

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Industrial-process measurement and control – Data structures and elements in process equipment catalogues –
Part 31: Lists of Properties (LOPs) of infrastructure devices for electronic data exchange – Generic structures**

[IEC 61987-31:2022](#)

**Mesure et commande des processus industriels – Structures de données et éléments dans les catalogues d'équipement de processus –
Partie 31: Listes des propriétés (LOP) d'appareils d'infrastructure pour l'échange électronique de données – Structures génériques**



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2022 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Industrial-process measurement and control – Data structures and elements in process equipment catalogues –
Part 31: Lists of Properties (LOPs) of infrastructure devices for electronic data exchange – Generic structures**

[IEC 61987-31:2022](#)

**Mesure et commande des processus industriels – Structures de données et éléments dans les catalogues d'équipement de processus –
Partie 31: Listes des propriétés (LOP) d'appareils d'infrastructure pour l'échange électronique de données – Structures génériques**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 25.040.40

ISBN 978-2-8322-6145-3

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	8
4 General	8
4.1 Characterization scheme.....	8
4.2 OLOP and DLOP	8
4.3 Cardinality and polymorphism	9
5 Operating List of Properties (OLOP).....	9
5.1 Generic block structure	9
5.2 Operating conditions for device design.....	10
5.2.1 General	10
5.2.2 Installation design conditions.....	10
5.2.3 Environmental design conditions.....	10
5.3 Physical location.....	11
5.3.1 General	11
5.3.2 Available power supply	11
5.3.3 Process criticality classification	11
5.3.4 Area classification	11
6 Device List of Properties (DLOP).....	12
6.1 Basic structure.....	12
6.1.1 General	12
6.1.2 Generic block structure.....	12
6.1.3 Relationship to IEC 61987-1	13
6.2 Identification	14
6.3 Application.....	14
6.4 Function and system design.....	14
6.4.1 General	14
6.4.2 Dependability.....	14
6.5 Input	14
6.6 Output.....	14
6.7 Digital communication.....	15
6.7.1 General	15
6.7.2 Digital communication interface	15
6.8 Performance	15
6.8.1 General	15
6.8.2 Reference conditions for the device	15
6.8.3 Performance variable.....	15
6.9 Rated operating conditions	16
6.9.1 General	16
6.9.2 Installation conditions	16
6.9.3 Environmental design ratings.....	16
6.10 Mechanical and electrical construction	17
6.10.1 General	17
6.10.2 Overall dimensions and weight	17

6.10.3	Structural design	17
6.10.4	Explosion protection design approval.....	17
6.11	Operability	17
6.11.1	General	17
6.11.2	Basic configuration	17
6.11.3	Parametrization	17
6.11.4	Operation	17
6.11.5	Diagnosis	18
6.12	Power supply	18
6.13	Certificates and approvals.....	18
6.14	Component part identifications.....	18
7	Composite devices	18
8	Additional aspects	18
Annex A (informative)	Device Type Dictionary – Classification of infrastructure devices.....	19
Bibliography.....		24
Figure 1	– Characterization of infrastructure devices	8
Figure 2	– Assignment of OLOP and DLOPs for infrastructure devices.....	9
Table 1	– Generic block structure of an OLOP	10
Table 2	– Generic block structure of a DLOP	13
Table A.1	– Classification scheme for infrastructure devices	19

[IEC 61987-31:2022](https://standards.iteh.ai/catalog/standards/sist/4c6ec5ce-3144-4866-952e-0399c9068d8b/iec-61987-31-2022)

<https://standards.iteh.ai/catalog/standards/sist/4c6ec5ce-3144-4866-952e-0399c9068d8b/iec-61987-31-2022>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL – DATA
STRUCTURES AND ELEMENTS IN PROCESS EQUIPMENT CATALOGUES –****Part 31: Lists of Properties (LOPs) of infrastructure devices
for electronic data exchange – Generic structures**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 61987-31 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/802/CDV	65E/895/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/standardsdev/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,
- replaced by a revised edition, or
- amended.

iTeh STANDARD PREVIEW (standards.itih.ai)

[IEC 61987-31:2022](https://standards.itih.ai/catalog/standards/sist/4c6ec5ce-3144-4866-952e-0399c9068d8b/iec-61987-31-2022)

<https://standards.itih.ai/catalog/standards/sist/4c6ec5ce-3144-4866-952e-0399c9068d8b/iec-61987-31-2022>

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 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 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.

