

# INTERNATIONAL STANDARD

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**Switchgear, controlgear and their assemblies for low-voltage - Product data and properties for information exchange -  
Part 1: Catalogue data**

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

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Switchgear, controlgear and their assemblies for low-voltage -  
Product data and properties for information exchange -  
Part 1: Catalogue data**

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.
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IEC 62683-1 has been prepared by committee 121: Switchgear and controlgear and their assemblies for low voltage. It is an International Standard.

This second edition cancels and replaces the first edition published in 2017. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition for reflecting the content of the IEC CDD 62683DB which has been updated with the change requests C00073, C00074, C00081, C00087, C00089, C00098, C00100, C00107, C00111, C00116, C00119, C00122, C00146, C00148, C00159, C00167, C00174 and C00135:

- a) New device class descriptions: ACC304, ACC305, ACC413, ACC417, ACC503, ACC504, ACC505, ACC512, ACC516, ACC536, ACC537, ACC538, ACC540, ACC541, ACC542, ACC543, ACC544, ACC545, ACC546, ACC547, ACC548.

- b) New associated properties.
- c) New assembly class structure: ACC101, ACC102, ACC103, ACC104, ACC106, ACC110, ACC111, ACC112, ACC113, ACC114, ACC115, ACC116, ACC117, ACC118, ACC119, ACC120, ACC121, ACC123, ACC124, ACC125, ACC126, ACC127, ACC131, ACC132, ACC133, ACC135, ACC141, ACC142, ACC143, ACC144, ACC145, ACC146, ACC147, ACC148, ACC150, ACC151, ACC152, ACC153, ACC154, ACC155, ACC156, ACC157, ACC158, ACC159, ACC160, ACC161, ACC162, ACC163, ACC164, ACC165, ACC166, ACC167, ACC170, ACC171, ACC172, ACC173, ACC174, ACC175.

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

Draft	Report on voting
121/237/FDIS	121/241/RVD

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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

A list of all parts in the IEC 62683 series, published under the general title *Switchgear, controlgear and their assemblies for low-voltage - Product data and properties for information exchange*, 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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

## INTRODUCTION

Mainly large customers and wholesalers are requesting standardized product descriptions and product properties to product manufacturers. However, all stakeholders can benefit from this standardised presentation and data exchange.

Multiple associations or groups of actors launched different initiatives to try to respond to this demand but, due to the lack of standardisation of classes and properties, the situation remains unsatisfactory for both customers and manufacturers.

In order to keep the lead of product description, IEC proposes a consistent solution within its product standards.

The purpose of this document is to:

- define device classes and properties for low-voltage switchgear and controlgear and their assemblies in a dedicated standard,
- provide a basis of classes of the low-voltage switchgear and controlgear and their assemblies, and properties introduced into the [IEC 61360 database](#) maintained by IEC/SC3D (see <http://std.iec.ch/iec61360>).

This document is not intended to establish a hierarchy of product classes called classification.

The intended benefits of this document are to:

- reduce the costs, time and efforts of mapping data for each customer request;
- optimize the workflow of B2B exchanges;
- minimize duplication of articles in customer inventories and in databases;
- minimize losses and misinterpretation of data during exchanges;
- facilitate the selection of a product, especially regarding reliability and safety;
- give access to product data everywhere regardless of country, language and culture;
- provide product data related to environmental aspects such as material declaration;
- contribute to the fast growth of the e-business by simplifying the development of:
  - e-Catalogue allowing the differentiation of products performances, certificates, etc;
  - e-Commerce: use of electronic networks to exchange information, products, services and payments for commercial and communication purposes between individuals (consumers) and businesses, between businesses themselves.

The output of this document consists of:

- reference dictionary of low-voltage switchgear and controlgear and their assemblies using existing terms from IEC documents. However, terminology used in e-business can be relevant for the purpose of naming classes in this document to get a high level of acceptance;
- properties for e-commerce purposes, conformity of properties with product standards being the main goal of this document.

NOTE The classes "under consideration" are for information only and are intended to be completed during the next maintenance cycle.

The description of low-voltage switchgear and controlgear and their assemblies within the IEC 61360 database addresses the following technical aspects:

- IEC 61360 requires mandatory attributes. The complete sets of attributes for low-voltage switchgear and controlgear and their assemblies are available in the IEC 62683DB domain at <https://cdd.iec.ch/cdd/iec62683/iec62683.nsf/TreeFrameset?OpenFrameSet>. Within the present document, only the most useful attributes are presented.
- The switchgear and controlgear and their assemblies data models are implemented in the IEC 62683DB domain of the IEC Component Data Dictionary (CDD), by creating dictionaries of blocks, classes and properties.

# Sample Document

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## 1 Scope

This part of IEC 62683 establishes the reference dictionary of the general description of classes of low-voltage switchgear and controlgear and their assemblies based on defined properties.

This dictionary is used to facilitate the exchange in electronic format of data describing low-voltage switchgear and controlgear, their accessories and their assemblies.

This document provides clear and unambiguous definitions of a limited number of properties and classes which are mainly used for presentation, selection and identification of products particularly in electronic catalogues.

Each property has an unambiguously defined meaning and name, and where relevant, a defined value list, a defined format, and a defined unit.

Manufacturer specific features are not covered.

## 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 60947-1:2020, *Low-voltage switchgear and controlgear - Part 1: General rules*

IEC 61360-1, *Standard data element types with associated classification scheme - Part 1: Definitions - Principles and methods*

IEC 61439-1:2020, *Low-voltage switchgear and controlgear assemblies - Part 1: General rules*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60947-1, IEC 61439-1 and the following 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>

### 3.1 attribute

data element for description of a property, a relation or a device class

EXAMPLE The name of a property, the code of a class, the measure unit of a property

### 3.2 block

<properties>collection of properties describing one common aspect of the device class

Note 1 to entry: A block is a feature class in the sense of IEC 61360-1 and ISO 13584-42.

