

**Raudteealased rakendused. Kohtkindlad
paigaldised. Osa 2: Kaitse korraldamine
alalisvooluveosüsteemide põhjustatud uitvoolude
tagajärgede vastu**

Railway applications - Fixed installations - Part 2:
Protective provisions against the effects of stray
currents caused by d.c. traction systems

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 50122-2:2005 sisaldab Euroopa standardi EN 50122-2:1998+A1:2002 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 18.12.2002 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 07.05.1998.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 50122-2:2005 consists of the English text of the European standard EN 50122-2:1998+A1:2002.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 18.12.2002 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 07.05.1998.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

ICS 29.120.50, 45.020

Võtmesõnad: kaitsemeetmed, paigaldised

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

ICS 29.120.50; 45.020

Descriptors: Railway fixed equipment, electric traction, direct current, safety, safety measures, corrosion prevention, stray current corrosion, cathodic protection

English version

Railway applications - Fixed installations
Part 2: Protective provisions against the effects of
stray currents caused by d.c. traction systems

Applications ferroviaires - Installations fixes
Partie 2: Mesures de protection contre les effets des courants vagabonds issus de la traction électrique à courant continu

Bahnanwendungen - Ortsfeste Anlagen
Teil 2: Schutzmaßnahmen gegen die Auswirkungen von Streuströmen verursacht durch Gleichstrombahnen

This European Standard was approved by CENELEC on 1998-04-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

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.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50122-2 on 1998-04-01.

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) 1999-03-01
 - latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 1999-03-01
-

Contents

Foreword	2
1 Scope	4
2 Normative references	5
3 Definitions	5
4 General	9
5 Traction power supply system	10
6 Track system	11
7 Influenced structures	13
8 Protection methods applied to metallic structures	15
 Annex A (informative) - Measurement of the conductance per unit length of the running rails	16
Annex B (informative) - Examples for protection methods applied to metallic structures	21
Annex C (informative) - Estimation of the longitudinal voltage in reinforced railway structures	23
Annex D (informative) - Bibliography	25

1 Scope

This 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 standard only deals with stray currents flowing from a d.c. traction system.

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

This standard applies to all new electrification of a d.c. railway system. The principles may also be applied to existing electrified systems where it is necessary to consider the effects of stray currents.

The range of application includes:

- railways;
- guided mass transport systems such as:
Tramways, elevated and underground railways, mountain railways, trolleybus systems and magnetic levitated systems;
- material transportation systems.

This standard does not apply to:

- a) mine traction systems in underground mines;
- b) 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;
- c) suspended cable cars;
- d) funicular railways;
- e) maintenance work.

2 Normative references

This European Standard incorporates by dated or undated references, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 50122-1 Railway applications - Fixed installations
Part 1: Protective provisions relating to
electrical safety and earthing

EN 50162*) Protection against corrosion by stray
currents from d.c. current systems

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 stray current

A current which follows paths other than the intended paths.

3.2 stray current zone

Zone in which currents may be exchanged between a d.c. traction system and metallic structures or earth.

NOTE: Such a stray current zone may extend over a distance of a few kilometres.

3.3 corrosion

[BS 7361]

The chemical or electrochemical reaction of a metal with its environment, resulting in its progressive degradation or destruction.

NOTE: This standard is concerned with corrosion by electrochemical reaction.

3.4 cathodic protection

A method to protect a metal from corrosive attack by causing a direct current to flow from its electrolytic environment into the entire metal surface.

3.4.1 polarized electric drainage

[BS 7361]

A form of drainage of stray currents in which the connection between a protected structure and a traction system includes a unidirectional device or devices such as rectifier or a relay and contactor.

NOTE: Also referred to as "polarized drainage".

*) At present under preparation.