

Consumer audio/video equipment — Digital interface —

Part 6: Audio and music data transmission protocol

The European Standard EN 61883-6:2002 has the status of a British Standard

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National foreword

This British Standard is the official English language version of EN 61883-6:2002. It is identical with IEC 61883-6:2002.

The UK participation in its preparation was entrusted to Technical Committee EPL/100, Audio, video and multimedia systems and equipment, which has the responsibility to:

- aid enquirers to understand the text;
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**Consumer audio/video equipment -
Digital interface
Part 6: Audio and music data transmission protocol
(IEC 61883-6:2002)**

Matériel audio/vidéo grand public -
Interface numérique
Partie 6: Protocole de transmission
de données audio et musicales
(CEI 61883-6:2002)

Audio/Video-Geräte
der Unterhaltungselektronik -
Digitale Schnittstelle
Teil 6: Übertragungsprotokoll
für Ton- und Musikdaten
(IEC 61883-6:2002)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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Foreword

The text of document 100/526/FDIS, future edition 1 of IEC 61883-6, prepared by IEC TC 100, Audio, video and multimedia systems and equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61883-6 on 2002-11-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
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- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-11-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annex ZA is normative and annexes A, B and C are informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61883-6:2002 was approved by CENELEC as a European Standard without any modification.

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CONSUMER AUDIO/VIDEO EQUIPMENT – DIGITAL INTERFACE –

Part 6: Audio and music data transmission protocol

1 Scope

This part of IEC 61883 describes a protocol for the transmission of audio and music data employing IEEE 1394, and specifies essential requirements for the application of the protocol.

This protocol can be applied to all modules or devices which have any kind of audio and/or music data processing, generation and conversion function blocks. This standard deals only with the transmission of audio and music data; the control, status and machine readable description of these modules or devices should be defined outside of this document according to each application area.

2 Normative references

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.

IEC 60958-1:1999, *Digital audio interface – Part 1: General*
IEC 60958-3:1999, *Digital audio interface – Part 3: Consumer applications*
IEC 60958-4:1999, *Digital audio interface – Part 4: Professional applications*
IEC 61883-1, *Consumer audio/video equipment – Digital interface – Part 1: General*
IEEE Std 754:1985, *Standard for Binary Floating-Point Arithmetic*
IEEE Std 1394:1995, *Standard for a High Performance Serial Bus – Firewire*
IEEE Std 1394A:2000, *Standard for a High Performance Serial Bus – Amendment 1*

3 Terms and definitions

For the purpose of this part of IEC 61883, the terms and definitions given in IEC 61883-1 apply, together with the following.

3.1.1

32-bit floating-point data

data type which is defined in IEEE 754:1985, Standard for Binary Floating-Point Arithmetic.

3.1.2

A/M Protocol

protocol for the transmission of audio and music data over IEEE 1394

3.1.3

MIDI

Musical Instrument Digital Interface

NOTE The Complete MIDI 1.0 Detailed Specification, Version 96.1, March 1996a, is a specification for the interconnection of digital music processing devices (e.g. keyboards, signal processors) and computers.

3.1.4
music data
data generally used for controlling a tone generator

NOTE The data defined in the MIDI specification, which may be called MIDI data, are an example of music data.

3.1.5
reserved
keyword used to describe objects - bit, byte, quadlet, octet, and field - or the code values assigned to these objects; the object or the code value is set aside for future standardization by the IEC

3.1.6
stream
uni-directional data transmission

3.1.7
time stamp
quantized timing in which an event occurs based on a reference clock
NOTE The reference clock is CYCLE_TIME unless otherwise specified in this standard.

4 Transport requirements

4.1 Arbitrated short bus reset

All modules or devices which implement this A/M Protocol should have the capability of "arbitrated short bus reset" in order to prevent the interruption of audio and music data transmission when a bus reset occurs.

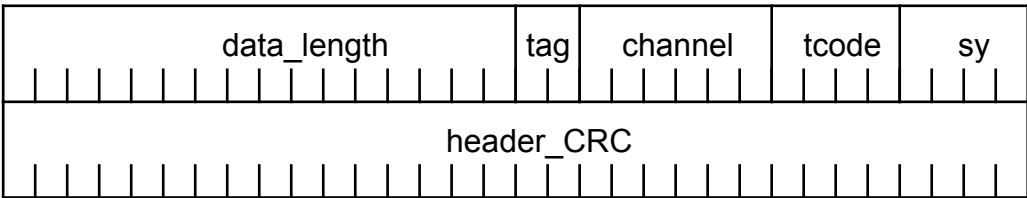
4.2 Bit, byte, and quadlet ordering

This document adopts the ordering of bit, byte, and quadlet for bus packets in accordance with the IEEE 1394 standard.

5 Packet header for audio and music data

5.1 Isochronous packet header format

The header for an isochronous packet which conforms to the A/M Protocol shall have the same format given in Figure 1, which is part of the isochronous packet format defined in IEEE 1394: 1995.



IEC 2358/02

Figure 1 – Isochronous packet header

The isochronous packet header fields are defined with unique values that are specified in Table 1.

Table 1 – Isochronous packet header fields

Field	Value	Comments
tag	01 b	This value indicates that a CIP header is included in the packet.
tcode	A ₁₆	This value indicates that this is an isochronous data packet.
sy	xx	This field is reserved. The transmitter shall set this field to 0 ₁₆ unless specified by another application.

5.2 CIP header format

IEC 61883-1 defines a two-quadlet CIP header for a fixed length source packet with SYT field, repeated here for clarity as Figure 2. The CIP header format for an isochronous packet which conforms to the Audio and music data transmission protocol shall use this CIP header.

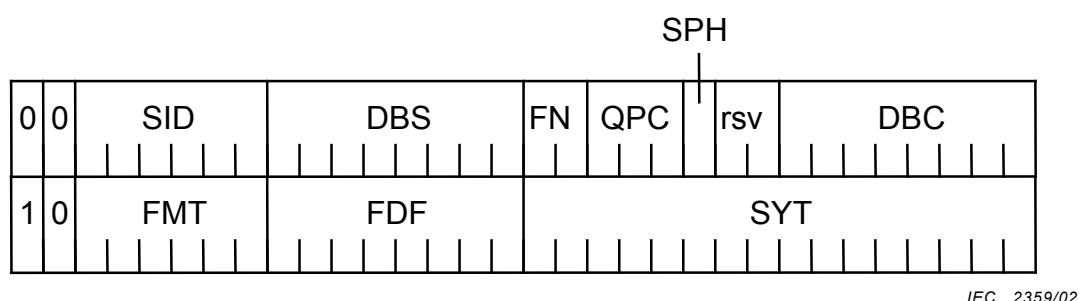

Figure 2 – Common isochronous packet (CIP) format

Table 2 defines the fields with unique values that are specified by this protocol.

Table 2 – CIP fields

Field	Value	Comments
FMT	10 ₁₆	This value indicates that the format is for Audio and Music.
FN	0 ₁₆	
QPC	0 ₁₆	
SPH	0 ₁₆	
SYT	xx	This field shall contain the time when the specified event is to be presented at a receiver.
FDF	xx	This field is defined in Clause 7.

6 Packetization

6.1 Packet transmission method

When a non-empty CIP is ready to be transmitted, the transmitter shall transmit it within the most recent isochronous cycle initiated by a cycle start packet. The behaviour of packet transmission depends on the definition of the condition in which “a non-empty CIP is ready to be transmitted.” There are two situations in which this condition is defined: