

---

**Televizijski metapodatki – 2. del: Protokol za kodiranje podatkov z uporabo vrednosti dolžine ključa (IEC 62261-2:2005)**

Television METADATA -- Part 2: Data encoding protocol using key-length-value

Fernseh-Metadaten -- Teil 2: Protokoll zur Datencodierung mit Schlüssellängenwert

Métadonnées des applications télévision -- Partie 2: Protocole de codage des données par méthode de longueur de clés

**Ta slovenski standard je istoveten z: EN 62261-2:2006**

SIST EN 62261-2:2007  
<https://standards.iteh.ai/catalog/standards/sist/62bc0cc0-d64e-4d60-82d7-6d1972f32c59/sist-en-62261-2-2007>

**ICS:**

33.160.01	Avdio, video in avdiovizualni sistemi na splošno	Audio, video and audiovisual systems in general
35.040	Nabori znakov in kodiranje informacij	Character sets and information coding

**SIST EN 62261-2:2007****en,de**

## **iTeh STANDARD PREVIEW (standards.iteh.ai)**

SIST EN 62261-2:2007

<https://standards.iteh.ai/catalog/standards/sist/b2bc0cc0-db4e-4d60-82d7-6d1972f32c59/sist-en-62261-2-2007>

**Television METADATA**  
**Part 2: Data encoding protocol using key-length-value**  
(IEC 62261-2:2005)

Métadonnées des applications télévision  
Partie 2: Protocole de codage des  
données par méthode de longueur de clés  
(CEI 62261-2:2005)

Fernseh-Metadaten  
Teil 2: Protokoll zur Datencodierung mit  
Schlüssellängenwert  
(IEC 62261-2:2005)

This European Standard was approved by CENELEC on 2006-12-01. 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 two official versions (English and 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, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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

The text of the International Standard IEC 62261-2:2005, prepared by Technical Area 6: Higher data rate storage media, data structure and equipment, of IEC TC 100, Audio, video and multimedia systems and equipment, was submitted to the formal vote and was approved by CENELEC as EN 62261-2 on 2006-12-01 without any modification.

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) 2007-12-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2009-12-01

Annex ZA has been added by CENELEC.

---

## Endorsement notice

The text of the International Standard IEC 62261-2:2005 was approved by CENELEC as a European Standard without any modification.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 62261-2:2007

<https://standards.iteh.ai/catalog/standards/sist/b2bc0cc0-db4e-4d60-82d7-6d1972f32c59/sist-en-62261-2-2007>

## **Annex ZA** (normative)

### **Normative references to international publications with their corresponding European publications**

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.

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO/IEC 8825-1	2002	Information technology ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)	-	-
ANSI/SMPTE 298M	1997	Television - Universal Labels for Unique Identification of Digital Data	-	-

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN 62261-2:2007](https://standards.iteh.ai/catalog/standards/sist/b2bc0cc0-db4e-4d60-82d7-6d1972f32c59/sist-en-62261-2-2007)

<https://standards.iteh.ai/catalog/standards/sist/b2bc0cc0-db4e-4d60-82d7-6d1972f32c59/sist-en-62261-2-2007>

## **iTeh STANDARD PREVIEW (standards.iteh.ai)**

SIST EN 62261-2:2007

<https://standards.iteh.ai/catalog/standards/sist/b2bc0cc0-db4e-4d60-82d7-6d1972f32c59/sist-en-62261-2-2007>

# INTERNATIONAL STANDARD

**IEC**  
**62261-2**

First edition  
2005-08

---

---

## Television METADATA –

### Part 2: Data encoding protocol using key-length-value

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN 62261-2:2007](https://standards.iteh.ai/catalog/standards/sist/b2bc0cc0-db4e-4d60-82d7-6d1972f32c59/sist-en-62261-2-2007)

<https://standards.iteh.ai/catalog/standards/sist/b2bc0cc0-db4e-4d60-82d7-6d1972f32c59/sist-en-62261-2-2007>

© IEC 2005 — Copyright - 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 Electrotechnical Commission, 3, rue de Varembe, PO Box 131, CH-1211 Geneva 20, Switzerland  
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: [inmail@iec.ch](mailto:inmail@iec.ch) Web: [www.iec.ch](http://www.iec.ch)



