SLOVENSKI STANDARD
oSIST prEN IEC 63508:2024

01-junij-2024

CDD baza podatkov - Odklopniki in podobna oprema za gospodinjsko uporabo

CDD database - Circuit-breakers and similar equipment for household use

Base de données CDD - Disjoncteurs et appareillage similaire pour usage domestique

Ta slovenski standard je istoveten z: **prEN IEC 63508:2024**

ICS:

29.120.50	Varovalke in druga nadtokovna zaščita	Fuses and other overcurrent protection devices
35.240.99	Uporabniške rešitve IT na drugih področjih	IT applications in other fields

oSIST prEN IEC 63508:2024 **en,fr,de**

23E/1349/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 63508 ED1**	
DATE OF CIRCULATION: **2024-04-05**	CLOSING DATE FOR VOTING: **2024-06-28**
SUPERSEDES DOCUMENTS: **23E/1327/CD, 23E/1345/CC**	

IEC SC 23E : CIRCUIT-BREAKERS AND SIMILAR EQUIPMENT FOR HOUSEHOLD USE

SECRETARIAT: Italy	SECRETARY: Mr Giovanni Cassinelli
OF INTEREST TO THE FOLLOWING COMMITTEES: SC 3D,TC 23,SC 23A,SC 23B,SC 23H,SC 23K,TC 121	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any relevant “In Some Countries” clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).

TITLE:

CDD Database - Circuit-breakers and similar equipment for household use

PROPOSED STABILITY DATE: 2026

NOTE FROM TC/SC OFFICERS:

INTRODUCTION

The growing use of protection devices (e.g. miniature circuit-breakers as defined in IEC 60898-1), and the need to go toward more digital tools and processes requires the description of such devices to be made available in the most adequate digital format.

To serve as a reference in this effort of standardisation, the IEC provides a support for gathering all contributions for devices descriptions under the IEC Common Data Dictionary (IEC CDD).

Such a work at IEC level aims to provide for the protection devices an unambiguous semantic, consistent with its product standard, made available for use on the market by the various stakeholders.

The intended benefits of this document are to:

- reduce the costs and efforts in 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 environmental 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.
- enable new e-business models

The output of this document is a reference dictionary for protection devices considered in sub-committee 23E for use in e-commerce, in software and in any application for product selection.

This work is done in close collaboration between SC 23E and SC 3D which in charge of the maintenance of the application IEC CDD.

The modifications applied to the CD version are about:

- information arrangement in the document. Some elements (reminders) are moved to a new annex
- change of class names applied to KDA021, KDA022, KDA023
- specialized blocks are removed from the blocks list
- new properties (KDB021 & KDD108), representing the ‘’number of switched poles’’, were created and replace properties that were reused from TC 121 (number of poles)
- two properties from TC 121 are added to complete the classes descriptions (provision for locking, rated impulse withstand voltage)

1. Scope

The purpose of this document is to draft product classes and properties, representing the MCB (Miniature Circuit-Breaker), to become a part of the IEC 63508 DB. It includes data needed for product selection as well as data needed for engineering.

This IEC 63508 DB intends, as a contribution to the IEC Common Data Dictionary, to be used by catalogue consortia, other database standards and software as a data reference for Circuit-breakers and similar equipment for household use.

Note: In the future, it is intended to extend the IEC 63508 DB to other type of products managed by IEC/SC 23E.

2. Normative references

IEC 60529:1989, Degrees of protection provided by enclosures (IP Code)
IEC 60529: 2013 AC1

IEC 60715:2017, Dimensions of low-voltage switchgear and controlgear – Standardized mounting on rails for mechanical support of switchgear, controlgear and accessories

IEC 60898-1:2015, Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 1: Circuit-breakers for a.c. operation
IEC 60898-1:2019 Amd1
IEC 60898-1:2020 AC1

IEC 60947-2:2016, Low-voltage switchgear and controlgear – Part 2: Circuit-breakers
IEC 60947-2:2019 Amd1
IEC 60947-2:2019 AC1

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

IEC 61360-4 DB - IEC CDD (Common Date Dictionary)

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

CLC TR 50473: 2007, Recommendations for dimensional co-ordination between enclosures and built-in devices for rail fixing for household and similar installations

3. Terms and definitions

3.1.
attribute
data element for the computer-sensible description of a property, a relation or a class
Example The name of a property, the code of a class, the measure unit in which values of a property are provided.
Note 1 to entry: An attribute describes only one single detail of a property, of a class or of a relation. SOURCE: IEC 61360-1

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 13584-42.
Example: Diagnostic functions, control circuit.
SOURCE: IEC 62683-1

3.3.
class
abstraction of a set of similar products

Note 1 to entry: A product that complies with the abstraction defined by a class is called a class member.
Note 2 to entry: A class is an intentional concept that can take different extensional meanings in different contexts.