[https://standards.iteh.ai/catalog/standards/sist/4c6ec5ce-3144-4866-952e-0399c9068d8b/iec-](https://standards.iteh.ai/catalog/standards/sist/4c6ec5ce-3144-4866-952e-0399c9068d8b/iec-61987-31-2022)

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.

IEC 61987-31 specifies the generic structure for operating (OLOPs) and device lists of properties (DLOPs) for infrastructure devices. Infrastructure devices are devices installed, for example, in network equipment and control rooms. It lays down the framework for further parts of IEC 61987-3x series in which complete LOPs for infrastructure devices 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 device types.

Annex A contains a characterisation of infrastructure devices. This is a tree of relationships between different device types. Starting at the root "equipment for industrial-process automation", it introduces the infrastructure devices. 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 31: Lists of Properties (LOPs) of infrastructure devices for electronic data exchange – Generic structures

1 Scope

This part of IEC 61987 provides

- a characterization for the integration of infrastructure devices 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 infrastructure devices.

The generic structures for the OLOP and DLOP contain the most important blocks for infrastructure devices. Blocks pertaining to a specific equipment type will be described in the corresponding part of the IEC 61987 series. Similarly, equipment properties are not part of this part of IEC 61987. For instance, the OLOP and DLOP for I/O-modules are to be found in IEC 61987-32.

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

IEC 61069-5, *Industrial-process measurement, control and automation – 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*

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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61987-10, IEC 61987-11 and IEC 60534-1 apply.

ISO and IEC maintain terminological 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/ui>

4 General

4.1 Characterization scheme

IEC 61987-1 describes a general classification scheme for industrial process measuring equipment based on measured variables. The introduction of the LOPs of any area of technology into the IEC Common Data Dictionary (CDD) requires the creation of a characterization scheme for the device types of this technology area.

The area of technology considered in this standard concerns infrastructure devices. The characterisation of the area for the CDD is provided in Table A.1.

The enhanced characterization scheme is used for the IEC Component Data Dictionary (CDD). The area of infrastructure devices belongs to the domain of "Process automation" in the CDD.

The area of infrastructure devices is divided into a range of sub-areas. The names of the sub-areas are shown in Figure 1.

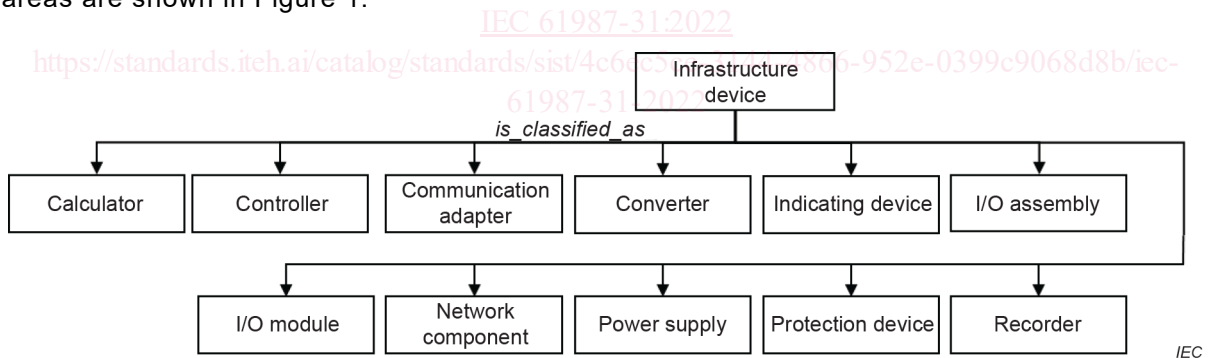


Figure 1 – Characterization of infrastructure devices

4.2 OLOP and DLOP

An Operating List of Properties (OLOP) describes an aspect relating to a device type, for example, the operational environment of the device, the device design requirements as well as all the boundary conditions applicable to the point of operation. The structure element "aspect" is described in IEC 61987-11. Among a range of possible aspects, the operating aspect represented by the OLOP is the most important.

The Device List of Properties (DLOP) is used to describe a given device type, for example an I/O-module, a calculator or a controller. The DLOP describes, for example, the mechanical construction and the electrical construction of a device. Each DLOP describes a particular device type.

Figure 2 shows the relationship between the OLOP and DLOPs for infrastructure devices. The OLOP is valid for the generic DLOP as well as for the DLOPs for the various device types, for example I/O-module, controller, etc.

