

INTERNATIONAL STANDARD

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Industrial-process measurement and control – Data structures and elements in
process equipment catalogues –
Part 92: Lists of properties (LOP) of measuring equipment for electronic data
exchange – Aspect LOPs

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Mesure et commande dans les processus industriels – Structures de données et
éléments dans les catalogues d'équipements de processus –
Partie 92: Listes de propriétés (LOP) des équipements de mesure pour l'échange
électronique de données – LOP d'aspect



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**Industrial-process measurement and control – Data structures and elements in process equipment catalogues –
Part 92: Lists of properties (LOP) of measuring equipment for electronic data exchange – Aspect LOPs**

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Partie 92: Listes de propriétés (LOP) des équipements de mesure pour l'échange électronique de données – LOP d'aspect**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 92: Lists of properties (LOP) of measuring equipment for electronic data exchange – Aspect LOPs

FOREWORD

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The text of this International Standard is based on the following documents:

FDIS	Report on voting
65E/587/FDIS	65E/596/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document 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 document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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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 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 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. 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.

<https://standards.iteh.ai/catalog/standards/sist/1055d708-3a62-477fb930-26680c90c9cb/iec-61987-92-2018>

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 61987-12 to IEC 61987-16 specify the OLOPs and DLOPs for measuring equipment for flow, pressure, temperature, level and density measurement respectively. Whereas a DLOP describes a device itself, an OLOP describes the most important aspect of a device, namely the conditions and infrastructure to be found at the point of installation. Thus, it contains the ambient conditions and the technical requirements that the device must fulfil during operation.

IEC 61987-92 contains additional aspects that are common to all devices, for example, "Packaging and transportation", "Calibration and test results" and "Device documents supplied". The associated LOPs can accompany any DLOP as described in IEC 61987-11.

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

Part 92: Lists of properties (LOP) of measuring equipment for electronic data exchange – Aspect LOPs

1 Scope

This part of IEC 61987 provides LOPs describing aspects of equipment for industrial-process automation that is subject of this standard series.

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

Libraries of properties and of blocks used in the aspect LOPs are listed in Annex B and Annex C.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

[IEC 61987-92:2018](https://standards.iteh.ai/catalog/standards/sist/1055d708-3a62-477fb930-26680c90c9cb/iec-61987-92-2018)

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IEC 61355-1:2008, *Classification and designation of documents for plants, systems and equipment – Part 1: Rules and classification tables*

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

IEC 61360, *IEC Common Data Dictionary (IEC CDD)*, available at <https://cdd.iec.ch/>

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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61987-10 and IEC 61987-11 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 General

4.1 Overview

The LOPs provided by this document are intended for use in electronic data exchange processes performed between any two computer systems. The two computer systems can both belong to the same company or they can belong to different companies as described in Annex C of IEC 61987-10:2009.

The aspect LOPs are to be found in Annex A.

Structural elements such as LOP type, block and property defined in this standard are available in electronic form in the “Process automation” domain of the IEC Common Data Dictionary (CDD).

4.2 Depiction of aspect LOPs

The properties of the aspect LOPs used in this part of IEC 61987 have been created in conformance with the requirements of the IEC 61360 series. As such, the structural elements, properties and attributes to be found in the IEC Common Data Dictionary are normative.

4.3 Aspect LOPs

4.3.1 Administrative information

The aspect “Administrative information” shall contain all information required to handle a transaction between the parties involved for example in the quotation for and the purchasing of a device. It includes the sub blocks:

- Document information, [IEC 61987-92:2018](https://standards.iteh.ai/catalog/standards/sist/1055d708-3a62-477fb930-26680c90c9cb/iec-61987-92-2018)
- Project information, <https://standards.iteh.ai/catalog/standards/sist/1055d708-3a62-477fb930-26680c90c9cb/iec-61987-92-2018>
- Device information.

These are also available as aspect LOPs in their own right (see 4.3.2, 4.3.3 and 4.3.4).

The aspect is to be found in Clause A.2.

4.3.2 Document information

The aspect “Documentation information” shall contain all administrative information of the current data set that is being sent with the transaction, for example author, revision and format. It is available as a separate aspect to cover cases in which a composite device is required that uses parts from several vendors or several different devices are ordered in a transaction. The aspect is to be found in Clause A.3.

4.3.3 Project information

The aspect “Project information” shall contain all administrative information concerning a project, for example enterprise, site and equipment. It is available as a separate aspect to cover cases in which a composite device is required that uses parts from several vendors or several different devices are ordered in a transaction.

