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Low-voltage switchgear and controlgear – Product data and properties for information exchange – Part 1: Catalogue data [\(standards.iteh.ai\)](https://standards.iteh.ai)

Appareillage à basse tension – Données et propriétés de produits pour l'échange d'informations – Partie 1: Données de catalogue



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INTERNATIONAL STANDARD

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Low-voltage switchgear and controlgear – Product data and properties for information exchange – Part 1: Catalogue data standards.iteh.ai

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CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	10
2 Normative references	10
3 Terms and definitions	10
4 General	11
5 Properties.....	11
5.1 Criteria for naming properties.....	11
5.2 Attributes of a property	12
6 Block of properties.....	12
7 Device classes	12
7.1 Device class attributes	12
7.2 Classification of low-voltage switchgear and controlgear	13
7.3 Properties of circuit-breaker classes	20
7.3.1 General	20
7.3.2 Circuit-breaker.....	20
7.3.3 Release for circuit-breaker.....	22
7.3.4 Residual current release for circuit-breaker	23
7.3.5 Shunt release for circuit-breaker	24
7.3.6 Under-voltage release for circuit-breaker	25
7.3.7 Motor-operator for circuit-breaker	26
7.3.8 Plug-in base for circuit-breaker	27
7.3.9 Draw-out cradle for circuit-breaker	28
7.4 Properties of switch classes.....	28
7.4.1 General	28
7.4.2 Switch-disconnector.....	29
7.4.3 Switch-disconnector-fuse.....	31
7.4.4 Fuse-switch-disconnector	33
7.5 Properties of contactors, starters and similar equipment classes.....	34
7.5.1 General	34
7.5.2 Motor protection circuit-breaker	35
7.5.3 Motor management device.....	36
7.5.4 Motor management device, extension module.....	38
7.5.5 Motor management device, operator panel	39
7.5.6 Motor-starter combination	40
7.5.7 Motor-starter.....	41
7.5.8 AC semiconductor motor controller	42
7.5.9 Power contactor, AC switching	43
7.5.10 Capacitor contactor	44
7.5.11 Combination of contactors	45
7.5.12 Power contactor, DC switching	46
7.5.13 Thermal overload relay	47
7.5.14 Electronic overload relay	48
7.5.15 Relay for thermistor protection (PTC).....	49
7.5.16 Electromechanical contactor for household and similar purposes.....	50
7.5.17 Transient suppressor	51

7.5.18	Mechanical interlocking device	51
7.5.19	Motor-starter enclosure.....	52
7.5.20	Coil for contactor or contactor relay	53
7.5.21	Electromechanical latching device	53
7.5.22	Control interface for contactor	54
7.6	Properties of control switch classes	55
7.6.1	General	55
7.6.2	Inductive proximity switch	55
7.6.3	Capacitive proximity switch.....	56
7.6.4	Non-mechanical magnetic proximity switch	57
7.6.5	Ultrasonic proximity switch	57
7.6.6	Through beam photoelectric proximity switch	58
7.6.7	Retroreflective photoelectric proximity switch.....	59
7.6.8	Diffuse reflective photoelectric proximity switch	60
7.6.9	Diffuse reflective photoelectric proximity switch with background suppression	62
7.6.10	Auxiliary contact block	63
7.6.11	Contactor relay	64
7.6.12	Position switch.....	65
7.6.13	Rotary limit switch	66
7.6.14	Safety position switch with separate actuator.....	66
7.6.15	Guard locking safety position switch.....	66
7.6.16	Trip wire switch	67
7.6.17	Hinge switch	67
7.6.18	Push-button.....	68
7.6.19	Rotary button.....	69
7.6.20	Front element for rotary button	71
7.6.21	Joy stick	72
7.6.22	Foot switch	73
7.6.23	Emergency stop push-button	74
7.6.24	Indicator light.....	75
7.6.25	Indicating tower	76
7.6.26	Front element for push-button.....	77
7.6.27	Contact block for control circuit.....	78
7.6.28	Front element for emergency stop push-button	79
7.6.29	Module for indicating tower	80
7.6.30	Reflector for reflective photoelectric proximity switch	81
7.6.31	Lamp for control device	82
7.6.32	Label holder for push-button and indicator light	82
7.6.33	Label plate for control operation	83
7.6.34	Protective cover for control device	84
7.6.35	Pneumatic time delay auxiliary contact block	84
7.6.36	Electronic time delay auxiliary block	85
7.6.37	Time relay	86
7.6.38	Rotary encoder	87
7.6.39	Linear encoder	88
7.7	Properties of multiple function equipment classes	89
7.8	Properties of terminal block classes	89
7.8.1	General	89

