SLOVENSKI STANDARD
SIST EN 50157-2-3:2001

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Domestic and similar electronic equipment interconnection requirements: AV link - Part 2-3: System oriented application

Domestic and similar electronic equipment interconnection requirements: AV.link -- Part 2-3: System oriented application

Kennwerte für die Kleinsignalverbindung zwischen elektronischen Geräten für den Heimgebrauch und ähnliche Anwendungen: AV.link -- Teil 2-3: Systemorientierte Anwendung

Spécification des interconnexions des équipements électroniques domestiques et à usage analogue: AV.link -- Partie 2-3: Application orientée système

Ta slovenski standard je istoveten z: EN 50157-2-3:1998

ICS:

33.160.40	Video sistemi	Video systems

SIST EN 50157-2-3:2001   **en**

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

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EUROPEAN STANDARD

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Descriptors: Television systems, peritelevision devices, appliance interconnection, data transmissions, message

English version

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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.

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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

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Foreword

This European Standard was prepared by the former Technical Committee CENELEC TC 203, Electronic entertainment and educational systems for household and similar use (in July 1998 TC 203 has become part of TC 206, Consumer equipment for entertainment and information and related sub-systems).

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50157-2-3 on 1998-08-01.

The following dates were fixed:

– latest date by which the EN has to be implemented
  at national level by publication of an identical
  national standard or by endorsement   (dop)   1999-08-01

– latest date by which the national standards conflicting
  with the EN have to be withdrawn   (dow)   1999-08-01

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1   Scope

AV.link mode 3 is an audio/video communication system AV.link mode 3 devices communicate with each other by sending and receiving <AV.link mode 3> messages. The communication of AV.link takes place via contact 10 of the peri-television connector as specified in EN 50049-1.

This document specifies the AV.link mode 3 communication protocols.

Within the protocol a 3-bit 'Application identifier' is present.
If a company wishes to use the mode 3 protocol for its own application an 'Application identifier' code can be allocated by EACEM Secretariat.

2   Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 50049-1	Domestic and similar electronic equipment interconnection requirements: Peritelevision connector
EN 50157-1	Domestic and similar electronic equipment interconnection requirements: AV.link - Part 1: General
EN 50157-2-1	Part 2-1: Signal quality matching and automatic selection of source devices
EN 50157-2-2	Part 2-2: Basic system oriented commands
IEC 60807-9	Rectangular connectors for frequencies below 3 Mhz Part 9: Detail specification for a range of peritelevision connectors

3 The AV.link model

The figure below shows the AV.link model by which AV.link devices can communicate with each other.

Audio / Video system Applications				
AV.link Part 1 General				
Part 2-1 Signal quality Selection of devices	Part 2-2 Basic System Oriented Commands	Part 2-3 System oriented application		Part 2-8 For future extension
Network layer Mode 1 Control signal format Mode 1 frame specification	Network layer Mode 2 Application message format Mode 2 frame specification	Network layer Mode 3 Command message format Mode 3 frame specification		Network layer Mode 8 To be stated Mode 8 frame specification
Specification of the Physical layer (EN 50049-1)				
Specification of the control signal line on Contact 10 of the peritelevision connector				
Bit specification				
Electrical specification				
Mechanical specification				
Specification of the peritelevision connector				
(EN 50049-1)				

Figure 1: AV.link model

If AV.link mode 1 is used, the implementation of mode 2 or mode 3 is optional.

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4   The physical medium

This section describes the physical medium through which basic AV.link commands may be communicated from one device to another. The physical layer is described EN 50049-1 and EN 50157-2-1. Contact 10 forms a control signal line connecting all devices within the AV.link chain.

4.1   Bit format and timing

A message is conveyed over the physical medium using one or more frames. A frame is a self contained unit as described in clause 5. It consists of a start bit followed by a number of data bits. The figures below show the format of the bits. The format and timing of those bits is described in EN 50157-2-1.

