SLOVENSKI STANDARD
SIST EN 61987-11:2012

01-november-2012

Meritve in krmiljenje industrijskih procesov - Strukture podatkov in elementi v katalogih procesne opreme - 11. del: Seznam lastnosti merilne opreme za elektronsko izmenjavo podatkov - Rodovne strukture (IEC 61987-11:2012)

Industrial-process measurement and control - Data structures and elements in process equipment catalogues - Part 11: Lists of properties (LOP) of measuring equipment for electronic data exchange - Generic structures (IEC 61987-11:2012)

Industrielle Leittechnik - Datenstrukturen und -elemente in Katalogen der Prozessleittechnik - Teil 11: Merkmalleisten für Messgeräte für elektronischen Datenaustausch – Allgemeine Strukturen (IEC 61987-11:2012)

Mesure et contrôle des processus industriels - Structures de données et éléments dans les catalogues d'équipement de processus - Partie 11: Liste de propriétés (LOP) des équipements de mesure pour l'échange électronique de données - Structures génériques (CEI 61987-11:2012)

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EUROPEAN STANDARD

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English version

Industrial-process measurement and control - Data structures and elements in process equipment catalogues - Part 11: List of Properties (LOP) of measuring equipment for electronic data exchange - Generic structures

(IEC 61987-11:2012)

Mesure et contrôle des processus industriels - Structures de données et éléments dans les catalogues d'équipement de processus - Partie 11: Liste de propriétés (LOP) des équipements de mesure pour l'échange électronique de données - Structures génériques (CEI 61987-11:2012)

Industrielle Leittechnik - Datenstrukturen und -elemente in Katalogen der Prozessleittechnik - Teil 11: Merkmalleisten (ML) für Messgeräte für den elektronischen Datenaustausch - Allgemeine Strukturen (IEC 61987-11:2012)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 65E/245/FDIS, future edition 1 of IEC 61987-11, 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 approved by CENELEC as EN 61987-11:2012.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-05-28
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-08-28

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The text of the International Standard IEC 61987-11:2012 was approved by CENELEC as a European Standard without any modification.

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

IEC 60770-1:2010	NOTE	Harmonised as EN 60770-1:2011 (not modified).
IEC 61346-1:1996	NOTE	Harmonised as EN 61346-1:1996 (not modified).
IEC 61360-1:2009	NOTE	Harmonised as EN 61360-1:2010 (not modified).
IEC 61360-2	NOTE	Harmonised as EN 61360-2.
IEC 61360-5	NOTE	Harmonised as EN 61360-5.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 61069-5	-	Industrial-process measurement and control - Evaluation of system properties for the purpose of system assessment - Part 5: Assessment of system dependability	EN 61069-5	-
IEC 61508-6	-	Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 6: Guidelines on the application of IEC 61508-2 and IEC 61508-3	EN 61508-6	-
IEC 61987	Series	Industrial-process measurement and control - Data structures and elements in process equipment catalogues	EN 61987	Series
IEC 61987-1	2006	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
IEC 61987-10 + corr. May	2009 2012	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	EN 61987-10 + AC:2011	2009 2011
IEC 62424	-	Representation of process control engineering - Requests in P&I diagrams and data exchange between P&ID tools and PCE-CAE tools	EN 62424	-

IEC 61987-11

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INTERNATIONAL STANDARD

Industrial-process measurement and control – Data structures and elements in process equipment catalogues –
Part 11: List of Properties (LOP) of measuring equipment for electronic data exchange – Generic structures

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 11: List of Properties (LOP) of measuring equipment for electronic data exchange – Generic structures

FOREWORD

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International Standard IEC 61987-11 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65:Industrial-process measurement, control and automation.

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

FDIS	Report on voting
65E/245/FDIS	65E/270/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.

A list of all parts of the IEC 61987 series, published under the general title*, Industrial-process measurement and control – Data 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 stability 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.

INTRODUCTION

0.1 General

The exchange of product data between companies, business systems, engineering tools, data systems within companies 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 has been clearly defined.

Prior to this standard, 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 only once 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.

This standard series proposes a method for standardization which will help both suppliers and users of measuring equipment to optimize workflows within their own companies as well as in their exchanges with other companies. Depending on their role in the process, engineering firms may be considered here to be either users or suppliers.