EXAMPLE Diagnostic functions, control circuit.

**3.3****cardinality**

pattern defining the number of times a concept reoccurs within a description

Note 1 to entry: Cardinality allows a block of properties contained in a list of properties to be used more than once for a particular transaction in order to describe, for example, a device with several different outputs or more than one process cases.

Note 2 to entry: Cardinality is defined by IEC 61987-10.

**3.4****device**

material element or assembly of such elements intended to perform a required function

Note 1 to entry: In this document, a device corresponds to a low voltage switchgear and controlgear.

[SOURCE: IEC 60050-151:2001, 151-11-20, modified – the note has been replaced by a new note to entry.]

**3.5****device class**

set of properties which gives a description of a device

**3.6****polymorphism**

pattern that allows substitution of a single concept in the same context by a different more specific (specialized) concept

Note 1 to entry: A specialised polymorphic block of properties can replace a more generic one in the same context. A polymorphic operator (control property) can act in selecting between of various specialisations.

Note 2 to entry: Polymorphism is defined by IEC 61987-10.

**3.7****property**

defined parameter suitable for the description and differentiation of device class specific characteristic describing an aspect of device class

**4 General**

The attributes shall follow IEC 61360-1.

Based on IEC 61360-1 data model, the structured data called cardinality and polymorphism may be used.

**5 Properties****5.1 Criteria for naming properties**

In order to maintain consistency and clarity in the naming of properties, terms from product standards shall be used when they are available.

Synonymous names may be associated with the property name when well established terms are used on the market.

**5.2 Attributes of a property**

The following attributes of a property are considered in this document: identifier, preferred name, definition, source document, data type, unit of measure, value format, and value list.

## 6 Block of properties

A property within a block shall describe one common aspect covered by the definition of this block.

A property may be reused in different blocks. In this case, this property is applicable within the context of the definition of each block.

The list of blocks of properties is defined in Table 1.

**Table 1 – Library of blocks used in the device classes of low-voltage switchgear and controlgear**

Block name	Definition	Source	Class ID
Identification	information necessary for unambiguous identification of the device		ACC011
General technical data	general technical aspects of the device		ACC012
Diagnostic functions	ability to analyse a situation corresponding to a predefined set of parameters of the device		ACC013
Main circuit	all the conductive parts of a switching device or an assembly included in the circuit which it is designed to close or open	IEC 60050-441:1984, 441-15-02, modified	ACC014
Input/output circuit	circuit of the device used to receive or to send signals or data		ACC015
Control and auxiliary circuits	all the conductive parts of the device which are intended to be included in a circuit other than the main circuit		ACC016
Head of the control circuit device	part which contains and supports the actuator or contains the lens of an indicator light, fixed on an enclosure or on the body of the device		ACC017
Light block of the control circuit device	part which contains and supports the lamp, fixed on an enclosure or on the body of the device		ACC018
Equipment of control station	set of control devices and indicators mounted on a control station		ACC019
Emitting source of proximity switch	radiation source which provides the beam operating the proximity switch		ACC020
Short-circuit	short-circuit conditions, stated by the manufacturer, which the device can make, withstand or break satisfactorily		ACC040
Overcurrent release	release which causes a mechanical switching device to open with or without time delay when the current in the release exceeds a predetermined value  NOTE This value can in some cases depend upon the rate-of-rise of current.	IEC 60947-1:2020, 3.6.26, modified	ACC041
Communication interfaces	communication functions for the transfer of information between the device and the system		ACC050
Installation, mounting and dimensions	physical information of the device for installation		ACC066
Connection facilities	terminals, screws or other parts, used for the electrical connection of conductors of external circuits of the device		ACC068
Product certificates and standards	conformity of a device with specified requirements and compliance with recognised product standards		ACC070

## 7 Device classes

### 7.1 Device class attributes

The attributes of the device class shall follow IEC 61360-1.

The following attributes of a device class are considered in this document: identifier, preferred name, definition, synonymous name and source document.

NOTE The synonymous names are limited to those necessary to avoid confusion when selecting a device class.

### 7.2 Classification of low-voltage switchgear and controlgear

Table 2 gives the classification of low-voltage switchgear and controlgear based on the corresponding product standards. The class name column is structured in four levels of hierarchy using indent alignments.

**Table 2 – Low-voltage switchgear and controlgear classification**

Class name	Synonymous	Definition	Source	Class ID
LV switchgear and controlgear domain		domain covering switching devices and their combination with associated control, measuring, protective and regulating equipment, also assemblies of such devices and equipment with associated interconnections, accessories, enclosures and supporting structures	IEC 60947-1:2020, 3.3.1, modified	ACC001
LV switchgear and controlgear classes		set of switching devices and their combination with associated control, measuring, protective and regulating equipment, also assemblies of such devices and equipment with associated interconnections, accessories, enclosures and supporting structures	IEC 60947-1:2020, 3.3.1, modified	ACC100
Circuit-breaker classes		set of circuit-breakers, their releases and accessories		ACC200
Circuit-breaker	Moulded case circuit breaker	mechanical switching device, capable of making, carrying and breaking currents under normal circuit conditions and also making, carrying for a specified time and breaking currents under specified abnormal circuit conditions such as those of short-circuit	IEC 60050-441:1984, 441-14-20	ACC201
Release for circuit-breaker	Trip unit	unit connected to a circuit-breaker which initiates action that causes the protected circuit to be switched off when a pre-set threshold is exceeded	Derived from IEC 60947-1:2020, 3.6.26	ACC202