



SLOVENSKI STANDARD
SIST EN 61030:1999

01-april-1999

Audio, video and audiovisual systems - Domestic Digital Bus (D2B) (IEC 61030:1991 + A1:1993)

Audio, video and audiovisual systems - Domestic Digital Bus (D2B)

Audio-, Video- und audiovisuelle Anlagen - Digitaler Bus für Heimanwendung (D2B)

Systemes audio, vidéo et audiovisuels - Bus Numérique Domestique (D2B)

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Ta slovenski standard je istoveten z: EN 61030:1993

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ICS:

33.160.01	Avdio, video in avdiovizualni sistemi na splošno	Audio, video and audiovisual systems in general
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Descriptors: Recording apparatus, video recording, sound recording, data recording, appliance interconnections, home electronic systems, data bus, data transmission, information interchange, data blocks, mode of data transmission, characteristics, protocols, structures, dimensions

ENGLISH VERSION

Audio, video and audiovisual systems
Domestic Digital Bus (D2B)
(IEC 1030:1991 + A1:1993)

Systemes audio, vidéo et
audiovisuels - Bus Numérique
Domestique (D2B)
(CEI 1030:1991 + A1:1993)

Audio-, Video- und audiovisuelle
Anlagen - Digitaler Bus für
Heimanwendung (D2B)
(IEC 1030:1991 + A1:1993)

This European Standard was approved by CENELEC on 1992-12-09.
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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

CENELEC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

FOREWORD

At the request of the CENELEC Technical Committee TC 103, Electronic entertainment and educational systems for household and similar use, the International Standard IEC 1030:1991 + 84(C.O.)98 was submitted to the CENELEC Unique Acceptance Procedure (UAP) in February 1992 for acceptance as a European Standard.

NOTE: Document 84(C.O.)98 was published as amendment 1 in February 1993.

The text of the reference document was approved by CENELEC as EN 61030 on 9 December 1992.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1993-09-15
- latest date of withdrawal of conflicting national standards (dow) 1993-09-15

Annexes designated "normative" are part of the body of the standard. In this standard, annexes A and ZA are normative.

ENDORSEMENT NOTICE

The text of the International Standard IEC 1030:1991 and its amendment 1:1993 was approved by CENELEC as a European Standard without any modification.

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ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
94-5	1988	Magnetic tape sound recording and reproducing systems - Part 5: Electrical magnetic tape properties	HD 311.5 S1	1989

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**Systèmes audio, video et audiovisuels
 Bus Numérique Domestique (D2B)**

iTeh STANDARD PREVIEW

**Audio, video and audiovisual systems
 Domestic Digital Bus (D2B)**

SIST EN 61030:1999

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International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**AUDIO, VIDEO AND AUDIOVISUAL SYSTEMS
DOMESTIC DIGITAL BUS (D2B)**
FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

This International Standard has been prepared by Technical Committee No. 84: Equipment and systems in the field of audio, video and audiovisual engineering.

The text of this standard is based on the following documents:

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Six Months' Rule	Report on Voting
84(CO)68	84(CO)84

Full information on the voting for the approval of this standard can be found in the Voting Report indicated in the above table.

INTRODUCTION TO HOME ELECTRONIC SYSTEMS

Today there are in the home various electrical and electronic equipments for every field of activity: entertainment, security, energy management, automated domestic appliances, home business, external communications, etc.

Many of these equipments can still be used alone but the trend is to interconnect them and to integrate them in a global system.

In such a system, interactions between different types of equipment allow them to combine complementary functions and to co-operate. It becomes possible to achieve "computer aided management" of all the home resources.

That means for the end user the possibility of controlling any part of the system, from any access point (and from outside the home) in a simple, reliable, comfortable and interactive way. This is "user friendliness".

The structure of such a "home electronic system" is still under consideration in various IEC Committees and in other organizations.

There is a communication channel which plays a particular role in a home electronic system. It is often referred to as "the backbone" of the system.

This is the "control, command and signalling channel". All the messages required for informing on the status of a device, for sending appropriate commands or for supervising the system are transmitted via this channel. It is even possible to transmit some data transparently at relatively low speed.

This standard deals only with the "control command and signalling channel". Transmission and switching of large bandwidth signals, for example, is outside of its scope.

One can find similarities between this "household network" and the well known "Local Area Networks", used in industry or business applications. But LAN'S do not necessarily meet the requirements of this consumer application.

In this standard a command language is associated with the Domestic Digital Bus (D2B) communication protocols. For the time being it is defined only for audio, video and control in harmonization with the command languages of the Japanese Home Bus System (HBS) and of the European Integrated Home Bus System (IHS).

AUDIO, VIDEO AND AUDIOVISUAL SYSTEMS DOMESTIC DIGITAL BUS (D2B)

1 Scope and main features of the Domestic Digital Bus (D2B)

This International Standard gives the modes of transmission, the communication protocols, the addressing procedures, the command language and electrical characteristics for the Domestic Digital Bus (D2B) System.

The audio-video cluster (TV set, VCR, etc.) needs a practical bus for interconnecting devices and exchanging messages. D2B was developed for this purpose.

The capabilities of D2B can be described as follows:

- It is appropriate for audio and video, for controllers and for home computers. It can be used as a local independent system for this application or as an audio, video and control subsystem connected via an appropriate gateway to a main bus.
- Following the same scheme, D2B can also be used as a local independent system or as an integrated subsystem for any other application.

