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SLOVENSKI STANDARD
oSIST prEN IEC 61987-32:2022

01-november-2022

Merjenje in nadzor industrijskega procesa - Strukture podatkov in elementi v katalogih procesne opreme - 32. del: Seznam lastnosti za I/O module za elektronsko izmenjavo podatkov

Industrial-process measurement and control - Data structures and elements in process equipment catalogues - Part 32: Lists of properties (LOP) for I/O modules for electronic data exchange

Mesure et commande des processus industriels - Structures de données et éléments dans les catalogues d'équipement de processus - Partie 32: Listes des propriétés (LOP) pour les modules d'E/S pour l'échange électronique des données

Ta slovenski standard je istoveten z: prEN IEC 61987-32:2022

<u>**ICS:**</u>

01.110	Tehnična dokumentacija za izdelke	Technical product documentation
25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
35.240.50	Uporabniške rešitve IT v industriji	IT applications in industry

oSIST prEN IEC 61987-32:2022   **en,fr,de**

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65E/934/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

IEC 61987-32 ED1

DATE OF CIRCULATION:	CLOSING DATE FOR VOTING:
2022-09-16	**2022-12-09**

SUPERSEDES DOCUMENTS:

65E/869/CD, 65E/896A/CC

IEC SC 65E : DEVICES AND INTEGRATION IN ENTERPRISE SYSTEMS

SECRETARIAT:	SECRETARY:
United States of America	Mr Donald (Bob) Lattimer

OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD:
TC 65,SC 65A,SC 65B,SC 65C	☐
	Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC   ☐ ENVIRONMENT   ☐ QUALITY ASSURANCE   ☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING   ☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

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The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Industrial-process measurement and control - Data structures and elements in process equipment catalogues - Part 32: Lists of properties (LOP) for I/O modules for electronic data exchange

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PROPOSED STABILITY DATE: 2025

NOTE FROM TC/SC OFFICERS:

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20   INTERNATIONAL ELECTROTECHNICAL COMMISSION
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23   **INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL –**
24   **DATA STRUCTURES AND ELEMENTS**
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27   **Part 32: Lists of properties (LOP) for I/O modules for electronic data**
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66   International Standard IEC 61987-32 has been prepared by subcommittee 65E: Devices and
67   integration in enterprise systems, of IEC technical committee 65: Industrial-process
68   measurement, control and automation.

69   The text of this standard is based on the following documents:

CDV	Report on voting
65E/XX/CDV	65B/XX/RVD

70

71   Full information on the voting for the approval of this standard can be found in the report on
72   voting indicated in the above table.

Internal

73 The List of Properties (LOPs) given in this standard are published in the Common Data
74 Dictionary of IEC as stated in the appendices A to D. In the event that the LOPs are not yet
75 available in the CDD, they may be found temporarily in the CDD maintenance area
76 (http://std.iec.ch/cdd/iec61987/cdddev.nsf/TreeFrameset?OpenFrameSet)

77 This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

78 A list of all parts in the IEC 61987 series, published under the general title *Industrial-process*
79 *measurement and control – Data structures and elements in process equipment catalogues*,
80 can be found on the IEC website.

81 The committee has decided that the contents of this publication will remain unchanged until
82 the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data
83 related to the specific publication. At this date, the publication will be

84 • reconfirmed,

85 • withdrawn,

86 • replaced by a revised edition, or

87 • amended.

88

89 The National Committees are requested to note that for this publication the stability date
90 is xxxx-xx.

91 THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE
92 DELETED AT THE PUBLICATION STAGE.

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94

95   INTRODUCTION

96   The exchange of product data between companies, business systems, engineering tools, data
97   systems within companies and, in the future, control systems (electrical, measuring and
98   control technology) can run smoothly only when both the information to be exchanged and the
99   use of this information has been clearly defined.

100   Prior to this standard, requirements on process control devices and systems were specified by
101   customers in various ways when suppliers or manufacturers were asked to quote for suitable
102   equipment. The suppliers in their turn described the devices according to their own
103   documentation schemes, often using different terms, structures and media (paper, databases,
104   CDs, e-catalogues, etc.). The situation was similar in the planning and development process,
105   with device information frequently being duplicated in a number of different information
106   technology (IT) systems.

107   Any method that is capable of recording all existing information only once during the planning
108   and ordering process and making it available for further processing, gives all parties involved
109   an opportunity to concentrate on the essentials. A precondition for this is the standardization
110   of both the descriptions of the objects and the exchange of information.

111   This standard series proposes a method for standardization which will help both suppliers and
112   users of measuring equipment to optimize workflows both within their own companies and in
113   their exchanges with other companies. Depending on their role in the process, engineering
114   firms may be considered here to be either users or suppliers.

115   The method specifies measuring equipment by means of blocks of properties. These blocks
116   are compiled into lists of properties (LOPs), each of which describes a specific equipment
117   (device) type. This standard series covers both properties that may be used in an inquiry or a
118   proposal and detailed properties required for integration of the equipment in computer
119   systems for other tasks.

120   IEC 61987-10 defines structure elements for constructing lists of properties for electrical and
121   process control equipment in order to facilitate automatic data exchange between any two
122   computer systems in any possible workflow, for example engineering, maintenance or
123   purchasing workflow and to allow both the customers and the suppliers of the equipment to
124   optimize their processes and workflows. IEC 61987-10 also provides the data model for
125   assembling the LOPs.

