IEC 62505-2

Edition 2.0 2016-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Railway applications – Fixed installations – Particular requirements for AC switchgear –
Part 2: Disconnectors, earthing switches and switches with nominal voltage above 1 kV

Applications ferroviaires – Installations fixes – Exigences particulières pour appareillage à courant alternatif –
Partie 2: Sectionneurs, sectionneurs de terre et commutateurs avec tension nominale supérieure à 1 kV

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FOREWORD

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International Standard IEC 62505-2 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

This standard is based on EN 50152-2.

This second edition cancels and replaces the first edition issued in 2009. It constitutes a technical revision.

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

This standard was revised to reflect the latest versions of standards referenced and to remove text already included in the IEC 62271 series. The scope was extended to include single-phase and two-phase devices. Definitions were added to provide the necessary precision and to meet the needs of railway applications. Table 1 was reworked according to the changes of

IEC 62497-1:2010, Table A.2 and Table B.1. Table 2 ‘Coordination table of rated values for devices’ of the previous version was removed. Ratings previously given under the clause ‘type tests’ were moved to the new Table 2 ‘Mechanical endurance classes and recommended use’. Requirements for combined equipment were added to provide guidance if components of different manufacturers are used in one switching device.

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

FDIS	Report on voting
9/2098/FDIS	9/2134/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.

A list of all parts of IEC 62505 series, under the general title *Railway applications – Fixed installations – Particular requirements for a.c. switchgear*, 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 website 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.

INTRODUCTION

The IEC 62505 series under the generic title *Railway applications – Fixed installations – Particular requirements for a.c. switchgear,* is divided as follows:

Part 1: Circuit-breakers with nominal voltage above 1 kV.

Part 2: Disconnectors, earthing switches and switches with nominal voltage above 1 kV.

Part 3-1: Measurement, control and protection devices for specific use in a.c. traction systems – Application guide.

Part 3-2: Measurement, control and protection devices for specific use in a.c. traction systems – Single-phase current transformers.

Part 3-3: Measurement, control and protection devices for specific use in a.c. traction systems – Single-phase inductive voltage transformers.

IEC 62505-2 has to be used in conjunction with IEC 62271-1:2007, IEC 62271-102:2001 and its Amendment 1:2011 and/or IEC 62271-103:2011, depending on the equipment involved.

References in subclauses of IEC 62271-1, IEC 62271-102 and IEC 62271-103 need to be replaced by references to applicable subclauses in this standard as far as reasonably possible. References in subclauses in IEC 62271-102 need to be to IEC 62271-1 instead of IEC 60694.

Where a particular clause of IEC 62271-1, IEC 62271-102 or IEC 62271-103 is not mentioned in this standard, that clause applies as far as reasonable. Where requirements relate exclusively to three-phase systems or to voltages outside those in use in traction systems, they are not applicable. Where this standard states "deletion" or "replacement", the relevant text of IEC 62271-1, IEC 62271-102 and IEC 62271-103 needs to be adapted accordingly. When a clause is named applicable to both IEC 62271-102 or IEC 62271-103, then reference needs to be made only to the standard appropriate for the respective switching device.

The numbering of clauses in IEC 62271 series is not used in this Standard. The numbering in square brackets refers to the numbering of clauses in IEC 62271 series. References specific to numbering of clauses in IEC 62271-102 have the prefix ‘102.' and specific to IEC 62271-103 have the prefix ‘103.’.

Where terms defined in IEC 62271 series conflict with definitions of the same terms as given in IEC 60050-811:1991, or the other railway applications documents listed in the normative references, the definitions in IEC 62271-1, IEC 62271-102 and IEC 62271-103 need to be used.

NOTE 1 The clause numbering in IEC 62271-102 and IEC 62271-103 is the same as in IEC 62271-1. Additional requirements specific to the type of switching device start with subclause numbers from 100.

NOTE 2 The suffix N which appears in this Standard for rated values is not used in IEC 62271 series.

RAILWAY APPLICATIONS – FIXED INSTALLATIONS – PARTICULAR REQUIREMENTS FOR AC SWITCHGEAR –

Part 2: Disconnectors, earthing switches and switches with nominal voltage above 1 kV

1 Scope

This part of IEC 62505 is applicable to single-pole, two-pole and three-pole alternating current (a.c.) disconnectors, earthing switches and switches which are:

- designed for indoor or outdoor fixed installations in tractions systems, and
- operated with an a.c. line voltage and frequency as specified in IEC 60850.

NOTE 1 IEC 60850 specifies the a.c. traction systems:

15 kV 16,7 Hz,

12 kV 25 Hz,

12,5 kV, 20 kV also 25 kV with 50 Hz, and

12,5 kV, 20 kV, 25 kV also 50 kV with 60 Hz.

NOTE 2 As rails of a.c. traction systems are typically connected to earth and included in the return current path, all phase-to-earth voltages will be within the tolerances as specified in IEC 60850. Nevertheless, phase-to-phase voltages are sometimes higher, e.g. in autotransformer systems.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60850:2014, *Railway applications – Supply voltages of traction systems*

IEC 62236-5:2008, *Railway applications – Electromagnetic compatibility – Part 5: Emission and immunity of fixed power supply installations and apparatus*

IEC 62271-1:2007, *High-voltage switchgear and controlgear – Part 1: Common specifications*

NOTE IEC 62271-1 A1:2011 is not referenced. It refers to voltage levels beyond those used in railway systems.

IEC 62271-102:2001, *High-voltage switchgear and controlgear – Part 102: Alternating current disconnectors and earthing switches*
Amendment 1:2011

NOTE IEC 62271-102 A2:2013 is not referenced. It refers to voltage levels beyond those used in railway systems.

IEC 62271-103:2011, *High-voltage switchgear and controlgear – Part 103: Switches for rated voltages above 1 kV up to and including 52 kV*

IEC 62497-1:2010, *Railway applications – Insulation co-ordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment*
Amendment 1:2013