

# INTERNATIONAL STANDARD

**ISO**  
**9642**

First edition  
1993-08-15

---

---

## **Cinematography — Time and control code for 24, 25 and 30 frames per second motion-picture systems — Specifications**

*Cinématographie — Code de chronométrage et de commande pour les  
systèmes cinématographiques à 24, 25 et 30 images par seconde —  
Spécifications*



Reference number  
ISO 9642:1993(E)

## 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.

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.

International Standard ISO 9642 was prepared by Technical Committee ISO/TC 36, *Cinematography*.

Annex A of this International Standard is for information only.

© ISO 1993

All rights reserved. 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 the publisher.

International Organization for Standardization  
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

# Cinematography — Time and control code for 24, 25 and 30 frames per second motion-picture systems — Specifications

## 1 Scope

This International Standard specifies digital code formats and modulation methods for motion-picture film to be used for timing, control, editing and synchronization purposes. This International Standard also specifies the relationship of the codes to the motion-picture frame.

Two types of code are described in this International Standard. The first type, Type C, is a continuous code which is very similar to the continuous code specified in IEC 461<sup>[1]</sup>. This type of code can be used in situations where the film is moving continuously at the time of both recording and reproduction.

The second type of code, Type B, is a non-continuous, block-type code, composed of blocks of data, each complete in itself, with gaps between the blocks. It is designed so that the code may be recorded and played back on equipment with intermittent film motion but still be decoded with the same type of electronic equipment used to read the Type C or continuous time code.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were 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 editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2022:1986, *Information processing — ISO 7-bit and 8-bit coded character sets — Code extension techniques*.

ISO 4241:1987, *Cinematography — Leaders and run-out trailers for 35 mm and 16 mm release prints — Specifications*.

ISO 8758:1992, *Cinematography — Photographic control and data records on 16 mm and 35 mm motion-picture film and prints — Dimensions and location*.

## 3 Modulation method

The modulation method shall be such that a transition occurs at the beginning of every bit period. "One" is represented by a second transition half a bit period after the start of the bit. "Zero" is represented when there is no transition within the bit period.

## 4 Code formats

Two code formats are described: Type C and Type B. The unique characteristics of the two code types are described in 4.1 and 4.2 respectively. Information which applies to both code types is given in 4.3 and 4.4.

### 4.1 Type C code format

**4.1.1** Each motion-picture frame shall be defined by a unique and complete address.

**4.1.2** The frames shall be numbered successively 0 to 23, 24 or 29 inclusive, corresponding to the frame rate being used.

**4.1.3** Each address shall consist of 80 bits numbered 0 to 79 inclusive.

**4.1.4** The bits shall be assigned as shown in the appropriate columns of figure 1 and table 1.