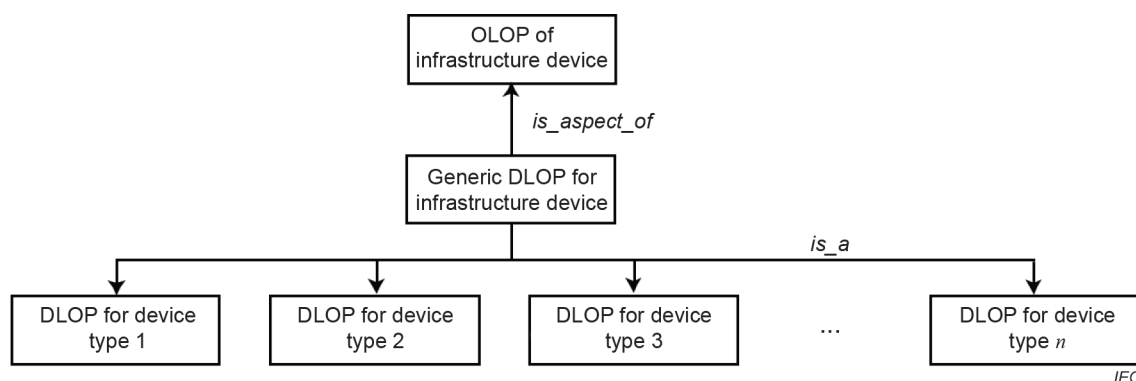


Figure 2 – Assignment of OLOP and DLOPs for infrastructure devices

At higher levels of their construction, OLOPs and DLOPs contain blocks of properties that are common to all process variables or device types respectively. This part of IEC 61987 specifies these generic block structures.

Further parts of this standard series specify the block structures and properties of OLOPs and DLOPs for particular infrastructure device types.

4.3 Cardinality and polymorphism

The principles and the description of the cardinality and polymorphic areas applied in this document are described in IEC 61987-10 and IEC 61987-11. These structural elements introduce a high degree of flexibility in the description of a device and its surroundings, provided the block structure in the LOP is used. They can be briefly described as follows:

- Cardinality allows an LOP element, for example a property block describing a particular feature of a device, to be repeated as many times as necessary.
- Polymorphism allows the introduction of a complete property block from a selection of property blocks at a particular structure level of an LOP.

In the case of infrastructure devices, the cardinality can be used for replication of the "Input" block. For example, an input-module can have two or more different types of input signals.

5 Operating List of Properties (OLOP)

5.1 Generic block structure

An operating list of properties is a list of properties describing the aspect concerning the operational conditions of the device and additional information regarding the design conditions under which it will be applied. An OLOP contains no information about the device itself: this is to be found in the DLOP.

The role of an OLOP is similar to that of an engineering datasheet, in which data describing the installation environment where the device is to operate are collected. This includes information on the ambient conditions, the design safety conditions, etc. All of these data are described with an OLOP.

Due to the nature of infrastructure devices, a single OLOP can be used for more than one infrastructure device family. The generic block structure of this OLOP shall correspond to that shown in Table 1. Table 1 corresponds to the generic block structure of an OLOP for measuring equipment (see IEC 61987-11). Details of the individual blocks are to be found in 5.2 to 5.3.

Table 1 – Generic block structure of an OLOP

Operating list of properties		
	Operating conditions for device design	
		Installation design conditions
		Deployment design conditions
	Environmental design conditions	
		Normal environmental design conditions
		Limiting environmental design conditions
	Physical location	
		Available power supply
	Process criticality classification	
	Area classification [c]	
[c] The block can be repeated as many times as needed using cardinality, which means that a cardinality property with the name "number of <name of the block>" directly precedes the block (see IEC 61987-10).		

5.2 Operating conditions for device design

5.2.1 General

The block operating conditions for device design shall contain properties describing the nominal conditions to be found at the mounting point. It comprises sub-blocks:

- Installation design conditions
- Environmental design conditions

NOTE The corresponding blocks in the DLOP are described in 5.2.2.

5.2.2 Installation design conditions

5.2.2.1 General

The block installation design conditions shall contain properties that describe the installation conditions at the mounting point. It comprises the following block:

- Deployment design conditions

5.2.2.2 Deployment design conditions

The block deployment design conditions shall contain properties that describe installation conditions at the mounting point.

