SVENSK STANDARD SS-EN 62290-1

Fastställd	Utgåva	Sida	Ansvarig kommitté
2014-10-15	2	1 (1+32)	SEK TK 9

Järnvägstillämpningar – System för ledning och styrning av spårbunden tätortstrafik (UGTMS) – Del 1: Grundläggande begrepp och principer

Railway applications – Urban guided transport management and command/control systems – Part 1: System principles and fundamental concepts

Som svensk standard gäller europastandarden EN 62290-1:2014. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62290-1:2014.

Nationellt förord

Europastandarden EN 62290-1:2014

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 62290-1, Second edition, 2014 - Railway applications - Urban guided transport management and command/control systems - Part 1: System principles and fundamental concepts**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 62290-1, utgåva 1, 2007, gäller ej fr o m 2017-08-14.

ICS 45.060.00

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62290-1

September 2014

ICS 45.060

Supersedes EN 62290-1:2006

English Version

Railway applications - Urban guided transport management and command/control systems - Part 1: System principles and fundamental concepts (IEC 62290-1:2014)

Applications ferroviaires - Systèmes de contrôle/commande et de gestion des transports guidés urbains - Partie 1: Principes système et concepts fondamentaux (CEI 62290-1:2014)

Bahnanwendungen - Betriebsleit- und Zugsicherungssysteme für den städtischen schienengebundenen Personennahverkehr - Teil 1: Systemgrundsätze und grundlegende Konzepte (IEC 62290-1:2014)

This European Standard was approved by CENELEC on 2014-08-14. 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 62290-1:2014 E

SEK Svensk Elstandard

Foreword

The text of document 9/1913/FDIS, future edition 2 of IEC 62290-1, prepared by IEC/TC 9 "Electrical equipment and systems for railways" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62290-1:2014.

The following dates are fixed:

– latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2015-05-14
– latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-08-14

This document supersedes EN 62290-1:2006.

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.

Endorsement notice

The text of the International Standard IEC 62290-1:2014 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 62236	series	Railway applications - Electromagnetic compatibility	-	-
IEC 62278	-	Railway applications - Specification and demonstration of reliability, availability, maintainability and safety (RAMS)	-	-
IEC 62279	-	Railway applications - Communications, signalling and processing systems - Software for railway control and protection systems	-	-
IEC 62280	-	Railway applications - Communication, signalling and processing systems - Safety related communication in transmission systems	-	-
IEC 62290-2	-	Railway applications - Urban guided transport management and command/control systems - Part 2: Functional requirements specification	EN 62290-2	-
IEC 62425	-	Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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RAILWAY APPLICATIONS – URBAN GUIDED TRANSPORT MANAGEMENT AND COMMAND/CONTROL SYSTEMS –

Part 1: System principles and fundamental concepts

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62290-1 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

This second edition cancels and replaces the first edition issued in 2006. It constitutes a technical revision.

The main technical changes with regard to the previous edition are as follows:

– removing the concept of grade of line (GOL),
– putting IEC 62290-1 in line with IEC 62290-2.

The text of this standard is based on the following documents:

FDIS	Report on voting
9/1913/FDIS	9/1941/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of IEC 62290 series, under the general title: *Railway applications – Urban guided transport management and command/control systems*, can be found on the IEC website. (See also introduction to this standard.)

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

IEC 62290 standard series specifies the functional, system and interface requirements for the command, control, and management systems intended to be used on urban, guided passenger transport lines and networks. This series does not apply to lines that are operated under specific railway regulations, unless otherwise specified by the authority having jurisdiction.

These systems are designated here as Urban Guided Transport Management and Command/Control Systems (UGTMS). UGTMS cover a wide range of operations needs from non-automated (GOA1) to unattended (GOA4) operation. A line may be equipped with UGTMS on its full length or only partly equipped.

This series does not specifically address security issues. However, aspects of safety requirements may apply to ensuring security within the urban guided transit system.

The main objective of this series is to achieve interoperability, interchangeability and compatibility.

This series is a recommendation for those transport authorities wishing to introduce interoperable, interchangeable and compatible equipment.

It is the responsibility of the transport authority concerned in accordance with the authority having jurisdiction to decide on how to apply this series and to take into account their particular needs.

IEC 62290 series is also intended to support applications for upgrading existing signalling and command control systems. In this case, interchangeability and compatibility could be ensured only for the additional UGTMS equipment. Checking the possibility for upgrading existing equipment and the level of interoperability is the responsibility of the transport authority concerned.

Application of the series should take into account the differences between the various networks operated in different nations. Those differences include operational and regulatory requirements as well as different safety cultures.

This series defines a catalogue of UGTMS requirements split into mandatory and optional functions. The functions used are based on the given grade of automation. By fulfilling the requirements, a supplier can create one or more generic applications including all mandatory functions and all or a subset of optional functions. A generic application will achieve interoperability within the defined specific application conditions. Customising a generic application will create a specific application taking into account of local conditions like track layout and headway requirements. It is the choice of supplier and transport authority to add additional functions to a generic or specific application. These additional functions are not described in this series.

