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## Järnvägsanläggningar – Fasta installationer – Elsäkerhet, jordning och returströmkrets – Del 2: Åtgärder för att motverka inverkan från läckströmmar orsakade av likströmsbanor

*Railway applications –*

*Fixed installations –*

*Electrical safety, earthing and the return circuit –*

*Part 2: Provisions against the effects of stray currents caused by d.c. traction systems*

Som svensk standard gäller europastandarden EN 50122-2:2010. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50122-2:2010.

### Nationellt förord

Tidigare fastställd svensk standard SS-EN 50122-2, utgåva 1, 1999, SS-EN 50122-2 C1, utgåva 1, 2002 och SS-EN 50122-2/A1, utgåva 1, 2002, gäller ej fr o m 2013-10-01.

### *Standarder underlättar utvecklingen och höjer elsäkerheten*

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

### *SEK är Sveriges röst i standardiseringsarbetet inom elområdet*

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

### *Stora delar av arbetet sker internationellt*

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

### *Var med och påverka!*

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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English version

**Railway applications -  
Fixed installations -  
Electrical safety, earthing and the return circuit -  
Part 2: Provisions against the effects of stray currents caused by d.c.  
traction systems**

Applications ferroviaires -  
Installations fixes -  
Sécurité électrique, mise à la terre et  
circuit de retour -  
Partie 2: Mesures de protection contre les  
effets des courants vagabonds issus de la  
traction électrique à courant continu

Bahnanwendungen -  
Ortsfeste Anlagen -  
Elektrische Sicherheit, Erdung und  
Rückleitung -  
Teil 2: Schutzmaßnahmen gegen  
Streustromwirkungen durch Gleichstrom-  
Zugförderungssysteme

This European Standard was approved by CENELEC on 2010-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**CENELEC**

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

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## Foreword

This European Standard was prepared by SC 9XC, Electric supply and earthing systems for public transport equipment and ancillary apparatus (Fixed installations), of Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways. It was submitted to the formal vote and was approved by CENELEC as EN 50122-2 on 2010-10-01.

This document supersedes EN 50122-2:1998 + A1:2002.

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

The following dates were fixed:

- latest date by which the EN has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 2011-10-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2013-10-01

This draft European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directives 96/48/EC (HSR), 2001/16/EC (CONRAIL) and 2008/57/EC (RAIL). See Annex ZZ.

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## 1 Scope

This European Standard specifies requirements for protective provisions against the effects of stray currents, which result from the operation of d.c. traction systems.

As experience for several decades has not shown evident corrosion effects from a.c. traction systems and actual investigations are not completed, this European Standard only deals with stray currents flowing from a d.c. traction system.

This European Standard applies to all metallic fixed installations which form part of the traction system, and also to any other metallic components located in any position in the earth, which can carry stray currents resulting from the operation of the railway system.

This European Standard applies to all new d.c. lines and to all major revisions to existing d.c. lines. The principles may also be applied to existing electrified transportation systems where it is necessary to consider the effects of stray currents.

It provides design requirements to allow maintenance.

The range of application includes:

- a) railways,
- b) guided mass transport systems such as:
  - 1) tramways,
  - 2) elevated and underground railways,
  - 3) mountain railways,
  - 4) trolleybus systems, and
  - 5) magnetically levitated systems, which use a contact line system,
- c) material transportation systems.

This European Standard does not apply to:

- d) mine traction systems in underground mines,
- e) cranes, transportable platforms and similar transportation equipment on rails, temporary structures (e.g. exhibition structures) in so far as these are not supplied directly from the contact line system and are not endangered by the traction power supply system,
- f) suspended cable cars,
- g) funicular railways.

This European Standard does not specify working rules for maintenance.

## 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.

EN 50122-1:2010, *Railway applications – Fixed installations – Electrical safety, earthing and the return circuit – Part 1: Protective provisions against electric shock*

EN 50122-3:2010, *Railway applications – Fixed installations – Electrical safety, earthing and the return circuit – Part 3: Mutual interaction of a.c. and d.c. traction systems*

EN 50162:2004, *Protection against corrosion by stray current from direct current systems*

EN 50163, *Railway applications – Supply voltages of traction systems*