of actions.....	17
6.6 Consistency (internal and external).....	18
6.6.1 Principle of consistency.....	18
6.6.2 Guidance related to consistency across pieces of information.....	18
6.6.3 Guidance related to logical consistency.....	19
6.6.4 Guidance related to consistency with conventions known to the user.....	19
<b>Bibliography</b> .....	<b>20</b>

## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 4, *Ergonomics of human-system interaction*.

This first edition of ISO 9241-112, together with ISO 9241-125, cancels and replaces ISO 9241-12:1998.

A list of all parts in the ISO 9241 series can be found on the ISO website.

## Introduction

This document presents principles for the presentation of information that apply to the design and evaluation of user interfaces.

The application and use of the principles and general recommendations in this document results in a variety of benefits to users of interactive user interfaces, including improvements in speed, accuracy, mental effort, and user experience. They also help prevent users from experiencing usability problems with presented information. Examples of such problems include the following:

- Users do not detect information, although the information is present.
- Users are distracted from information they are focusing on by other information.
- Users cannot discriminate between pieces of information, since they appear to be identical.
- Users misinterpret information since the meaning of the information is ambiguous.
- Users expend unnecessary time in understanding information since the information is presented is unnecessarily lengthy.
- Users do not understand information due to unknown conventions used in the information.

The principles and general recommendations will help to avoid misinterpretations by providing guidance on the appropriate and effective presentation of information. The guidance in this document does not deal with the identification of the specific information to be presented.

This document contains general recommendations that apply across modalities. ISO 9241-125 provides detailed recommendations relating to the design and evaluation of visual user interfaces.

This document can be used with ISO 9241-110 to provide principles covering interaction with user interfaces, including the presentation of information.

These principles replace the “characteristics of presented information” listed in ISO 9241-12:1998, 4.1. The characteristic “legibility” formerly contained in ISO 9241-12 is not being dealt with specifically in this document since it is specific to visual information, but it is covered in general as part of “Discriminability” and “Interpretability”. “Clarity” and “Comprehensibility” also formerly contained in ISO 9241-12 are now being dealt with as part of “Freedom from distraction” and “Interpretability”.

This document focuses on software aspects of the presentation of information and does not include guidance on the hardware-controlled physical characteristics of information presented in different modalities.

# Ergonomics of human-system interaction —

## Part 112: Principles for the presentation of information

### 1 Scope

This document establishes ergonomic design principles for interactive systems related to the software-controlled presentation of information by user interfaces. It applies to the three main modalities (visual, auditory, tactile/haptic) typically used in information and communication technology. These principles apply to the perception and understanding of presented information. These principles are applicable in the analysis, design, and evaluation of interactive systems. This document also provides recommendations corresponding to the principles. The recommendations for each of the principles are not exhaustive and are not necessarily independent from one another.

While this document is applicable to all types of interactive systems, it does not cover the specifics of particular application domains. This document also applies to outputs from interactive systems (such as printed documents, e.g. invoices).

The guidance in this document for presenting information is aimed at helping the user to accomplish tasks. This guidance is not aimed at the presentation of information for other reasons (e.g. corporate branding or advertising).

It is intended for the following types of users:

- user interface designers, who will apply the guidance during the development process;
- developers, who will apply the guidance during design and implementation of system functionality;
- evaluators, who are responsible for ensuring that products meet the recommendations;
- designers of user interface development tools and style guides to be used by user interface designers;
- project managers, who are responsible for managing development processes;
- buyers, who will reference this document during product procurement.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 9241-171:2008, *Ergonomics of human-system interaction — Part 171: Guidance on software accessibility*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>