SLOVENSKI STANDARD
SIST EN ISO 16284:2006

01-julij-2006

Nadomeġļa:
SIST EN ISO 16284:2002

Oļesna optika - Izmenjava informacij za oļesno optiļno opremo (ISO 16284:2006)

Ophthalmic optics - Information interchange for ophthalmic optical equipment (ISO 16284:2006)

Augenoptik - Datenaustausch zwischen augenoptischen Maschinensystemen (ISO 16284:2006)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Optique ophtalmique - Echange d'informations pour l'équipement d'optique ophtalmique (ISO 16284:2006)

SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

Ta slovenski standard je istoveten z: **EN ISO 16284:2006**

ICS:

11.040.70	Oftalmološka oprema	Ophthalmic equipment

SIST EN ISO 16284:2006 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

SIST EN ISO 16284:2006

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

SIST EN ISO 16284:2006

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 16284

March 2006

ICS 11.040.70

Supersedes EN ISO 16284:2001

English Version

Ophthalmic optics - Information interchange for ophthalmic optical equipment (ISO 16284:2006)

Optique ophtalmique - Echange d'informations pour l'équipement d'optique ophtalmique (ISO 16284:2006)

Augenoptik - Datenaustausch zwischen augenoptischen Maschinensystemen (ISO 16284:2006)

This European Standard was approved by CEN on 3 February 2006.

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.

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 Central Secretariat has the same status as the official versions.

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

© 2006 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN ISO 16284:2006: E

SIST EN ISO 16284:2006

Foreword

This document (EN ISO 16284:2006) has been prepared by Technical Committee ISO/TC 172 "Optics and optical instruments" in collaboration with Technical Committee CEN/TC 170 "Ophthalmic optics", 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 2006, and conflicting national standards shall be withdrawn at the latest by September 2006.

This document supersedes EN ISO 16284:2001.

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

Endorsement notice

The text of ISO 16284:2006 has been approved by CEN as EN ISO 16284:2006 without any modifications.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

SIST EN ISO 16284:2006

INTERNATIONAL STANDARD

ISO 16284

Second edition
2006-03-01

Ophthalmic optics — Information interchange for ophthalmic optical equipment

Optique ophtalmique — Échange d'informations pour l'équipement d'optique ophtalmique

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

Reference number
ISO 16284:2006(E)

© ISO 2006

SIST EN ISO 16284:2006

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

© ISO 2006

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

 © ISO 2006 – All rights reserved

SIST EN ISO 16284:2006

Contents

Page

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

© ISO 2006 – All rights reserved

SIST EN ISO 16284:2006

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 16284 was prepared by Technical Committee ISO/TC 172, *Optics and photonics*, Subcommittee SC 7, *Ophthalmic optics and instruments* and by Technical Committee CEN/TC 170, *Ophthalmic optics* in collaboration.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1a/sist-en-iso-16284-2006

This second edition cancels and replaces the first edition (ISO 16284:2001), which has been technically revised. Since the publication of the first edition in the year 2001, there have been a number of industry developments. Specifically, surface coater, front surface generator, lens measuring, inspection and lap feeder devices have all been developed. In order to communicate with these devices and to support new features on existing device types, the maintenance committee has proposed a number of new labels and device types. This revised International Standard also proposes a way of dealing with file-based data transfers between devices and hosts. In addition, a number of clarifications has been made to further explain certain requirements of the standard and deprecating several requirements because they have proved difficult to manage in practice.

© ISO 2006 – All rights reserved

SIST EN ISO 16284:2006

Introduction

This International Standard is the result of a desire shared by manufacturers of optical laboratory equipment and producers of software used in optical laboratories to simplify the interconnection of their products.

The International Standard defined herein provides:

— a method by which machines and computer systems conduct their exchanges of data;

— a method by which computer systems can initialize such parameters on machines as the manufacturers thereof allow;

— a method by which machines can initialize computer systems with information that the systems can use for various purposes;

— a method by which a machine can inform a computer system as to what information it wants to receive, thus allowing machines to define new interfaces dynamically;

— a standard set of records and device types that are used to communicate agreed upon sets of information.

The last feature listed above requires that this International Standard be amended on a regular basis, as the need for new data elements is inevitable.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

© ISO 2006 – All rights reserved

SIST EN ISO 16284:2006

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

SIST EN ISO 16284:2006

Ophthalmic optics — Information interchange for ophthalmic optical equipment

1 Scope

This International Standard establishes a method by which machines and computer software systems used in the fabrication of ophthalmic lenses can exchange information.

2 Normative reference

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 13666:1998, *Ophthalmic optics — Spectacle lenses — Vocabulary*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13666 and the following apply.

SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

3.1 General terms

3.1.1
device
machine or instrument used in the fabrication of ophthalmic lenses that communicates with a computer system to send or receive job information

3.1.2
host
computer system providing information to or receiving information from a device

3.1.3
job
order for prescription ophthalmic lenses or spectacles

3.1.4
download
communication session in which the host system transmits data to the device

3.1.5
upload
communication session in which the device transmits data to the host

© ISO 2006 – All rights reserved

SIST EN ISO 16284:2006

3.2 Special characters

3.2.1
code separator
reserved character used to delimit codes in a device record

3.2.2
CRC position character
reserved character marking the location of the end of the data records and the start of the optional CRC record within a packet

3.2.3
end character
reserved character marking the end of a packet

3.2.4
field separator
reserved character delimiting the fields in a record

3.2.5
label separator
reserved character separating the record label from the field(s) within a record

3.2.6
mandatory record flag
reserved character marking certain records as mandatory

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.2.7
start character
reserved character marking the beginning of a packet

SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

3.2.8
record separator
reserved character which delimits records

3.2.9
unknown data indicator
reserved character indicating that data required for a particular field is unknown to the host

3.2.10
ACK character
reserved character indicating successful transmission of a packet

3.2.11
NAK character
reserved character indicating failed transmission of a packet

3.2.12
control character
character having an ASCII value of less than 32

3.3 Data types

3.3.1
limited data
text data limited to a maximum length

© ISO 2006 – All rights reserved

SIST EN ISO 16284:2006

3.3.2
literal data
text data limited to a maximum length and specified in this International Standard

3.3.3
numeric data
floating-point and integer numbers

3.3.4
text data
strings of characters that have no pre-defined meaning

3.3.5
integer data
data represented in whole number form

3.3.6
binary data
data presented in a form usable by computer software with little or no translation

NOTE It requires special handling to avoid introduction of control characters.

3.4 Messages

3.4.1
message
structured stream of data transmitted from a host to a device or from a device to a host

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.4.2
confirmation message
message sent by the receiver of a packet and comprised of a single character indicating that the transmission was successful

SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f559-864e-4f8a-968e-28da085d4b1e/sist-en-iso-16284-2006

3.4.3
positive acknowledgement
single character message indicating successful reception of a sender's message

3.4.4
negative acknowledgement
single character message indicating unsuccessful reception of a sender's message

3.4.5
packet
structured message consisting of a start character and a series of records and terminated by an end character

3.4.5.1
data packet
packet sent from a device to a host or a host to a device, and containing requested information

3.4.5.2
request packet
packet sent from a device to a host to initiate a session

3.4.5.3
response packet
packet containing status information

© ISO 2006 – All rights reserved

SIST EN ISO 16284:2006

3.5 Records

3.5.1
record
structured stream of characters including a record label, a label separator, zero or more data fields separated by field separators and a terminating record separator

3.5.2
data field
single data element within a record

3.5.3
record label
means of identifying data contained in a record, limited in length to 8 characters and not including spaces or reserved characters defined in this International Standard

NOTE A list of device record labels is in Annex A.

3.5.4
ASCII record
record comprised of ASCII characters and conforming to the structures defined herein

3.5.5
binary record
record comprised of bytes encoded using the binary number system

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.5.6
chiral record
record with two fields, one for a data element for a right lens or eye, and one for a left, arranged in the order right then left

SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

3.5.7
CRC record
record at the end of any packet containing a CCITT[1] CRC-16 cyclical redundancy check value calculated on the characters transmitted

3.5.8
device record
record containing job specific data elements conveyed between devices and hosts

3.5.9
interface record
record supporting the operation of the host-device interface and not containing job-specific data

3.6 Sessions

3.6.1
session
sequence of messages passed between a device and a host that serves to exchange information related to a single order or task

3.6.2
initialization session
specialized session allowing devices to provide hosts with information that would otherwise be included with each request, such as machine model, software version and operator ID

---

1) Comité Consultatif International Téléphonique et Télégraphique

© ISO 2006 – All rights reserved

SIST EN ISO 16284:2006

3.6.2.1
auto-format initialization
initialization session allowing devices to define sets of device records to be requested from hosts

3.6.2.2
preset initialization
initialization session allowing devices to transmit sets of identifying data to hosts

3.6.3
download session
session in which information is passed from a host to a device

3.6.4
upload session
session in which information is passed from a device to a host

3.6.5
INFO session
upload request packet containing job status information used to indicate the completion of a job by a device

3.6.6
MNT session
upload request packet containing vendor specific device information

3.7 Timeout

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.7.1
timeout
numeric value representing that period of time that a host or device shall wait for the arrival of data, after which it assumes that such data will not be forthcoming

SIST EN ISO 16284:2006
https://standards.iteh.ai/catalog/standards/sist/47d4f355-864c-4fba-968e-28da085d4b1e/sist-en-iso-16284-2006

3.7.1.1
confirmation timeout
timeout which applies to the reception of the confirmation message

3.7.1.2
intercharacter timeout
timeout which applies to the interval between successive characters in a stream of data

3.7.1.3
packet timeout
timeout which applies to the reception of a packet

4 Overview

The strategy used in this International Standard for the exchange of data between devices and hosts can be expressed as follows.

A machine used in the fabrication of ophthalmic lenses (a device) sends a request to a computer system (a host), indicating a need to do one of the following:

— initialize information to identify the device, software versions, model numbers, etc.;

— upload to the host, information for it to store and/or use in the processing of ophthalmic prescription orders;

— download from the host, information required by the device for it to perform its tasks.

© ISO 2006 – All rights reserved