According to IEC 62278, it is the responsibility of the transport authority, in agreement with the authority having jurisdiction, to decide, taking into account their risk acceptance principles to conduct specific hazard and risk analysis for each specific application. The safety levels for the functions of each specific application have to be determined by a specific risk analysis.

Terms such as "safety related command", "safety conditions", "safe station departure" are mentioned without having performed any hazard analysis.

Standard series IEC 62290 is intended to consist of four parts:

– Part 1 “System principles and fundamental concepts” provides an introduction to the standard and deals with the main concepts, the system definition, the principles and the

main basic functions of UGTMS (Urban Guided Transport Management and Command/Control Systems).

The three other parts correspond to the three steps (see Figure 1) required in the process of specifying UGTMS and are to be used accordingly.

– Part 2 “Functional requirements specification” specifies the functional requirements associated to the basic functions provided by Part 1, within the system boundaries and interfaces as defined in Figure 3 of Part 1.

  The FRS (Functional Requirements Specification) identifies and defines the functions that are necessary to operate an urban guided transport system. Two types of functions are distinguished for a given grade of automation: mandatory functions (e.g. train detection) and optional functions (e.g. interfaces to passenger information and passenger surveillance systems). Requirements of functions have the same allocation, unless they are marked otherwise.

– Part 3 (under consideration) “System requirements specifications” deals with the architecture of the system and the allocation of the requirements and functions identified in part 2 to architecture constituents.

  The SRS (System Requirements Specification) specifies the architecture of a UGTMS system, with mandatory and optional constituents.

– Part 4 (under consideration) “Interface specifications” deals with the definition of the interfaces, as well as the data exchanged by them (FIS and FFFIS), for the interoperable and interchangeable constituents identified in part 3.

  For interfaces between UGTMS constituents, the logical interface or FIS (Functional Interface Specification) and/or the physical and logical interface or FFFIS (Form Fit Functional Interface Specification) will be considered.

NOTE The specific structures of part 3 and part 4 will be established following completion of part 2 to accommodate optional and mandatory constituents, and to reflect local conditions. In principle, only one FIS or/and FFFIS will be defined for the same interface. However, when justified in some cases, several FIS or several FFFIS will be defined for the same interface.

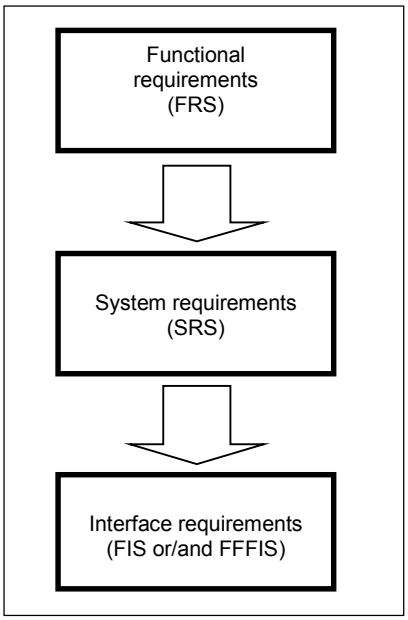

Figure 1 – The three-step process followed by the UGTMS standard

Requirements are those necessary to fulfil all operational needs for safe and orderly operation requested by transport authorities without regard to technical solutions.

The chosen level of detail in describing requirements enables customers as well as authorities having jurisdiction to be assured that generic applications delivered by different suppliers will cover at least the same functionality as specified in this part of IEC 62290.

Requirements which are established by this series are indicated clearly with a requirement identification number related to the function to be covered.

RAILWAY APPLICATIONS – URBAN GUIDED TRANSPORT MANAGEMENT AND COMMAND/CONTROL SYSTEMS –

Part 1: System principles and fundamental concepts

1 Scope

This part of IEC 62290 provides an introduction to the standard and deals with the main concepts, the system definition, the principles and the basic functions of UGTMSs (Urban Guided Transport Management and Command/Control Systems) for use in urban guided passenger transport lines and networks. This part of IEC 62290 is applicable for new lines or for upgrading existing signalling and command control systems.

This part of IEC 62290 is applicable to applications using:

- continuous data transmission,
- continuous supervision of train movements by train protection profile,
- localisation of trains by external wayside equipment or reporting trains.

This standard is not applicable to existing command and control systems or projects in progress prior to the effective date of this standard.

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.

IEC 62236 (all parts), *Railway applications – Electromagnetic compatibility*

IEC 62278, *Railway applications – Specification and demonstration of reliability, availability, maintainability and safety (RAMS)*

IEC 62279, *Railway applications – Communications, signalling and processing systems – Software for railway control and protection systems*

IEC 62280, *Railway applications - Communication, signalling and processing systems - Safety related communication in transmission systems*

IEC 62290-2, *Railway applications – Urban guided transport management and command/control systems – Part 2: Functional requirements specification*

IEC 62425, *Railway applications – Communication, signalling and processing systems – Safety related electronic systems for signalling*