ENTWURF
OVE EN IEC 62590-1

Ausgabe: 2024-03-15

Railway applications –
Electronic power converters for fixed installations
Part 1: General requirements
(IEC 9/3043/CDV)

Hinweis:
Aufgrund von Stellungnahmen kann die endgültige Fassung dieser OVE-Norm vom vorliegenden Entwurf abweichen.
Stellungnahmen (schriftlich) bis 2024-04-15 an den OVE.

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zuständig	OVE/TK TM Traktion und Motorik

Erläuterungen zum Entwurf

Die von IEC TC 9 ausgearbeitete Internationale Norm wurde als Entwurf zu einer Europäischen Norm **EN IEC 62590-1** den CENELEC-Mitgliedern zur Abstimmung vorgelegt. Im Falle eines positiven Abstimmungsergebnisses im Sinne der CENELEC-Regeln wird dieser Entwurf zu einer EN führen.

Wie alle Mitgliedsorganisationen von CENELEC ist der OVE grundsätzlich verpflichtet, Europäische Normen in das nationale Normenwerk zu übernehmen und entgegenstehende Normen zurückzuziehen.

Der OVE legt hiermit diesen Entwurf eines europäischen Normungsdokumentes der Öffentlichkeit zur Information und Stellungnahme als OVE-Entwurf vor.

Da eine Übersetzung in die deutsche Sprache zu diesem Zeitpunkt noch nicht vorhanden ist, wird – um die von CENELEC vorgegebene Einspruchsfrist einzuhalten – die englischsprachige Fassung des IEC 9/3043/CDV zur Information und Stellungnahme vorgelegt.

Interessenten können das gegenständliche Dokument beim Österreichischen Verband für Elektrotechnik beziehen bzw. in den Text Einsicht nehmen.

9/3043/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 62590-1 ED1**	
DATE OF CIRCULATION: **2024-02-09**	CLOSING DATE FOR VOTING: **2024-05-03**
SUPERSEDES DOCUMENTS: **9/2813/CD, 9/2872A/CC**	

IEC TC 9 : ELECTRICAL EQUIPMENT AND SYSTEMS FOR RAILWAYS

SECRETARIAT: France	SECRETARY: Mr Denis MIGLIANICO
OF INTEREST TO THE FOLLOWING COMMITTEES:	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:

Railway applications - Electronic power converters for fixed installations - Part 1: General requirements

PROPOSED STABILITY DATE: 2027

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RAILWAY APPLICATIONS – ELECTRONIC POWER CONVERTERS FOR FIXED INSTALLATIONS
Part 1 GENERAL REQUIREMENTS

FOREWORD

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International Standard IEC 62590 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

The text of this standard is based on the following documents:

FDIS	Report on voting
9/XXXX/FDIS	9/XXXX/RVD

Full information on the voting for the approval of this standard 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.

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.

This document in conjunction with the other parts of IEC 62590 will replace the IEC 62589 and the former IEC 62590.

a) Split into common requirements and special requirements for different converters
b) Interface Model for the different Systems connected
c) Split into circuits with their requirements like insulation coordination
d) Energy efficiency addressed
e) More to be added

INTRODUCTION

Semiconductor converters for traction power supply differ from other converters for industrial use due to special electrical service conditions and due to the large range of load variation and the peculiar characteristics of the load.

For these reasons IEC 60146 series does not fully cover the requirements of railway applications and the decision was taken to have a specific series of standards for this use.

Specific requirements for the design of converter transformers for fixed installations of railway applications are specified in IEC 62695.

This document defines common vocabulary and requirements. Other parts will cover different applications.

IEC 62590-1 Railway applications – Electronic Power Converters for fixed installations– Part 1: General requirements

IEC 62590-2-1 Railway applications - Electronic Power Converters for fixed installations – Part 2-1: DC traction applications - Uncontrolled rectifiers

IEC 62590-2-2 Railway applications – Electronic Power Converters for fixed installations – Part 2-2: DC traction applications – Controlled converters

IEC 62590-3-1 Railway applications – Electronic Power Converters for fixed installations – Part 3-1: AC traction applications – Electronic power compensators

IEC 62590-3-2 Railway applications – Electronic Power Converters for fixed installations – Part 3-2: AC traction applications – Static frequency converters

RAILWAY APPLICATIONS – ELECTRONIC POWER CONVERTERS FOR FIXED INSTALLATIONS
Part 1 GENERAL REQUIREMENTS

1 Scope

This document specifies the common requirements and definitions for all power converter applications in fixed installations for power supply of railway systems.

This document applies to fixed installations of following electric traction systems:

- railway networks,
- metropolitan transport networks including metros, tramways, trolleybuses and fully automated transport systems, magnetic levitated transport systems, electric road systems.

This document applies to AC/DC converters, DC converters and AC converters. Converters for improvement of power quality and for energy saving are also included.

Converters connected to electric traction systems feeding 3AC, 1AC or DC systems for auxiliary purpose are not in the scope of this document but some aspects such as insulation coordination and railway specific conditions may be referred to.

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

IEC TR 60146-1-2, *Semiconductor converters – General requirements and line commutated converters – Part 1-2: Application guide*

IEC 60146-2, *Semiconductor converters - Part 2: Self-commutated semiconductor converters including direct d.c. converters*

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

IEC 60850, *Railway applications - Supply voltages of traction systems*

IEC 61000-3 (all parts), *Electromagnetic compatibility (EMC), Limits*

IEC 61936-1, *Power installations exceeding 1 kV AC and 1,5 kV DC - Part 1: AC*

IEC 61992-7-1, *Railway applications - Fixed installations - DC switchgear - Part 7-1: Measurement, control and protection devices for specific use in d.c. traction systems - Application guide*