

STN	Digitálne zvukové rozhranie Časť 1: Všeobecne	STN EN IEC 60958-1 36 8303
------------	--	--

Digital audio interface - Part 1: General

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 12/21

Obsahuje: EN IEC 60958-1:2021, IEC 60958-1:2021

Oznámením tejto normy sa od 06.10.2024 ruší
STN EN 60958-1 (36 8308) z júla 2009

134001

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 60958-1

October 2021

ICS 33.160.01

Supersedes EN 60958-1:2008 and all of its amendments
and corrigenda (if any)

English Version

Digital audio interface - Part 1: General (IEC 60958-1:2021)

Interface audionumérique - Partie 1: Généralités
(IEC 60958-1:2021)

Digitalton-Schnittstelle - Teil 1: Allgemeines
(IEC 60958-1:2021)

This European Standard was approved by CENELEC on 2021-10-06. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 60958-1:2021 (E)

European foreword

The text of document 100/3544/CDV, future edition 4 of IEC 60958-1, prepared by IEC/TC 100 "Audio, video and multimedia systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60958-1:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2022-07-06 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2024-10-06 document have to be withdrawn

This document supersedes EN 60958-1:2008 and all of its amendments and corrigenda (if any).

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

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60958-1:2021 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

- | | |
|----------------------|---|
| IEC 60793-2 | NOTE Harmonized as EN IEC 60793-2 |
| IEC 60794-2 | NOTE Harmonized as EN 60794-2 |
| IEC 60874-1 (series) | NOTE Harmonized as EN 60874-1 (series) |
| IEC 61883-6:2014 | NOTE Harmonized as EN 61883-6:2014 (not modified) |
| IEC 62105:1999 | NOTE Harmonized as EN 62105:2002 (not modified) |

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60268-11	1987	Sound system equipment - Part 11: Application of connectors for the interconnection of sound system components	11:HD 483.11 S3	1993
IEC 60958-3	-	Digital audio interface - Part 3: Consumer-applications		-
IEC 60958-4	series	Digital audio interface - Part 4-1: Professional applications	4-1:EN 60958-4	series
IEC 60958-5	-	Digital audio interface - Part 5: Consumer application enhancement	EN IEC 60958-5	-



IEC 60958-1

Edition 4.0 2021-09

INTERNATIONAL STANDARD

**Digital audio interface –
Part 1: General**





THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2021 IEC, Geneva, Switzerland

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 IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC online collection - oc.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.



IEC 60958-1

Edition 4.0 2021-09

INTERNATIONAL STANDARD

**Digital audio interface –
Part 1: General**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.160.01

ISBN 978-2-8322-1017-0

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	6
4 Interface format	8
4.1 Structure of format	8
4.1.1 Sub-frame format	8
4.1.2 Frame format	9
4.2 Channel coding	10
4.3 Preambles	10
4.4 Validity bit.....	11
5 Channel status	11
5.1 General.....	11
5.2 Applications	11
5.3 General assignment of the first and second channel status bits	11
5.4 Category code.....	12
6 User data	14
6.1 General.....	14
6.2 Applications	14
6.2.1 Professional use	14
6.2.2 Consumer use.....	14
7 Electrical requirement.....	14
7.1 Consumer application.....	14
7.1.1 General	14
7.1.2 Timing accuracy.....	14
7.1.3 Unbalanced line	15
7.2 Professional application	18
8 Optical requirements.....	18
8.1 Consumer application.....	18
8.1.1 Configuration of optical connection	18
8.1.2 Optical connector	18
8.2 Professional applications.....	19
Annex A (informative) The use of the validity bit	20
Annex B (informative) Application documents and specifications	21
Annex C (informative) A relationship of the IEC 60958 series families	22
Annex D (informative) Transmission of CD data other than linear PCM audio	24
Annex E (informative) The IEC 60958 series conformant data format	25
Annex F (informative) Stream change.....	26
Annex G (informative) Characteristics of optical connection	28
Bibliography	30
Figure 1 – Sub-frame format (linear PCM application).....	9
Figure 2 – Frame format	9
Figure 3 – Channel coding	10

Figure 4 – Preamble M (shown as 11100010)	11
Figure 5 – Simplified example of the configuration of the circuit (unbalanced)	15
Figure 6 – Rise and fall times	16
Figure 7 – Intrinsic jitter measurement filter	16
Figure 8 – Eye diagram	17
Figure 9 – Receiver jitter tolerance template	17
Figure 10 – Basic optical connection	18
Figure C.1 – Relationships of the IEC 60958 families	22
Figure F.1 – Audio sources and AV receiver model	26
Figure F.2 – Switching from linear PCM to non linear PCM	26
Figure F.3 – Switching from non linear PCM to linear PCM	27
Figure F.4 – Switching from non-linear PCM to non-linear PCM	27
Table 1 – Preamble coding	10
Table 2 – Channel status data format	13
Table B.1 – Application documents and specifications	21
Table C.1 – data_type values and application	23
Table G.1 – Characteristics of standard optical connection (optical interface)	28
Table G.2 – Characteristics of optical transmitter (optical interface)	28
Table G.3 – Characteristics of optical receiver (optical interface)	29
Table G.4 – Characteristics of fibre optic cable	29
Table G.5 – Optical power budget for the link with plastic fibre	29

INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIGITAL AUDIO INTERFACE –

Part 1: General

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60958-1 has been prepared by technical area 20: Analogue and digital audio, of IEC technical committee 100: Audio, video and multimedia systems and equipment. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2008, and Amendment 1:2014. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) The relevant part of IEC 60958-5 is supported.

The text of this International Standard is based on the following documents:

Draft	Report on voting
100/3544/CDV	100/3593/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

A list of all parts of the IEC 60958 series, under the general title *Digital audio interface*, can be found on the IEC website.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

DIGITAL AUDIO INTERFACE –

Part 1: General

1 Scope

This part of IEC 60958 describes a serial, uni-directional, self-clocking interface for the interconnection of digital audio equipment for consumer and professional applications.

It provides the basic structure of the interface. Separate documents define items specific to particular applications.

The interface is primarily intended to carry monophonic or stereophonic programmes, encoded using linear PCM and with a resolution of up to 24 bits per sample.

When used for other purposes, the interface is able to carry audio data coded other than as linear PCM coded audio samples. Provision is also made to allow the interface to carry data related to computer software, multimedia technologies, or signals coded using non-linear PCM. The format specification for these applications is not part of this document.

The interface is intended for operation at audio sampling frequencies of 32 kHz and above. Auxiliary information is transmitted along with the programme.

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.

IEC 60268-11:1987, *Sound system equipment – Part 11: Application of connectors for the interconnection of sound system components*

IEC 60958-3, *Digital audio interface – Part 3: Consumer applications*

IEC 60958-4 (all parts), *Digital audio interface – Part 4: Professional applications*

IEC 60958-5, *Digital audio interface – Part 5: Consumer application enhancement*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN