

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Low-voltage switchgear and controlgear – Product data and properties for information exchange – Engineering data –
Part 2-3: Functional safety and reliability**

**Appareillages et ensembles d'appareillages à basse tension – Données et propriétés de produits pour l'échange d'informations – Données d'ingénierie –
Partie 2-3 : Sécurité fonctionnelle et fiabilité**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2-3: Functional safety and reliability

FOREWORD

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IEC 62683-2-3 has been prepared by IEC technical committee 121: Switchgear and controlgear and their assemblies for low voltage. It is an International Standard.

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

Draft	Report on voting
121/174/FDIS	121/182/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. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 – Engineering data*, 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- withdrawn, or
- revised.

INTRODUCTION

Engineering tools used for the design of safety control system of machinery and similar control systems require functional safety and reliability data.

The purpose of this document is to:

- define the structure of the engineering data model classes and properties of low-voltage switchgear and controlgear suitable for use in functional safety applications based on VDMA 66413 and other applications including dependability analysis.
- describe the method on how to provide and use these properties in typical applications.

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 information exchange with engineering tools;
- facilitate the selection of a product, especially regarding reliability and safety;
- give access to product data everywhere regardless of country, language and culture.

This document consists of a reference dictionary of low-voltage switchgear and controlgear using existing terms from IEC standards.

For this project, the introduction of low-voltage switchgear and controlgear within the IEC 61360 database addresses 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. The [CDD 62683](https://cdd.iec.ch/cdd/iec62683/iec62683.nsf/TreeFrameset?OpenFrameSet&ongletactif=1) database is available at the following address:
<https://cdd.iec.ch/cdd/iec62683/iec62683.nsf/TreeFrameset?OpenFrameSet&ongletactif=1>. Within the present document, only the most useful attributes will be presented;
- The switchgear and controlgear dictionary is implemented in an appropriate domain of the IEC Component Data Dictionary (CDD), IEC 61360, by creating dictionaries of blocks, classes and properties.

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

Part 2-3: Functional safety and reliability

1 Scope

This document specifies the functional safety and reliability data model description for low-voltage switchgear and controlgear to be used by engineering tools for the design of safety related control systems according to IEC 62061, IEC 61508-2 and ISO 13849-1, and for dependability analysis of electrotechnical systems.

This dictionary is used to facilitate the exchange between computers of data characterizing low-voltage switchgear and controlgear.

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

The data models described in this document are intended to complement the product catalogue data defined by IEC 62683-1.

This document does not cover:

- exchange format such as defined in VDMA 6641-1,
- explosive atmosphere applications,
- manufacturer specific features.

2 Normative references

The following documents are referenced 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, *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 61508-2, *Functional safety of electrical/electronic/programmable electronic safety-related systems – Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems*

IEC 62061, *Safety of machinery – Functional safety of safety-related control systems*

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

ISO 13849-1, *Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design*