SLOVENSKI STANDARD
SIST EN 61987-10:2009

01-december-2009

Merjenje in nadzor v industrijskih procesih - Strukture podatkov in elementov v katalogih procesne opreme - 10. del: Seznam lastnosti (LOP) za merjenje in nadzor v industrijskih procesih za elektronsko izmenjavo podatkov - Osnove (IEC 61987-10:2009)

Industrial-process measurement and control - Data structures and elements in process equipment catalogues -- Part 10: Lists of properties (LOPs) for industrial-process measurement and control for electronic data exchange - Fundamentals

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c03-602c-4aa3-8d44-2bc780b25a42/sist-en-61987-10-2009

Ta slovenski standard je istoveten z: **EN 61987-10:2009**

ICS:

25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
35.240.50	Uporabniške rešitve IT v industriji	IT applications in industry

SIST EN 61987-10:2009 **en,fr**

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

SIST EN 61987-10:2009

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c03-602c-4aa3-8d44-2bc780b25a42/sist-en-61987-10-2009

SIST EN 61987-10:2009

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61987-10

September 2009

ICS 25.050.40; 35.100.20

English version

Industrial-process measurement and control - Data structures and elements in process equipment catalogues - Part 10: Lists of properties (LOPs) for industrial-process measurement and control for electronic data exchange - Fundamentals

(IEC 61987-10:2009)

Mesure et commande dans les processus industriels - Structures et éléments de données dans les catalogues d'équipement de processus - Partie 10: Liste des propriétés (LOPs) pour les mesures et commandes dans les processus industriels pour les échanges électroniques de données - Fondamentaux (CEI 61987-10:2009)

Industrielle Leittechnik - Datenstrukturen und -elemente in Katalogen der Prozessleittechnik - Teil 10: Merkmalleisten (ML) für den elektronischen Datenaustausch - Grundlagen (IEC 61987-10:2009)

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c03-602c-4aa3-8d44-2bc780b25a42/sist-en-61987-10-2009

This European Standard was approved by CENELEC on 2009-08-01. 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 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, 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: Avenue Marnix 17, B - 1000 Brussels

© 2009 CENELEC - All rights of exploitation in any form and by any means reserved worldwide for CENELEC members.

SIST EN 61987-10:2009

Foreword

The text of document 65E/134/FDIS, future edition 1 of IEC 61987-10, prepared by SC 65E, Devices and integration in enterprise systems, of IEC TC 65, Industrial-process measurement, control and automation, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61987-10 on 2009-08-01.

This part of EN 61987 has to be read in conjunction with EN 61987-1.

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)	2010-05-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-08-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61987-10:2009 was approved by CENELEC as a European Standard without any modification.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61360-5	NOTE	Harmonized as EN 61360-5:2004 (not modified).
IEC 61987-1	NOTE	Harmonized as EN 61987-1:2007 (not modified).
ISO 9000	NOTE	Harmonized as EN ISO 9000:2005 (not modified).

SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c05-0026-4aa3-8d44-2bc780b25a42/sist-en-61987-10-2009

SIST EN 61987-10:2009

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.

Publication	Year	Title	EN/HD	Year
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
A1	1999		A1	2000
IEC 61346-1	1996	Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations - Part 1: Basic rules	EN 61346-1	1996
IEC 61360	Series	Standard data elements types with associated classification scheme for electric items	EN 61360	Series
IEC 61360-1	-[1)]	Standard data elements types with associated classification scheme for electric items - Part 1: Definitions - Principles and methods	EN 61360-1	200X[2)]
IEC 61360-2	-[1)]	Standard data element types with associated classification scheme for electric components - Part 2: EXPRESS dictionary schema	EN 61360-2	2002[3)]
IEC 61987-1	-[1)]	Industrial-process measurement and control - Data structures and elements in process equipment catalogues - Part 1: Measuring equipment with analogue and digital output	EN 61987-1	2007[3)]
ISO 1000	-[1)]	SI units and recommendations for the use of their multiples and of certain other units	-	-
ISO 13584	Series	Industrial automation systems and integration - Parts library	-	-
ISO 13584-42	-[1)]	Industrial automation systems and integration - Parts library - Part 42: Description methodology: Methodology for structuring part families	-	-

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c03-602c-4aa3-8d44-2bc780b25d42/sist-en-61987-10-2009

[1)] Undated reference.

[2)] To be ratified.

[3)] Valid edition at date of issue.