5.2.3 Environmental design conditions

5.2.3.1 General

The block environmental design conditions shall contain properties that describe the environmental conditions, under which the infrastructure device will be operated. It comprises the following sub-blocks:

- Normal environmental design conditions
- Limiting environmental design conditions

5.2.3.2 Normal environmental design conditions

The block normal environmental design conditions shall contain properties describing the range of operating conditions for which a device is to be designed. These include, for example, the ambient temperature or the climate class.

5.2.3.3 Limiting environmental design conditions

The block limiting environmental design conditions shall contain properties describing the extreme values which influence the infrastructure device. These include for example, mechanical shock, maximum and minimum rate of ambient temperature change, maximum and minimum value of storage temperature or vibration.

The infrastructure device shall be able to withstand these extreme values without permanent impairment of its operating characteristics.

5.3 Physical location

5.3.1 General

The block physical location shall contain properties that describe conditions other than those of the environment that are in force at the device location. The block contains the following sub-blocks:

- Available power supply
- Process criticality classification
- Area classification

5.3.2 Available power supply

The block available power supply shall contain properties that describe the available power supply. It may contain the following sub-blocks:

- Electrical line power supply
- Electrical loop power supply
- Pneumatic/hydraulic supply

The cardinality property "Electrical line power supply" allows more than one source of power to be described for cases in which there is more than one type available in the plant.

5.3.3 Process criticality classification

The block process criticality classification shall contain properties that describe the criticality classification for means of assuring plant safety, not including hazardous area classifications, for example, the safety integrity level.

5.3.4 Area classification

The block area classification shall contain properties that describe the equipment's internal, local and remote area classification, including the wiring concept.

The cardinality property "number of area classifications" allows more locations to be described. The property "Type of area classification" describes the location.

6 Device List of Properties (DLOP)

6.1 Basic structure

6.1.1 General

As there are large similarities between measuring equipment and infrastructure devices, the first level structure of the generic Device List of Properties (DLOP) for infrastructure devices closely adheres to the structure defined in IEC 61987-1. The differences are explained in 6.1.3.

6.1.2 Generic block structure

Table 2 shows the generic block structure of the Device List of Properties (DLOP).

Should a device not offer a particular function, e. g. digital communication, the corresponding block is not filled out or used in the DLOP structure.

Each block comprises a generic set of properties and where appropriate, additional sub-blocks. Sub-blocks may be generic for a family of similar devices or particular to a device type. The sub-blocks may also contain other blocks.

The blocks in the generic structure as shown in Table 2 are described in 6.2 to 6.14. In general, the individual properties have not been described unless they are of special interest, as all carry a definition which can be viewed in the Common Data Dictionary.

A description of the blocks below the generic level is to be found in subsequent parts of the IEC 61987 series.

[IEC 61987-31:2022](https://standards.iteh.ai/catalog/standards/sist/4c6ec5ce-3144-4866-952e-0399c9068d8b/iec-61987-31-2022)

<https://standards.iteh.ai/catalog/standards/sist/4c6ec5ce-3144-4866-952e-0399c9068d8b/iec-61987-31-2022>

Table 2 – Generic block structure of a DLOP

Device list of properties	
	Identification
	Application
	Function and system design
	Dependability
	Input [c]
	Output [c]
	Digital communication
	Digital communication interface [c]
	Performance
	Reference conditions for the device
	Performance variable [c]
	Rated operating conditions
	Installation conditions
	Deployment conditions
	Start-up conditions
	Environmental design ratings
	Normal environmental conditions
	Mechanical and electrical construction
	Overall dimensions and weight
	Structural design
	Explosion protection design approval
	Operability
	Basic Configuration
	Parametrization
	Operation
	Diagnosis
	Power supply
	Certificates and approvals
	Component part identifications
[c] The block can be repeated as many times as needed using cardinality, which means that a cardinality property with the name "number of <name of the block>" directly precedes the block (see IEC 61987-10).	

6.1.3 Relationship to IEC 61987-1

For the generation of the DLOPs, the structure of a DLOP for measuring equipment in IEC 61987-1 shall be taken into account with the following amendments:

- In order to characterize the properties of a digital communication interface, which acts as both an input and output, a separate block "Digital Communication" has been created.
- IEC 61987-1:2006, 5.7 "Operating Conditions" has been renamed "Rated Operating Conditions" to distinguish it from its counterpart in the OLOP of "Operating Conditions for Device Design".
- IEC 61987-1:2006, 5.8 "Mechanical Construction" has been renamed "Mechanical and electrical construction" and has been expanded accordingly.