



**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**

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NSAI  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

Sales:  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

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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  
EUROPÄISCHE NORM

**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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Europäisches Komitee für Elektrotechnische Normung

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**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.

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- latest date by which the document has to be (dop) 2017-10-21  
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publication of an identical national  
standard or by endorsement
- latest date by which the national (dow) 2020-04-21  
standards conflicting with the  
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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

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](http://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**

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# 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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IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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**IEC 61987-16**

Edition 1.0 2016-12

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

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**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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ELECTROTECHNICAL  
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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

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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,
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- 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 61987-92<sup>1</sup>.

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*

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<sup>1</sup> Under preparation.



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