SIST EN 61987-10:2009

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c03-602c-4aa3-8d44-2bc780b25a42/sist-en-61987-10-2009

SIST EN 61987-10:2009

IEC 61987-10

Edition 1.0 2009-07

INTERNATIONAL STANDARD

Industrial-process measurement and control – Data structures and elements in process equipment catalogues – Part 10: Lists of properties (LOPs) for industrial-process measurement and control for electronic data exchange – Fundamentals

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c03-602c-4aa3-8d44-2bc780b25a42/sist-en-61987-10-2009

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRICE CODE X

ICS 25.040.40; 35.100.20

ISBN 2-8318-1053-3

® Registered trademark of the International Electrotechnical Commission

SIST EN 61987-10:2009

CONTENTS

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c03-602c-4aa3-8d44-2bc780023a42/sist-en-61987-10-2009

SIST EN 61987-10:2009

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c03-602c-4aa3-8d44-2bc780b25a42/sist-en-61987-10-2009

SIST EN 61987-10:2009

INTERNATIONAL ELECTROTECHNICAL COMMISSION

____

INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL – DATA STRUCTURES AND ELEMENTS IN PROCESS EQUIPMENT CATALOGUES –

Part 10: Lists of Properties (LOPs) for Industrial-Process Measurement and Control for Electronic Data Exchange – Fundamentals

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722e03-602c-4ea3-8d44-2bc78082a42f/sist-en-61987-10-2009

International Standard IEC 61987-10 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, controls and automation.

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

FDIS	Report on voting
65E/134/FDIS	65E/145/RVD

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.

SIST EN 61987-10:2009

This part of IEC 61987 has to be read in conjunction with IEC 61987-1.

A list of all parts in the IEC 61987 series, under the general titles *Industrial-process measurement and control structures and elements in process equipment catalogues*, can be found on the IEC website.

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 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c03-602c-4aa3-8d44-2bc780b25a42/sist-en-61987-10-2009

SIST EN 61987-10:2009

INTRODUCTION

The exchange of product data between companies, business systems, engineering tools and, in the future, control systems (electrical, measuring and control technology) can run smoothly only when both the information to be exchanged and the use of this information have been clearly defined.

In the past, requirements on process control devices and systems were specified by customers in various ways when suppliers or manufacturers were asked to quote for suitable equipment. The suppliers in their turn described the devices according to their own documentation schemes, often using different terms, structures and media (paper, databases, CDs, e-catalogues, etc.). The situation was similar in the planning and development process, with device information frequently being duplicated in a number of different information technology (IT) systems.

Any method that is capable of recording all existing information once only during the planning and ordering process and making it available for further processing gives all parties involved an opportunity to concentrate on the essentials. A precondition for this is the standardization of both the descriptions of the objects and the exchange of information.

IEC 61987-1 makes an important step towards this goal by defining a generic structure in which product features of industrial process measurement and control equipment with analogue or digital output can be arranged. This facilitates the understanding of product descriptions when they are transferred from one party to another. Part 1 of this series of standards applies to the production of catalogues of process measuring and control equipment in paper form supplied by the manufacturer of the product.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

The objective of IEC 61987-10 is to make processes involving measuring and control devices more efficient. This means that in addition to the device catalogue data of IEC 61987-1, information on operational and environmental aspects of the device is required. These aspects should be described and expressed in a form that can also be exchanged electronically and handled automatically.

SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/[illegible]-61987-10-2009

In IEC 61987-10, devices are specified by creating lists of properties (LOPs). The properties themselves are compiled into blocks that describe particular features of a device. By compiling blocks, it is possible to produce a list of properties that completely describe a particular device type or the surroundings in which the devices is or will be installed and operate.

