

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Industrial-process measurement and control – Data structures and elements in process equipment catalogues –  
Part 24-2: Lists of properties (LOPs) of valve/actuator accessories for electronic data exchange**

[IEC 61987-24-2:2017](https://standards.iteh.ai/catalog/standards/sist/826edf3a-c9b9-4c7e-b9ab-815949232810/iec-61987-24-2-2017)

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**Mesure et commande dans les processus industriels – Structures de données et éléments dans les catalogues d'équipements de processus –  
Partie 24-2: Listes de propriétés (LOP) des accessoires d'actionneur/de vanne pour l'échange électronique de données**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL – DATA  
STRUCTURES AND ELEMENTS IN PROCESS EQUIPMENT CATALOGUES –**
**Part 24-2: Lists of properties (LOPs) of valve/actuator accessories  
for electronic data exchange**

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

CDV	Report on voting
65B/1036/CDV	65B/1065/RVC

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 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 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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- withdrawn,
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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 IEC 61987, 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 (all parts) 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 can 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. IEC 61987 (all parts) covers both properties that can be used in an inquiry or a proposal and detailed properties required for integration of the equipment in computer systems for other tasks.

Part 10 of IEC 61987 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.

Part 11 of IEC 61987, 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 devices of other areas like the automated valves.

Part 21 of IEC 61987 specifies the generic structure for operating and device lists of properties (OLOPs and DLOPs) for automated valves. 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 can also serve as a basis for the specification of LOPs for other industrial-process control instrument types.

This part of IEC 61987 concerns various accessories, which could be attached to automated valves. It provides operating LOPs which can be used, for example, as a request for quotation for various purposes. The DLOPs for the accessories provided in this document 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 in the various plant maintenance systems of plant owners. The OLOP and the DLOPs provided correspond to the guidelines specified in IEC 61987-10, IEC 61987-11 and IEC 61987-21.

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

## Part 24-2: Lists of properties (LOPs) of valve/actuator accessories 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 accessories attached to automated valves, listed in Annex A,
- device lists of properties (DLOPs) for accessories attached to automated valves, listed in Annex B.

The structures of the LOPs conform to the general structures defined in IEC 61987-11 and IEC 61987-21 as well as the fundamentals for the construction of LOPs defined in IEC 61987-10. The LOPs conform additionally with terms defined in IEC 60534-7.

Libraries of properties and of blocks used in the LOPs are listed in Annexes C and D respectively.

### 2 Normative references

[IEC 61987-24-2:2017](https://standards.iteh.ai/catalog/standards/sist/826edf3a-c9b9-4c7e-b9ab-369a29316e16/iec-61987-24-2:2017)

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

IEC 61360-4, *Standard data element types with associated classification scheme for electric components – Part 4: IEC reference collection of standard data element types and component classes* (available at: <http://std.iec.ch/iec61360>)

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, *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 61987-21:2015, *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*



### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61987-10, IEC 61987-11 and IEC 61987-21 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 computer systems can belong to the same company or they can belong to different companies as described in Annex C of IEC 61987-10:2009.

### 4.2 Depiction of OLOP and DLOPs

The properties of the OLOP and DLOPs used in this document have been created in conformance with the requirements of IEC 61360 (all parts). As such, the structural elements, properties and attributes to be found in the IEC Common Data Dictionary (CDD) (see IEC 61360-4) are normative. (standards.iteh.ai)

### 4.3 Example of DLOP block usage for a solenoid valve (informative)

For a typical selection of a solenoid valve for emergency exhaust of a pneumatic actuator, to be used in a non-hazardous area, refer to Table 1 (unused properties and blocks are omitted).

**Table 1 – Example for a solenoid valve**

Name of LOP type, block or property <sup>a</sup>		Assigned value	Unit
<b>Identification</b>			
	manufacturer	Name of company	
	type of product	3/2-way solenoid valve	
	article number	O52 344	
<b>Parameters of solenoid valve</b>			
	rated flow coefficient Kvs	0,14	M <sup>3</sup> /h
	rated flow coefficient Cv	0,18	gal (US liq.)/min
	acting time on excitation	15	ms
	acting time on release	15	ms
<b>Rated operating conditions</b>			
<b>Environmental design ratings</b>			
<b>Normal environmental conditions</b>			
	minimum ambient temperature	0	°C
	maximum ambient temperature	55	°C
<b>Pressure-temperature design ratings</b>			
	minimum allowable gauge pressure	0	bar
	maximum allowable gauge pressure	10	bar
	minimum allowable temperature	0	°C
	maximum allowable temperature	90	°C
<b>Mechanical and electrical construction [solenoid valve]</b>			
<b>Overall dimensions and weight</b>			
	weight	0,47	kg
	length	46	mm
	width	34	mm
	height	100	mm
<b>Structural design [solenoid valve]</b>			
<b>Body of solenoid valve</b>			
<b>Material of body</b>			
	designation of material	Stainless steel	
	material code	1.4401	
<b>Closure member</b>			
	type of closure member	Diaphragm	
<b>Material of closure member</b>			
	designation of material	FKM	
<b>Structural design of a solenoid valve</b>			
	type of solenoid valve	3/2 way	
	fail-safe position	nc	
	number of end connections		
<b>Solenoid valve housing</b>			
	degree of protection	IP 67	
	number of connection facilities	1	
<b>Connection facility</b>			
	number of connection compartments	1	
<b>Connection compartment</b>			
	style of connection compartment	plug	

Name of LOP type, block or property <sup>a</sup>				Assigned value	Unit
			number of pneumatic/hydraulic connections	3	
<b>Pneumatic/hydraulic connection_1</b>					
			designation of pneumatic/hydraulic connection	input	
			type of pneumatic/hydraulic connection	G 1/4	
<b>Pneumatic/hydraulic connection_2</b>					
			designation of pneumatic/hydraulic connection	output	
			type of pneumatic/hydraulic connection	G 1/4	
<b>Pneumatic/hydraulic connection_3</b>					
			designation of pneumatic/hydraulic connection	exhaust	
			type of pneumatic/hydraulic connection	G 1/4	
<b>Power supply</b>					
			number of electrical power input circuits	1	
<b>Electrical power input circuit_1</b>					
			rated voltage	24	V
			minimum rated voltage	21,6	V
			maximum rated voltage	26,4	V
			type of voltage	DC	
			short-circuit resistance	100 %	
<sup>a</sup> In the IEC CDD, block names start with a capital letter, property names with a lower case letter.					

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<https://standards.iteh.ai/catalog/standards/sist/826edf3a-c9b9-4c7e-b9ab-865f6602d937/iec-61987-24-2-2017>

## **Annex A** (normative)

### **Operating list of properties for valve/actuator accessories**

This OLOP is assigned to the valve/actuator accessories in the classification scheme for final control elements (see Table A.1 in IEC 61987-21:2015).

– valve/actuator accessory      node ID: IEC-ABD366

NOTE The OLOP is also found in the Properties Tree field and has the ID IEC-ABE308.

The OLOP is available with all blocks and properties in the IEC Common Data Dictionary (CDD) at the following address:

<http://cdd.iec.ch/cdd/iec61987/iec61987.nsf/TreeFrameset?OpenFrameSet&ongletactif=1>

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