SVENSK STANDARD

SS-EN 50122-1, utg 3:2022

Fastställd	Sida	Ansvarig kommitté
2022-10-19	1 (1+111)	SEK TK 9

Järnvägsanläggningar – Fasta installationer – Elsäkerhet, jordning och returströmkrets – Del 1: Åtgärder till skydd mot elchock

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

Som svensk standard gäller europastandarden EN 50122-1:2022. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50122-1:2022.

Nationellt förord

Tidigare fastställd svensk standard SS-EN 50122-1, utg 2:2011 med ändringarna SS-EN 50122-1, utg 2:2011/A1:2011, SS-EN 50122-1, utg 2:2011/A2:2016, SS-EN 50122-1, utg 2:2011/A3:2016, SS-EN 50122-1, utg 2:2011/A4:2017 och SS-EN 50122-1, utg 2:2011/AC2:2013, gäller ej fr o m 2025-07-25.

ICS 29.280.00

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: Box 1284, 164 29 KISTA
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Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar 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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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50122-1

September 2022

ICS 29.280

Supersedes EN 50122-1:2011; EN 50122-1:2011/A1:2011; EN 50122-1:2011/AC:2012; EN 50122-1:2011/A2:2016; EN 50122-1:2011/A3:2016; EN 50122-1:2011/A4:2017

English Version

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

Applications ferroviaires - Installations fixes - Sécurité électrique, mise à la terre et circuit de retour - Partie 1: Mesures de protection contre les chocs électriques

Bahnanwendungen - Ortsfeste Anlagen - Elektrische Sicherheit, Erdung und Rückleitung - Teil 1: Schutzmaßnahmen gegen elektrischen Schlag

This European Standard was approved by CENELEC on 2022-07-25. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 50122-1:2022 E

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European foreword

This document (EN 50122-1:2022) 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)	2023-07-25
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2025-07-25

This document supersedes EN 50122-1:2011 and all of its amendments and corrigenda (if any).

EN 50122-1:2022 includes the following significant technical changes with respect to EN 50122-1:2011:

— some definitions were modified;

— the dimensions for protection by clearance were modified, and there are now voltage dependent differences for high voltage electric traction power supply systems;

— methods for the use of protective obstacles were significantly changed.

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

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association.

Any feedback and questions on this document should be directed to the users’ national committee. A complete listing of these bodies can be found on the CENELEC website.

1 Scope

This document specifies requirements for the protective provisions relating to electrical safety in fixed installations associated with AC and/or DC traction systems and to any installations that can be endangered by the electric traction power supply system. This also includes requirements applicable to vehicles on electrified lines.

It also applies to all aspects of fixed installations which are necessary to ensure electrical safety during maintenance work within electric traction power supply systems.

This document applies to new electric traction power supply systems and major revisions to electric traction power supply systems for:

a) railways;

b) guided mass transport systems such as

   1) tramways,

   2) elevated and underground railways,

   3) mountain railways,

   4) trolleybus systems,

   5) electric traction power supply systems for road vehicles, which use an overhead contact line system, and

   6) magnetically levitated systems, which use a contact line system;

c) material transportation systems.

This document does not apply to:

a) electric traction power supply 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 or via transformers from the contact line system and are not endangered by the electric traction power supply system,

c) suspended cable cars,

d) funicular railways,

e) existing vehicles.

This document does not specify working rules for maintenance.

The requirements within this document related to protection against electric shock are applicable to persons only.

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.

EN 50119:2020, *Railway applications - Fixed installations - Electric traction overhead contact lines*

EN 50122-2:2022, *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*

EN 50124-1:2017, *Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment*

EN 50153:2014,[1] *Railway applications - Rolling stock - Protective provisions relating to electrical hazards*

EN 50163:2004,[2] *Railway applications - Supply voltages of traction systems*

EN 50341 (series), *Overhead electrical lines exceeding AC 1 kV*

EN 50522:2010, *Earthing of power installations exceeding 1 kV a.c.*

EN 60529:1991,[3] *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN 60898-1:2019, *Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Part 1: Circuit-breakers for a.c. operation (IEC 60898-1:2016)*

EN 61140:2016, *Protection against electric shock - Common aspects for installation and equipment (IEC 61140:2016)*

EN 61936-1:2010,[4] *Power installations exceeding 1 kV a.c. - Part 1: Common rules (IEC 61936-1:2010)*

EN 62305 (series), *Protection against lightning (IEC 62305 series)*

HD 60364-4-41:2017,[5] *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock (IEC 60364-4-41:2005, modified)*

IEC 60755:2017, *General safety requirements for residual current operated protective devices*

ISO 3864-1:2011, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

ISO 7010:2019, *Graphical symbols — Safety colours and safety signs — Registered safety signs*

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[1] As impacted by EN 50153:2014/A1:2017 and EN 50153:2014/A2:2020.

[2] As impacted by EN 50163:2004/AC:2013 and EN 50163:2004/A2:2020.

[3] As impacted by EN 60529:1991/A1:2000 and EN 60529:1991/A2:2013.

[4] As impacted by EN 61936-1:2010/AC:2011, EN 61936-1:2010:2013 and EN 61936-1:2010/A1:2014.

[5] As impacted by HD 60364-4-41:2017/A11:2017 and HD 60364-4-41:2017/A12:2019.