Note 3 to entry: Classes are structured by class inclusion relationships.
SOURCE: IEC 61360-1

3.4.
enumeration
list of named constants called enumerators, each enumerator name in the enumeration being unambiguous
SOURCE: IEC 61360-1

3.5.
property
data element type
defined parameter suitable for the description and differentiation of a specific characteristic describing an aspect of device class

Note 1 to entry: A property can have attributes such as code, version, and revision.
Note 2 to entry: The specification of a property can include predefined choices of values.
SOURCE: IEC 62683-1

3.6.
IEC Common Data Dictionary
IEC CDD
IEC CDD is an International Standard (IEC 61360-4 DB) and serves as a common product data dictionary for all industrial/technical domains (electrotechnical and non-electrotechnical; e.g. industry, building, energy, healthcare, …) based on the methodology and the information model of IEC 61360 series, and provides

- unambiguous identification of classes and properties, and their relations;
- commonly accepted terminology and definitions based on accepted sources such as IEC International Standards, other International Standards, industry standards, or public authorities;
- hierarchies of concepts enabling users to appropriately characterize their products and services;
- relevant conditions and constraints, if necessary, on possible values of characteristics;
- technical representation of concepts including units and data types and their identification.

4. Data formats description

IEC 61360 series are the reference documents describing the different formats that are intended to be used for a product's description.

To assist readers of this standard, a selection of useful definitions for data formats and concepts (taken from IEC 61360-1) is available in annex A.

5. Overview of the structure of this domain

This document aims to initiate a domain to become a contribution to the IEC CDD. This domain is a collection of properties and blocks of properties to describe the products identified in this first approach focused on miniature circuit-breakers.

This domain will be completed in a further stage by properties necessary to describe other products from IEC SC 23E.

It is noted that another domain named “Low voltage switchgear and controlgear (IEC 62683)” is published in IEC CDD by IEC/TC 121. This domain does not include miniature circuit-breakers (MCB).

To avoid duplicated properties it is intended to re-use existing properties and blocks from the domain “Low voltage switchgear and controlgear (IEC 62683)” in the new domain for miniature circuit-breakers, wherever applicable. Such re-used blocks or properties have identifiers (ID) starting with ACC or ACE.

6. Device classes

6.1. 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 standard: 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.

6.2. Classification of circuit-breakers and similar equipment for household use

The following table gives the classification of circuit-breakers and similar equipment for household use domain based on the corresponding product standards. The class name column is structured in four levels of hierarchy using indent alignments.

Table 1 – Circuit-breakers and similar equipment for household use classification

Class preferred name (Class sheet)	Definition	Source	Code (Class ID)
Circuit-breakers and similar equipment for household use domain	domain covering the following devices: - circuit-breakers and residual current devices of rated currents not exceeding 125 A and rated voltages not exceeding 440 V for protection against overcurrent and/or against electric shock in domestic and similar installations, - residual current monitors (RCM) for household and similar applications, - circuit-breakers for equipment of rated currents not exceeding 125 A and rated voltages not exceeding 440 V designed to protect equipment for use in domestic and similar installations, - control and protection devices for electric vehicle supplies, - arc fault detection devices (AFDD) of rated currents not exceeding 125 A and rated voltages not exceeding 440 V for household and similar uses. - guidance for additional functions for protection devices - automatic reclosing devices - power frequency overvoltage protection devices		KDA001
Circuit-breakers and similar equipment for household use classes head	classification of circuit-breakers and similar equipment for household use – classes head number		KDA010