7.8.2	Feed-through terminal block	89
7.8.3	Disconnect terminal block	90
7.8.4	Protective conductor terminal block	91
7.8.5	Fuse terminal block	92
8	Products properties	93
	Bibliography.....	134
	Figure 1 – Height of the device	129
	Figure 2 – Width of the device	129
	Figure 3 – Length of the device.....	129
	Table 1 – Library of blocks used in the device classes of low-voltage switchgear.....	12
	Table 2 – Low-voltage switchgear and controlgear classification	13
	Table 3 – Circuit-breaker	20
	Table 4 – Release for circuit-breaker	22
	Table 5 – Residual current release for circuit-breaker	23
	Table 6 – Shunt release for circuit-breaker	24
	Table 7 – Under-voltage release for circuit-breaker.....	25
	Table 8 – Motor-operator for circuit-breaker.....	26
	Table 9 – Plug-in base for circuit-breaker.....	27
	Table 10 – Draw-out cradle for circuit-breaker	28
	Table 11 – Switch-disconnector	29
	Table 12 – Switch-disconnector-fuse	31
	Table 13 – Fuse-switch-disconnector	33
	Table 14 – Motor protection circuit-breaker	35
	Table 15 – Motor management device	36
	Table 16 – Motor management device, extension module	38
	Table 17 – Motor management device, operator panel	39
	Table 18 – Motor-starter combination.....	40
	Table 19 – Motor-starter	41
	Table 20 – AC semiconductor motor controller.....	42
	Table 21 – Power contactor, AC switching	43
	Table 22 – Capacitor contactor	44
	Table 23 – Combination of contactors	45
	Table 24 – Power contactor, DC switching	46
	Table 25 – Thermal overload relay	47
	Table 26 – Electronic overload relay	48
	Table 27 – Relay for thermistor protection (PTC)	49
	Table 28 – Electromechanical contactor for household and similar purposes	50
	Table 29 – Transient suppressor.....	51
	Table 30 – Mechanical interlocking device	51
	Table 31 – Motor-starter enclosure	52
	Table 32 – Coil for contactor or contactor relay.....	53
	Table 33 – Electromechanical latching device.....	53

Table 34 – Control interface for contactor	54
Table 35 – Inductive proximity switch	55
Table 36 – Capacitive proximity switch	56
Table 37 – Through beam photoelectric proximity switch	58
Table 38 – Retroreflective photoelectric proximity switch	59
Table 39 – Diffuse reflective photoelectric proximity switch	60
Table 40 – Diffuse reflective photoelectric proximity switch with background suppression	62
Table 41 – Auxiliary contact block	63
Table 42 – Contactor relay	64
Table 43 – Position switch	65
Table 44 – Trip wire switch	67
Table 45 – Push-button	68
Table 46 – Rotary button	69
Table 47 – Front element for rotary button	71
Table 48 – Joy stick	72
Table 49 – Foot switch	73
Table 50 – Emergency stop push-button	74
Table 51 – Indicator light	75
Table 52 – Indicating tower	76
Table 53 – Front element for push-button	77
Table 54 – Contact block for control circuit	78
Table 55 – Front element for emergency stop push-button	79
Table 56 – Module for indicating tower	80
Table 57 – Reflector for reflective photoelectric proximity switch	81
Table 58 – Lamp for control device	82
Table 59 – Label holder for push-button and indicator light	82
Table 60 – Label plate for control operation	83
Table 61 – Protective cover for control device	84
Table 62 – Pneumatic time delay auxiliary contact block	84
Table 63 – Electronic time delay auxiliary block	85
Table 64 – Time relay	86
Table 65 – Rotary encoder	87
Table 66 – Linear encoder	88
Table 67 – Feed-through terminal block	89
Table 68 – Disconnect terminal block	90
Table 69 – Protective conductor terminal block	91
Table 70 – Fuse terminal block	92
Table 71 – Library of properties used in the device classes	93
Table 72 – Value lists of properties	130

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –
PRODUCT DATA AND PROPERTIES FOR INFORMATION EXCHANGE –****Part 1: Catalogue data**

FOREWORD

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International Standard IEC 62683-1 has been prepared by subcommittee 121A: Low-voltage switchgear and controlgear, of IEC technical committee 121: Switchgear and controlgear and their assemblies for low voltage.

