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TECHNICAL REPORT

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	7
1 Scope.....	9
2 Normative references	9
3 Terms and definitions	9
3.1 Definitions related to converter faults	10
3.2 Definitions related to converter generated transients	11
3.3 Definitions related to temperature.....	11
4 Application of semiconductor power converters	12
4.1 Application	12
4.1.1 Conversion equipment and systems	12
4.1.2 Supply source conditioning (active and reactive power).....	13
4.2 Equipment specification data.....	13
4.2.1 Main items on the specification.....	13
4.2.2 Terminal markings	13
4.2.3 Additional information.....	13
4.2.4 Unusual service conditions	14
4.3 Converter transformers and reactors	15
4.4 Calculation factors.....	15
4.4.1 General	15
4.4.2 Voltage ratios	19
4.4.3 Line side transformer current factor	19
4.4.4 Valve-side transformer current factor.....	19
4.4.5 Voltage regulation	20
4.4.6 Magnetic circuit	20
4.4.7 Power loss factor.....	20
4.5 Parallel and series connections	20
4.5.1 Parallel or series connection of valve devices.....	20
4.5.2 Parallel or series connection of assemblies and equipment units.....	21
4.6 Power factor.....	21
4.6.1 General	21
4.6.2 Symbols used in the determination of displacement factor	22
4.6.3 Circle diagram for the approximation of the displacement factor $\cos\varphi_{1N}$ and of the reactive power Q_{1LN} for rectifier and inverter operation	23
4.6.4 Calculation of the displacement factor $\cos\varphi_1$	24
4.6.5 Conversion factor	26
4.7 Direct voltage regulation.....	26
4.7.1 General	26
4.7.2 Inherent direct voltage regulation	26
4.7.3 Direct voltage regulation due to a.c. system impedance.....	29
4.7.4 Information to be exchanged between supplier and purchaser about direct voltage regulation of the converter	31
4.8 Voltage limits for reliable commutation in inverter mode	32
4.9 A.C. voltage waveform	32
5 Application information	33
5.1 Practical calculation of the operating parameters	33
5.1.1 General	33

5.1.2	Assumptions.....	34
5.1.3	Preliminary calculations.....	34
5.1.4	Calculation of the operating conditions.....	35
5.2	Supply system voltage change due to converter loads.....	37
5.2.1	Fundamental voltage change.....	37
5.2.2	Minimum R_{1SC} requirements for voltage change.....	38
5.2.3	Converter transformer ratio.....	38
5.2.4	Transformer rating.....	39
5.3	Compensation of converter reactive power consumption.....	40
5.3.1	Average reactive power consumption.....	40
5.3.2	Required compensation of the average reactive power.....	40
5.3.3	Voltage fluctuations with fixed reactive power compensation.....	41
5.4	Supply voltage distortion.....	41
5.4.1	Commutation notches.....	41
5.4.2	Operation of several converters on the same supply line.....	44
5.5	Quantities on the line side.....	45
5.5.1	R.M.S. value of the line current.....	45
5.5.2	Harmonics on the line side, approximate method for 6-pulse converters.....	45
5.5.3	Minimum R_{1SC} requirements for harmonic distortion.....	48
5.5.4	Estimated phase shift of the harmonic currents.....	49
5.5.5	Addition of harmonic currents.....	49
5.5.6	Peak and average harmonic spectrum.....	50
5.5.7	Transformer phase shift.....	50
5.5.8	Sequential gating, two 6-pulse converters.....	50
5.6	Power factor compensation and harmonic distortion.....	51
5.6.1	General.....	51
5.6.2	Resonant frequency.....	51
5.6.3	Directly connected capacitor bank.....	51
5.6.4	Estimation of the resonant frequency.....	51
5.6.5	Detuning reactor.....	53
5.6.6	Ripple control frequencies (Carrier frequencies).....	54
5.7	Direct voltage harmonic content.....	54
5.8	Other considerations.....	55
5.8.1	Random control angle.....	55
5.8.2	Sub-harmonic instability.....	55
5.8.3	Harmonic filters.....	56
5.8.4	Approximate capacitance of cables.....	56
5.9	Calculation of d.c. short-circuit current of converters.....	56
5.10	Guide-lines for the selection of the immunity class.....	56
5.10.1	General.....	56
5.10.2	Converter Immunity class.....	57
5.10.3	Selection of the immunity class.....	57
6	Test requirements.....	60
6.1	Guidance on power loss evaluation by short-circuit test.....	60
6.1.1	Single-phase connections.....	60
6.1.2	Polyphase double-way connections.....	61
6.1.3	Polyphase single-way connections.....	61
6.2	Procedure for evaluation of power losses by short-circuit method.....	61