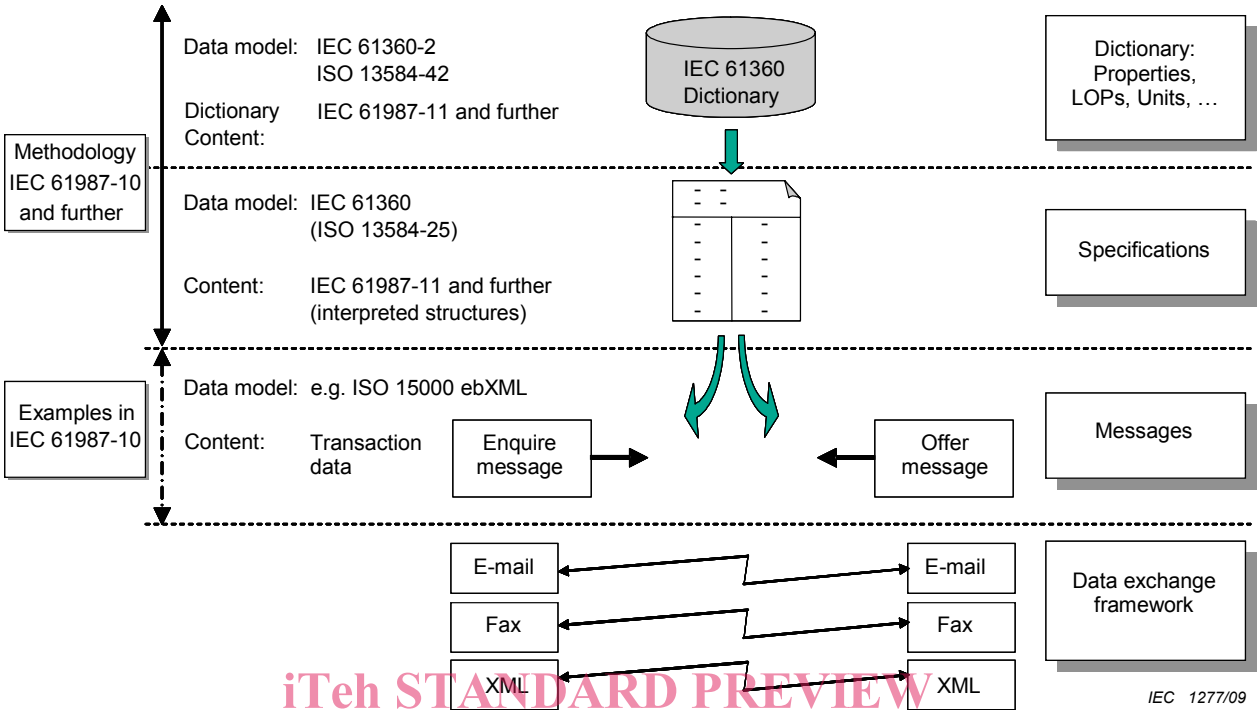
This part of IEC 61987 deals with the following.

- It concerns both properties that may be used in an inquiry and a quotation. It also addresses detailed properties required for integration of a process control device in systems for other tasks, such as planning (for example in Computer Aided Engineering (CAE) systems), maintenance and Enterprise Resource Planning (ERP) systems.
- It provides a method for standardization that helps both suppliers and users of process control equipment and systems to optimize workflows, both within their own companies and in their exchanges with other companies. Depending on their role in the process, engineering, procurement and construction (EPC) contractors may be considered to be either users or suppliers.
- It ensures the clarity of the information provided, as the data and structures are described in unambiguous terms.

It should also be noted that the component data dictionary might also be used for other applications, for example the generation of parts lists. It is also possible to generate legacy specifications from the same source.

SIST EN 61987-10:2009

Layers of electronic date exchange



iTeh STANDARD PREVIEW
(standards.iteh.ai)

Figure 1 – Layers of electronic exchange procedures considered in this standard

SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17732c03-602e-4ec3-8444-2bc780b25a42/sist-en-61987-10-2009

The individual layers of data exchange considered in this part of IEC 61987 are described as follows (see also Figure 1).

Dictionary: To achieve standardized, distributed, common semantics of the devices, this standard describes a concept dictionary that captures terms, definitions and relationships of the devices. The basis is an IEC component data dictionary for industrial process measurement and control devices that uses the data models of IEC 61360-2 and ISO 13584-42. The dictionary content comprises the properties and blocks which will be defined in future IEC 61987-11, etc. The same standards also define lists of properties for process measurement and control devices.

NOTE 1 Not all devices will be included in the first edition of the dictionary, and it is possible that other devices will be added as new devices and technologies are developed.

Specifications: A process engineer planning a particular area in a plant uses an electronic specification sheet which draws its content from the component data dictionary. Similarly, a manufacturer quoting for an industrial process measuring device that fulfils the conditions defined in the specification sheet defines his device according to another specification sheet, which again draws its content from the component data dictionary. In interpretation of the specifications, the patterns of cardinality or polymorphism are evaluated.

Messages: Communication messages containing information about sender, receiver and transport protocol are generated from specifications.

NOTE 2 The generation of messages is not in the scope of this standard.

Data exchange framework: The messages are sent from one business partner to the other using data exchange frameworks. These can be conventional (e-mail, fax) using templates as described in Annex C of this standard, or XML message based distribution frameworks.