The aspect is to be found in Clause A.4.

4.3.4 Device information

The aspect “Device information” shall contain all administrative information concerning a device, for example identification and measuring point. It is available as a separate aspect to cover cases in which a composite device is required that uses parts from several vendors or

several different devices are ordered in a transaction. The properties and blocks are IEC 62424 based with appropriate enhancements.

The aspect is to be found in Clause A.5.

4.3.5 Device documents supplied

The aspect “Device documents supplied” shall contain a description of all documents supplied with the device or available for download on an internet site.

IEC 61355-1 provides a comprehensive list of the document kinds to be found in process engineering and other applications. The values entered in the property “type of document” shall, where possible, correspond to designations used in this standard.

The aspect is to be found in Clause A.6.

4.3.6 Calibration and test results

The aspect “Calibration and test results” shall contain the results of a calibration performed on a device, for instance:

- mass flow,
- actual volume flow,
- normalized volume flow,
- flow velocity,
- density,
- concentration,
- volume fraction,
- mass fraction,
- pressure,
- temperature,
- dynamic viscosity,
- level,
- ullage,
- mass,
- volume,
- degree of filling,
- voltage,
- resistance,
- other variable.

The aspect is to be found in Clause A.7.

4.3.7 Output signal processing

The aspect “Output signal processing” shall contain a description of the functions that can be applied to the output of a device as well as the factory settings of these functions.

The aspect is to be found in Clause A.8.

4.3.8 Packaging and transportation

The aspect “Packaging and transportation” shall contain a description of the way in which a device is packed, any risks associated with the device as well as the tests to which the packaging has been subject. The properties and blocks are IEC 61360-4- based (CDD 0112/2///61360_4#ADA055) with appropriate enhancements.

The aspect is to be found in Clause A.9.

4.3.9 Storage

The aspect “Storage” shall contain information on how the device can be safely stored. The properties and blocks are IEC 61360-4 (CDD 0112/2///61360_4#ADA056) based with appropriate enhancements.

The aspect is to be found in Clause A.10.

4.3.10 Digital communication parameters

The aspect “Digital communication parameters” shall contain information on the user application profile of a fieldbus device. The properties and blocks are IEC 61804-2-based with appropriate enhancements. Where IEC 61804-2 and the IEC 61987-series share common properties, IEC 61987-series properties have been used and the IEC 61804-2 names have been defined as synonymous names.

The aspect is to be found in Clause A.11.

4.3.11 Accessories and spare parts

The aspect “Accessories and spare parts” shall contain information on the accessories and spare parts that are available for a device.

The aspect is to be found in Clause A.12.

4.3.12 Installation

The aspect “Installation” shall contain all information required for the correct installation of the device.

The aspect is to be found in Clause A.13.

4.3.13 Commissioning

The aspect “Commissioning” shall contain all information required to set up the device for correct operation and to integrate it for instance into a control system.

The aspect is to be found in Clause A.14.

4.3.14 Decommissioning and disposal

The aspect “Decommissioning and disposal” shall contain all information required to take a device out of service and correctly dispose of it.

The aspect is to be found in Clause A.15.

4.3.15 Maintenance/service and repair

The aspect “Maintenance/service and repair” shall contain all information required by a user for correct maintenance and repair of a device, for instance:

- regular maintenance/service,
- event triggered maintenance/service,
- regular inspection,
- event triggered inspection,
- repair concept.

The aspect is to be found in Clause A.16.

4.3.16 Special/further requirements

The aspect “Special/further requirements” shall contain any additional information concerning the correct usage of a device that is not covered by the available aspects.

The aspect is to be found in Clause A.17.

4.4 Example of an aspect LOP

An aspect LOP for Administrative information might be configured as shown in Table 1, whereby “...” indicates a property or properties that have not been used.

Table 1 – Example for “Administrative information”

Name of LOP type, block or property		Assigned value	Unit
Administrative list of properties			
	Document information		
	document identifier	EZPBWH	
	document version	1.0	
	...		
	type of document	Specification	
	date of generation	2016-11-18	
	...		
	author	Bob Miller	
	...		
	language	English	
	...		
	Project information		
	project number	4321	
	...		
	project title	Waste water BA03 renewal	
	enterprise	Chemcompx	
	site	BTN	
	area	ZZTT	
	plant	V101	

¹ In the CDD, block names start with a capital letter, property names with a lower case letter.