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

PRICE CODE

**V**

*For price, see current catalogue*

## CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references .....	6
3 KLV protocol.....	6
3.1 General.....	6
3.2 ANSI/SMPTE 298M universal label key .....	7
3.3 Encoding of the KLV length field.....	10
3.4 Encoding of data values .....	11
3.5 Empty metadata items .....	12
4 KLV coding of individual data items .....	12
4.1 General .....	12
4.2 Identification of value data representations .....	12
5 KLV group coding .....	13
5.1 General .....	13
5.2 Universal sets .....	14
5.3 Global sets .....	14
5.4 Local sets.....	16
5.5 Variable-length packs.....	19
5.6 Fixed-length packs .....	22
6 Labels .....	24
Annex A (normative) Glossary of terms.....	25
Annex B (informative) Example usage of Universal Label Key.....	27
Annex C (informative) Example of the KLV encoding of a single metadata item .....	28
Annex D (informative) Example of a universal set .....	29
Annex E (informative) Example of a global set .....	30
Annex F (informative) Example of a local set .....	31
Annex G (informative) Example of a variable-length pack .....	32
Annex H (informative) Example of a fixed-length pack .....	33
Annex I (informative) Example of a label.....	34
Bibliography.....	35
Figure 1 – KLV encoding.....	7
Figure 2 – KLV coded universal set data structure .....	15
Figure 3 – KLV coded global set data structure.....	17
Figure 4 – KLV coded local set structure.....	18
Figure 5 – Informative illustration of local set label to global key linking.....	20
Figure 6 – KLV coded variable-length pack structure .....	21
Figure 7 – KLV coded fixed-length pack structure .....	23
Figure 8 – UL key for labels .....	24
Figure B.1 – Example of universal label fields for metadata encoding in the SMPTE namespace .....	27

STANDARD PREVIEW  
(standards.iteh.ai)  
SIST EN 62261-2:2007  
<https://standards.iteh.ai/catalog/standards/sist/b2bc0cc0-db4e-4d60-82d7-6f157253c59/sist-en-62261-2-2007>



Table 1 – KLV fields for encoding of data.....	7
Table 2 – Field descriptions for the universal label key for the KLV encoding of data .....	8
Table 3 – UL designators for octets 5 through 7 .....	9
Table 4 – Field descriptions for the UL key for the KLV encoding of universal sets .....	15
Table 5 – Field descriptions for the UL key for global set encoding .....	17
Table 6 – Coding of registry designator (octet 6) for global set syntax .....	18
Table 7 – Field descriptions for the UL key for local set encoding .....	18
Table 8 – Coding of registry designator (octet 6) for local set syntax .....	19
Table 9 – Field descriptions for the UL key for variable-length pack encoding .....	21
Table 10 – Coding of registry designator (octet 6) for variable-length pack syntax .....	21
Table 11 – Field descriptions for the UL key for fixed-length pack encoding.....	23
Table 12 – Field descriptors for the UL key for labels.....	24
Table B.1 – Expanded example of SMPTE universal label fields for metadata encoding.....	27
Table C.1 – Informative example of KLV individual value encoding of metadata.....	28
Table D.1 – Informative example of KLV universal set encoding of metadata (octets separated by spaces for readability) .....	29
Table E.1 – Informative example of KLV global set encoding of metadata (octets separated by spaces for readability) .....	30
Table F.1 – Informative example of KLV local set encoding of metadata (octets separated by spaces for readability) .....	31
Table G.1 – Informative example of KLV variable-length pack encoding of metadata (octets separated by spaces for readability).....	32
Table H.1 – Informative example of KLV fixed-length pack encoding of metadata (octets separated for readability).....	33
Table I.1 – Example of a label.....	34

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## TELEVISION METADATA –

## Part 2: Data encoding protocol using key-length-value

## 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 provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 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.

International Standard IEC 62261-2 has been prepared by Technical Area 6: Higher data rate storage media, data structures and equipment, of IEC technical committee 100: Audio, video and multimedia systems and equipment

This standard cancels and replaces IEC/PAS 62261 published in 2001.

This first edition constitutes a technical revision.

