SLOVENSKI STANDARD
oSIST prEN IEC 61406:2022

01-april-2022

Identifikacijska povezava - Nedvoumna edinstvena strojno berljiva identifikacija

Identification Link - Unambiguous biunique Machine-Readable Identification

Ta slovenski standard je istoveten z: **prEN IEC 61406:2022**

ICS:	
35.240.15	Identifikacijske kartice. Čipne kartice. Biometrija / Identification cards. Chip cards. Biometrics

oSIST prEN IEC 61406:2022 **en,fr,de**

65E/845/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

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IEC SC 65E : DEVICES AND INTEGRATION IN ENTERPRISE SYSTEMS

SECRETARIAT: United States of America	SECRETARY: Mr Donald (Bob) Lattimer
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Identification Link

PROPOSED STABILITY DATE: 2024

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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IDENTIFICATION LINK

FOREWORD

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IEC 61406 has been prepared by subcommittee 65E: DEVICES AND INTEGRATION IN ENTERPRISE SYSTEMS, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at http://www.iec.ch/standardsdev/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

209 • reconfirmed,
210 • withdrawn,
211 • replaced by a revised edition, or
212 • amended.
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INTRODUCTION

Every year, industry purchases hundreds of millions of items of technical equipment – referred to here as physical objects – for setting up new production facilities and maintaining existing ones. When applying this standard these physical objects can be simply and unambiguously identified by using a standardized Identification Link (IL), attached for example on the nameplate. This means that all information relating to the physical object can be identified in various IT systems and then called up, edited and stored as necessary across all processes from storage and retrieval to assembly, maintenance, inspection, repair and disassembly. This is an invaluable advantage in all these processes. The manufacturer in turn can link all information such as drawings, operating instructions and spare part lists to this IL in its systems. Users, e.g. owners or operators, can do the same with their information in their systems. In communication between the manufacturer and user, this IL alone then suffices for both parties to find and exchange all the information they need about a physical object throughout its lifecycle. This IL is therefore a prerequisite for easy accessing and maintaining information in the physical object's digital twin.

Previous standards for machine-readable identification of physical objects essentially describe how the traditional identification features (manufacturer, product number, serial number) can be stored in a machine-readable way using standardized syntax (e.g. as per ISO/IEC 15434) and semantics (e.g. as per ISO/IEC 15418) so that the strings used for identification according to these standards can be analyzed (parsed) and processed across all manufacturers using suitable software. These regulations allow a great variety of identifiers and technologies to be used, some of which can be highly complex, depending on the chosen solution. This means that in the relationship between the manufacturer and the user, it must be determined which parts of these regulations and which of the identification methods specified in them are to be used. A universally usable identification by the manufacturer is not possible without consulting the respective user. The identification options listed in these regulations also always require analysis of the character string and the information encoded in it using suitable software, which involves much greater requirements for further processing. Furthermore, for industrial applications such as in the process manufacturing industry, there are special requirements for the long-term legibility and reliability of markings in the harsh conditions of industrial environments.

Production systems, e.g. in the process manufacturing industry, usually consist of several thousand individual physical objects. Each of these physical objects must be uniquely identified during all steps and processes in its lifecycle by both the manufacturer and the user. On the part of the manufacturer, this identification starts during the production of the physical object, and continues during its packaging and shipping. On the part of user, this process continues with the receipt, storage and retrieval of the physical object, carries on through installation, commissioning, operation, inspection, maintenance, repair and disassembly, and finally ends when it is scrapped.

The manufacturer usually provides each physical object with an identifier that allows it to be uniquely identified. This identification of the physical object usually takes place using a nameplate.

The product type of the physical object can generally be clearly identified using the information on the nameplate. If it is a serialized physical object, which means a serial number is present on the nameplate, then it can also be identified as a single, distinguishable instance of a model.

However, in practice this identification of physical objects on a nameplate often cannot be read and used automatically. This is a serious drawback to optimizing and in particular automating identification in all work processes. The reason for this is that the characteristics of a nameplate such as the content, designation, layout and fonts vary greatly according to the physical object and the manufacturer. The same applies to the physical properties of the nameplate, such as the material and the process for producing the graphic content (e.g. printing, etching, engraving, laser marking etc.).

This standard does not try to standardize nameplates or physical properties of nameplates, due to the widely differing requirements of manufacturers and users and the vast variety of objects.

Optimizing and automating the identification of a physical object merely requires a unique machine-readable ID attached to the object.

Linking to information on the internet with a URL in a 2D symbol or NFC tag on the physical object is more and more used.

This Identification Link covers in a simple, monomorphic and single solution both major use cases for machine readable product marking, the unique identification and the link to data on the internet.

IDENTIFICATION LINK

1 Scope

This standard specifies minimum requirements for a globally unique identification of physical objects which also constitutes a link to its related digital information. This identification is designated hereinafter as “Identification Link” (IL), with the encoded data designated as IL string. The IL string has the data-format of a link (URL). The IL is machine-readable and is attached to the physical object in a 2D symbol or NFC tag.

The requirements in this standard apply to physical objects

- that are provided by the manufacturer as an individual unit,
- and that have already been given a unique identity by the manufacturer.

This standard does not specify any requirements on the content and the layout of nameplates/typeplates (e.g. spatial arrangement, content of the plain texts, approval symbols etc.).

2 Normative references

The following standards are referred to in the text in such a way that some or all their content constitutes requirements of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced standard (including any amendments) applies.

IEC 60050-351, *International Electrotechnical Vocabulary (IEV) - Part 351: Control technology*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

ISO/IEC 8859-1, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

ISO/IEC 14443-1, *Cards and security devices for personal identification — Contactless proximity objects — Part 1: Physical characteristics*

ISO/IEC DIS 14443-2, *Cards and security devices for personal identification — Contactless proximity objects — Part 2: Radio frequency power and signal interface*

ISO/IEC 14443-3, *Cards and security devices for personal identification — Contactless proximity objects — Part 3: Initialization and anticollision*

ISO/IEC 14443-4, *Cards and security devices for personal identification — Contactless proximity objects — Part 4: Transmission protocol*

ISO/IEC 15415, *Information technology — Automatic identification and data capture techniques — Bar code symbol print quality test specification — Two-dimensional symbols*

ISO/IEC 15418, *Information technology — Automatic identification and data capture techniques — GS1 Application Identifiers and ASC MH10 Data Identifiers and maintenance*

ISO/IEC 15693-1, *Cards and security devices for personal identification — Contactless vicinity objects — Part 1: Physical characteristics*

ISO/IEC 15693-2, *Cards and security devices for personal identification — Contactless vicinity objects — Part 2: Air interface and initialization*

ISO/IEC 15693-3, *Cards and security devices for personal identification — Contactless vicinity objects — Part 3: Anticollision and transmission protocol*

ISO/IEC 16022, *Information technology — Automatic identification and data capture techniques — Data Matrix bar code symbology specification*

ISO/IEC 19762, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary, parts 1, 3 and 6*

ISO/IEC 18004, *Information technology — Automatic identification and data capture techniques — QR Code bar code symbology specification*

ISO/IEC 18092, *Information technology — Telecommunications and information exchange between systems — Near Field Communication — Interface and Protocol (NFCIP-1)*

ISO/IEC 21481, *Information technology — Telecommunications and information exchange between systems — Near Field Communication — Interface and Protocol (NFCIP-2)*