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TECHNICAL REPORT

Semiconductor converters – General requirements and line commutated converters –
Part 1-2: Application guide



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IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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Semiconductor converters – General requirements and line commutated converters – Part 1-2: Application guide

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SEMICONDUCTOR CONVERTERS – GENERAL REQUIREMENTS AND LINE COMMUTATED CONVERTERS –

Part 1-2: Application guidelines

FOREWORD

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IEC TR 60146-1-2, which is a Technical Report, has been prepared by IEC technical committee 22: Power electronic systems and equipment.

This fifth edition cancels and replaces the fourth edition published in 2011. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) addition of annexes concerning the applications of converter transformers and of fuses for overcurrent protection;

b) changes of calculation methods related the inductive voltage regulation and changes of description on transformer losses to be consistent with the latest transformer standards;

c) addition and updates of references based on the latest information.

The text of this Technical Report is based on the following documents:

Draft T	Report on voting
22/306/DTR	22/310/RVDTR

Full information on the voting for the approval of this technical report 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 of the IEC 60146 series, under the general title *Semiconductor converters – General requirements and line commutated converters*, 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- withdrawn,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.

A bilingual version of this standard may be issued at a later date.

SEMICONDUCTOR CONVERTERS – GENERAL REQUIREMENTS AND LINE COMMUTATED CONVERTERS –

Part 1-2: Application guidelines

1 Scope

This part of IEC 60146, which is a Technical Report, gives guidance on variations to the specifications given in IEC 60146-1-1:2009 to enable the specification to be extended in a controlled form for special cases. Background information is also given on technical points, which facilitates the use of IEC 60146-1-1:2009.

This document primarily covers line commutated converters and is not in itself a specification, except as regards certain auxiliary components, in so far as existing standards may not provide the necessary data.

This document will not take precedence on any product specific standard according to the concept shown in IEC Guide 108. IEC Guide 108 provides the information on the relationship between horizontal standards and product publications.

2 Normative references

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 60050-551*, International Electrotechnical Vocabulary – Part 551: Power electronics* (available at www.electropedia.org)

IEC 60050-551-20, *International Electrotechnical Vocabulary – Part 551-20: Power electronics – Harmonic analysis* (available at www.electropedia.org)

IEC 60146-1-1:2009, *Semiconductor converters – General requirements and line commutated converters – Part 1-1: Specification of basic requirements*

IEC 60269-1:2006, *Low-voltage fuses – Part 1: General requirements*

IEC 60269-4:2009, *Low-voltage fuses – Part 4: Supplementary requirements for fuse-links for the protection of semiconductor devices*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60664-1, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 61148, *Terminal markings for valve device stacks and assemblies and for power conversion equipment*

IEC 61378-1:2011, *Convertor transformers – Part 1: Transformers for industrial applications*