



NSAI
Standards

Irish Standard
I.S. EN 61987-21:2016

Industrial-process measurement and control
- Data structures and elements in process
equipment catalogues - Part 21: List of
Properties (LOP) of automated valves for
electronic data exchange - Generic structures

I.S. EN 61987-21:2016

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National Foreword

I.S. EN 61987-21:2016 is the adopted Irish version of the European Document EN 61987-21:2016, Industrial-process measurement and control - Data structures and elements in process equipment catalogues - Part 21: List of Properties (LOP) of automated valves for electronic data exchange - Generic structures

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EUROPEAN STANDARD

EN 61987-21

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2016

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English Version

**Industrial-process measurement and control - Data structures
and elements in process equipment catalogues - Part 21: List of
Properties (LOP) of automated valves for electronic data
exchange - Generic structures
(IEC 61987-21:2015)**

Mesure et commande dans les processus industriels -
Structures de données et éléments dans les catalogues
d'équipements de processus - Partie 21: Liste de propriétés
(LOP) des vannes automatisées pour l'échange électronique
de données - Structures génériques
(IEC 61987-21:2015)

Industrielle Leittechnik - Datenstrukturen und -elemente in
Katalogen der Prozessleittechnik - Teil 21: Merkmalleisten
(ML) für Stellventile für den elektronischen Datenaustausch -
Allgemeine Strukturen
(IEC 61987-21:2015)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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

EN 61987-21:2016**European foreword**

The text of document 65B/996/FDIS, future edition 1 of IEC 61987-21, prepared by SC 65B "Measurement and control devices", of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61987-21:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at (dop) 2016-07-20
national level by publication of an identical national
standard or by endorsement
- latest date by which the national standards conflicting with (dow) 2018-10-20
the document have to be withdrawn

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

IEC 60534-7	NOTE	Harmonized as EN 60534-7.
IEC 60770-1	NOTE	Harmonized as EN 60770-1.
IEC 61360-1	NOTE	Harmonized as EN 61360-1.
IEC 61360-2	NOTE	Harmonized as EN 61360-2.
IEC 62424	NOTE	Harmonized as EN 62424.

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>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60534-1	-	Industrial-process control valves - Part 1: Control valve terminology and general considerations	EN 60534-1	-
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 61987-1	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	-	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	-
IEC 61987-11	-	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	-

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Industrial-process measurement and control – Data structures and elements in
process equipment catalogues –
Part 21: List of Properties (LOP) of automated valves for electronic data
exchange – Generic structures**

**Mesure et commande dans les processus industriels – Structures de données et
éléments dans les catalogues d'équipement de processus –
Partie 21: Liste de propriétés (LOP) des vannes automatisées pour l'échange
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INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Industrial-process measurement and control – Data structures and elements in
process equipment catalogues –
Part 21: List of Properties (LOP) of automated valves for electronic data
exchange – Generic structures**

**Mesure et commande dans les processus industriels – Structures de données et
éléments dans les catalogues d'équipement de processus –
Partie 21: Liste de propriétés (LOP) des vannes automatisées pour l'échange
électronique de données – Structures génériques**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL – DATA
STRUCTURES AND ELEMENTS IN PROCESS EQUIPMENT CATALOGUES –****Part 21: List of Properties (LOP) of automated valves
for electronic data exchange – Generic structures**

FOREWORD

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International Standard IEC 61987-21 has been prepared by subcommittee 65B: Measurement and control devices, 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
65B/996/FDIS	65B/1024/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 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 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

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 have 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.

The IEC 61987 series proposes a method for standardization which will help both suppliers and users of process control 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 process control 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, while specifying a generic structure for measuring equipment, provides several important detail descriptions, such as the handling of composite devices that are also required for LOPs describing automated industrial valves. This part of IEC 61987 specifies the generic structure for Operating and Device Lists of Properties (OLOPs and DLOPs) for automated industrial valves. Automated industrial valves are so-called final control elements and include control valves, automated on/off-valves, and process regulators. It lays down the framework for further parts of IEC 61987 in which complete LOPs for final control elements of different construction and functional 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.

Device type dictionary

Annex A contains a characterisation of final control elements. This is a tree of relationships between different device types. Starting at the root “equipment for industrial-process automation”, it introduces the final control elements. In addition to control valves, actuators as well as accessories such as positioners belong to this group. This characterisation is used in the Process Automation domain of the IEC Common Data Dictionary (CDD).

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

Part 21: List of Properties (LOP) of automated valves for electronic data exchange – Generic structures

1 Scope

This part of IEC 61987 provides

- a characterization for the integration of automated valves, including control valves, automated on/off-valves and process regulators, in the Common Data Dictionary (CDD);
- generic structures in conformance with IEC 61987-10 for Operating Lists of Properties (OLOPs) and Device Lists of Properties (DLOPs) of final control elements.

The generic structures for the OLOP and DLOP contain the most important blocks for final control elements. Blocks pertaining to a specific equipment type will be described in the corresponding part of the IEC 61987 standard series. Similarly, equipment properties are not part of this part of IEC 61987. For instance, the OLOP and DLOP for globe valves and rotary valves are found in IEC 61987-22.

NOTE Within the classification (see also Figure 1), “final control element” has only the specializations automated valves and process regulators. In practice there are other specializations that are not considered in this standard.

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 60534-1, *Industrial-process control valves – Part 1: Control valve terminology and general considerations*

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

IEC 61987-10, *Industrial-process measurement and control – Data structures and elements in process equipment catalogues – Part 10: List of Properties (LOPs) for Industrial-Process Measurement and Control for Electronic Data Exchange – Fundamentals*

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