Class preferred name (Class sheet)	Definition	Source	Code (Class ID)
Miniature circuit-breakers for overcurrent protection for household and similar installations classes	circuit-breakers for domestic and similar purpose of rated currents not exceeding 125 A and rated voltages not exceeding 440 V for protection of wiring against overcurrents in domestic and similar installations		KDA020
AC miniature circuit-breaker for use by ordinary persons	mechanical switching device for AC application for use by ordinary person, 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 Note: ordinary person which is neither a skilled person nor an instructed person. IEV 195-04-03	IEC 60050-441:1984, 441-14-20	KDA021
AC miniature circuit-breaker for use by skilled persons only	mechanical switching device for AC application for use by skilled or instructed person, 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 Note 1: skilled person is a person with relevant education and experience to enable him or her to perceive risks and to avoid hazards that electricity can create. IEV 195-04-01 Note 2: instructed person is a person adequately advised or supervised by electrically skilled persons to enable him or her to perceive risks and to avoid hazards that electricity can create. IEV 195-04-02		KDA022
AC miniature circuit-breaker for use by ordinary or skilled persons	mechanical switching device for AC application for use by ordinary or skilled or instructed person, 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 Note 1: ordinary person which is neither a skilled person nor an instructed person. IEV 195-04-03 Note 2: skilled person is a person with relevant education and experience to enable him or her to perceive risks and to avoid hazards that electricity can create. IEV 195-04-01 Note 3: instructed person is a person adequately advised or supervised by electrically skilled persons to enable him or her to perceive risks and to avoid hazards that electricity can create. IEV 195-04-02		KDA023

7. Block of properties

A block of properties gathers properties necessary to describe a device. A property within a block shall describe one common aspect covered by the definition of this block.

Blocks are defined at generic level and at specialized level to describe a specific version of the device.

The list of blocks of properties is defined in the following table.

Table 2 – Library of blocks used in the device classes

Block preferred name (Class sheet)	Definition	Source	Code (Class ID)
Circuit-breakers and similar equipment for household use – blocks head number	heading number for blocks of properties to describe all type of products within this domain		KDA011
Circuit-breakers and similar equipment for household use - specialised blocks head number	heading number for specialised blocks of properties to describe all type of products within this domain		KDE005
Identification	information necessary for unambiguous identification of the device	IEC 62683-1	ACC011
General technical data	general technical aspects of the device		KDA220
Main circuit	all the conductive parts of a switching device included in the circuit which it is designed to close or open		KDA221
Short-circuit	short-circuit conditions, stated by the manufacturer, which the device can make, withstand or break satisfactorily		KDA222
Tripping characteristics	release which causes a mechanical switching device to open when the current in the release exceeds a predetermined value		KDA223
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		KDA224
Installation, mounting and dimensions	physical information of the device for installation		KDA225
Connection facilities	terminals, screws or other parts, used for the electrical connection of conductors of external circuits of the device		KDA226
Environmental conditions	physical conditions such as ambient temperature, pressure, radiation, humidity, chemical spray expected as normal operating conditions or resulting from postulated initiating events		KDA227
Product certificates and standards	conformity of a device with specified requirements and		KDA228

Block preferred name (Class sheet)	Definition	Source	Code (Class ID)
	compliance with recognized product standards		

The purpose of the tables is to list the generic block at the top of the ontology. Specialisation blocks (with relevant properties selected from generic blocks) used for the actual construction of the database are not listed.

7.1. MCB (Miniature Circuit-Breaker)

7.1.1. General

Table 3 to Table 5 provide the lists of properties for each specialized class.

7.1.2. AC miniature circuit-breaker for use by ordinary persons

Table 3 - AC miniature circuit-breaker for use by ordinary persons

Blocks and Property preferred name (Property sheet)	**Definition class** (Class ID)	Code (Property ID)	Comment
AC miniature circuit-breaker for use by ordinary persons	**KDA021**		
Identification	**ACC011**		
global Trade Item Number (GTIN)		ACE101	
manufacturer name		ACE102	
manufacturer product number		ACE103	
product family		ACE104	
product name		ACE105	
supplier name		ACE106	
supplier product number		ACE107	
product online information URL		ACE108	
customs tariff number		ACE109	
General technical data	**KDA220**		
degree of protection of front face		ACE247	
kind of current		ACE601	
provision for locking		ACE243	
Isolation function		ACE204	
Main circuit	**KDA221**		
number of switched poles		KDB021	
number of protected poles		ACE410	
rated current		ACE424	
rated operational voltage, a.c.		ACE457	
rated supply frequency		ACE532	
rated insulation voltage		KDB002	
power losses per pole		KDB003	