6.3	Test methods	62
6.3.1	Method A1	62
6.3.2	Method B	63
6.3.3	Method C	63
6.3.4	Method D	63
6.3.5	Method E	65
6.3.6	Method A2	66
7	Performance requirements	66
7.1	Presentation of rated peak load current values	66
7.2	Letter symbols related to virtual junction temperature	67
7.3	Determination of peak load capability through calculation of the virtual junction temperature	68
7.3.1	General	68
7.3.2	Approximation of the shape of power pulses applied to the semiconductor devices	69
7.3.3	The superposition method for calculation of temperature	70
7.3.4	Calculation of the virtual junction temperature for continuous load	71
7.3.5	Calculation of the virtual junction temperature for cyclic loads	72
7.3.6	Calculation of the virtual junction temperature for a few typical applications	73
7.4	Circuit operating conditions affecting the voltage applied across converter valve devices	73
8	Converter operation	74
8.1	Stabilization	74
8.2	Static properties	74
8.3	Dynamic properties of the control system	75
8.4	Mode of operation of single and double converters	75
8.4.1	Single converter connection	75
8.4.2	Double converter connections and limits for rectifier and inverter operation	78
8.5	Transition current	78
8.6	Suppression of direct current circulation in double converter connections	79
8.6.1	General	79
8.6.2	Limitation of delay angles	79
8.6.3	Controlled circulating current	80
8.6.4	Blocking of trigger pulses	80
8.7	Principle of operation for reversible converters for control of d.c. motors	80
8.7.1	General	80
8.7.2	Motor field reversal	80
8.7.3	Motor armature reversal by reversing switch	80
8.7.4	Double converter connection to motor armature	80
9	Converter faults	81
9.1	General	81
9.2	Fault finding	82
9.3	Protection from fault currents	82
	Bibliography	83
	Figure 1 – Voltages at converter faults	11
	Figure 2 – Circle diagram for approximation of the displacement factor	23

Figure 3 – Displacement factor as a function of d_{xN} for $p = 6$	25
Figure 4 – Displacement factor as a function of d_{xN} for $p = 12$	25
Figure 5 – d_{LN} as a function of d_{xN} for $p = 6$ and $p = 12$	30
Figure 6 – A.C. voltage waveform	33
Figure 7 – Harmonic current spectrum on the a.c. side for $p = 6$	47
Figure 8 – Influence of capacitor rating and a.c. motor loads on the resonant frequency and amplification factor	52
Figure 9 – Direct voltage harmonic content for $p = 6$	55
Figure 10 – Example of power distribution	58
Figure 11 – Test method A1	62
Figure 12 – Test method D	64
Figure 13 – Single peak load	67
Figure 14 – Repetitive peak loads	67
Figure 15 – Approximation of the shape of power pulses	70
Figure 16 – Calculation of the virtual junction temperature for continuous load	71
Figure 17 – Calculation of the virtual junction temperature for cyclic loads	72
Figure 18 – Circuit operating conditions affecting the voltage applied across converter valve devices	74
Figure 19 – Direct voltage waveform for various delay angles	76
Figure 20 – Direct voltage for various loads and delay angles	77
Figure 21 – Direct voltage limits in inverter operation	78
Figure 22 – Direct voltage at values below the transition current	79
Figure 23 – Operating sequences of converters serving a reversible d.c. motor	81
Table 1 – Connections and calculation factors	16
Table 2 – List of symbols used in the determination of displacement factor	22
Table 3 – List of symbols used in the calculation formulae	28
Table 4 – Example of operating conditions	37
Table 5 – Exampe of operating points	37
Table 6 – Example of operating conditions	39
Table 7 – Result of the iteration	39
Table 8 – Example of calculation results of active and reactive power consumption	40
Table 9 – Example of notch depth	43
Table 10 – Example of notch depth by one converter with a common transformer	43
Table 11 – Example of notch depth by ten converters operating at the same time	44
Table 12 – The values of $I_L^*(\alpha, \mu)/I_L$	45
Table 13 – Minimum R_{1SC} requirement for low voltage systems	49
Table 14 – Transformer phase shift and harmonic orders	50
Table 15 – Approximate kvar/km of cables	56
Table 16 – Short-circuit values of converter currents	56
Table 17 – Calculated values for the example in Figure 10	60

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Table 18 – Letter symbols related to virtual junction temperature	67
Table 19 – Virtual junction temperature.....	73

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SEMICONDUCTOR CONVERTERS – GENERAL REQUIREMENTS AND LINE COMMUTATED CONVERTERS –

Part 1-2: Application guide

FOREWORD

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The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

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

This fourth edition cancels and replaces the third edition published in 1991. This fourth edition constitutes a technical revision.

This fourth edition includes the following main changes with respect to the previous edition:

- a) re-edition of the whole document according to the current Directives;
- b) correction of some errors.

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The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
22/170/DTR	22/173/RVC

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 publication 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 publication 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

- 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 guide

1 Scope

This part of IEC 60146 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 should facilitate the use of IEC 60146-1-1:2009.

This technical report 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.

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 60050-521:2002, *International Electrotechnical Vocabulary – Part 521: Semiconductor devices and integrated circuits*

IEC 60050-551:1998, *International Electrotechnical Vocabulary – Part 551: Power electronics*

IEC 60050-551-20:2001, *International Electrotechnical Vocabulary – Part 551-20: Power electronics – Harmonic analysis*

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

IEC 60146-1-3:1991, *Semiconductor converters – General requirements and line commutated converters Part 1-3: Transformers and reactors*

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60146-1-1:2009, IEC 60050-551, IEC 60050-551-20, several of which are repeated here for convenience, and the following apply.