126   IEC 61987-11 specifies the generic structure for operating and device lists of properties
127   (OLOPs and DLOPs) It lays down the framework for further parts of IEC 61987 in which
128   complete LOPs for device types measuring a given physical variable and using a particular
129   measuring principle will be specified. The generic structure may also serve as a basis for the
130   specification of LOPs for other industrial-process control instrument types such as control
131   valves and signal processing equipment.

132   IEC 61987-31 concerns infrastructure devices, i.e. devices mostly to be found in the switching
133   room and the control room. It provides a classification, a generic DLOP and an OLOP for a
134   range of device types of this device group.

135   IEC 61987-32 concerns I/O modules. It provides an OLOP for I/O modules that can also be
136   used for other infrastructure devices and a DLOP for I/O modules that can be used for input
137   modules, output modules and combined input/output modules of various types.

138

139 **INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL –**
140 **DATA STRUCTURES AND ELEMENTS**
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145

146 **1 Scope**

147 This part of IEC 61987 provides

148 –   an operating list of properties (OLOP) for the description of the operating parameters and
149   the collection of requirements for I/O modules and

150 –   a device list of properties (DLOP) for the description of a range of I/O module types

151 The structures of the OLOP and the DLOPs correspond to the general structures defined in
152 IEC 61987-11 and agree with the fundamentals for the construction of LOPs defined in IEC
153 61987-10.

154 Aspects other than the OLOP, needed in different electronic data exchange processes and
155 described in IEC 61987-10 and IEC 61987-11, are published in IEC 61987-92.

156 The locations of the libraries of properties and of blocks used in the LOPs concerned are
157 listed in the Annexes C and D.

158 **2 Normative references**

159 The following referenced documents are indispensable for the application of this document.
160 For dated references, only the edition cited applies. For undated references, the latest edition
161 of the referenced document (including any amendments) applies.

162 IEC 61360-1 (all parts), *Standard data element types with associated classification scheme*
163 *for electric components*

164 IEC 61987-10:2009, *Industrial-process measurement and control - Data structures and*
165 *elements in process equipment catalogues - Part 10: Lists of Properties (LOPs) for Industrial-*
166 *Process Measurement and Control for Electronic Data Exchange. Fundamentals*

167 IEC 61987-11:2012, *Industrial-process measurement and control – data structures and*
168 *elements in process equipment catalogues – Part 11: Lists of Properties (LOP) of measuring*
169 *equipment for electronic data exchange – generic structures*

170 **3 Terms and definitions**

171 For the purpose of this document, the terms and definitions in Clause 3 of IEC 61987-10 and
172 Clause 3 of IEC 61987-11 also apply.

173 Definitions for I/O modules can be found in Table A.1 in Annex A of IEC 61987-31.

174 **4   General**

175 **4.1   Overview**

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

180 Structural elements such as LOP type, block and property defined in this standard are
181 available in electronic form in the "Process automation" domain of the IEC Component Data
182 Dictionary (CDD).

183 **4.2   Examples of DLOP block usage**

184 **4.2.1   DLOP for I/O modules**

185 In Table 1, an excerpt of the DLOP for I/O modules with values and units of measure
186 assigned to the properties is shown. This is a possible configuration for a 4-channel binary
187 input module (see also Figure 1). Not all properties of an LOP have to be used. Thus, in the
188 table there are empty properties. "…" indicates there a property area that has not been used
189 in the example.

190 **Table 1 – DLOP Example of I/O module with binary inputs**

Name of LOP type, block or property[1]	Assigned value	Unit
…		
number of inputs [I/O module]	1	
Input [I/O module]		
quantity of identical channels	4	
quantity of channels per common/ground	4	
number of galvanic isolations	1	
Galvanic isolation		
first test point	input signal	
second test point	system	
type of voltage	AC	
withstand voltage	1,5	kV
test criterium	not to cause electric breakdown	
maximum limit of current		mA
duration of test	1	min
method of galvanic isolation	photocoupler	
Insulation resistance		
type of voltage	DC	
test voltage	500	V
minimum insulation resistance	1	MΩ
duration of test	60	s
Resistance to earth		
type of current	DC	
test current	25	A
maximum measured voltage	10	V
maximum measured resistance	0,1	Ω

_____

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

Name of LOP type, block or property[1]			Assigned value	Unit
		duration of test	60	s
	Protective conductor current			
		type of voltage	AC	
		test voltage	132	V
		maximum measured current	3,5	mA
	Touch current			
		type of voltage	AC	
		test voltage	120	V
		maximum measured current	2	mA
	Binary input [I/O module]			
		type of binary input	DC	
		…		
		number of signal levels	1	
		Signal levels		
			…	
			maximum signal voltage level for signal "0"	5,8	V
			minimum signal voltage level for signal "1"	16	V
			maximum signal current level for signal "0"	0,9	mA
			minimum signal current level for signal "1"	3,2	mA
		…		
		number of DC ratings for external power	1	
		DC rating for external power		
			rated voltage	24	V
			minimum voltage	20,4	V
			maximum voltage	26,4	V
			maximum current	4,1	mA
		…		
		Electrical data for passive behaviour		
			…	
			input resistance/impedance	5,9	kΩ
			…	

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