SIST EN 61987-10:2009

EXAMPLE: One example of a XML message distribution framework is ISO 15000 (ebXML).

The methodology to create these specifications and the description of the mechanisms that are required to compile meaningful data into such specifications are defined in this standard. Several aspects of the devices are also the subject of standardisation in this standard. For example, one aspect describes the operating environment at the installation point, that is the conditions under which a process measuring device must operate, and another describes the device specification which meets these conditions.

The properties contained in the component data dictionary however, may also serve other purposes, for example, the precise location of the production unit or control loop might form part of administrative and commercial exchanges. Similarly, more precise engineering data such as the designation of terminals or device calibration data might also be exchanged by means of additional specification sheets or by supplementing the device specification sheets.

Beyond the scope of this standard is the specification of transactional data required to exchange electronic specification sheets between companies, as shown in the messages layer of Figure 1. Similarly, no particular framework for data exchange is specified.

Each device type is defined by an LOP containing the properties that apply to it. This is a basic requirement for exchanging device information between different information technology (IT) systems.

The use of the LOPs therefore supports data exchange between systems in a business-to-business relationship and between systems within an organization, for example, CAE or ERP systems (see Figure 2). This standard also makes provision for the storage of device data as LOPs in process control systems or field devices.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c03-602c-4aa3-8d44-2bc780b25a42/sist-en-61987-10-2009

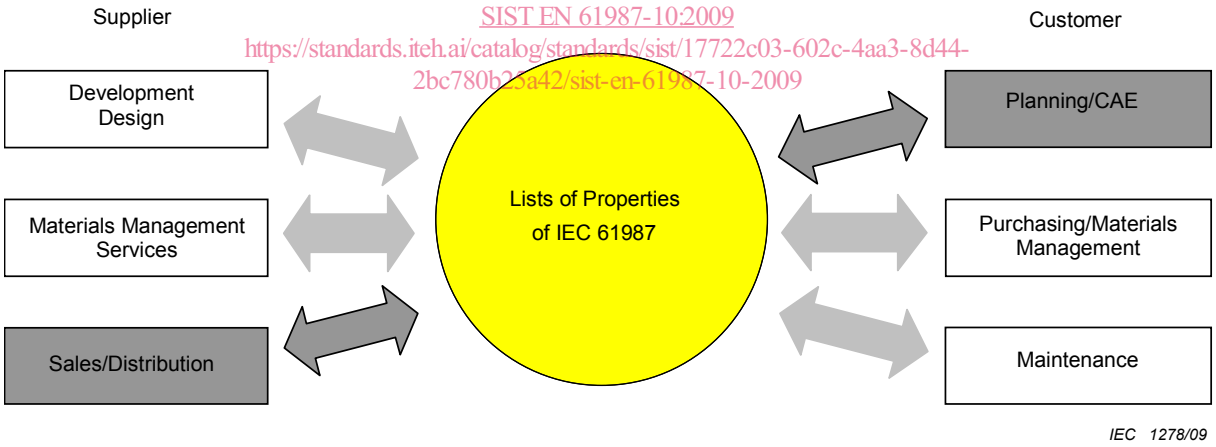


Figure 2 – Support for business-to-business relationships through the use of Lists of Properties

IEC 61987-10, IEC 61987-11 and further

IEC 61987-10 defines the approach for structuring lists of properties for electrical and process control equipment, for example measuring devices, actuators, motors, low-voltage switchgear, etc., in order to facilitate fully automatic engineering workflows in the planning and maintenance of industrial plants and to allow both the customers and the suppliers of the devices to optimize their processes and workflows.

Future IEC 61987-11 will contain lists of properties for measuring device types commonly used in the process industry.

SIST EN 61987-10:2009

Subsequent parts of IEC 61987 are already planned. These will contain lists of properties for other device families, such as actuators or signal conversion devices.

The properties themselves are to be found in the IEC Component Data Dictionary and follow the semantics and the structure of the IEC 61360 and ISO 13584 series of standards.

The concept of properties and structured lists is the subject of various standards. The data model described in the IEC 61360 and ISO 13584 series of standards is used in this standard. The structure defined for industrial-process measuring equipment in IEC 61987-1 is used, with some additions and modifications, to organise the contents of Device LOPs into blocks.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 61987-10:2009
https://standards.iteh.ai/catalog/standards/sist/17722c03-602c-4aa3-8d44-2bc780b25a42/sist-en-61987-10-2009