High

Low

Figure 2: Start bit pulse format

High

Low

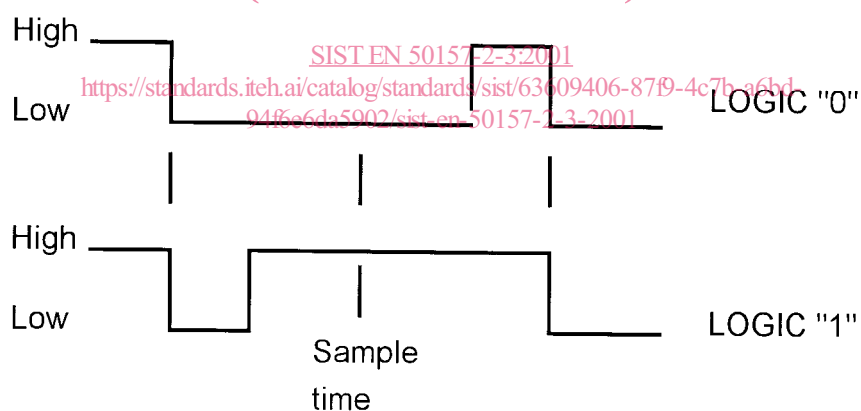LOGIC "0"

High

Low

LOGIC "1"

Sample

time

Figure 3: Data bit pulse format

4.2   Control signal line arbitration

Control signal line arbitration ensures that only one 'Initiator' gains control of the control signal line. This guarantees that an 'Initiator' will never be interrupted by another 'Initiator' and if more than one 'Initiator' starts simultaneously then only one will retain the control of the control signal line. All those devices that wish to transmit a frame onto the control signal line have to ensure that the control signal line has been inactive for a duration equal to or greater than the signal free time (see 4.3).

Control signal line arbitration on system level commences with the leading edge or the start bit. Control signal line arbitration continues with the application identifier field. The control signal line arbitration continues in the application field. It is recommended therefore that the application block starts with a unique address field, e.g. the source address, similar to the method as used for mode 2 (see EN 50157-2-2).

If a device transmits a "1" bit and detects a "0" bit then it shall assume that it has lost the arbitration to a second 'Initiator'. A device that has lost the arbitration shall discontinue transmitting the current frame and switch to the 'Follower' state. Then the device has to wait for the control signal line to be inactive for the duration equal to the signal free time period (see 4.3) before attempting to gain control of the control signal line by a frame retransmission as specified in 4.3.

If the device fails to gain control of the control signal line then it shall abandon the transmission of the message.

4.3   Signal free time

Before attempting to transmit or to retransmit a frame a device shall ensure that the control signal has been inactive for a number of bit periods. This is the signal free time. The length of the required signal free time depends on the current status of the control signal line and the initiating device.

4.3.1   New message by a new 'Initiator'

An 'Initiator' wants to transmit a new message, but the control signal line is occupied by another 'Initiator'. Before attempting to transmit the first frame of that new message the 'Initiator' shall ensure that the control signal line has been inactive for at least seven bit periods.

Control signal line OCCUPIED (present 'Initiator')	Control signal line INACTIVE	NEW MESSAGE (new 'Initiator')

7 bit periods
<=====================>

Figure 4: Signal free time before a new 'Initiator' may send a new message

4.3.2   New message by the present 'Initiator'

An 'Initiator' wants to transmit a new message, after it occupied the control signal line by transmitting a previous message. Before attempting to transmit the first frame of that new message the 'Initiator' shall ensure that the control signal line has been inactive for at least nine bit periods.
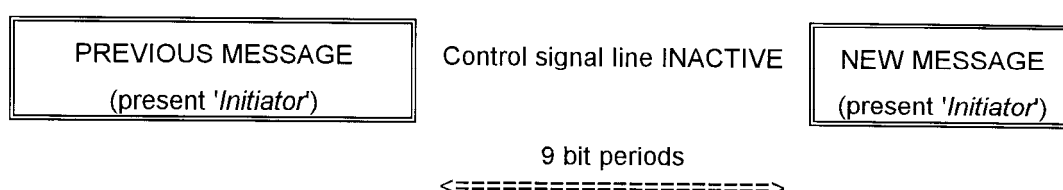
PREVIOUS MESSAGE (present 'Initiator')	Control signal line INACTIVE	NEW MESSAGE (present 'Initiator')

9 bit periods
<=====================>

Figure 5: Signal free time before the same 'Initiator' may send a new message