IEC 62505-3-1

Edition 2.0 2020-03

INTERNATIONAL STANDARD

Railway applications – Fixed installations – Particular requirements for AC switchgear –
Part 3-1: Measurement, control and protection devices for specific use in AC traction systems – Devices

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FOREWORD

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International Standard IEC 62505-3-1 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

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

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

– distinguish between requirements, Clauses 4 and 5, and application guides, annexes;
– include requirements on devices for example control and protection relays not included before;
– remove parts already included in other standards, for example EN 50633 for protection principles, which is intended to become an IEC standard.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
9/2563/FDIS	9/2575/RVD

Full information on the voting for the approval of this International Standard 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 in the IEC 62505 series, published under the general title *Railway applications – Fixed installations – Particular requirements for AC switchgear*, 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- withdrawn,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 publication may be issued at a later date.

INTRODUCTION

IEC 62505-3-1 is intended for measurement, control and protection devices for specific use in AC traction systems other than current and voltage transformers. These are covered by IEC 62505-3-2 and IEC 62505-3-3 respectively.

This standard covers a large variety of different kinds of equipment used in railway fixed installations which do not have railway specific product standards. It provides clarification on how to select ratings and test values relevant for operation in fixed installations. This standard should be read in conjunction with the relevant product standard of the equipment concerned.

Annex A and Annex B are application guides. Annex A deals with railway specific measurement principles and Annex B provides guidance on the design of control systems for AC traction. These application guides identify characteristics of and parameters for procedures and functions used. Guidance on protection principles is given in EN 62503.

The clause numbering of this part is different to that used in all other parts of the IEC 62505 series. Clause numbering in the other parts is the same as in the specific referenced product standard.

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

Part 3-1: Measurement, control and protection devices for specific use in AC traction systems – Devices

1 Scope

This part of IEC 62505 is applicable to new low voltage devices for measurement, control and protection which are:

– for indoor or outdoor fixed installations in traction systems, and

– operated in conjunction with high voltage equipment with an AC line voltage and frequency as specified in IEC 60850.

NOTE 1 IEC 60850 specifies the AC 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.

This document does not provide specific requirements for AC traction systems supplied with a frequency of 25 Hz or with a nominal voltage of 12,5 kV or 50 kV. Nevertheless, requirements set out in this document can also be used as a guidance for these systems.

This document also applies to measurement, control and protective devices other than low voltage devices and not covered by a specific railway product standard as far as reasonably possible. Requirements of this document prevail.

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 60255-1, *Measuring relays and protection equipment – Part 1: Common requirements*

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

IEC 61243-5, *Live working – Voltage detectors – Part 5: Voltage detecting systems (VDS)*

IEC 61869 (all parts), *Instrument transformers*

IEC 61869-1:2007, *Instrument transformers – Part 1: General requirements*

IEC 62236-5:2018, *Railway applications – Electromagnetic compatibility – Part 5: Emission and immunity of fixed power supply installations and apparatus*

IEC 62497-1, *Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment*

IEC 62505 (all parts), *Railway applications – Fixed installations – Particular requirements for AC switchgear*