IEC 61987-41

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Industrial-process measurement and control – Data structures and elements in process equipment catalogues – Part 41: Lists of properties (LOPs) of process analysers for electronic data exchange – Generic structures

Mesure et commande dans les processus industriels – Eléments et structures de données dans les catalogues d'équipements de processus – Partie 41: Listes des propriétés (LOPs) des analyseurs de processus pour l'échange électronique de données – Structures génériques

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Part 41: Lists of properties (LOPs) of process analysers for electronic data exchange – Generic structures

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IEC 61987-41 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

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

Draft	Report on voting
65E/1067/CDV	65E/1091/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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.

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 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. The IEC 61987 series 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.

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 process analysers.

This document specifies the generic structure for operating and device lists of properties (OLOPs and DLOPs) for process analysers. Process analysers are installed directly in the plants of the process industry and in control rooms specially set up for PAT (analyser houses or analyser shelters). This document provides also generic structures for List of Properties for Dynamic Data (LOPD) for process analysers. This LOPD can be used, for example, for the description of dynamic data for condition monitoring.

NOTE Depending upon industry sector, process analysers are also known as Process Analyser Technology (PAT) devices.

The entire IEC 61987 series provides the semantic of data needed for the area of the Industrial Internet of Things (IIOT) and Smart Manufacturing. This document lays down the framework for further parts of the IEC 61987series in which complete LOPs for process analysers of different construction and functional principle that will be published in the IEC Common Data Dictionary (IEC CDD).

Annex A contains a characterisation of process analysers. This is a tree of relationships between different device types. Starting at the root "equipment for industrial-process automation", it lists various types of process analyser. 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 41: Lists of properties (LOPs) of process analysers for electronic data exchange – Generic structures

1 Scope

This part of IEC 61987 provides

- a characterization for the integration of process analysers in the Common Data Dictionary (CDD),
- generic structures for operating lists of properties (OLOP) and device lists of properties (DLOP) of measuring equipment in conformance with IEC 61987-10
- generic structures for Dynamic Data, e.g. for condition monitoring of process analysers.

The generic structures for the OLOP and DLOP contain the most important blocks for process analysers. 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 document. Thus, OLOP, DLOPs and LOPDs for selected process analysers families will be found in the IEC CDD.

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 61987-1:2024, *Industrial-process measurement and control – Data structures and elements in process equipment catalogues – Part 1: Generic structures for measuring equipment*

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*

IEC 61987-11:2016, *Industrial-process measurement and control – Data structures and elements in process equipment catalogues – Part 11: List 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 in IEC 61987-10 and IEC 61987-11 apply.

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

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