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

CDV	Report on voting
100/854/CDV	100/955/RVC

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

IEC 62261 consists of the following parts, under the general title *Television metadata*:

Part 1: Metadata dictionary structure

Part 2: Data encoding protocol using key-length-value

Part 3: Universal labels for unique identification of digital data

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

A bilingual version of this publication may be issued at a later date.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 62261-2:2007

<https://standards.iteh.ai/catalog/standards/sist/b2bc0cc0-db4e-4d60-82d7-6d1972f32c59/sist-en-62261-2-2007>

## TELEVISION METADATA –

### Part 2: Data encoding protocol using key-length-value

#### 1 Scope

This part of IEC 62261 defines an octet-level data encoding protocol for representing data items and data groups. This protocol defines a data structure which is independent of the application or transportation method used.

The standard defines a key-length-value (KLV) triplet as a data interchange protocol for data items where the key identifies the data, the length specifies the length of the data, and the value is the data itself. The KLV protocol provides a common interchange for all compliant applications irrespective of the method of implementation or transport.

The standard also provides methods for combining associated KLV triplets in data sets where the set of KLV triplets is itself coded with KLV data coding protocol. Such sets can be coded in either full form (universal sets) or in one of four increasingly bit-efficient forms (global sets, local sets, variable-length packs, and fixed-length packs). The standard provides a definition of each of these data constructs. The encoding octet range (length of the payload) specified in this standard may generate unusually large volumes of data. Consequently, a specific application of KLV encoding is capable of only a limited operating data range and those details shall be defined in a relevant application document.

Of necessity, keys and other reference data have to be globally unique if clashes are to be avoided. The IEC will therefore, from time to time, designate other bodies to act as its registration authority and agent in this respect; it is important to note that, as a result of this, registrations will always contain the designator of the registration authority acting at the time of registration and not that of the IEC (unless the IEC was acting directly as its own registration authority). A mixture of registration authority designators is therefore to be expected.

#### 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.

ISO/IEC 8825-1:2002, (ITU-T X.690), *Information Technology – ASN.1 Encoding Rules – Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER), and Distinguished Encoding Rules (DER)*

ANSI/SMPTE 298M:1997, *Television – Universal Labels for Unique Identification of Digital Data*

#### 3 KLV protocol

##### 3.1 General

Table 1 and Figure 1 present an introductory view of the KLV protocol for encoding data. The data encoded may be a single data item or a data group. The coding of data items is described in Clause 4 while the coding of data groups is described in Clause 5 of this standard.

The KLV coding protocol is composed of a universal label (UL) identification key (UL key), followed by a numeric length (value length), followed by the data value.

The composition of the UL key is described in 3.2 of this standard. The length of the full UL key shall be 16 octets. The length field is described in 3.3 of this standard. The value is described in 3.4 of this standard. The value is a sequence of octets of the data type as specified in a relevant standard and is not further specified by the KLV protocol. The length of the value field is variable and any limitations are defined in a relevant defining standard.

**Table 1 – KLV fields for encoding of data**

Field	Description	Length	Content/Format
UL key	Universal label for identification of the value	16 octets	Subclause 3.2
Length	Length of the value field	Defined in a relevant dictionary, essence, application standard, but variable length	Subclause 3.3
Value	Value associated with the UL key	Variable	Subclause 3.4



<https://standards.itech.ai/catalog/standards/sist/b2bc0cc0-db4e-4d60-82d7-6d1972f32c59/sist-en-62261-2-2007>

IEC 1161/05

**Figure 1 – KLV encoding**

The bit-order (lsb or msb first) for KLV encoding shall be that of the transport used to carry the information.

### 3.2 ANSI/SMPTE 298M universal label key

#### 3.2.1 General

KLV coding protocol shall use a 16-word universal label (UL) generated according to ANSI/SMPTE 298M as the UL key to identify the data in the value field but with the appropriate registration authority's 4-octet prefix following the OID tag and length byte.

Each word in the ANSI/SMPTE 298M UL is coded using the basic encoding rules (BER) for the encoding of an object identifier value specified in ISO/IEC 8825-1, 8.19. Each word of the UL key shall be limited to the range 0x00 to 0x7F and shall be represented by a single octet. The UL key shall have left-to-right significance with the first octet as the most significant. The leftmost octet of value 0x00 in the UL key shall define the termination of the label and all octets of lower significance shall also be set to 0x00. Octets of value 0x00 shall have no significance to the meaning of the UL key.

The full UL key consists of a 16-octet field including an object ID (OID) and the UL size (0x0E indicating a total UL key size of 16 octets) followed by a UL code and a series of sub-identifiers which shall define the UL designators. The first two UL designators shall have reserved values for the KLV coding protocol according to this standard.