The method specifies measuring equipment by means of blocks of properties. These blocks are compiled into lists of properties (LOPs), each of which describes a specific equipment (device) type. This standard series covers both properties that may be used in an inquiry or a proposal and detailed properties required for integration of the equipment in computer systems for other tasks.

IEC 61987-10 defines structure elements for constructing lists of properties for electrical and process control equipment in order to facilitate automatic data exchange between any two computer systems in any possible workflow, for example engineering, maintenance or purchasing workflow and to allow both the customers and the suppliers of the equipment to optimize their processes and workflows. Part 10 also provides the data model for assembling the LOPs.

This part of the IEC 61987 series specifies the generic structure for operating and device lists of properties (OLOPs and DLOPs). It lays down the framework for further parts of IEC 61987 in which complete LOPs for device types measuring a given physical variable and using a particular measuring principle will be specified. The generic structure may also serve as a basis for the specification of LOPs for other industrial-process control instrument types such as control valves and signal processing equipment.

0.2 Content of the lists of properties (LOPs)

The LOPs specified in this standard describe at generic level:

- the operating conditions of the measuring equipment,
- the ambient conditions at the measuring point,
- the performance of the measuring equipment,
- the metrological, mechanical and electrical features of the measuring equipment,

- the compliance of the measuring instrument to specific industrial requirements.

The LOPs mirror constructive reality but do not represent an instrument model.

0.3 Measuring equipment configuration

The generic LOPs have been so constructed that they take account of integral equipment and separately mounted equipment.

0.4 Device type dictionary

Annex A of this part describes a characterisation of measuring equipment based on the STEP library, ISO 10303. This is a tree of relationships between different device types. Starting at the root “automation equipment”, it first characterizes measuring equipment according to type, then according to process variable measured and finally according to the measuring method employed. This structure will be used in the IEC Component Data Dictionary (CDD) “Automation equipment” Domain.

For the purpose of this standard the following types of measuring equipment have been identified and defined in Clause 3: sight indicator, gauge, transmitter, switch and measuring assembly.

It should be noted that in the real world, there is not such a clear demarcation between types of measuring equipment. In commercial literature indicators are often called gauges, although the products offer no quantitative measurement. Similarly, direct indicating displays are often equipped with electrical trip switches which allow a gauge to act as a switch. Finally, “transmitter” is by no means a universal term and in particular for flow measurement many manufacturers call this kind of equipment “meter”.

0.5 Composite devices

A structural scheme is given, defining how to build up LOPs for devices consisting of several components or assembled from different parts, that is, composite devices and measuring assemblies.

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

Part 11: List of Properties (LOP) of measuring equipment for electronic data exchange – Generic structures

1 Scope

This part of IEC 61987 provides

- a characterisation of industrial process measuring equipment (device type dictionary) for integration in the Component Data Dictionary (CDD), and
- generic structures for Operating Lists of Properties (OLOPs) and Device Lists of Properties (DLOPs) of measuring equipment in conformance with IEC 61987-10.

The generic structures for the OLOPs and DLOPs contain the most important blocks for process measuring equipment. Blocks pertaining to a specific equipment type will be described in the corresponding part of the IEC 61987 series (for example IEC 61987-12, flow transmitters). Similarly, equipment properties are not dealt with in this part of the series For instance, the OLOPs and DLOPs for flow transmitters with blocks and properties will be found in future in IEC 61987-12.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61069-5, *Industrial-process measurement and control – Evaluation of system properties for the purpose of system assessment – Part 5: Assessment of system dependability*

IEC 61508-6, *Functional safety of electrical/electronic/programmable electronic safety-related systems – Part 6: Guidelines on the application of IEC 61508-2 and IEC 61508-3*

IEC 61987 (all parts), *Industrial-process measurement and control – Data structures and elements in process equipment catalogues*

IEC 61987-1:2006, *Industrial-process measurement and control – Data structures and elements in process equipment catalogues – Part 1: Measuring equipment with analog and digital output*

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*

IEC 62424, *Representation of process control engineering – Requests in P&I diagrams and data exchange between P&ID tools and PCE-CAE tools*