

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Railway applications – Fixed installations – Particular requirements for a.c. switchgear –

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

Applications ferroviaires – Installations fixes – Exigences particulières pour appareillage à courant alternatif –

Partie 3-1: Dispositifs de mesure, de commande et de protection pour usage spécifique dans les systèmes de traction à courant alternatif – Guide d'application



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Figure 1 – Example for a line test device

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RAILWAY APPLICATIONS –
FIXED INSTALLATIONS –
PARTICULAR REQUIREMENTS FOR AC SWITCHGEAR –
Part 3-1: Measurement, control and protection devices
for specific use in a.c. traction systems –
Application guide**

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 standard is based on EN 50152-3-1.

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

FDIS	Report on voting
9/1221/FDIS	9/1234/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 maintenance result 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- withdrawn,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.

INTRODUCTION

IEC 62505-3 is divided as follows:

- Part 3-1: Application guide;
- Part 3-2: Single-phase current transformers;
- Part 3-3: Single-phase inductive voltage transformers.

This number of parts is subject to future additions as soon as a protection device is considered suitable for standard requirements.

Part 3-1 is a guide. Further parts are normative and apply when the equipment is concerned with the specified characteristics.

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

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

1 Scope

This part of IEC 62505 provides assistance, guidance and requirements in the design of protection, control and measuring systems in a.c. installations at traction voltages (see IEC 60850) intended to provide a power supply to traction systems. This application guide identifies the characteristics and parameters of equipment used in the measurement, control and protection of a.c. traction systems. Guidance is given in the correct use of protection.

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 62505 (all parts), *Railway applications – Fixed installations – Particular requirements for a.c. switchgear*

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

3 Measurement

Two types of measurements are made:

- a) measurement of current and voltage signals for connecting to instruments and telemetering;
- b) measurement of current and voltage signals used for operating protection relays on over-current, low impedance, over/under-voltage and short circuit or distance protection.

The class, ratio and burden should be selected from the values in IEC 62505-3-2 or IEC 62505-3-3. The accuracy and purpose are dependant on the class selected.

4 Closing control systems

4.1 General

The application of the features described below depends on the philosophy of the user's control system.

Closing control systems are usually only those which involve the electrical closing of switchgear devices. Their effect is to permit or inhibit a closure depending on the status of the system (and plant) and the compliance of specified requirements.