

Railway applications - Fixed installations - Particular requirements for alternating current switchgear - Part 1: Circuit-breakers with nominal voltage above 1 kV

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 50152-1:2012 sisaldab Euroopa standardi EN 50152-1:2012 ingliskeelset teksti.

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English version

**Railway applications -
Fixed installations -
Particular requirements for alternating current switchgear -
Part 1: Circuit-breakers with nominal voltage above 1 kV**

Applications ferroviaires -
Installations fixes -
Spécifications particulières pour
appareillage à courant alternatif -
Partie 1: Disjoncteurs de tension nominale
supérieure à 1 kV

Bahnanwendungen -
Ortsfeste Anlagen – Besondere
Anforderungen an Wechselstrom-
Schalteinrichtungen – Teil 1:
Leistungsschalter mit einer
Nennspannung größer als 1 kV

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This document (EN 50152-1:2012) has been prepared by CLC/SC 9XC "Electric supply and earthing systems for public transport equipment and ancillary apparatus (Fixed installations)".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-10-15
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2015-10-15

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 50152-1:2007.

EN 50152-1:2012 includes the following significant technical changes with respect to EN 50152-1:2007:

This standard was revised to reflect the latest versions of standards referenced and to remove text already included in the EN 62271 series. The scope was extended to include single-phase and two-phase circuit breakers. 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 EN 50124-1:2001, Table A.2 and Table B.1. Standard values of transient recovery voltage have been taken from different tables to one, Table 2. Ratings of mechanical endurance previously given under the clause 'type tests' were moved to the new Table 4 'Mechanical endurance classes'. Standard values of prospective transient recovery voltage have been taken from different tables to one, Table 5. Table 6 'Coordination table of rated values for circuit-breakers' of the previous version was removed.

EN 50152 series under the generic title *Railway applications — Fixed installations — Particular requirements for alternating current 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.*

Introduction

This standard needs to be read in conjunction with EN 62271-1:2008 and EN 62271-100:2009.

Where a particular clause of EN 62271-100 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 "addition" or "replacement", the relevant text of EN 62271-100 needs to be adapted accordingly.

The numbering of clauses in EN 62271 series is not used in this European Standard. The numbering in square brackets refers to the numbering of clauses in EN 62271.

Where terms defined in EN 62271-1 and EN 62271-100 conflict with definitions of the same terms as given in IEC 60050-811:1991 or of the other railway applications documents listed in the normative references, the definitions in EN 62271-1 and EN 62271-100 need to be used.

NOTE The suffix N which appears in this standard for rated values is not present in EN 62271-1 and EN 62271-100.

References in subclauses of EN 62271-1 and EN 62271-100 need to be replaced by references to applicable subclauses in this standard as far as reasonably possible.

1 Scope

This EN 50152-1 is applicable to single-pole and two-pole alternating current (a.c.) circuit-breakers which are:

- for indoor or outdoor fixed installations in tractions systems, and
- operated with an a.c. line voltage and frequency as specified in EN 50163.

NOTE 1 EN 50163 specifies the a.c. traction systems 15 kV 16,7 Hz and 25 kV 50 Hz.

NOTE 2 As rails of a.c. traction systems are connected to earth and included in the return current path all phase to earth voltages will be within the tolerances as specified in EN 50163. Nevertheless phase to phase voltages are sometimes higher e.g. in autotransformer systems.

This European Standard is also applicable to the operating devices of circuit-breakers and to their auxiliary equipment.

This European Standard does not address circuit-breakers with dependent manual operating mechanism.

NOTE 3 It is impossible to specify a rated short-circuit making current for these circuit-breakers and it is likely that such dependent manual operation is not meeting safety considerations.

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.

EN 50121-5, *Railway applications — Electromagnetic compatibility — Part 5: Emission and immunity of fixed power supply installations and apparatus*

EN 50124-1:2001, *Railway applications — Insulation coordination — Part 1: Basic requirements — Clearances and creepage distances for all electrical and electronic equipment*

EN 50152-2:2012, *Railway applications — Fixed installations — Particular requirements for alternating current switchgear — Part 2: Disconnectors, earthing switches and switches with nominal voltage above 1 kV*

EN 50163:2004, *Railway applications — Supply voltages of traction systems*

EN 62271-1:2008, *High-voltage switchgear and controlgear — Part 1: Common specifications (IEC 62271-1:2007)*

EN 62271-100:2009, *High-voltage switchgear and controlgear — Part 100: Alternating-current circuit-breakers (IEC 62271-100:2008)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 62271-1:2008, EN 62271-100:2009 and the following apply.

3.1

single-pole circuit-breaker

circuit-breaker with one electrically separated conducting path for the main circuit suitable for use in a single-phase circuit