

Low-voltage switchgear and controlgear - Product data and properties for information exchange - Part 1: Catalogue data

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 62683-1:2017 sisaldab Euroopa standardi EN 62683-1:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 62683-1:2017 consists of the English text of the European standard EN 62683-1:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 06.10.2017.	Date of Availability of the European standard is 06.10.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.130.20

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Low-voltage switchgear and controlgear - Product data and properties for information exchange - Part 1: Catalogue data (IEC 62683-1:2017)

Appareillage à basse tension - Données et propriétés de produits pour l'échange d'informations - Partie 1: Données de catalogue
(IEC 62683-1:2017)

Niederspannungsschaltgeräte - Produktdaten und -eigenschaften für den Informationsaustausch - Teil 1: Katalogdaten
(IEC 62683-1:2017)

This European Standard was approved by CENELEC on 2017-08-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 121A/152a/FDIS, future edition 1 of IEC 62683-1, prepared by SC 121A "Low-voltage switchgear and controlgear" of IEC/TC 121 "Switchgear and controlgear and their assemblies for low voltage" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62683-1:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2018-05-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-08-16

This document supersedes EN 62683:2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62683-1:2017 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC/TS 60034-20-1:2002	NOTE	Harmonized as CLC/TS 60034-20-1:2004.
IEC 60127-1	NOTE	Harmonized as EN 60127-1.
IEC 60529:1989	NOTE	Harmonized as EN 60529:1991.
IEC 60529:1989/AMD1:1999	NOTE	Harmonized as EN 60529:1991/A1:2000.
IEC 60529:1989/AMD2:2013	NOTE	Harmonized as EN 60529:1991/A2:2013.
IEC 62262:2002	NOTE	Harmonized as EN 62262:2002.
IEC 60715	NOTE	Harmonized as EN 60715.
IEC 60825-1	NOTE	Harmonized as EN 60825-1.
IEC 60947-2:2016	NOTE	Harmonized as EN 60947-2:2017.
IEC 60947-3	NOTE	Harmonized as EN 60947-3.
IEC 60947-4 (series)	NOTE	Harmonized as EN 60947-4 (series).
IEC 60947-4-1:2009	NOTE	Harmonized as EN 60947-4-1:2010.

IEC 60947-4-1:2009/AMD1:2012	NOTE	Harmonized as EN 60947-4-1:2010/A1:2012.
IEC 60947-4-2	NOTE	Harmonized as EN 60947-4-2.
IEC 60947-4-3	NOTE	Harmonized as EN 60947-4-3.
IEC 60947-5-1:2016	NOTE	Harmonized as EN 60947-5-1:2016.
IEC 60947-5-2:2007	NOTE	Harmonized as EN 60947-5-2:2007.
IEC 60947-5-2:2007/AMD1:2012	NOTE	Harmonized as EN 60947-5-2:2007/A1:2012.
IEC 60947-5-5:1997	NOTE	Harmonized as EN 60947-5-5:1997.
IEC 60947-5-5:1997/AMD1:2005	NOTE	Harmonized as EN 60947-5-5:1997/A1:2005.
IEC 60947-5-5:1997/AMD2:2016	NOTE	Harmonized as EN 60947-5-5:1997/A2:2017.
IEC 60947-6-1:2005	NOTE	Harmonized as EN 60947-6-1:2005.
IEC 60947-6-1:2005/AMD1:2013	NOTE	Harmonized as EN 60947-6-1:2005/A1:2014.
IEC 60947-6-2	NOTE	Harmonized as EN 60947-6-2.
IEC 60947-7-1:2009	NOTE	Harmonized as EN 60947-7-1:2009.
IEC 60947-7-2:2009	NOTE	Harmonized as EN 60947-7-2:2009.
IEC 60947-7-3:2009	NOTE	Harmonized as EN 60947-7-3:2009.
IEC 60947-8	NOTE	Harmonized as EN 60947-8.
IEC 60999-1:1999	NOTE	Harmonized as EN 60999-1:2000.
IEC 61058-1:2016	NOTE	Harmonized as EN 61058-1:2017.
IEC 61095	NOTE	Harmonized as EN 61095.
IEC 61140:2016	NOTE	Harmonized as EN 61140:2016.
IEC 61672-1:2013	NOTE	Harmonized as EN 61672-1:2013.
IEC 61987-10	NOTE	Harmonized as EN 61987-10.
IEC 62271-1:2007	NOTE	Harmonized as EN 62271-1:2008.
IEC 62474	NOTE	Harmonized as EN 62474.
IEC 82079-1:2012	NOTE	Harmonized as EN 82079-1:2012.
ISO 13850:2015	NOTE	Harmonized as EN ISO 13850:2015.
ISO 14025	NOTE	Harmonized as EN ISO 14025.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60947-1	2007	Low-voltage switchgear and controlgear Part 1: General rules	- EN 60947-1	2007
+ A1	2010		+ A1	2011
+ A2	2014		+ A2	2014
IEC 61360-1	-	Standard data element types with associated classification scheme - Part 1: Definitions - Principles and methods	EN 61360-1	-

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

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.

This document is a preview generated by EVS