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## Järnvägsanläggningar – Elektronisk utrustning för rälsfordon

*Railway applications –  
Electronic equipment used on rolling stock*

Som svensk standard gäller europastandarden EN 50155:2007. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50155:2007.

### Nationellt förord

Tidigare fastställd svensk standard SS-EN 50155, utgåva 2, 2001, SS-EN 50155/A1, utgåva 1, 2003 och SS-EN 50155 C1, utgåva 1, 2003, gäller ej fr o m 2010-03-01.

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ICS 45.060.10

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Denna standard är fastställd av SEK Svensk Elstandard, som också kan lämna upplysningar om **sakinnehållet** i standarden.  
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### *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.

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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!*

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

### **SEK Svensk Elstandard**

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English version

**Railway applications -  
Electronic equipment used on rolling stock**

Applications ferroviaires -  
Equipements électroniques utilisés  
sur le matériel roulant

Bahnanwendungen -  
Elektronische Einrichtungen  
auf Schienenfahrzeugen

This European Standard was approved by CENELEC on 2007-03-01. 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, 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

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

## Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50155 on 2007-03-01.

This European Standard supersedes EN 50155:2001 + A1:2002.

This EN 50155:2007 has been aligned with the new EN 50121 series and addresses some Portuguese comments.

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) 2008-03-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2010-03-01

This 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 and 2001/16/EC. See Annex ZZ.

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## Contents

<b>1</b>	<b>Scope</b> .....	<b>5</b>
<b>2</b>	<b>Normative references</b> .....	<b>5</b>
<b>3</b>	<b>Definitions</b> .....	<b>7</b>
<b>4</b>	<b>Environmental service conditions of operation</b> .....	<b>8</b>
4.1	Normal service conditions .....	8
4.2	Special service conditions.....	10
<b>5</b>	<b>Electrical service conditions</b> .....	<b>10</b>
5.1	Power supply .....	10
5.2	Supply .....	12
5.3	Installation .....	12
5.4	Surges electrostatic discharge and transient burst susceptibility tests .....	12
5.5	Electromagnetic compatibility .....	12
<b>6</b>	<b>Reliability, maintainability and expected useful life</b> .....	<b>12</b>
6.1	Equipment reliability .....	12
6.2	Useful life.....	13
6.3	Maintainability .....	13
6.4	Maintenance levels .....	13
6.5	Built-in diagnostics.....	14
6.6	Automatic test equipment .....	14
6.7	Alternative methods for fault diagnosis.....	14
6.8	Purpose built test equipment and special tools.....	14
<b>7</b>	<b>Design</b> .....	<b>15</b>
7.1	General.....	15
7.2	Detailed practices - Hardware .....	15
7.3	Detailed practices - Software .....	17
7.4	Equipment features.....	19
<b>8</b>	<b>Components</b> .....	<b>20</b>
8.1	Procurement .....	20
8.2	Application .....	21
<b>9</b>	<b>Construction</b> .....	<b>21</b>
9.1	Equipment construction .....	21
9.2	Component mounting.....	21
9.3	Electrical connections .....	22
9.4	Internal flexible wiring (electrical and optical) .....	23
9.5	Flexible printed and strip wiring .....	23
9.6	Printed board-flexible and rigid .....	24
9.7	Protective coatings for printed board assemblies .....	24
9.8	Identification .....	25
9.9	Mounting.....	25
9.10	Cooling and ventilation.....	25
9.11	Materials and finishes .....	26

<b>10</b>	<b>Safety</b> .....	<b>26</b>
10.1	General.....	26
10.2	Functional safety.....	26
10.3	Personnel safety.....	26
<b>11</b>	<b>Documentation</b> .....	<b>26</b>
11.1	Supply and storage of documentation .....	26
11.2	Hardware and software documentation .....	26
11.3	Documentation requirements .....	28
<b>12</b>	<b>Testing</b> .....	<b>29</b>
12.1	Categories of tests.....	29
12.2	List of tests .....	30
<b>Annex A (informative) List of subclauses in which agreement between the parties (e.g. user and manufacturer) is mentioned</b> .....		<b>40</b>
<b>Bibliography</b> .....		<b>41</b>
<b>Annex ZZ (informative) Coverage of Essential Requirements of EC Directives</b> .....		<b>42</b>
Figure 1 - System interfacing with the typical EMC areas A, B and C .....		16
Figure 2 - Supply overvoltage .....		34
Figure 3 - Alternative test for supply overvoltage.....		35
Table 1 - Ambient temperature.....		9
Table 2 - List of tests .....		30

## 1 Scope

This standard applies to all electronic equipment for control, regulation, protection, supply, etc., installed on rail vehicles and associated with:

- either the accumulator battery of the vehicle;
- or a low voltage power supply source with or without a direct connection to the contact system (transformer, potentiometer device, auxiliary supply);

with the exception of electronic power circuits, which conform to EN 50207.

This standard covers the conditions of operation, design, construction, and testing of electronic equipment, as well as basic hardware and software requirements considered necessary for competent, reliable equipment.

Additional requirements in other standards or individual specifications may complement this standard, if they are justified.

Specific requirements related to practices necessary to assure defined levels of functional safety are to be determined in accordance with 4.6.3.1 and 4.6.3.2 of EN 50126 and its informative Annex A.

Software safety integrity level of 1 or higher shall only be considered when it is shown that a residual safety risk remains and that it has to be carried by the software driven programmable electronic system. In such a case (i.e. software safety integrity level 1 or higher), EN 50128 is applicable.

For the purpose of this standard, electronic equipment is defined as equipment mainly composed of semiconductor devices and recognized associated components. These components will mainly be mounted on printed boards.

NOTE Sensors (current, voltage, speed, etc.) and firing unit printed board assemblies for power electronic devices are covered by this standard. Complete firing units are covered by EN 50207.

## 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 50121-3-2	2000	Railway Applications - Electromagnetic compatibility Part 3-2: Rolling stock – Apparatus
EN 50125-1	1999	Railway Applications – Environmental conditions for equipment– Part 1: Equipment on board rolling stock
EN 50126	Series	Railway applications - The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS)
EN 50128	2001	Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems
EN 50163	1995	Railway Applications - Supply voltages of traction systems
EN 50207	2000	Railway applications - Electronic power converters for rolling stock (IEC 61287-1:1995, related)
EN 60068	Series	Environmental testing (IEC 60068 series)
EN 60068-2-1	1993	Environmental testing – Part 2: Tests – Test A: Cold (IEC 60068-2-1:1990)
EN 60068-2-2	1993	Environmental testing – Part 2: Tests – Test B: Dry heat (IEC 60068-2-2:1974 + IEC 60068-2-2A:1976)
EN 60068-2-30	2005	Environmental testing – Part 2: Tests – Test Db and guidance: Damp heat, cyclic (12 + 12 hour cycle) (IEC 60068-2-30:2005)