In order to allow exchange of digital data in a system made up of devices of various manufacturing origins, it is necessary to have a "standardized communication protocol" suitable for the specific needs of this system.

Within the Home Electronic Bus environment (HEB), D2B can be used as a subsystem. For this reason, the address and command tables for audio, video and control are harmonized with those of the Japanese Home Bus (HBS) and of the European Home Bus (IHS).

The structure of the Domestic Digital Bus (D2B), the transmission speeds, the format and the structure of the frames have therefore been chosen to meet the requirements of the home and small office application area. See figure 1.

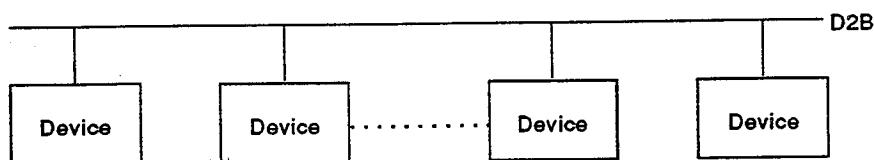


Figure 1 - Configuration

In the D2B system, devices perform as masters and slaves during data transfers. A master device is able to initiate and control a data transfer using D2B.

Depending on the direction of transfer, devices also perform as transmitters or receivers.

The D2B is a multi-master bus, which means that any device capable of controlling the bus can do so. D2B is based on Carrier Sense Multiple Access with Collision Detection (CSMA/CD) with arbitration, based on the unique identification of each device. Each transfer is restricted in time to avoid monopolisation of the bus.

The bus allows a self-configuring network to be built up. D2B allows devices to contain a number of sub-devices.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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IEC 94-5: 1988, *Magnetic tape sound recording and reproducing systems - Part 5: Electrical magnetic tape properties.*

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3 Definitions and abbreviations

3.1 Definitions

For the purposes of this International Standard, the following definitions apply:

frame: Block of information, transferred across the D2B data link. The frame consists of the header field, the master address field, the slave address field, the control field and the message field.

header field: Field indicating the start of a frame and identifying the mode of a frame (transmission speed).

master address field: Field identifying the device which seeks to take control, this being called the "Master".

slave address field: Field identifying the device addressed by the master, this being called the "Slave".

control field: Field controlling the direction of the message and defining the interpretation of the message.

message field: Field containing data bytes which carry the message.

master (during a particular frame): Device that initiates a D2B frame and controls its timing. Several masters may simultaneously try to initiate a frame, but only one of these masters can gain exclusive access to the medium for the duration of a frame, i.e. be the winning master. D2B devices may or may not be capable of master operation.

slave (during a particular frame): Device that responds to a D2B frame, initiated by a master, after being addressed in that frame. All devices capable of slave operation, shall accept and interpret all frames, at least up to and including the slave address field. D2B devices may or may not be capable of slave operation.

transmitter (during a particular frame): Device that transmits the information content of the data fields in that frame. In a D2B frame, either the master or the slave can be the transmitter. If the master is the transmitter, then the slave is the receiver, and vice versa.

receiver (during a particular frame): Device that receives the information content of that frame.

message: Information, carried by the data bits of one frame.

multiple frame message: Message using more than one frame.

3.2 Abbreviations

SIST EN 61030:1999

A:	Acknowledge bit
AMS:	Acknowledge from Master to Slave
ARB:	ARbitration Bit
ASCII:	American Standard Code for Information Interchange
ASM:	Acknowledge from Slave to Master
AV/C:	Audio, Video and Control
CSMA/CD:	Carrier Sense Multiple Access with Collision Detection
CT:	Communication Telephony
D2B:	Domestic Digital Bus
DSDA:	Destination Sub-Device Address
EOD:	End Of Data bit
HBS:	Home Bus System, the Japanese home bus system
HEB:	Home Electronic Bus, a home bus system
HK:	HouseKeeping
IHS:	Integrated Home bus System, the European home bus system
LAN:	Local Area Network
LSB:	Least Significant Bit
MS:	Master to Slave bit
MSB:	Most Significant Bit
OPC:	OPeration Code

3.2 Abbreviations (continued)

OPR:	OPeRand
P:	Parity bit
SB:	Start Bit
SCC:	System Common Commands
SM:	Slave to Master bit
SSDA:	Source Sub-Device Address
VCR:	Video Cassette Recorder

4 Modes

D2B is designed to perform in a number of different environments and can transfer data with performance appropriate to each application area. It is thus an "adaptive" transmission channel allowing an optimal use of this resource.

Two main parameters control the data transfer performance:

- The maximum number of useful data bytes per frame (bytes contained in the message field).
- The nominal data rate for a string of identical frames at the maximum number of bytes per frame.

Operations with a given set of these two parameters define a "D2B mode".

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The D2B modes are ordered and numbered by increasing performance, the lowest basic mode being 0. Currently, 3 modes are defined: modes 0, 1 and 2. These all allow bidirectional exchanges.

A device using D2B, may allow communication in modes 0, 1 or 2, but shall keep the ability to deal with the lower modes. That is to say, it is permitted to provide in the device only mode 0, or mode 0 and mode 1, or mode 0, mode 1 and mode 2.

It is also permitted to provide only the slave function or only the master function or both.

Mode parameters are shown in table 1.