This first edition cancels and replaces the second edition of IEC 62683 published in 2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the second edition of IEC 62683:

- a) new device class descriptions;
- b) new associated properties;
- c) slight modifications of some properties.

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

FDIS	Report on voting
121A/152/FDIS	121A/156/RVD

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 62683 series, published under the general title *Low-voltage switchgear and controlgear – 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 "<http://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.

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INTRODUCTION

Mainly large customers and wholesalers are requesting standardized product descriptions and product properties to product manufacturers. However, all stakeholders will benefit from this standardized 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 standardization of classes and properties, the situation is not satisfactory neither for customers nor for manufacturers.

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

The purpose of this document is to:

- define device classes and properties for low-voltage switchgear and controlgear in a dedicated standard,
- provide a basis for introduction of the low-voltage switchgear and controlgear classes and properties 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 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, and between businesses themselves.

The output of this document consists of:

- reference dictionary of low-voltage switchgear and controlgear using existing terms from IEC standards. However, terminology used in e-business may 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.

For this project, the introduction of low-voltage switchgear and controlgear within the IEC 61360 database needs to address the following technical aspects:

- IEC 61360 requires mandatory attributes. The complete set of mandatory attributes with additional relevant attributes for low-voltage switchgear and controlgear will be available within the IEC 61360 database. At the development stage, the CDD 62683 database is available at the following address:

<https://cdd.iec.ch/cdd/iec62683/iec62683.nsf>. Within the present document, only the most useful attributes will be presented;

- The switchgear and controlgear data model is implemented in an appropriate domain of the IEC Component Data Dictionary (CDD), IEC 61360, by creating dictionaries of blocks, classes and properties.

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[IEC 62683-1:2017](#)

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR – PRODUCT DATA AND PROPERTIES FOR INFORMATION EXCHANGE –

Part 1: Catalogue data

1 Scope

This document establishes the reference dictionary of the general description of low-voltage switchgear and controlgear classes based on defined properties.

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

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 naming, and, where relevant, a defined value list, a defined format and a defined unit.

The intention is not to cover manufacturer-specific features.

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2 Normative references

[IEC 62683-1:2017](#)

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 60947-1:2007, *Low-voltage switchgear and controlgear – Part 1: General rules*
IEC 60947-1:2007/AMD1:2010
IEC 60947-1:2007/AMD2:2014

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

3 Terms and definitions

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

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 unit of measure of a property

3.2

block (of 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 13584-2.

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 case.

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 modified.]

3.5

device class

set of properties which gives a description of a device

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3.6

polymorphism

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

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<https://standards.iteh.ai/catalog/standards/sist/5500b150-7c7c-44f2-85e6-66d86c1a85a/iec-62683-1-2017>

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

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

3.7

property

defined parameter suitable for the description and differentiation of a 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, value list.

6 Block of properties

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

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 (of a switching device)	all the conductive parts of a switching device included in the circuit which it is designed to close or open	IEC 60050-441: 1984, 441-15-02	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
Short-circuit	short-circuit conditions, stated by the manufacturer, which the device can make, withstand or break satisfactorily		ACC040
Over-current release	release which causes a mechanical switching device to open when the current in the release exceeds a predetermined value	2.4.25 of IEC 60947-1: 2007, modified	ACC041
Data communication	communication function 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	IEC 60050-426: 2008, 426-04-25, modified	ACC068
Product certificates and standards	conformity of a device with specified requirements and compliance with recognized 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 domain 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 name	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	2.1.1 of IEC 60947-1: 2007, 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	2.1.1 of IEC 60947-1: 2007, 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 preset threshold is exceeded		ACC202
Residual current release for circuit-breaker	Earth leakage module	unit connected to a circuit-breaker which concurrently performs residual current detection, compares such measurements with a preset value and initiates action that causes the protected circuit to be switched off when this value is exceeded		ACC203
Shunt release for circuit-breaker	Shunt trip	release energized by a source of voltage	IEC 60050-441:1984, 441-16-41, modified	ACC204
Under-voltage release for circuit-breaker	Under-voltage trip	release which permits a circuit-breaker to open with or without time-delay, when the voltage across the terminals of the release falls below a predetermined value		ACC205
Motor-operator for circuit-breaker		dependent power operator capable of closing and opening the circuit-breaker		ACC206
Plug-in base for circuit-breaker		fixed part of a plug-in circuit breaker, which allows the circuit-breaker to be removed from the installation	derived from 2.4 of IEC 60947-2:2016	ACC207