

CONSOLIDATED VERSION

VERSION CONSOLIDÉE



**Low-voltage switchgear and controlgear –
Part 1: General rules**

**Appareillage à basse tension –
Partie 1: Règles générales**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 1: General rules

FOREWORD

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This Consolidated version of IEC 60947-1 bears the edition number 5.2. It consists of the fifth edition (2007-06) [documents 17B/1550/FDIS and 17B/1563/RVD], its amendment 1 (2010-12) [documents 17B/1710/FDIS and 17B/1721/RVD] and its amendment 2 (2014-09) [documents 121A/15/FDIS and 121A/21/RVD]. The technical content is identical to the base edition and its amendments.

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendments 1 and 2. Additions and deletions are displayed in red, with deletions being struck through. A separate Final version with all changes accepted is available in this publication.

This publication has been prepared for user convenience.

International Standard IEC 60947-1 has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

The main changes with respect to the previous edition are as follows:

- modification and restructuration of 7.1;
- introduction of new figures concerning EMC tests;
- introduction of new Annexes Q, R and S.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A vertical line in the margin shows where the base publication has been modified by the Amendment 1.

A list of all the parts in the IEC 60947 series, under the general title *Low-voltage switchgear and controlgear* can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 1: General rules

1 General

The purpose of this standard is to harmonize as far as practicable all rules and requirements of a general nature applicable to low-voltage switchgear and controlgear in order to obtain uniformity of requirements and tests throughout the corresponding range of equipment and to avoid the need for testing to different standards.

All those parts of the various equipment standards which can be considered as general have therefore been gathered in this standard together with specific subjects of wide interest and application, e.g. temperature-rise, dielectric properties, etc.

For each type of low-voltage switchgear and controlgear, only two main documents are necessary to determine all requirements and tests:

- 1) this basic standard, referred to as "Part 1" in the specific standards covering the various types of low-voltage switchgear and controlgear;
- 2) the relevant equipment standard hereinafter referred to as the "relevant product standard" or "product standard".

For a general rule to apply to a specific product standard, it shall be explicitly referred to by the latter, by quoting the relevant clause or subclause number of this standard followed by "IEC 60947-1" e.g. "7.2.3 of IEC 60947-1".

A specific product standard may not require, and hence may omit, a general rule (as being not applicable), or it may add to it (if deemed inadequate in the particular case), but it may not deviate from it, unless there is a substantial technical justification.

NOTE The product standards ~~due to be part of~~ forming the series of IEC standards covering low-voltage switchgear and controlgear are:

- IEC 60947-2: Part 2: Circuit-breakers
- IEC 60947-3: Part 3: Switches, disconnectors, switch-disconnectors and fuse combination units
- IEC 60947-4: Part 4: Contactors and motor-starters
- IEC 60947-5: Part 5: Control-circuit devices and switching elements
- IEC 60947-6: Part 6: Multiple function equipment
- IEC 60947-7: Part 7: Ancillary equipment
- IEC 60947-8: Part 8: Control units for built-in thermal protection (PTC) for rotating electrical machines.

1.1 Scope and object

This standard applies, when required by the relevant product standard, to **low-voltage** switchgear and controlgear hereinafter referred to as "equipment" or "device" and intended to be connected to circuits, the rated voltage of which does not exceed 1 000 V a.c. or 1 500 V d.c.

~~It does not apply to low-voltage switchgear and controlgear assemblies which are dealt with in IEC 60439.~~

~~NOTE—In certain clauses or subclauses of this standard, the equipment covered by this standard is also referred to as “device”, to be consistent with the text of such clauses or subclauses.~~

~~The object of~~ This standard ~~is to state those~~ states the general rules and common safety requirements ~~which are common to~~ for low-voltage equipment ~~as defined in 1.1~~ switchgear and controlgear, including ~~for example~~:

- definitions;
- characteristics;
- information supplied with the equipment;
- normal service, mounting and transport conditions;
- constructional and performance requirements;
- verification of characteristics and performance;
- **environmental aspects.**

~~Digital inputs and/or digital outputs contained in switchgear and controlgear, and intended to be compatible with programmable controllers (PLCs) are covered by Annex S.~~

This standard does not apply to low-voltage switchgear and controlgear assemblies which are dealt with in IEC 61439 series, as applicable.

1.2 Normative references

The following referenced documents are indispensable for the application 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 60050(151):2001, *International Electrotechnical Vocabulary (IEV) – Chapter 151: Electrical and magnetic devices*

IEC 60050(441):1984, *International Electrotechnical Vocabulary (IEV) – Chapter 441: Switchgear, controlgear and fuses*
Amendment 1 (2000)

IEC 60050(604):1987, *International Electrotechnical Vocabulary (IEV) – Chapter 604: Generation, transmission and distribution of electricity – Operation*
Amendment 1 (1998)

IEC 60050(826):2004, *International Electrotechnical Vocabulary (IEV) – Chapter 826: Electrical installations*

IEC 60060, *High-voltage test techniques*

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*
Amendment 1 (1992)

IEC 60068-2-1:1990, *Environmental testing – Part 2-1: Tests – Tests A: Cold*
Amendment 1 (1993)
Amendment 2 (1994)

IEC 60068-2-2:1974, *Environmental testing – Part 2-2: Tests – Tests B: Dry heat*
Amendment 1 (1993)
Amendment 2 (1994)

IEC 60068-2-6:1995, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-27:1987, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*