



NSAI
Standards

Irish Standard
I.S. EN 61987-16:2017

Industrial-process measurement and control
- Data structures and elements in process
equipment catalogues - Part 16: Lists of
properties (LOPs) for density measuring
equipment for electronic data exchange

I.S. EN 61987-16:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN 61987-16:2017 is the adopted Irish version of the European Document EN 61987-16:2017, Industrial-process measurement and control - Data structures and elements in process equipment catalogues - Part 16: Lists of properties (LOPs) for density measuring equipment for electronic data exchange

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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN 61987-16

April 2017

ICS 25.040.40; 35.040.99; 35.240.30

English Version

**Industrial-process measurement and control - Data structures
and elements in process equipment catalogues - Part 16: Lists of
properties (LOPs) for density measuring equipment for electronic
data exchange
(IEC 61987-16:2016)**

Mesure et commande des processus industriels - Éléments
et structures de données dans les catalogues
d'équipements de processus - Partie 16: Listes de
propriétés (LOP) pour équipement de mesure de densité
pour l'échange électronique de données
(IEC 61987-16:2016)

Industrielle Leittechnik - Datenstrukturen und -elemente in
Katalogen der Prozessleittechnik - Teil 16: Merkmalleisten
(ML) für Dichtemessgeräte für den elektronischen
Datenaustausch
(IEC 61987-16:2016)

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 61987-16:2017**European foreword**

The text of document 65E/512/FDIS, future edition 1 of IEC 61987-16, 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 61987-16:2017.

The following dates are fixed:

- latest date by which the document has to be (dop) 2017-10-21
implemented at national level by
publication of an identical national
standard or by endorsement
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| | | |
|--------------------|------|---------------------------------|
| IEC 60079-0:2011 | NOTE | Harmonized as EN 60079-0:2012 |
| IEC 60947-5-6:1999 | NOTE | Harmonized as EN 60947-5-6:2000 |
| IEC 61298-1:2008 | NOTE | Harmonized as EN 61298-1:2008 |
| IEC 61298-2:2008 | NOTE | Harmonized as EN 61298-2:2008 |
| IEC 61298-3:2008 | NOTE | Harmonized as EN 61298-3:2008 |
| IEC 61360-1 | NOTE | Harmonized as EN 61360-1 |
| IEC 61360-2 | NOTE | Harmonized as EN 61360-2 |
| IEC 61360-5 | NOTE | Harmonized as EN 61360-5 |
| IEC 61784-1:2014 | NOTE | Harmonized as EN 61784-1:2014 |
| IEC 61987-1 | NOTE | Harmonized as EN 61987-1 |
| IEC 61987-92 | NOTE | Harmonized as EN 61987-92 |
| ISO 5167-2:2003 | NOTE | Harmonized as EN ISO5167-2:2003 |

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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

| <u>Publication</u> | <u>Year</u> series | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> series |
|--------------------|-----------------------|--|--------------|-----------------------|
| IEC 61360 | | Standard data elements types with associated classification scheme for electric items | EN 61360 | |
| 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 | EN 61987-10 | 2009 |
| - | - | | + AC | 2011 |
| IEC 61987-11 | 2016 | 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 | EN 61987-11 | 2017 |

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IEC 61987-16

Edition 1.0 2016-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Industrial-process measurement and control – Data structures and elements in
process equipment catalogues –
Part 16: Lists of properties (LOPs) for density measuring equipment for
electronic data exchange**

**Mesure et commande des processus industriels – Éléments et structures de
données dans les catalogues d'équipements de processus –
Partie 16: Listes de propriétés (LOP) pour équipement de mesure de densité
pour l'échange électronique de données**



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Edition 1.0 2016-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Industrial-process measurement and control – Data structures and elements in
process equipment catalogues –
Part 16: Lists of properties (LOPs) for density measuring equipment for
electronic data exchange**

**Mesure et commande des processus industriels – Éléments et structures de
données dans les catalogues d'équipements de processus –
Partie 16: Listes de propriétés (LOP) pour équipement de mesure de densité
pour l'échange électronique de données**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL –
DATA STRUCTURES AND ELEMENTS IN PROCESS
EQUIPMENT CATALOGUES –****Part 16: Lists of properties (LOPs) for density
measuring equipment for electronic data exchange**

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.
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International Standard IEC 61987-16 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/512/FDIS | 65E/520/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 in the IEC 61987, 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 website 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.

INTRODUCTION

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 document, 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.

IEC 61987 series proposes a method for standardization which will help both suppliers and users of measuring equipment to optimize workflows both within their own companies and 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. The IEC 61987 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. IEC 61987-10 also provides the data model for assembling the LOPs.

IEC 61987-11 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.

IEC 61987-16 concerns density measuring equipment. It provides one operating LOP for all types of density transmitters which can be used, for example, as a request for various sorts of quotation. The DLOPs for the various density transmitter types provided in this part of IEC 61987 can be used in very different ways in the computer systems of equipment manufacturers and suppliers, in CAE and similar systems of EPC contractors and other engineering companies and especially different plant maintenance systems of the plant owners. The OLOP and the DLOPs provided correspond to the guidelines specified in IEC 61987-10 and IEC 61987-11.

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

Part 16: Lists of properties (LOPs) for density measuring equipment for electronic data exchange

1 Scope

This part of IEC 61987 provides an

- operating list of properties (OLOP) for the description of the operating parameters and the collection of requirements for a density measuring equipment, and
- device lists of properties (DLOP) for a range of density measuring equipment types describing them.

The structures of the OLOP and the DLOP correspond with the general structures defined in IEC 61987-11 and agree with the fundamentals for the construction of LOPs defined in IEC 61987-10.

Aspects other than the OLOP, needed in different electronic data exchange processes described in IEC 61987-10, will be published in IEC 61987-92¹.

Libraries of properties and of blocks used in the concerned LOPs are listed in Annex C and Annex D.

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 61360 (all parts), *Standard data element types with associated classification scheme for electric components*

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 61987-11:2016, *Industrial-process measurement and control – Data structures and elements in process equipment catalogues – Part 11: Lists of Properties (LOPs) of measuring equipment for electronic data exchange – Generic structures*

¹ Under preparation.

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